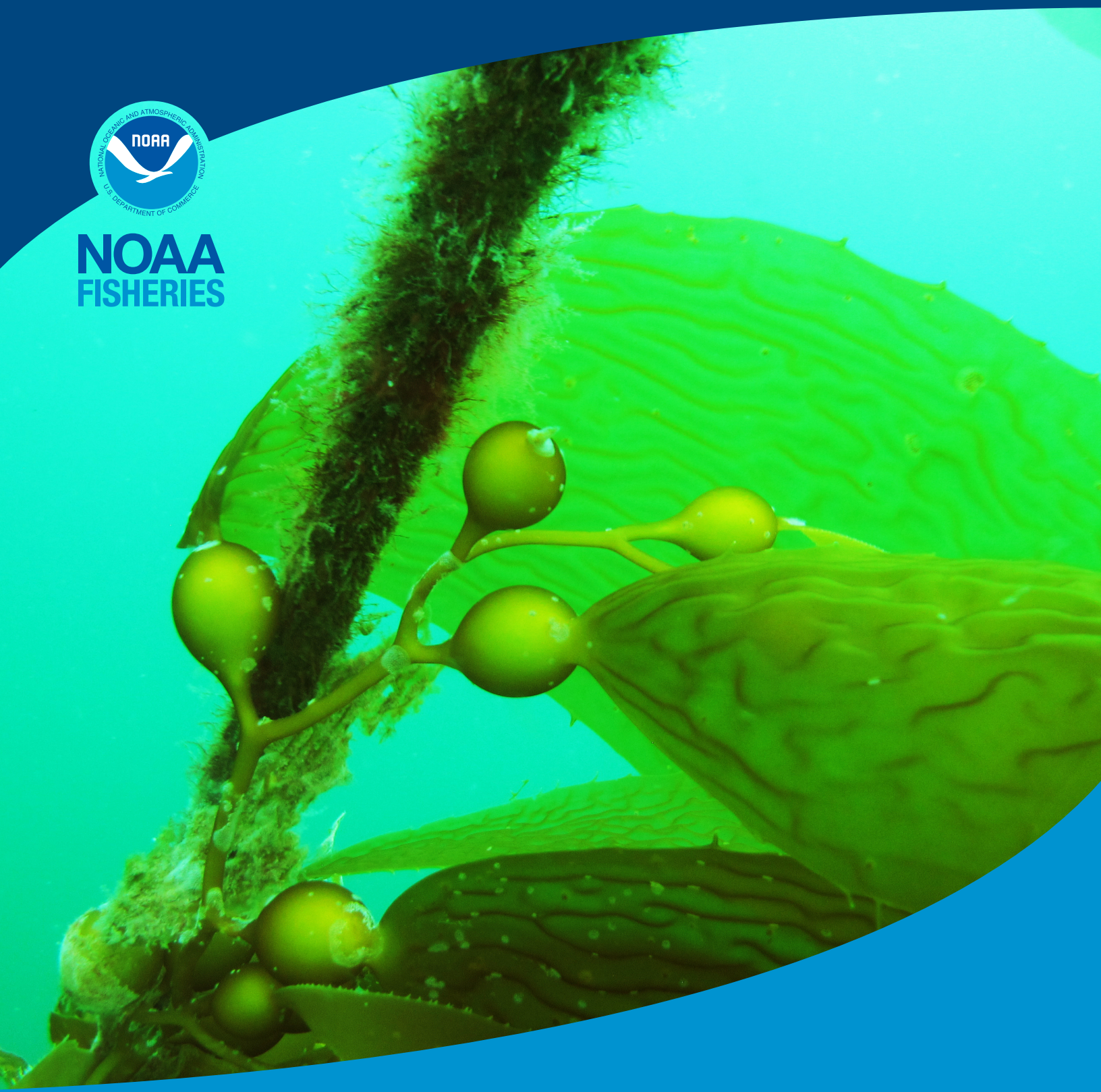
National Marine Fisheries Service

West Coast Regional Office

NOAA FISHERIES



Public Scoping Report for the Southern California Aquaculture Opportunity Areas Programmatic Environmental Impact Statement

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National Oceanic and Atmospheric Administration
National Marine Fisheries Service, West Coast Region
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Long Beach, CA 90802

with Cooperating Agencies:
U.S. Environmental Protection Agency, Region 9; U.S. Army Corps of Engineers, Los Angeles District; and the U.S. Coast Guard District 11

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Acronyms and Abbreviations

ACSF	Alliance of Communities for Sustainable Fisheries
AFFTA	American Fly Fishing Trade Association Fisheries Fund
AOA	Aquaculture Opportunity Area
BOEM	Bureau of Ocean Energy Management
CA	California
Cal-OPC	California Ocean Protection Council
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CEQ	U.S. Council on Environmental Quality
CESA	California Endangered Species Act
CFS	Center for Food Safety
CFSB	Commercial Fishermen of Santa Barbara
CPFV	Commercial Passenger Fishing Vessel
DDT	Dichlorodiphenyltrichloroethane
EDF	Environmental Defense Fund
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
E.O.	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FDA	Food and Drug Administration
GMO	Genetically-modified organism
HAPC	Habitat Area of Particular Concern
IUU	Illegal, unreported, or unregulated
LA	Los Angeles
MBTA	Migratory Bird Treaty Act
MMPA	Marine Mammal Protection Act

MPA	Marine Protected Area
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NCCOS	National Centers for Coastal Ocean Science
NMFS	National Marine Fisheries Service
NEPA	National Environmental Policy Act
NGO	Non-government Organization
NMS	National Marine Sanctuary
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPS	National Parks Service
OAIWG	Offshore Aquaculture Interagency Working Group
OAQ	Office of Aquaculture
OC San	Orange County Sanitation District
OPS	Ocean Preservation Society
PCFFA	Pacific Coast Federation of Fishermen's Association
PEIS	Programmatic Environmental Impact Statement
PFMC	Pacific Fishery Management Council
RFI	Request for Information
RWQCB	Regional Water Quality Control Board
SBS	Special biological significance
SCAP	Southern California Alliance of Publicly Owned Treatment Works
SCB	Southern California Bight Ecosystem
SLC	California State Lands Commission
SSO	Site Selected Option
SWRCB	State Water Resources Control Board
U.S.	United States
USCG	United States Coast Guard
USACE	United States Army Corps of Engineers

VPD	Ventura Port District
VSE	Ventura Shellfish Enterprise
WA	Washington
WCR	West Coast Region

Highlights

- The National Marine Fisheries Service (NMFS) West Coast Regional Office (hereafter referred to as NMFS WCR) conducted public scoping for the Southern California Aquaculture Opportunity Area(s) (AOA) Programmatic Environmental Impact Statement (PEIS) from May 23, 2022 to July 22, 2022 (60 days). During public scoping, NMFS WCR asked for feedback on four preliminary alternatives, the scope, and issues to be addressed in the draft PEIS.

- Two webinar-based public listening sessions were held during scoping. The first occurred on June 27, 2022, and the second on July 11, 2022.

- Comments could be submitted in writing or orally. A written submission was anything submitted virtually on the federal docket; an oral submission was anything spoken during allotted times at virtual public scoping meetings.

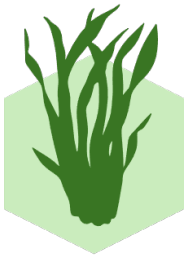
- NMFS WCR received 53 total submissions, 43 written and 10 oral. Many single submissions included multiple comments that addressed different topics.

- Comments supported doing a National Environmental Policy Act (NEPA) analysis on the potential development of offshore marine aquaculture, and recognized that it may inform sustainable aquaculture development.

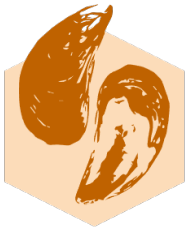
- Comments urged NMFS WCR and its cooperating agencies to use a cautionary approach to consider the risks, unknowns, and potential adverse impacts of AOA identification on the regions' environmental, social, and economic resources.

- Comments encouraged the draft PEIS to consider California State policies associated with ecosystem-based management of protected resources and aquaculture.

- Many of the comments related to potential adverse environmental and economic impacts were expressed in reference to finfish aquaculture, specifically. Some submissions that pointed out potential adverse impacts of finfish aquaculture also requested only shellfish and macroalgae aquaculture be considered in an AOA, while other comments on potential adverse impacts of aquaculture also addressed shellfish, seaweed or integrated multi-trophic (multiple species) aquaculture.



- The proximity of the proposed AOA locations near the recently-discovered DDT (dichloro-diphenyl-trichloroethane) dump sites, near National Pollutant Discharge Elimination System (NPDES) mandated monitoring stations, near commercial and recreational fishing grounds, near National Marine Sanctuaries, and near biologically significant areas was noted as a concern among comments.



- Community members from Ventura Harbor and the Port of Los Angeles commented about their interest and potential engagement in aquaculture within an AOA due to the proximity of their communities to proposed AOA locations.
- Commenters requested that the draft PEIS cumulative effects analysis in the geographic region of the Southern California Bight evaluate the potential changes to water quality and benthic habitat, near-term and long-term food web and ecosystem level impacts, impacts associated with climate change, impacts to shorelines and coastal communities.
- The next step in the NEPA process is the preparation of the draft PEIS. The public will have another opportunity for comment when NMFS WCR publishes the draft PEIS in the Federal Register.

Introduction

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) West Coast Region (WCR) (hereafter referred to as NMFS WCR) conducted a public scoping process in accordance with the National Environmental Policy Act (NEPA) for the for the proposed identification of one or more Aquaculture Opportunity Areas (AOAs) to be located in Federal waters off the coast of Southern California. Public scoping took place from May 23, 2022 to July 22, 2022. The public scoping process included a Notice of Intent (NOI) to Prepare a Programmatic Environmental Impact Statement (PEIS) for the identification of one or more AOAs in Southern California, along with two public scoping meetings held within the 60-day public comment period. NMFS WCR invited public scoping comments through the Federal Register Notice on May 23, 2022 (87 FR 31210), and through announcements on informational web pages, virtual newsletters, and listservs.

Purpose of the Public Scoping Report

The purpose of this report is to summarize the input received during the 60-day comment period, as a high-level overview of the nature and content of public comments. The Summary of Comments section of this report reviews the prompts that were provided in the NOI, and highlights themes from the NOI responses. All written submissions are available verbatim and in their entirety in Appendix A and online at https://www.regulations.gov/document/NOAA-NMFS-2022-0051-0001 (regulations.gov). In some cases, commenters submitted attachments to written letters with additional information for NMFS WCR to consider. Those attachments are not included in Appendix A given their length, but can also be found online at regulations.gov. All oral correspondence provided in scoping meetings is available verbatim and in their entirety in Appendix B and online at https://www.fisheries.noaa.gov/event/southern-california-aquaculture-opportunity-area-scoping-meeting.

This summary does not serve as a complete record of outreach for the NEPA process and it is not an exclusive list of topics to be included in the draft PEIS. NMFS WCR will consider all substantive comments received during the public scoping period, input from cooperating agencies and agency partners, and the best information available gathered from many sources to finalize the scope of the draft PEIS. The draft PEIS is part of a long-term planning effort. It is not a regulatory or permitting action.

Definitions

Aquaculture Opportunity Area: a defined geographic area that has been evaluated to determine its potential suitability for commercial aquaculture.

Cooperating Agency: a federal agency other than the lead agency that has jurisdiction by law or by special expertise with respect to any environmental impact involved in a proposed action (40 CFR 1508.1 (e)).

Scope: consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement (EIS) (40 CFR 1508.1cc). Under the Council on Environmental

Quality (CEQ) NEPA Regulations, agencies are required to use an early and open process involving interested and affected parties to determine the scope of issues for analysis in an EIS; and the process is termed scoping (40 CFR 1501.9).

Commenter: any individual, special interest group, non-government organization (NGO), agency, or other interested party that provided a response to the NOI during the 60-day public scoping period.

Submissions: the collective group of written letters and oral correspondence that were reviewed by NMFS WCR, and identified to contain unique and substantive language. Unique language is interpreted to include uncopied, unduplicated language that may be used to identify a single submission. Substantive language is interpreted to include a comment that addresses a specific aspect of AOA identification as it may be used to inform the draft PEIS.

Written Letter: a submission that was submitted through the federal docket, containing at least one or multiple substantive comments within its whole. A letter with multiple signatures was counted as one, co-authored letter. Letters that borrowed some duplicative or modified language from form letters but also included some unique or modified language were counted as a unique submission. Any attachments (e.g. petition signatures, supplemental material, pdf copies of cited literature or news articles) were considered to be part of the associated letter and not as a unique submission.

Oral Correspondence: spoken statement(s) during designated time in the public listening sessions, containing at least one or multiple substantive comments within its whole. Instructions were provided at the end of each public listening session presentation for callers to get in the queue to provide public comment, limited to three minutes each.

Comment: a portion of text or an exclusive statement within a written letter or an oral correspondence that contains unique and substantive language and portrays a single idea.

Local/Regional: considered to be the marine waters of the Southern California Bight Ecosystem (SCB), from Point Conception to the north, to the United States/Mexico border to the south, encompassing the Channel Islands. Local/regional is also considered to include the coastal Counties of Santa Barbara, Ventura, and Los Angeles, agencies that serve constituents within those counties, and the communities that work, live, or otherwise have a social, economic, or cultural connection there.

Proposed Action, Purpose and Need

On May 7, 2020, the White House issued an Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O. 13921), which requires the Secretary of Commerce to identify geographic areas containing locations suitable for commercial aquaculture. The Federal action is to identify one or more locations (referred to as AOAs) that may be suitable for multiple future offshore aquaculture projects in Federal waters of the SCB, and to evaluate the impacts of siting aquaculture in those locations through the draft PEIS and NEPA process. AOAs identified through this process would be considered potentially suitable for finfish, shellfish, macroalgae, or multi-species aquaculture.

The purpose of the proposed action is to apply a science-based approach to identify AOAs in Federal waters. The proposed action is needed to meet the directives of E.O. 13921 to address the increasing demand for seafood, facilitate long-term planning for marine aquaculture development, and address interests and concerns regarding offshore marine aquaculture siting.

Cooperating Agencies

Consistent with E.O. 13921, NOAA is designated as the lead agency for the proposed action. NMFS WCR, a regional office within NOAA, is conducting the NEPA process for the AOA PEIS. The NMFS WCR invited the United States (U.S.) Environmental Protection Agency Region 9 (EPA), the U.S. Coast Guard District Eleven (USCG), and the U.S. Army Corps of Engineers Los Angeles District (USACE) to act as cooperating agencies for the purposes of the draft PEIS. EPA, USCG, and USACE have agreed to act as cooperating agencies. Additional federal, state, and local agencies have agreed to provide expertise and technical assistance but are not formal cooperating agencies at this time.

Leading up to Public Scoping

Pursuant to E.O. 13921, NOAA selected federal waters of the SCB as one of the first geographic regions to study for the proposed action to identify AOAs. The other geographic region selected to be studied for potential AOAs was the Gulf of Mexico, where a similar draft PEIS is being developed. In order to select geographic regions to pursue for an AOA PEIS, NOAA considered the history of engagement with stakeholders on aquaculture in multiple regions throughout the U.S., including existing aquaculture industry interest, any existing foundational work (siting analyses and/or environmental reviews) that could provide information about regional aquaculture development in a region, existing interagency communication and collaboration structures. Once the SB and Gulf of Mexico were selected as the first two regions in which to begin the AOA process, NMFS invited public comment on (1) specific areas to within federal waters of the SCB and Gulf of Mexico; and (2) other areas NOAA should consider nationally for future AOAs through a Request for Information (RFI) (85 FR 67519; October 23, 2020).

The National Centers for Coastal Ocean Science (NCCOS) initiated a marine spatial planning process to assist agency decision makers in identifying areas that may be suitable for locating AOAs as mandated by E.O. 13921. This work resulted in the peer reviewed, technical document, “An Aquaculture Opportunity Area Atlas for the Southern California Bight” (Morris et al. 2021) (referred to hereafter as the Atlas). The Atlas used more than 200 data layers accounting for key environmental, economic, social, and cultural considerations, including fishing interests and marine protected areas. Data for the spatial modeling exercise for AOAs was collected from stakeholder meetings and listening sessions. A total of 224 engagements related to data acquisition and interpretation occurred during 2020 and 2021. Approximately 1,200 individuals participated. The Atlas is one source of information to assist NOAA in identifying AOAs through the NEPA process.

After the Atlas was published in November 2021, NMFS WCR and NCCOS held briefings with 64 stakeholder groups that provided data for the spatial analysis or otherwise helped with the

Atlas publication. For additional awareness and direct outreach to the public, the NMFS Office of Aquaculture (OAQ) and NCCOS announced the Atlas publication and provided an AOA update through a public webinar held on January 18, 2022 and through a presentation at the Aquaculture America conference held February 28 through March 4, 2022. The slides for the public update presentation are available online at https://media.fisheries.noaa.gov/2021-12/Aquaculture-Atlases-AOA-Update-Slides.pdf.

For additional awareness and direct outreach to CA State agencies and to the public, NMFS WCR provided an announcement about the Atlas publication and an AOA update directly to the Pacific Fishery Management Council (the Council, PFMC) Marine Planning Committee on November 11, 2021, at the PFMC meeting November 17, 2021, and as part of the region's Offshore Aquaculture Interagency Working Group (OAIWG) meeting on December 2, 2021. The PFMC meeting was open to the public and included representation from State and Federal agencies, as well as special interest groups and various stakeholders from commercial, recreational, and tribal fisheries, fishery and habitat scientists, and fishery management bodies. The OAIWG includes representation from Bureau of Ocean Energy Management (BOEM), CA Coastal Commission (CCC), California Department of Fish and Wildlife (CDFW), California Fish & Game Commission, CA Ocean Protection Council (CAL-OPC), CA State Lands Commission (SLC), USCG, USACE, EPA, Food and Drug Administration (FDA), State Water Resources Control Board (SWRCB), CA Sea Grant, and various offices under NOAA.

Throughout 2020 and 2021, federal agencies involved in permitting or authorizing aquaculture in offshore marine environments in the SCB region were engaged by NMFS WCR and by OAQ at the headquarters level. NMFS WCR and OAQ gauged the other agencies' interest in serving as a cooperating agency, and considered the scope and content of the draft PEIS. Interagency conversations provided an opportunity for NMFS staff involved with the AOA effort to discuss respective priorities, along with permitting and environmental needs for aquaculture in the region and at a national level. Internal discussions within NMFS and NOAA, as well as conversations with the respective regions' federal partners, also contributed to the development of the NOI.

NMFS WCR meets regularly with OAQ and the Southeast Regional Office to ensure national consistency between the AOA PEIS for Southern California and the AOA PEIS for the Gulf of Mexico. Although the AOA planning process is being implemented at the regional level, it is a national-scale effort coordinated by OAQ. The goal of national consistency is to create a similar, transparent, and predictable approach to AOA identification throughout the nation that is clear and understandable to the public.

Public Scoping Process

Notice of Intent (NOI)

In the NOI (87 FR 31210; May 23, 2022), NMFS WCR requested comments concerning the scope of the proposed action, its potential impacts to the natural and human environment, means for avoiding, minimizing, or mitigating potential impacts, the range of preliminary alternatives proposed in this notification, and any additional reasonable alternatives that should

be considered within the SCB (https://www.fisheries.noaa.gov/west-coast/aquaculture/west-coast-region-southern-california-aquaculture-opportunity-area). The NOI included supplementary background information on E.O. 13921 and the AOA Atlas, on the action, purpose, and need, on the preliminary alternatives, on the cooperating agencies, as well as instructions on how to provide comment and access public meetings. The NOI publication initiated a 60-day public comment period, from May 23, 2022 through July 22, 2022.

Written submissions were accepted during the public comment period via the federal docket with the identification number, NOAA-NMFS-2022-0051. NMFS WCR received 28 unique written letters. In addition to the written letters, there were four submissions to the federal docket that only contained attachments with supplementary information (e.g., pdf versions of peer-reviewed literature and news articles); there were 10 submissions that repeated unmodified language from a form letter; and one submission was a petition with 5,850 signatures. The 43 total submissions made via the federal docket are available online at regulations.gov.

Public Scoping Meetings

NMFS WCR hosted two webinar-based public scoping meetings on June 27, 2022, from 12 p.m. to 2 p.m. PST, and on July 11, 2022, from 5 p.m. to 7 p.m. PST. The webinars were scheduled to occur within the public comment period, and to cover the PFMC June 2022 meeting at the request of the Council.

Each webinar-based meeting included a slideshow presentation at the beginning, and allowed approximately 90 minutes for oral correspondence from commenters after each presentation. Accessibility options for the visually or hearing impaired were noted in the NOI, which included full recordings and written transcripts of the webinar-based listening sessions that were posted to the AOA website following the meetings. All presentation materials, recordings, and transcripts are posted to the AOA website at https://www.fisheries.noaa.gov/event/southern-california-aquaculture-opportunity-area-scoping-meeting.

The scoping meeting on June 27, 2022 had 37 attendees, not including NOAA/NMFS personnel. There was a representative from each cooperating agency present (EPA, USCG, and USACE). Seven commenters provided oral correspondence. The scoping meeting on July 11, 2022 had 36 attendees, not including NOAA/NMFS personnel. Three commenters provided oral correspondence, including one commenter who also spoke in the meeting on June 27th. The continued presence of Covid-19 and NMFS Covid-19 guidance on group gatherings limited the public scoping outreach to virtual-only.

Announcements

Announcements about the NOI and public scoping meetings to solicit public comments during the public scoping period were made through NMFS WCR internet sites, social media posts, and an outreach effort led by NMFS WCR Communications staff, with coordination through OAQ. Table 1 summarizes the available data on virtual stakeholder engagement as part of the outreach effort. This communications effort is used by NMFS to coordinate the announcement of all major actions coming out of the region and to reach stakeholders directly, including scientific partners, Tribal governments (federally-recognized tribes), Indigenous groups, State

and Federal management partners, Councils and Commissions, academia, marine and coastal resource user interest groups and NGOs, and legislative offices such as NOAA Leadership Councils and Congress. The communications plan followed a specific pattern that includes the identification of a team, target audiences, key high-level messages and talking points, tactics, supporting materials, and a timeline. The announcements provided in the communications effort is the same public information posted to the AOA web pages in Table 1.

Table 1. Summary of AOA Public Scoping Announcements

NOI Announcement Type	Recipients
Web pages	
WCR Overview Page[1]	887 unique views
WCR Notice of Intent Page[2]	474 unique views
WCR Events/Meetings Page[3]	750 unique views
OAQ Announcement Bulletin[4]	33 unique views
Social Media	
WCR Facebook	1,374 unique views
WCR Twitter	212 unique views
OAQ YouTube	11 unique views
OAQ LinkedIn	9 unique views
Listservs	
May WCR Newsletter	4,303 delivered, 1,191 unique opens
May WCR Aquaculture Updates	1,083 delivered, 395 unique opens
May OAQ Aquaculture News Bulletin	20,749 delivered, 3,047 unique opens
WCR Direct Outreach	
Emails and Phone Calls	148 stakeholder groups

[1]https://www.fisheries.noaa.gov/west-coast/aquaculture/west-coast-region-southern-california-aquaculture-opportunity-area

[2] https://www.fisheries.noaa.gov/action/southern-california-aquaculture-opportunity-area

[3] https://www.fisheries.noaa.gov/event/southern-california-aquaculture-opportunity-area-scoping-meeting

[4] https://content.govdelivery.com/accounts/USNOAAFISHERIES/bulletins/31914dd

The NOI received submissions from individuals and groups representing Federal, State, and local agencies, NGOs, special interest groups, and community members from throughout the U.S. and North America. No submissions were received from Tribal representatives. For the purposes of this report, NGOs and special interest groups are both referred to as "organizations." Table 2 presents the agencies, organizations, and individuals that provided

input during the 60-day comment period. Individuals are identified by their self-identified stakeholder interests. Anonymous submissions were considered as a general public individual. All organization names are included from co-authored letters. In the Summary of Comments section of this report, co-authored and endorsed written letters are referred to only by the agency or organization who submitted the letter.

Table 2. Commenters

Group Name	Organization Names or Self-Identified Stakeholder Interests*
Federal Agency	Environmental Protection Agency (EPA), National Parks Service (NPS)
Council / Commission	Pacific Fishery Management Council (PFMC)
State Agency	CA Department of Fish and Wildlife (CDFW), CA State Lands Commission (SLC), CA Ocean Protection Council (Cal-OPC), CA Coastal Commission (CCC)
Local Agency^	Orange County Sanitation District, coauthored with Scripps Institution of Oceanography Assoc. Researcher (OC San), Ventura Port District (VPD)
Interest Group / NGO	Alliance of Communities for Sustainable Fisheries (ACSF), American Fly Fishing Trade Association Fisheries Fund (AFFTA), Aquarium of the Pacific, Beyond Pesticides, Center for Food Safety (CFS), Commercial Fishermen of Santa Barbara (CFSB), Don't Cage Our Oceans, Environmental Action Committee of West Marin, Environmental Defense Center (EDF), Family Farm Defenders, Farm Forward, Florida Watermen, Food and Water Watch, Friends of the Earth, Gulf Coast Center for Law & Policy, Healthy Gulf, Holdfast Aquaculture LLC, Inland Ocean Coalition, Los Angeles (LA) Waterkeeper, National Family Farm Coalition, North American Marine Alliance, Ocean Conservation Research, Oceana, Oceanic Preservation Society (OPS), Pacific Coast Federation of Fishermen's Association (PCFFA), Recirculating Farms, San Diego Coastkeeper, Santa Barbara Channelkeeper, Sitka Salmon Shares, Southern California Alliance of Publicly Owned Treatment Works (SCAP), Sportfishing Association of California
General Public Individual	University of Southern California SeaGrant, University of San Diego students, local journalist, local consultant, aspiring aquaculturist, local engineer, local business owner, sport fisher, commercial fisher, whale watcher

* For privacy purposes, individuals are identified by their self-identified stakeholder interests rather than their name.
^ A Local Agency is considered to be one that has jurisdiction within the preliminary alternatives' marine geographic area of the SCB and/or serves constituents in the Counties of Santa Barbara, Ventura, and LA.

Table 3 summarizes all location information provided by commenters in their submissions. The information includes organizations that endorsed and co-authored letters.

Table 3. Geographic Information Provided by Commenters

Group Name	Study Region*	Other or all CA	U.S.	N. America	Unspecified
Government Agency	7	1	-	-	-
Council / Commission	1	-	-	-	-
Interest Group / NGO	8	6	8	1	8
General Public Individual	6	4	5	1	3
Form Letter/Petitions	-	-	-	-	1

*Commenters considered to be within the study region are those that self-identified to have jurisdiction, live, or work within the marine geographic area of the SCB, as well as to live, work, or serve constituents in the Counties of Santa Barbara, Ventura, and LA.

Summary of Comments

The NOI included 16 prompts to help target specific alternatives, information, and analyses relevant to the proposed action. The final, sixteenth prompt was a catchall for other potentially relevant topics not captured in the provided prompts. For the purposes of this report, all topics from public scoping submissions are organized by prompts, and some of the prompts appear as subsections under broader categories. Each prompt is provided verbatim in its associated section. Commenters were not required to respond specifically to the provided prompts. NMFS WCR will consider all substantive information whether the comments apply to a provided prompt or not.

All statements included in this section are from comments made by public scoping commenters, and are not conclusions or responses by the agency or cooperating agencies. For the purposes of this report, some information is provided in the form of concise lists as an efficient way to portray the ideas shared by commenters. NMFS WCR will consider all quantitative and qualitative substantive information provided in scoping comments, along with details provided in supplementary information. This report does not reflect a decision by any agency; it serves to bring awareness to the range, nature, and some of the specifics that were brought up in public scoping comments for the awareness of all or any interested parties.

In analyzing these comments, it is important to acknowledge that the results of public scoping and comment periods such as this one are not statistically-representative of any particular group or population of people. The primary focus of scoping was to collect the content of each submission, not necessarily the number of times a particular issue or concern appeared. Issues raised once may be just as important to informing the scope of the draft PEIS as an issue raised many times. That being said, the number of comments that specified opinions in support or in

opposition to potential AOA locations and types of aquaculture types are noted, as they provide important feedback on the preliminary alternatives and potential scope of the draft PEIS. This PEIS is a planning document and understanding the needs and concerns of local communities and ocean user groups is critical to identifying one or more AOAs that may be ecologically, economically and socially suitable for commercial aquaculture.

Prompt 1. Scope of the NEPA Analysis, Including Alternatives

"NMFS requests public input on… the scope of the NEPA analysis, including the range of reasonable alternatives."

Commenters that responded directly to Prompt 1 include PFMC, PCFFA, VPD, SLC, Cal-OPC, and CCC; however, almost all commenters provided comments with information relevant to the scope of the draft PEIS and the alternatives. Submissions included reminders for NEPA requirements and statutory considerations under NEPA, voicing support or opposition for certain alternatives, and feedback on the preliminary alternative structure. Submissions included recommendations for geographic scope that should be considered in the impacts analysis and for cumulative impacts, and specific analyses and resources that should be considered in the draft PEIS. Supplementary information was submitted that included legislation and statutory references, technical papers, news articles, peer-reviewed literature, data archives, and more.

Comments stated the draft PEIS could possibly address existing interest for offshore marine aquaculture in Southern CA and clarify the regulatory framework to permit offshore aquaculture. Comment also discussed the possibility that the draft PEIS could provide methods to help develop the aquaculture industry in a sustainable way. Comments noted that the lead and cooperating agencies could define criteria based on the analyzed growing environment, environmental impacts, or profitability to encourage the industry to move in a certain direction. The draft PEIS was also identified in comments as an opportunity to bring privately held data and experiences into offshore aquaculture decisions; and it could provide a comprehensive description of the primary federal permits needed for aquaculture facilities in offshore waters.

Preliminary Alternative 1: No Action Alternative

Ten out of 14 submissions that addressed the No Action Alternative urged the agency to choose it as the preferred alternative, voicing opposition to the proposed action to identify one or more AOAs. Comments stated that a high-level, planning, programmatic NEPA analysis was inappropriate for two topics: finfish aquaculture and any geographic locations that may overlap with military and homeland security activities. For both topics, it was expressed that a sufficient impact analysis would require more specific, project-based details. Other reasons that were provided to choose the No Action Alternative as the preferred alternative include:

- disputes on NMFS authority and jurisdiction in offshore aquaculture permitting, and the role of the PEIS in future aquaculture permitting;
- challenges that the PEIS and AOAs would not satisfy the goals presented in E.O. 13921 (e.g. American seafood competitiveness, food security, economic growth);

- critiques of the data used in the Atlas spatial analysis and the need to correct or refine information before moving forward with the draft PEIS;
- concern that offshore marine aquaculture may not be a viable industry given the potential risks associated with climate change;
- potential adverse environmental impacts from offshore marine aquaculture, especially from finfish aquaculture (discussed in more detail under Prompt 5);
- potential adverse impacts to existing fishing and ecotourism industries in the region that relate closely to the region's social and economic structures and to cultural identity (discussed in more detail under Prompt 5);
- lack of confidence or "proof-of-concept" in multi-species aquaculture, especially in open ocean conditions;
- lack of information and resources available to mitigate risks of adverse impacts sufficiently; and
- fear of lost access to public trust offshore space.

Two out of 14 submissions that addressed the No Action Alternative were in support of identifying AOAs. Submissions in support of AOA identification listed topics of concern that would not be addressed if the No Action Alternative were chosen, including the demand on wild-caught fisheries as well as time and money spent trying to navigate aquaculture permitting regulations. Submissions requested that the draft PEIS address the lost opportunities in potential jobs and working waterfront communities, revenue, research, restoration, and other potential opportunities, if the proposed action was not pursued. See Prompt 4 for more details on comments that directly stated support or opposition for different types of offshore marine aquaculture.

Within comments that addressed the No Action Alternative, there were suggestions for what else NOAA could do to potentially help the sustainable development of aquaculture in the U.S., in addition to or other than identifying AOAs. Those suggestions include:

- address allowable catch limits in wild-caught fisheries;
- fund research to support potential complimentary market interactions among cultivated and wild-caught seafood;
- fund research in the form of pilot projects to fill in data gaps and build confidence;
- fund independent fisher/harvester co-ops to support local business opportunities;
- fund marketing efforts to promote domestic aquaculture products;
- investigate locations closer to shore, in State waters, that would guarantee compliance with CA State policies and potentially provide more opportunity to small, local businesses;
- build locally-vetted oceanographic and biochemical models that would inform the permitting process;
- partner with aquaculture applicants to collect monitoring data where needed; and
- work with the cooperating agencies on mandatory mitigation that could be incorporated into aquaculture permits (for more details on suggested mitigation, monitoring, and reporting see Prompt 7, Technologies and Strategies to Mitigate Risks).

Preliminary Alternative 2: Santa Barbara Channel

Recommendations for Alternative 2 ranged from eliminating it all together to making it the preferred alternative. NPS recommended eliminating it from consideration because of the proximity to the Channel Islands National Marine Sanctuary (NMS). Almost all submissions that included recommendations for Alternative 2 were in regard to the busy marine space, consisting of existing ocean users and living marine resources. There was concern expressed for how close together the Atlas Site Selected Options (SSOs) are to one another, and commenters recommended that the draft PEIS take a cautionary approach to moving forward with that configuration or with the number of SSOs to be analyzed further.

Commenters from all groups noted that the Santa Barbara Channel is already a busy marine space, with many important resources that should be considered carefully in the draft PEIS. Conflicts identified specifically by commenters include:

- potential culturally-significant locations to Tribes and Indigenous groups;
- important habitat for many wildlife species, and several highly migratory species that are important to the regional fisheries (species that were called out specifically are included in Prompt 5);
- nearby federal NMSs and state Marine Protected Areas (MPAs);
- conflicts with established ecotourism such as whale watching, and other recreational activities, including sailing and diving (concern for tourism and recreational activities in the Santa Barbara Channel was noted to perhaps be greater than other areas because of the proximity to the Channel Islands NMS specifically); and
- naturally-occurring oil seeps which may be incompatible with aquaculture because they could cause contamination.

Comments discussed how offshore aquaculture interactions with living marine resources relate directly to conflicts with commercial, private-passenger, and recreational fishing operations in the area. Potential for conflicts with commercial passenger fishing gear and private boat fishing operations were noted to be greater in waters deeper than 100 meters. It was recommended that the draft PEIS use more commercial passenger fishing vessel (CPFV) data and to collect data and create figures that would bring more awareness to ecotourism, particularly whale watch excursions.

Three out of eight submissions about Alternative 2 expressed support for identifying AOAs in the Santa Barbara Channel. Those submissions cited local interest and desire to participate in the aquaculture industry as it develops in the region. VPD noted specifically that they have already invested time and resources to improve shoreside infrastructure and other planning for aquaculture. VPD also noted, as an example, that commercial fishing stakeholders did not oppose the planning effort associated with Ventura Shellfish Enterprises (VSE), once the plans moved to federal waters. SSOs N2-D and N2-E were requested to be analyzed further in the draft PEIS because of their ease of access to and from shoreside facilities in Ventura Harbor, that would relate to potentially-lower economic cost and greenhouse gas emissions. Based on

information cited for VSE, it was thought that N2-D and N2-E may also have minimal interaction with some of the existing fisheries in the area.

Preliminary Alternative 3: Santa Monica Bay

There were no comments that supported the proposed action in Alternative 3, specifically, but one out of ten submissions that discussed potential impacts of identifying AOAs in Santa Monica Bay did so in general support identifying an AOA and in support for analyzing both preliminary alternative study areas. Four out of ten submissions that mentioned Alternative 3 expressed opposition to moving forward with the alternative.

The high risk of water quality issues in the area was the most discussed conflict addressed in Santa Monica Bay. Attention to water quality monitoring was expressed to be very important for Alternative 3, and robust water quality monitoring would be needed for any farm that would be sited in the study area. Submissions brought up the dichlorodiphenyltrichloroethane (DDT) dumping sites that were found recently that are currently being researched and addressed by regional entities. Comments noted both SSOs in Alternative 3, CN1-A and CN1-B, were near enough to a known DDT dumpsite off Catalina Island to cause concern, as well as to areas that have a history of severe run-off and water quality issues from both stormwater runoff and wastewater discharge. Santa Monica Bay was noted to have a history of sewage spills and oil spills, prompting a request that the draft PEIS specifically discuss impacts related to the most recent sewage spills, oil spills, and algal blooms in the area.

Comments noted that commercial fishing is not allowed in the Alternative 3 Area (with limited exceptions). Those comments related water quality issues to seafood harvesting compatibility, as well as to topics of public health, biosecurity, equity and other socioeconomic factors dealing with seafood markets. It was recommended that the draft PEIS consider how different types of aquaculture activities and their supporting operations would affect public trust resources, existing effluent sources, and ongoing water quality monitoring in and around Santa Monica Bay.

Preliminary Alternative 4: A Combination of Santa Barbara and/or Santa Monica Bay

Comments that addressed Alternative 4 directly did so in general support or opposition to the proposed action. See Prompt 4 for more details about comments that stated support or opposition to offshore marine aquaculture (in any area of the Southern California region). Topics associated with the respective preliminary alternative areas have been included in the summaries of Alternative 2 and Alternative 3. Recommendations made for any alternative area include:

- reword Alternative 4 to include a limit of ten AOAs between both study areas;
- bring awareness to where commercial and recreational fishing activities are restricted, and the potential cumulative loss to fishing groups from aquaculture and other offshore industries in the region (see details from comments on cumulative loss of fishing grounds under Prompt 12);

- correct coordinates in Atlas and add navigational information to figures in the draft PEIS;
- incorporate National Pollutant Discharge Elimination System (NPDES) permit-mandated monitoring stations (see more details under Prompt 5).

Other Suggested Alternatives

Some comments made suggestions other than the preliminary alternatives presented in the NOI.

Other locations that were suggested include:

- the Port of LA, Ventura Harbor, Huntington Beach, and Long Beach;
- in waters 150 to 300 feet deep;
- near to certain oil platforms to be out of the way of shipping or other activities;
- in areas closed to wild-caught fishing to mitigate impacts to fishing communities;
- in land-based, recirculating tanks;
- closer to shore and in State waters where it may be more economically viable for small local businesses to take part; and
- farther offshore to avoid potential impacts on water quality monitoring and other environmental safety concerns.

Recommendations for eliminating some of the SSOs from the preliminary alternative study areas were made in regard to the following:

- any areas found to have disproportionately-adverse impacts on certain communities, cumulative or multiple adverse exposures from environmental hazards;
- any areas that are very close together that may increase risk of interactions with living marine resources or other navigation safety concerns;
- any areas that may interfere with scientific surveys, especially those that collect data for wild-caught fisheries' stock assessments;
- or any areas that may interfere with NPDES permit-mandated monitoring, including existing or planned discharge monitoring.

Comments that suggested incorporating an alternative that covered only native species, or only shellfish and macroalgae aquaculture, listed reasons that would influence AOAs to better-align the AOA identification process with existing CA state policies and ongoing CA aquaculture planning efforts. Those alternatives would also endorse feedback commenters have received from their representative stakeholders about their concerns about offshore marine finfish aquaculture. More information about comments that addressed different species or types of offshore aquaculture are included under Prompt 2 and Prompt 4. More information on aligning with CA ocean and aquaculture policies are included under Prompt 16.

Prompt 2. Suitable Species and Gear

"NMFS requests public input on… suitable species and gear for aquaculture."

Commenters that responded directly to Prompt 2 include PFMC, Cal-OPC and CCC, VPD, ACSF, and PCFFA, although many additional organizations and individuals provided relevant information about species and gear considerations for the draft PEIS in relation to comments about potential impacts. Themes related to species that may be suitable for potential farms sited in an AOA include cultivating native species only, not using genetically-modified organisms (GMO), and creating metrics in application and permitting processes to choose suitable species. Themes related to gear that may be suitable for an AOA include minimizing risk of adverse environmental impacts, and potential beneficial economic impacts in areas of technology, research and development, and manufacturing as a cumulative impact of identifying an AOA.

Species

Comments related to how the draft PEIS could discuss aquaculture species included recommendations to analyze species that are readily available and marketable, and go into depth on those specifically rather than try to provide less information about more possibilities. Comments stated that the AOA stage of planning may be too preliminary to speculate what specific species would be suitable due to shifts in aquaculture markets, a lack of existing examples in offshore federal waters within the regional ecosystem, and unknowns about specific project sites. Comments recommended that species selection criteria should be created and incorporated into performance standards for farms sited within an AOA. It was further recommended that any farm sited in an AOA then be required to follow the criteria, plan, and report on the product to be produced as well as the foreseen destination of the products.

Large-scale environmental fluctuations of the SCB were recommended to be factored into choices for cultured species. Agencies, organizations, and individuals cited specific large-scale events such as algal blooms and marine heat waves that have historically driven wild fish population stocks down and forced closures of fisheries. Comments pointed out that those fluctuations could impact aquaculture operations as well, and noted that species chosen for aquaculture systems would need to withstand naturally occurring fluctuations and stressors that occur in the SCB.

Comments on mitigation measures (discussed in more detail in Prompt 7) indicated that AOAs could encourage the industry to choose species carefully and strategically based on the goals to reduce economic costs and environmental impacts. For example, comments pointed out that any finfish species should be chosen to require the least fishmeal or fish oil inputs.

Comments recommended against nonnative and GMO species in offshore marine aquaculture within an AOA. These comments related nonnative and GMO species to adverse environmental impacts to wildlife populations at all trophic levels. Concerns about drug-resistant bacteria, pathogens, or other invasive and pest species were described in comments. It was also pointed out that escaped GMO species have the potential to alter genetic structures of wild populations,

in addition to the risk of any escaped organisms to change food web structures, compete for resources, or otherwise displace wild populations. Comments that drew examples from finfish aquaculture as concern for nonnative species and genetic interactions with wild populations recommended that the draft PEIS consider an alternative that would only consider shellfish and macroalgae species, as described under Prompt 1. Comments also raised concerns related to nonnative and GMO species in shellfish and macroalgae aquaculture.

Gear

Comments related to how the draft PEIS could discuss gear types expressed the desire for all possible gear types to be analyzed for potential impacts to habitat, fish and shellfish species, protected species, the ecosystem, safety, and navigation. It was recommended that the draft PEIS include language that would reserve room for future farms sited in an AOA to use the most current, new, improved technology in order to minimize risks of adverse environmental impacts. Finfish aquaculture gear was recommended to be considered with more scrutiny than shellfish or macroalgae gear, listing reasons related to potential higher risk of adverse impacts in water quality and hydrology, habitat disturbance, and marine debris. The CEQ was cited in a statement that it "must be assumed that escapes will occur" from net pens, leading some comments to link finfish aquaculture gear to higher risk of ecosystem-level impacts due to fish escapes.

Comments suggested that the draft PEIS could structure the need for farms of any type to choose gear that would minimize the risk of failure, the use of plastics and risk of marine debris, discharges, and other concerns. Developing certain criteria, baseline environmental surveys, and best management practices for AOAs were recommended to help future farms decide what types of gear are appropriate or well suited to specific conditions in a proposed area. Additional outreach with the regions' fishing community was recommended to get more precise data on ocean conditions within each SSO.

Examples of specific gear considerations provided in comments include:

- constant line tension;
- double wall containment (net pens);
- weighted grow lines (shellfish);
- as small a surface footprint as possible (linked to comments about damage to benthic communities, entanglements, localized water gradients/hydrodynamics, and navigation);
- rigorous testing to withstand offshore conditions;
- unique markings to track the sources of lost gear;
- predicted amounts of insurance, bonding requirements, or other ways to ensure funds for any necessary gear cleanup and/or damages;
- compliance with USCG navigation safety including buoys, lights, notice to mariners;
- best practices regarding construction materials, gear configurations, deployment and maintenance plans; and
- contingency plans to include inspections, trainings, responses and removal of damaged or failed gear.

Region-specific gear considerations were provided for the basis of aligning with CA aquaculture planning and fisheries management. Examples provided in comments include:

- net pens are not supported currently in California state waters by State policy directives, and other states on the west coast of the U.S. ban net pens;
- ongoing changes to fishing operations with vertical lines and moored gear to minimize interactions with marine mammals in CA State waters;
- precautions from safety and compliance incidents with a specific past farm, along with other anecdotal accounts of recreational boating accidents;
- potential lessons to be learned from the ways existing oil rig operations in the region interact with anglers, spear fishers, and other recreational activities.

Commenters also wanted to know how the AOA planning process could include impacts to coastal communities related to gear. Commenters noted there may be beneficial economic impacts from increased gear production, boat building, technology research and development, or manufacturing. Other comments that linked gear considerations to coastal communities asked what would happen if shoreline infrastructure is damaged due to gear that washes up after a storm, tsunami, etc. and how those costs would be considered. Lessons learned from gear failures were also described in comments, included in more detail under Prompt 16.

Prompt 3. Suitable Reporting Requirements

"NMFS requests public input on… suitable reporting requirements for owners and operators of aquaculture facilities."

Submissions from PFMC, Cal-OPC, CCC, CDFW, SLC, and other commenters provided relevant information for reporting that may be suitable for aquaculture facilities. This section includes comments about monitoring as well, since monitoring and reporting activities can be assumed to be closely-related. More information on other types of mitigation is included under Prompt 7.

Commentors recommended that monitoring and reporting be developed and integrated into all facility authorizations, be proactive and transparent, and have clearly-defined action triggers. Commenters recommended that monitoring measures be described with enough detail in the draft PEIS to support the future evaluation of monitoring plans that would be proposed by project applicants during permitting. Some comments proposed that monitoring and reporting be rigorous enough to possibly resolve operational issues and environmental impact analyses for future farm applications. Examples of specific monitoring and reporting recommendations include:

- baseline assessments of habitat and ocean conditions in the area prior to construction;
- baseline information gathered seasonally and for a minimum of two years to account for natural variability;
- post-project, or decommissioning, monitoring should also account for seasonal and annual variability;
- adaptive management to analyze if implemented habitat buffers are sufficient;

- regular, public reporting on all aspects of operations, functions, impacts, and issues associated with all phases of a project, site characterization through decommissioning;
- detailed reports on the aquaculture project production, including species, weight, product form (frozen, fresh, fileted, round, etc.), and to the extent possible, the destination markets of aquacultured products;
- water quality monitoring for possible farm effluents or spills as well as for possible interactions with other ongoing effluent monitoring in the area;
- reports of accidental release of contaminants, excess feed or waste material, etc.;
- monitoring of appropriate biomass and fish stock density and health;
- reports of high mortality or escapement of propagated species and any efforts to recover;
- visual inspections of all ropes, cables, and equipment to help determine if any entanglement of marine wildlife has occurred;
- immediate reports of interactions with marine wildlife; and
- immediate reports of any loss of aquaculture gear or other infrastructure associated with the facility.

Concern for agencies' ability to monitor compliance was noted for farther offshore, Federal waters. Examples of compliance concerns from past events in the region, as well as in other areas of State waters of the U.S., were cited in comments (see Table 6 for more detail). Comments stated that the existing regulatory structure in federal waters does not adequately consider, manage, or provide a mechanism for necessary oversight. For those reasons, it was recommended that farms be required to hire independent, third-party monitoring and oversight to help ensure that mitigation measures were implemented and ongoing. Commenters expressed that independent monitoring could also help to ensure that contingency efforts be implemented immediately if a triggering action occurred. This type of independent monitoring was stated to reflect other types of environmental compliance efforts in other existing onshore and offshore industries.

Prompt 4. Types of Aquaculture

"NMFS requests public input on… types of aquaculture (e.g., finfish, shellfish, seaweed, integrated multi-trophic aquaculture) that could be supported and/or analyzed."

Submissions from PFMC, SLC, Cal-OPC, CCC, VPD, LA Waterkeeper, OC San, EDF, PCFFA, CFS, Oceana, OPS, ACSF, CFSB, National Family Farm Coalition, Don't Cage Our Oceans, AFFTA, and individual commenters included comments that expressed clear support or opposition to certain types of aquaculture that may be suitable for an AOA. Table 4 summarizes comments that directly stated support or opposition for different types of offshore marine aquaculture and the PEIS. For more information on comments that addressed species and gear more generally, see Prompt 2. For more details regarding the comments that expressed opposition to the proposed action overall, see Preliminary Alternative 1: No Action Alternative, under Prompt 1.

Table 4. Support or Opposition for Different Types of Aquaculture

Support	Type of Aquaculture	Opposition
27 comments within 9 submissions	General AOA Identification	60 comments within 19 submissions
3 comments within 2 submissions	Finfish	80 comments within 24 submissions
4 comments within 4 submissions	Shellfish	1 comment
5 comments within 5 submissions	Algae	1 comment
3 comments within 3 submissions	Multi-species	3 comments within 1 submission

For the purposes of this report, general support for the PEIS is considered to also be in general support of the proposed action, to identify AOAs. Reasons expressed for general support of identifying AOAs include:

- the local demand for seafood and local interest in aquaculture;
- the need to plan for sustainability and safety as the industry grows;
- the need to address regulatory difficulties surrounding the industry;
- using the PEIS as a way to engage locally-affected communities;
- using the PEIS as a gathering place for information;
- the possibility that it could encourage innovative food systems for CA and the U.S.;
- the possibility that it could counteract pressure on wild-caught fisheries; and
- the possibility that AOAs support the idea of a "healthy ocean strategy."

Comments that expressed support of finfish aquaculture did so in support of an AOA and addressed it as one of the more common and therefore more likely types of aquaculture that should be addressed in the draft PEIS. Support for finfish aquaculture was also expressed as a reflection of existing interest (citing evidence from imports), a way to diversify revenue,

potentially-decreased access or reliance on illegal, unreported, or unregulated (IUU) seafood products, and other potential economic benefits.

Comments that expressed opposition to finfish aquaculture were all linked to potential adverse environmental impacts and adverse impacts on existing fishing operations, citing high risk due to the amount of unknowns associated with the industry. Comments that opposed finfish aquaculture for socioeconomic reasons shared concerns of extreme disruption and adverse impacts to the communities that fish, rely on, or connect to, wild-caught fishing, and challenged the goals of identifying an AOA to support regional economies or improve food security in the U.S. The most common themes among comments opposing finfish mentioned examples and perspectives on invasive pests, excessive waste, drug resistant pathogens, GMO, and aquatic pollution. Comments indicated that any ecosystem-level adverse impacts from finfish aquaculture would not comply with CA's ecosystem-based management in the region. More specifically, it was noted that CA-state policies do not support finfish aquaculture operations. It was also noted that State aquaculture planning focuses on marine algae and shellfish, and potential finfish effluents and excess feeding patterns could exceed the water quality objectives outlined in CA's Ocean Plan.

All of the comments that expressed support for shellfish aquaculture also supported macroalgae aquaculture. These two types of aquaculture were perceived to be suitable for an AOA due to less stakeholder opposition as well as for conservation and regenerative farming potential. Some comments suggested that identifying an AOA could get underway more efficiently by pursuing these two types of aquaculture, while allowing the more controversial and potential risks associated with finfish aquaculture to be evaluated outside of the AOA identification process.

Opposition to shellfish and macroalgae aquaculture was expressed by some due to the risk of nonnative species cultivation leaching genetic material into the environment. It was noted that CA prohibits transgenic species without a restricted species permit and has only issued permits for transgenic species that were held in closed systems. Other potential adverse impacts mentioned in comments opposed to macroalgae and shellfish aquaculture were wildlife entanglement and impacts to the larval recruitment of wild populations of fish and crustaceans around shellfish.

Two out of the three comments that expressed support for multi-species aquaculture mentioned it as mitigation for finfish aquaculture. Opposition to multi-species aquaculture was expressed due to a lack of evidence, examples, or "proof-of-concept" that the gear or systems could work in open ocean conditions vs. controlled, land-based systems.

Prompt 5. Resources and Potential Impacts

"NMFS requests public input on… potential impacts to biological, physical, social, cultural, and economic resources."

All public scoping submissions provided relevant information for at least one topic of potential environmental or socioeconomic impacts related to offshore marine aquaculture. Comments that referred to the methods of the impacts analysis requested clear, defined impact thresholds and metrics, and to incorporate seasonality, timing, and spatial variation of aquaculture activities into the analysis of stressors and impacts. Comments recommended geographic scales along with other units of analysis to evaluate presence, risk, direct and indirect effects, and cumulative impacts. Trade-off and cost-benefit analyses were suggested to be especially important for stakeholders to be able to understand how the draft PEIS would come to conclusions, based on how adverse and beneficial impacts may counteract one another. A few local interest groups, along with local and State agencies, offered their expertise to further refine and inform the impacts analysis and mitigation strategies that could be included in the draft PEIS.

The marine ecosystem and associated working waterfronts are valued greatly by communities in Southern CA, as submissions from all commenting groups made clear. There was strong sentiment expressed that local communities want to preserve the historic and current social and cultural values related to the ocean. Comments noted that the proposed action would potentially influence the development of a new industry and new commodity that may affect the environment, ecosystem services, existing industries, supply and demand of seafood products, jobs, and communities. Commenters from the local community stated that they strive for confidence and participation in what the aquaculture industry may do in public waters. Comments also noted that AOAs could play an important role to build public knowledge and awareness of long term planning in U.S. policy and practices.

Comments voiced that offshore aquaculture in the region could support the regional economy, generally. It was recommended that the draft PEIS take baseline data and consider adverse economic impacts if AOAs were not pursued in the area under the No Action Alternative. Comments noted that offshore aquaculture could create jobs, diversify revenue, and help to satisfy the local demand for fresh and live seafood in addition to existing aquaculture in State waters or by wild-caught fisheries. Comments noted the draft PEIS should include methods to define and analyze multipliers to sufficiently consider direct and indirect socioeconomic impacts. It was suggested that economic benefits may be estimated by the aquaculture companies on how they would accrue or multiply to a variety of other industries and services through direct impacts, as well as to indirect effects throughout the region, state, nation, and international markets. Quantitative estimates about the existing regional economy related to ocean users that were provided by scoping comments include:

- the seafood industry in CA supported more than 150,000 coastline jobs in 2017 (cited from the Atlas);

- CA's fishing and seafood industries were valued at approximately $10 billion in 2019 (cited NOAA Technical Memorandum NMFS/SPO-229A, "Fisheries Economics of the United States" (2022));
- Santa Barbara Port Complex accounted for 14,424,189 pounds of seafood with ex-vessel revenues of $24,142,3905 in 2019 (cited CDFW data);
- CA's "current" recreational fishing market is worth approximately $4.6 billion (cited NOAA Technical Memorandum NMFS/SPO-229A, "Fisheries Economics of the United States" (2022));
- recreational vessel access corridors overlap with proposed AOA siting (63.9% in Northern sites, 92.5% in Central Northern sites) (cited from the Atlas);
- a single private boat charter takes over 50,000 people out on excursions annually (data from a local business owner);
- a single 2,000-acre shellfish aquaculture project could result in a total of approximately $18 million in annual economic input and create a total of 97 jobs (cited a report done for Ventura Shellfish Enterprises (2020));
- aquaculture could generate a total impact of approximately $37 million for Ventura County and generate approximately $643,000 in tax revenue for local cities over 10 years (cited a report done for Ventura Shellfish Enterprises (2020)); and
- aquaculture could have a $5 billion dollar per year industry with about 50,000 jobs (anecdotal estimate from a local engineer and consultant).

Other comments voiced that offshore aquaculture could cause overall harm to the regional economy due to the adverse impacts on the marine environment and disruption to coastal communities. It was stated that the potential economic benefits may not be realized without a clear understanding of how AOAs would contribute to local and statewide food systems and food security; the potential benefits to the U.S. trade deficit may not be realized without regulatory authority on business investors or seafood imports and exports.

Prompt 6. Social Barriers and Economic Constraints

"NMFS requests public input on… information related to social barriers and/or economic constraints for aquaculture development."

Barriers and constraints to aquaculture development that were addressed in scoping comments include: permitting costs, marketing of farmed versus wild-caught seafood, and the need for more shoreside infrastructure. The AOA identification process was noted in comments as a way to potentially-decrease some of these constraints.

Permitting and monitoring requirements were stated to be the most significant barrier for aquaculture development. A single aquaculture farm's permitting costs were estimated anecdotally at well over $100,000, not including site surveys or construction costs. Comments noted that budgeting for the time and the cost of environmental review may limit farms from otherwise utilizing the newest vessels or gear the industry may have to offer, because of difficulties coordinating the technological advances that may occur during the permitting process. Commenters stated that complex environmental reviews, the cost to gain access to the

industry or potential economic benefits, in addition to gathering funds for vessels and gear, limits who may participate in the offshore aquaculture industry and completely exclude some potential applicants. For more details on comments regarding equity and inclusion, see Prompt 8.

Commenters indicated that the regulatory process and aquaculture permitting is confusing, resulting in negative impacts to productivity of the aquaculture industry. Comments expressed that expended time and resources working out regulatory processes have harmed aquaculture's reputation. Comments also identified that the messaging and marketing to facilitate aquaculture development from the agency could be a constraint for sustainable aquaculture development complementary to wild-caught seafood. Funds from NOAA and other agencies were recommended to promote the entire domestic seafood sector and expand access to marketing opportunities with the perspective that it may benefit all seafood harvesters, both wild-capture and farmed.

Commercial fishing groups commented about the loss of affordable shoreside space and aging infrastructure as one of the major stressors on their industry, and would be a potential barrier for aquaculture development for similar reasons. Fishing representatives said they are having difficulty meeting the demand for seafood due to lack of infrastructure and stated some wild fish stocks are not being exploited because there is not sufficient infrastructure to process or store them. Comments that addressed the demands on shoreside infrastructure asked how a new industry, that may have the same or similar needs, be proposed in the area with these considerations.

Prompt 8. Diversity, Equity, and Inclusion

"NMFS requests public input on… information related to diversity, equity, and inclusion in aquaculture and the seafood sector."

Themes in comments related to diversity, equity and inclusion in aquaculture include community vulnerability and community involvement in the AOA identification process, continued access to historic resources as well as access to new economic opportunities, geographic parameters of an AOA, Tribal involvement, Environmental Justice (EJ), and public health associated with seafood safety.

The seafood industry was noted to already support a very diverse workforce. Representation of the diverse workforce and associated communities was requested to be included in the draft PEIS. Other suggested community-driven methods within the AOA identification process included:

- choosing appropriate species;
- developing modeling methods and parameters;
- baseline environmental surveys;
- independent business surveys;
- workforce readiness training and education;
- contributions to greater food systems in CA and the nation.

Comments stated the perspective that local fishers, manufacturers, processors, related businesses, and scientists alike want to advise the permitting process alongside permitting agencies to ensure future applicants have the necessary skills and experience to not only contribute to the aquaculture industry, but to also be good neighbors in the offshore marine space. See Prompt 7 for more details on mitigation suggestions in regard to community involvement in application and permitting standards. Some individuals and organizations recommended identifying AOAs to ensure opportunity for local entrepreneurship as a way for equity, fair markets, and fair wages to be considered from the start of the offshore aquaculture industry in the region. Comments also linked the potential for equity and diversity within AOAs to the parameters of an AOA, with the thought that if AOAs were identified across a range of water depths and access to ports, they could attract and support a larger, more diverse aquaculture industry group.

A few comments suggested aquaculture, including finfish, as a way to rectify some of the challenges facing the commercial fishing fleet in the region. Comments stated that offshore aquaculture could create diversification of revenue that could maintain the existing workforce in reaction to climate change, rising sea temperatures, as well as changes in target species' range, population stocks, and biodiversity. In order for the commercial fishing fleet to benefit from aquaculture development in this way, it was recommended that NMFS WCR analyze or even partner with existing workforce readiness plans, funding mechanisms, education and training programs through the AOA identification process.

Comments suggested that just as environmental impacts may differ by geographic scales, socioeconomic values may differ at different increments of analysis. In this way, cost-benefit analyses were stated to be important to identify community vulnerability. For example, the potential economic benefits that may be realized nationally could cause harm locally if aquaculture products outcompete, uproot, or otherwise disrupt existing systems and communities on a smaller scale. Comments urged NOAA to make decisions for the benefit of Southern California coastal communities, especially recreational and commercial fishermen, and for the conservation of the marine ecosystem.

Water quality was also noted to be very important to factor into equity and inclusion considerations, related to public health and seafood safety, the viability of certain products, the marketing and distribution of aquaculture products. One agency noted specifically that some algal blooms that affect shellfish impacts small-scale fishers disproportionately. Comments stated that State agencies can advise on the processes in place that are implemented when toxins reach certain action levels, such as warnings and quarantines that are issued to protect the recreational fishing public and shellfish consumers. Comments also recommended the draft PEIS analyze the potential exposure to certain communities whose seafood consumption may vary depending on if it is locally caught, locally grown, the time of year, and source of purchase (e.g. restaurant versus grocery store). Comments noted that using consumer data could help to analyze which communities may be more or less vulnerable to seafood safety items like toxins from algal blooms or other pollutants.

Tribal Involvement and Environmental Justice

Commenters from all stakeholder groups noted that the draft PEIS will need to consider laws, executive orders, and regulations that consider historic and cultural resources, Tribal resources, and EJ communities. An EJ community was defined in comments as any community that may experience a disproportionate burden of environmental hazards, health, cultural or economic impacts to already vulnerable communities due to the proposed action. Some social indicators of EJ communities that were noted in comments include minorities, low-income, or otherwise historically marginalized, underserved or underrepresented groups of people. More specifically, fishing communities, Tribes, and Indigenous groups were the only potential EJ communities identified specifically in comments.

Representatives of recreational and commercial fishing communities presented information in comments as to why they would experience a disproportionate amount of adverse impacts from the proposed action (see Prompt 11 and Prompt 12, Cumulative Impacts). Scoping comments recommended additional direct outreach to local stakeholders to identify other EJ groups, and to help define the methods and criteria that define such groups. It was also recommended to use the smallest geographical unit published by the U.S. Census Bureau instead of by units of counties or cities, which may dilute the data. Comments noted the draft PEIS should also include summaries of any coordination, and provide mitigation strategies to reduce impacts on any EJ groups effectively (see Prompt 7). Twelve goals outlined in the SLC Environmental Justice Policy and Implementation Blueprint were recommended specifically to incorporate into the draft PEIS, as they reflect urgent needs in the state to address the inequities of the past, so they do not continue.

Commenters noted that no data on Tribal lands, historical uses or areas of cultural significance were portrayed in the Atlas, although that type of data was recognized in comments to be sensitive or confidential. Comments indicated that although this type of data may need to be kept confidential, it would be important for applicants to consider and have access to in order to avoid areas of historic or cultural significance. Although no Tribal governments or Indigenous groups provided scoping comments, agencies and organizations noted in their submissions that the proposed alternative areas could hold historic and cultural significance for Native American Tribes and other Indigenous groups. Agencies and organizations recommended the draft PEIS should include detail on how Tribal consultation informed the identification of specific AOAs, and what steps will be taken to ensure that the AOAs do not adversely affect Tribal natural or cultural resources. Some comments added that it would be important to distinguish between Executive Order 13007 (“Indian Sacred Sites,” 61 FR 26771) from areas under consideration in compliance with Section 106 of the National Historic Preservation Act (NHPA). Ancestral territories named in comments include (but not limited to):

- Chumash;
- Luiseño;
- Gabrielino-Tongva;
- and Kumeyaay.

Promoting diversity, equity, and inclusion, some comments noted that the AOA identification process could be a novel opportunity for Tribes and Indigenous groups to participate in the offshore industry within the region. Along with other coastal and offshore industry communities, commenters noted that Indigenous groups with ancestral ties to the alternative areas would be important representation for the validation of data, as well as for the stakeholder support and the social sustainability of AOAs.

Prompt 9. Climate Change and Climate Equity

"NMFS requests public input on… Information related to climate change and climate equity."

Comments about climate change took the following approaches:

- What climate trends are experienced or likely to occur in the SCB and how will they impact existing resources, existing fisheries, and offshore aquaculture?
- How would offshore aquaculture exacerbate environmental effects of climate change?
- How could offshore aquaculture address certain climate change impacts (e.g. climate resilient food systems)?

Commenters noted that the SCB experiences natural warming and cooling phases that affect environmental conditions and overall food web productivity. Comments noted that local variations in temperature and prey availability affect migration schedules and foraging areas for wildlife, and that weather patterns and ecosystem responses to climate change that are already being realized in the region include:

- species range, distribution, and community composition;
- weather patterns are becoming more variable and difficult to predict;
- ocean acidification;
- marine heat waves; and
- ocean warming is increasing the frequency and toxicity of hypoxia and algal blooms.

Comments noted that factors of climate change may make any offshore aquaculture operations more difficult to pursue in the region. Specifically, comments noted the following:

- ocean warming may affect the health and viability of potential species for macroalgae aquaculture;
- ocean acidification weakens and dissolves calcium carbonate shells and skeletons of marine organisms, which would impact the viability of any shellfish or crustacean aquaculture;
- more frequent algal blooms may temporarily shut down any shellfish or finish operations;
- harmful algal blooms produce toxic chemicals that can kill fish and other vertebrates by affecting their central nervous systems, and can cause serious illness in humans with severe or chronic respiratory conditions; and
- excess nutrients from finfish aquaculture have the potential to exacerbate stressors that are already impacting offshore and coastal habitats.

Comments suggested the potential benefits of offshore aquaculture could help to counteract some of the effects of climate change. For example, commenters stated that macroalgae aquaculture has the potential to counteract some of the adverse impacts of climate change in the water column ocean acidification. Commenters also stated that shellfish aquaculture has the potential to act as bioremediation and finfish aquaculture has the potential to take some of the strain off of wild fish populations, while all types of commercial aquaculture could potentially decrease greenhouse gas (GHG) emissions from imports if the products were incorporated into local food systems. Commenters noted the GHG emissions from offshore aquaculture more generally could be compared to other types of agricultural or continued reliance on animal protein derived from terrestrial farming; however, some comments said comparing livestock to aquaculture is not sufficient because the industry practices and markets are so different from one another. Those comments recommended the carbon footprint of offshore aquaculture instead be compared to land-based aquaculture systems only.

Specific climate change-related recommendations for the draft PEIS included the following:

- identify measures to provide for diverse, healthy ecosystems that are resilient to climate stressors;
- identify AOAs in areas that would protect areas of potential climate refugia;
- consider additional conservation commitments may be warranted to achieve goals in Section 216 of Executive Order 14008 of conserving 30 percent of the nation's lands and waters by 2030;
- discuss qualitatively or quantitatively, the potential GHG reductions to be achieved by locally cultivating species that are currently imported;
- discuss the carbon footprint of farmed carnivorous fish if feed were derived from wild populations versus other types of nutrients as well as the associated infrastructure for fish feed manufacturing;
- discuss the fuel consumption associated with increased vessel traffic for farms sited within an AOA;
- identify local fishing industries that will suffer from more frequent and severe disruptions due to Domoic Acid and algal blooms;
- forecast which areas will be important to different or new fisheries under changing ocean conditions, as shifting fish stocks could affect the suitability for growing aquacultured organisms in a fixed location; and
- propose methods to amend the spatial analysis results in the Atlas for topics such as shifting fish stocks or other site suitability changes.

Prompt 10. Protected Species and Sensitive Habitats

"NMFS requests public input on… potential interactions with protected species, essential fish habitat, and other sensitive habitats."

The SCB was stated in many submissions to be an important habitat for many living marine resources that make up benthic and pelagic communities. Comments noted that the region has Federally-designated and proposed NMSs, State-designated MPAs, Essential Fish Habitat (EFH) and Habitat Area of Particular Concern (HAPC), as well as areas of special biological

significance (SBS). Comments also noted that the marine ecosystem is a migratory route and foraging area for whales, dolphins, sea turtles, sharks, birds, and large fish. It was recommended that the draft PEIS incorporate more data, and more refined data, than the Atlas included on fish, fishing grounds, and marine mammals.

Many of the comments urged the draft PEIS to incorporate ecosystem-based management carefully into the scope of the document and in the impacts analysis. Specifically, comments recommended the draft PEIS consider the connectivity of biochemical dynamics, large-scale hydrography, and the geographic distribution of animals, commercial and recreational fishing, and other recreational activities throughout Federal and State waters. More information from comments that recommended close coordination with the State's planning and policies is provided under Prompt 16.

State agencies requested that species listed under CA's Endangered Species Act (CESA) be considered along with Federally-listed ESA species. Some comments expressed that the draft PEIS requires a programmatic Section 7 ESA consultation and Biological Opinion prior to identifying AOAs. Multiple organizations requested that not just ESA-listed species be considered in the draft PEIS, but all wildlife species that breed, forage, migrate or otherwise contribute to the unique ecosystem. Comments noted the draft PEIS analysis must consider compliance to ESA, Migratory Bird Treaty Act (MBTA), Marine Mammal Protection Act (MMPA), and the Magnuson–Stevens Fishery Conservation and Management Act (MSA). Some specific information was provided for important fish species that support recreational and commercial fishing in the area, and additional fisheries information was recommended for the draft PEIS. All species of marine mammals that were included in the Atlas were recommended as important for evaluation in the draft PEIS as well, along with additional population information for unspecified species of dolphins, seabirds, shorebirds, fish, and sea turtles that traverse the alternative areas, as well as unspecified species of sponges, coral, and seagrasses that have potential to occur in the alternative areas. The common names of protected species or otherwise managed species that were mentioned specifically in comments are summarized in Table 5.

Table 5. Important Species mentioned in Scoping Comments

Species Group	Associated Statute(s)	Common Names
Cetaceans	MMPA, and/or ESA	blue whale, fin whale, humpback whale, North Pacific right whale, eastern North Pacific gray whale DPS, coastal bottlenose dolphin,
Pinnipeds	MMPA, and/or ESA	CA sea lion, Pacific harbor seal, Guadalupe fur seal, Northern elephant seal,
Sharks and Rays	ESA	white shark, giant manta ray
Fish (protected)	ESA	Southern California steelhead DPS

Species Group	Associated Statute(s)	Common Names
Fish (managed fishery)	MSA	angel shark, rockfish (Sebastes) species, yellowtail, bigeye tuna, halibut, white sea bass, Swordfish
Sea turtles	ESA	Pacific leatherback
Birds	MBTA, and/or ESA	CA least tern, CA brown pelican, coastal CA condor
Invertebrates (protected)	ESA	black abalone, white abalone
Invertebrates (managed fishery)	MSA	ridgeback shrimp, sea cucumbers

Although comments identified several highly migratory and groundfish fisheries that would be potentially-displaced or experience adverse impacts from the proposed action (listed below), tuna and swordfish harvesters based in the area were noted not likely to be displaced from fishing grounds. Dungeness crab and pink shrimp, both included in the Atlas analysis, were identified as not being important fisheries to the region and recommended they be removed from the draft PEIS considerations. Regional Fishery Management Plan (FMP)-managed fisheries and EFH that were mentioned in comments and recommended to be included in the draft PEIS include:

- Pacific Coast Groundfish;
- Coastal Pelagic Species;
- Highly Migratory Species;
- all species that the Atlas included with EFH that overlaps with the alternative areas;
- forage fish populations that may be used as feed; and
- larval and juvenile recruitment of wild fish and crustaceans.

Areas of ecological significance that were mentioned in the comments include:

- State-designated areas of Special Biological Significance: Channel Islands of Santa Barbara, Anacapa, Catalina, San Clemente, San Nicolas, and Begg Rock;
- Audubon-designated Santa Barbara Basin Important Bird Area;
- NMFS-designated Biologically Important Area for gray whale migration in Southern CA;
- details for abalone habitat (since there is no designated critical habitat);
- hard-bottom habitat;
- HAPCs: rocky seafloor, canopy kelp, seagrass, submerged vegetation, complex flood channels; estuaries, seamounts and canyons;
- spawning habitat and thermal refugia of Pacific salmon; as well as more generally,
- benthic communities;
- critical habitat;
- nursery areas;
- foraging grounds;
- migratory routes; and

- habitats already stressed due to human-induced environmental degradation.

Specific habitat buffers were not provided in comments beyond citing what was included in the Atlas. However, some comments recommended that PFMC and CDFW assist the development or refinement of buffers that may be included in the draft PEIS for EFH and other sensitive habitats. Submissions also recommended that the draft PEIS use the NMFS regulatory guidance for sustainable fishery management and the ten National Standards (50 CFR Part 600 Subpart D) to analyze impacts of offshore aquaculture on FMP and EFH. For more information on socioeconomic fisheries impacts, see Prompt 11 and Prompt 12.

Physical features that comments mentioned could affect marine life interactions include:

- DDT dumpsites in Santa Monica Bay are a dangerous source of effluent that is known to bioaccumulate through food webs and cause mortality events;
- the canyon West of Marina del Rey is a popular fishing spot for both commercial and recreational operations; and
- natural oil seeps near Ventura are incompatible with fishing operations and would likely have a similar effect on aquaculture products.

Themes in comments related impacts to potential impacts to biological resources include damaged or otherwise disturbed habitat, changes in community composition, entanglement, ship strikes, aggregations and other behavioral disturbance, and anti-predation deterrent interactions. Comments on potential impacts to living marine resources were linked to physical ocean conditions, impacts on fisheries and tourism economics, cultural identity, food web structure and ecosystem effects, marine debris, climate change, disease and biosecurity, and water quality.

Local sanitation districts stated that the proposed alternative areas would overlap with established monitoring stations from other NPDES permit-mandated areas in the alternative areas. They noted that aquaculture farm effluents (finfish net pens were identified specifically) have the potential to interfere with the NPDES required monitoring activities such as benthic sediment sampling, trawling, core water quality sampling, and rig fishing. Comments stated that overall, offshore aquaculture overlap with NPDES monitoring could interfere with the public wastewater agency's ability to comply with Clean Water Act (CWA) requirements and could restrict access to monitoring stations. Comments stated that if AOAs disrupted long-term monitoring data, it could increase costs associated with additional monitoring or financial penalties. Comments noted that the re-location of established stations would require consultations, time, money, and disrupt historic references that are important indicators of environmental status and health in the region. Robust environmental surveying and biochemical modeling was recommended for the draft PEIS analysis if proposed alternatives include areas with established water quality monitoring needs.

Comments indicated that the prevailing currents and other ocean conditions in the region would likely offset many potential adverse impacts to the water column. An example of an adverse impact provided from finfish aquaculture was excess nutrients that could create or exacerbate eutrophication and harmful algal blooms; another example provided was that macroalgae and

shellfish aquaculture could alter nutrient profiles in the water column around a farm, which could have indirect impacts on the ecosystem. It was stated that high energy currents and waves could disperse metabolic waste, distribute nutrients and sediments, and offset eutrophication. However, it was stated that those same attributes increase risk of Infrastructure loss and damage; and they increase risk of fish escapes. Comments noted that farm access would also be difficult due to dynamic ocean conditions in some of the alternative areas, and "weather-windows" for harvesting would be limited. Additional comments on ocean conditions were provided related to the distance between farms or layout of AOAs in context of shared geographic space (see Prompts 13 and 14 for AOA parameters).

Comments that recommended oceanographic and biochemical modeling for the draft PEIS impacts analysis were in regard to finfish aquaculture (excess nutrients from dead fish, waste, excess feed); but it was stated that all types of aquaculture may create effluents in the form of husbandry, cleaning chemicals, or spills. Commenters recommended the draft PEIS analyze how those effluents concentrate, move, deposit, and affect resources locally as well as how they disperse through the SCB. Specific questions on model inputs, outputs, parameters, spatial resolution, and other modeling methods were provided by some local agencies and organizations. Comments recommended that additional outreach seek to work with local scientists to identify parameters and support modeling for the draft PEIS impacts analysis.

Comments recommended that NMFS WCR coordinate with State agencies on potential impacts to public health and biosecurity. For example, communicating with the California Department of Public Health, Environmental Management Branch along with the FDA's Division of Seafood Safety. Saxitoxin and Domoic acid were mentioned to be monitored by the CA Department of Public Health, Environmental Management Branch's Marine Biotoxin, and Phytoplankton Monitoring Programs. Disease and biosecurity topics that were suggested in comments include:

- fish escapes and interactions with wild populations;
- toxin levels in aquaculture products;
- biofouling;
- high use of plastics in netting, lines, and other gear;
- marine debris and microplastics that could shed during transport or cleaning activities;
- parasite and disease transmission;
- aquatic pollution and long term risks caused by excess nutrients, the use of antifoulants, pesticides, and other husbandry chemicals, antibiotics and other drugs; and
- ecosystem disruptions from the disbursement of nonnative or GMO genetic matter and gametes.

Resources that have experienced impacts from large-scale, ecosystem fluctuations in the region that commenters referenced as examples of what could be exacerbated by aquaculture stressors or could also affect viability of offshore aquaculture include:

- DDT mortality events in CA sea lion, dolphins, coastal CA condors, jack mackerels and white croakers;
- Domoic acid, saxitoxin (Paralytic Shellfish Poisoning), Amnesic Shellfish Poisoning, and other harmful algal blooms that disrupt fisheries and coastal shellfish aquaculture; and

- abnormally-warm ocean temperatures along the California coast in 2015 and 2016 that contributed to a harmful algal bloom event that forced closures of the Razor Clam, Dungeness crab, and Rock Crab fisheries.

Prompt 11. Commercial and Recreational Fishing, Tourism, and Other Ocean Users

"NMFS requests public input on… potential interactions with commercial and recreational fishing industries, tourism and recreation, and other offshore ocean users."

Themes in comments about potential impacts to other ocean users include opportunities and continued access to resources, geographic and market overlap with commercial and recreational fishing, recommendations for data to refine the draft PEIS analysis, aquatic pollution, indirect and cumulative ecosystem impacts. Comments recommended additional outreach related to the local and State seafood sector to get a better idea of who and what businesses and consumers are, as well as what the demand for specific types of aquacultured products may be, how they would tie into CA food systems and other food systems on greater geographic scales. Regional economic industries and communities that comments linked directly to the proposed action include:

- commercial and recreational fishing operations;
- private boat charters;
- whale watching, diving, and other ecotourism;
- private sailing and other small craft private boating;
- coastal county residents;
- coastal tourists and beach-goers;
- local conservation groups;
- local small independent businesses;
- local seafood processors, purchasers, distributors, and consumers;
- local and statewide aquaculture operators;
- local Port Districts;
- regulatory entities and their representative stakeholders;
- Californians and CA Native American tribes with cultural connections to the ocean;
- staff on survey, research, or maintenance cruises for offshore industries;
- manufacturing entities that may be incorporated into developing aquaculture;
- maritime shipping, and other offshore industries; and
- U.S. and international markets related to CA food systems.

The seasonality of how those communities and industries use the ocean in the SCB was noted. Examples of activities that may vary throughout the year include demand for workers, job opportunities and vessel traffic, migrations of fish and marine mammals that increase or decrease fishing and ecotourism activities as a result of wildlife activity. Comments recommended the draft PEIS compare harvest seasons, timing for project siting surveys, maintenance and monitoring schedules, and other offshore aquaculture activities to migration

seasons, recreational and commercial fishing seasons, weather, and other seasonal variations of the SCB. Commenters noted that seasonal and annual variability in environmental conditions makes it unclear where fishing and other recreational activities may occur. Comments noted that activities may not be tied to specific habitats, but instead use highly-dynamic environmental cues such as prey abundance and water temperatures. Comments noted that in a spatial analysis, low value areas quantified from past years' data may not indicate potential for high value areas in the present or in the future. Comments pointed out that changes in gear technology, market demand, and climate change all could influence changes to high and low-valued areas as well.

Fish aggregations was a common theme among comments related to opportunity and access to resources among many ocean users. Fish aggregations were noted to potentially-create new areas for recreational fishing, eco-tourism, and other recreational activities. Desire for anglers, spear fishers, divers, and other stakeholders to take advantage of fish aggregations, and have continued recreational access to the marine space within AOAs was stated by individuals and agencies. Comments recommended looking to the oil and gas industry for how they interact with recreational activities close to existing oil rigs in the SCB. On the adverse side of fish aggregations, commenters noted that if target fish were drawn into areas very close to aquaculture gear as refugia, some commercial fishing operations, with larger space requirement for their gear and navigational safety, would not be able to access those fish. Commenters recommended the draft PEIS anticipate those conflicts and include ways to mitigate them. For specific mitigation suggestions see Prompt 7.

Commercial fishing activity comments were in submissions that focused mostly on Alternative 2, Santa Barbara Channel, although some comments addressed fishing operations more generally across the whole SCB. Important recreational fishing areas were noted in both alternative areas. Important ports that commenters identified to contribute to the region's commercial fishing industry include Ventura Harbor, Port Hueneme, Santa Barbara Harbor, the Channel Islands, Port of Long Beach, and the Port of San Diego. CDFW commercial landings data was recommended to inform any economic analysis of wild-caught species and port activities. Important fishery species, FMP-managed fisheries, and EFH that were identified by comments are included under Prompt 10.

In general, many organizations with fisher stakeholders recommended more data on a smaller scale than what was included in the Atlas be incorporated into any maps or figures in the draft PEIS. Organizations and agencies recommended that NMFS WCR coordinate with CDFW to obtain more data for use in the draft PEIS and to come up with methods to share that data to the extent possible with aquaculture applicants in the future. Direct communication with fishers was also recommended to ground truth spatial analyses and to capture more details from experience-based knowledge that may not necessarily be captured in quantitative analysis or spatial mapping. Comments recommended working with CDFW, PFMC, and local fishing groups to improve upon dataset use in the Atlas and ensure the accuracy of the impacts analysis. Examples of additional, smaller-scale data that were provided include:

- areas known to the commercial fishing industry to have choppy waves or irregular currents that may impact navigation and safety, or could increase operation costs;
- bathymetric features that attract recreational fishers; and
- waters deeper than 100 meters due to higher risk of conflict with passenger or private boat operations.

Other fisheries data topics that comments recommended be as refined and as accurate as possible in the draft PEIS include:

- the type of vessels, fisheries that use VMS data;
- the type of vessels, fisheries that are incorporated into AIS data;
- the use of CA Recreational Fisheries Survey (CRFS) data;
- the use of fisheries observer data;
- the use of eco-tourism vessel data;
- the use of CDFW fishery market microblocks;
- including the spatial relationship between commercial and recreational fishing with MPA boundaries; and
- including latitude and longitude coordinates, fathom lines, bathymetric features, and any navigational standards of the USCG on any maps or figures.

Potential market impacts comments included topics on competition versus complementary economic benefits, the relationship of seafood prices to employment, social impacts of maintaining historic wild-caught vessel fleets, and the social impacts to logistical relationships between commercial fishing, aquaculture, and the ports. Comments recommended that in order to analyze social and economic costs to existing fishing operations versus overall economic benefits, the draft PEIS should include an estimate and understanding of what products are made from different types of aquaculture, and where those products may be purchased or used.

Regarding finfish aquaculture, comments asserted that cultivated fish would likely be aimed for high-end products. Comments cited the expense of operating an offshore finfish farm and suggested finfish farm investors may pursue the business for competitive advantage over wild-caught fish. Comments noted that the finfish high-end products are purchased by foreign markets (citing landings and export data from wild-caught fisheries), rather than for domestic food systems. Finfish aquaculture was assumed to have a greater impact on the commercial fishing industry than other types of aquaculture due to potential socioeconomic and environmental overlap.

Potential opportunity costs due to potential geographic overlap of offshore aquaculture with fishing grounds, ecotourism, and other ocean uses were related to comments on public trust, access to resources, safety in navigation, public health, and economic opportunities for small local businesses and individuals. Comments within this theme acknowledged that the draft PEIS may effectively create an advantage for future aquaculture applicants in the permitting process by gathering baseline information and creating standards or criteria that may make future consultations more efficient. As a result, comments asserted, time and resources could be saved by siting a farm in an AOA versus anywhere else. Related to that potential advantage, comments raised the question, who would be able to take advantage of the potential efficiencies

of an AOA? Comments expressed that only large, industrial farms owned by corporations could site farms offshore in an AOA and the proposed action would therefore cause social and economic damage to existing seafood harvesters. Comments stated concern that the proposed action was a form of a "land-grab" that would give private entities the right to exclude others from areas open to the public, restricting access to public trust resources. Some comments from local individuals expressed interest to partake themselves; organizations and agencies asserted that AOAs should be set up in such a way that it leaves opportunity for both small and large businesses to take advantage of the opportunity. More details on comments related to equity and opportunity are included under Prompt 6 and Prompt 8.

Prompt 12. Cumulative Impacts

"NMFS requests public input on… Information on other current or planned activities in, or in the vicinity of, the areas described in this NOI and their possible impacts on aquaculture development, or the impact of aquaculture developments on those activities."

Submissions from CDFW, SLC, EPA, EDF, AFFTA, ACSF, PFMC, PCFFA, CFS, Don't Cage Our Oceans, and members of the general public provided relevant information for Cumulative Impacts. Some comments suggested general methods for the cumulative impacts analysis, including:

- identify how resources, ecosystems, and communities in the project have already been, or will be, affected by past, present, or future activities in the project area;
- characterize resources in terms of response to change and capacity to withstand stresses;
- focus on resources that are already of concern or at risk, as well as those that would require mitigation due to significant impacts of the proposed action;
- establish baseline data so that following trends data could be evaluated sufficiently; and
- use trends data of historical degradation to predict impacts of future project components.

The geographic scope of the cumulative analysis was suggested in many comments to include the entire SCB, although at least one comment scaled potential cumulative impacts to the greater CA Current Ecosystem. Most of the comments about cumulative ecosystem impacts focused on aquatic and biological resources in both Federal and State waters. Comments recommended the following cumulative impacts on biological resources to be considered in the draft PEIS:

- damages to hard bottom habitat, sponges, and coral;
- disruption of benthic communities;
- nutrient load (of farms, as well as in addition to other existing sources) as an important driver in ocean acidification and hypoxia processes;
- long-term impacts of antibiotic use, such as resistance from farmed to wild fish;
- long-term food web, and other ecosystem impacts;
- ecosystem impacts associated with climate change (see Prompt 9);
- how food web changes affect recreational and commercial fishing opportunities.

Comments that addressed more physical impacts to the environment also brought up shoreside impacts, noting that the social and economic suitability of an AOA may only be defined through the analysis of indirect impacts to communities on land. Shoreside considerations that were suggested in comments to include in the draft PEIS are:

- comparing different ports' abilities to participate in a new commodity;
- traffic congestion (marine and land-based) in and around ports;
- increased demand on existing infrastructure;
- sources of funding for infrastructure improvements, expansion, and promotion;
- changes to the coastline from development associated with infrastructure expansion;
- damages to the coastline from lost gear.

The draft PEIS would also need to consider the cumulative impacts associated with other activities in the proposed areas. Suggested ways to categorize other offshore ocean uses and activities include: current maritime uses, existing infrastructure associated with offshore industries, future offshore development, regulatory changes on offshore industries, and other aquaculture projects. Other activities and infrastructure that commenters recommended NMFS WCR consider in the cumulative impacts analysis include (but not limited to):

- navigational channel maintenance dredging;
- subsea cable installation;
- oil rigs and other oil and gas infrastructure;
- wastewater outfalls and associated water quality monitoring;
- the impacts radius of recent sewage and oil spills;
- the impacts radius of the recently-discovered DDT dumping sites and associated research activities;
- future renewable energy projects; and
- vessel traffic associated with any of the other current or planned activities.

Individual aquaculture projects (outside of the AOA planning effort) that were mentioned specifically in comments include:

- Ventura Shellfish Enterprise;
- Pacific Ocean Aquafarms;
- Ocean Rainforest; and
- Avalon Ocean Farm.

Analysis of the cumulative loss of fishing grounds, historically and due to offshore aquaculture development, was requested by organizations and individuals associated with that stakeholder group. Some commenters also recommended the draft PEIS should also try to predict, due to the combined loss of fishing grounds, how physical and ecological impacts to resources would get exacerbated if fishing effort gets further confined into more restricted spaces, as well as the socioeconomic impact on fishing community vulnerability. Fishing community vulnerability comments asserted that as a result of offshore aquaculture development and other offshore activities, less vessels, small local businesses, and individuals would be able to afford to fish, especially if the fishing grounds were pushed farther offshore along with harder competition in

the market. One comment suggested using the number of vessels in the local commercial fleets over the last two decades as evidence of these impacts. Historic and current stressors on the commercial fishing industry that were mentioned in the comments as having geographic overlap with historic fishing grounds or otherwise decrease fishing success include:

- establishment of MPAs and NMSs;
- the State and Federal 30 by 30, America the Beautiful conservation initiatives;
- maritime shipping;
- importation of seafood that could hurt domestic pricing;
- proposed independent aquaculture projects (other than AOAs) including Pacific Ocean Aquafarms, Ocean Rainforest, and Avalon Ocean Farm;
- wind opportunity areas and wind energy projects;
- undersea telecommunication cables;
- oil and gas infrastructure;
- oil spills and sewage outfalls;
- recently-discovered DDT dumping grounds and associated research areas;
- degradation of habitat and effects on wild populations;
- shifts in productive waters due to climate change;
- more frequent disruptions due to harmful algal blooms and other more unpredictable weather patterns with warming oceans;
- increasing restrictions on wild-caught fishing effort (in general);
- temporary closures and gear restrictions due to whale sightings (with the presence of some whale species becoming more frequent with warming oceans);
- changes in fishing regulations (since 2019 specifically); and
- projected changes in commercial and angler rules in State waters that could make federal waters more important to those ocean users.

Commenters noted the cumulative impacts of other socioeconomic factors were a bit harder to define, but suggested the draft PEIS be clear in its methods and definitions on how the AOA identification process would contribute to greater economies and food systems in the region, the state, and the nation.

Prompt 7. Technologies and Strategies to Mitigate Risks

"NMFS requests public input on… Information related to technologies and strategies that could increase opportunity or mitigate risks of aquaculture development."

Submissions from EPA, PFMC, SLC, CDFW, Cal-OPC, CCC, OC San, Commercial Fishermen of Santa Barbara, ACSF, PCFFA, and individual commenters provided relevant information to mitigation. For more information about comments more specific to monitoring and reporting, see Prompt 3. Some of the impacts discussed more among mitigation-related comments include fish escapes, ecosystem-level impacts, pollution and eutrophication, impacts to the seafloor and other sensitive habitats, entanglement, predator deterrents and controls, compliance oversight,

impacts to the commercial and recreational fishing communities as well as other communities that rely on or identify with fishing operations in the region.

Commenters noted that although many mitigation measures get incorporated during the permit and consultation process, and therefore outside the jurisdiction of AOA planning, describing them in the draft PEIS would serve to alert other agencies and officials who could implement them in the future. Some comments stated that performance standards for an AOA could mitigate impacts and drive the industry forward in a more sustainable way. Alternatively, some expressed concern that the cost of mitigation would increase entry costs -- not only for aquaculture but for new vessels and gear technology development. Commenters expressed that deferring the description of mitigation in a programmatic environmental document is a common flaw that should be avoided in AOA planning. Some comments stated that the draft PEIS should describe mitigation measures as specific, feasible, and enforceable obligations. Comments encouraged the draft PEIS to provide mitigation in sufficient detail so that all project-specific tiered environmental review would be covered by the draft PEIS mitigation descriptions.

Suggestions for standards for what plans should be included for aquaculture farms permit applications and consultations within an AOA include:

- navigational standards familiar to fisheries management on any figures, maps;
- maps of fine-scale fish habitat data, bottom features in a proposed area;
- maps of fishing ground value that are generated by commercial and recreational fishing stakeholder input;
- demonstrated avoidance of areas with existing fishing operations in the alternatives, and the opportunity costs to fishing operations as a result of any overlapping areas;
- strong stakeholder input in any project-specific planning with community-vetted applicants;
- proof of applicant qualifications, including years of experience in coastal or offshore industries, number of employees with local maritime experience;
- quantified information on the amount, types and hours of usage of piers, launch ramps, hoists, ice, and other demands on shoreside facilities; and
- evidence of insurance policies that cover damages to fishing vessels, gear and human injury or loss of life.

Suggestions for operations performance standards for farms sited within an AOA include:

- planning for, monitoring, and documenting efficiencies in feed or other system inputs;
- systematic review and improvement of aquafarm operations;
- regular independent third-party inspections for assessments and compliance;
- frequent net cleaning and replacement;
- maintenance of appropriate biomass and fish stock density;
- regular culling and collection of sick and dead fish;
- practices that prevent the spread of aquatic invasive species and pathogens within and outside facilities;
- use of sophisticated monitoring models;

- buffer zones put into effect through consultation with NOAA, CDFW, USCG, and PFMC to mitigate habitat damage and navigational hazards; and
- specific safety measures, other than blanket spatial exclusions.

Many commenters voiced concerns related to the risk of the unknowns associated with aquaculture. Some stated that the risk of unknowns are too great at this time to proceed with the proposed action at all; that more research and regulatory work needs to be developed first. That risk, they said, should generally-influence the careful analysis of any and all impacts associated with identification of an AOA. Suggestions for specific risk assessments to incorporate in the draft PEIS include:

- metazoan parasites of California yellowtail, using the risk assessment of yellowtail kingfish (*Seriola lalandi*) in Australia as an example;
- marine mammal, turtle, and other wildlife entanglement and secondary entanglement;
- interactions with any living marine species and how that may impact ecosystem functions in the SCB; and
- cumulative loss to commercial and fishing grounds.

Suggestions for plans and agreements include (also see Prompt 3):

- environmental and species baseline assessment plan;
- EJ community monitoring and mitigation plan;
- cultural resource management plan;
- economic loss mitigation strategy, informed by direct & indirect disruptions to wild caught fisheries;
- fishing community benefit agreements;
- Hazard Analysis and Critical Control Point (HACCP) plans;
- contingency plans for storm events, spills, debris cleaning and reduction, facility storage, and gear removal due to damage or other retired use and decommissioning;
- bonds or other dedicated funding that can be drawn on by management agencies to quickly resolve issues that are not adequately addressed by facility operators;
- marine debris management plan;
- plan to remove gear if it washes up on shore and to return the coastal area to its original condition;
- long-term operations and monitoring plans for identifying operational issues that could cause adverse effects to water quality, wild marine species, and benthic habitat;
- quality assurance plans that includes selected models, output criteria, contingency measures; and
- adaptive management plans.

Other mitigation suggestions include:

- identify AOAs in areas already closed to fishing (also included under Prompt 1 in Alternatives);

- insurance, bonding requirements, or other financial guarantees to ensure necessary gear cleanup and/or any damages and have the draft PEIS evaluate the appropriate amount of insurance, bonding, or financial guarantee;
- develop a framework for defining a role for stakeholders in the permitting process;
- have the permitting process within an AOA favor locally known entities with good standing in the community and appropriate experience;
- designate a liaison paid for by the Aquaculture industry and selected by the fishing community to handle communications and organize mitigation programs, similar to the BOEM Joint Oil/Fisheries Liaison Office;
- proactively contemplate environmental changes that could be attributed to other factors from other ocean industries or ecosystem fluctuations, particularly concerning species with large natural variations in presence or stocks.

Prompts 13 and 14. Input on AOA Parameters

"NMFS requests public input on… Input on the size parameters of a single AOA that would be suitable to support aquaculture development in the Southern California Bight [and] Input related to the risks and/or benefits of whether an AOA should be a single, continuous geographic space, or a collection of discrete areas separated from one another."

Submissions from PFMC, VPD, CFSB, Don't Cage Our Oceans and other commenters provided relevant information for AOA size or other geographic parameters. Comments that made recommendations on the parameters of AOAs related to topics on navigation, habitat degradation, wildlife entanglement, fishing operations, search and rescue operations, scientific surveys and monitoring. Some comments claimed that generally, the parameters put in place for the spatial analysis and in the preliminary alternatives would only support large-scale industrial approaches to aquaculture. As a response to that assumption, some comments more generally recommended water depths or locations other than what was proposed in the NOI (see Prompt 1); and those comments thought that a range of depths, areas, and range to ports could make AOAs more attractive to a larger aquaculture industry group with diverse operational needs, satisfying the goal to make an AOA suitable for all types of commercial aquaculture (see Prompt 8).

Comments about the size parameters of an AOA provided information for smaller and larger footprints. It was noted that the draft PEIS could include more refined analysis, since the proposed sizes (500-2000 acres) are larger than all existing offshore and nearshore operations in the U.S. The proposed maximum area of 2,000 acres was stated by some comments to be sufficient as long as the layout of an AOA would allow space between farms for various buffers, monitoring needs, and safe navigation channels. Comments that supported smaller footprints simply stated smaller AOAs would reduce impacts on benthic habitat and minimize overlap with other offshore maritime uses, assuming the likelihood of negative interactions increases with number and size of offshore structures and equipment within an AOA.

Comments that supported larger footprints provided a few reasons. One such reason was that a minimum of 2,000 acres (proposed in the NOI as the maximum limit) may allow safer navigation through an AOA and around farms by boats and wildlife. It was suggested that larger blocks could also allow aquaculture companies to combine resources and investment, potentially-providing opportunities for collective monitoring, permitting, health certification, and transportation to and from AOA areas. Commenters expressed that AOAs would have to operate on a large enough scale to have larger and smaller producers work together to realize socioeconomic benefits in the local communities, and to satisfy social and economic sustainability goals.

Comments about whether an AOA should be identified as one contiguous space, or as a collection of smaller, discrete areas cautioned against the clustering of farms or AOAs near to one another. Reasons provided against a cluster of farms or AOAs include difficult navigation for other ocean users, difficult avoidance for wildlife species, and it may exacerbate water quality impacts. Some comments recommended that the draft PEIS consider effluent "hotspots" and other compounding effects of farms close to one another. Some stated that changes in local hydrodynamics caused by aquaculture infrastructure could also exacerbate stressors that are associated with climate change and already impacting the SCB, such as algal blooms, hypoxia, and ocean acidification. Net pens were specifically noted to have the potential to disrupt hydrological patterns locally, affecting downwelling, circulation patterns, and current velocities around an AOA. Organizations, State, and Federal agencies pointed out that those impacts would likely be greater and more concentrated if farms in an AOA were sited close together across a single, continuous geographic space. Some comments also recommended the density of the infrastructure within an AOA be incorporated into any cost-benefit analysis for socioeconomic factors.

Prompt 15. Environmental, Economic, and Social Sustainability

"NMFS requests public input on… Input related to how an AOA could simultaneously support aquaculture development along with environmental, economic, and social sustainability—including ways to incorporate mitigation and cost-benefit analyses."

Submissions from EPA, VPD, EDF, and general public individuals provided relevant information on how an AOA could simultaneously support aquaculture development along with environmental, economic, and social sustainability. Prompt 15 also asked for information related to cost-benefit analyses and mitigation measures, which are covered by other sections of this summary.

In general, comments requested more clarity on what environmental, economic, and social sustainability means in terms of an AOA, the AOA identification process, and the development of offshore aquaculture. Comments stated that AOAs could be the vehicle to develop new techniques or technologies to make sure that the triple bottom line (social, economic, environmental) of sustainability could indeed be met. Comments recommended that the draft PEIS include success criteria, performance standards, and other metrics to better define or

describe these factors. Commenters stated that metrics related to these characteristics would be useful as a standard part of the aquaculture permitting prioritization and evaluation process (see more details for comments related to permitting standards under Prompt 7). Comments recommended having local stakeholders and the public help to create these metrics, making sure any guiding principles, or project applications, were "community-vetted" and supported transparent decision-making. Comments noted that cost-benefit analyses and trade-off analyses would be important to analyze the net losses or gains in all three areas.

Prompt 16. Other Relevant Information

"NMFS requests public input on… Other information relevant to the Proposed Action and its impacts on the human environment."

Two subjects that came up in submissions, but contained details that did not necessarily fit into any of the other NOI prompts, are lessons learned from other aquaculture operations and ways to coordinate with the State on aquaculture planning.

Lessons Learned

Comments pulled examples from other aquaculture operations and aquaculture policies as a way to show what could be expected from siting aquaculture farms in an AOA. Comments provided potential impacts and comparisons of policy decisions from domestic and international sources. Table 6 summarizes the examples that commenters provided directly in comments. Table 6 does not include the locations of many cited studies or peer-reviewed literature referenced in comments or provided as supplementary information; however. NMFS WCR will consider all substantive information from comments and supplementary information to build the content of the draft PEIS.

Table 6. Lessons Learned from Other Aquaculture Operations

Geographic Area	Considerations for the draft PEIS
California	shellfish aquaculture planning, shellfish and macroalgae multi-species aquaculture planning, commercial fisheries interactions, potential economic input, environmental compliance, safety, seafloor damage, marine debris, water quality, site-source pollution, ecosystem fluctuations, harmful algal blooms,
Washington	environmental compliance, fish escapes, pathogens and pests, pesticides, phasing out finfish aquaculture, requirement recently imposed by the State's Department of Ecology that owners/operators for new technologies and alternatives that reduce or prevent discharges

Geographic Area	Considerations for the draft PEIS
Washington and Oregon	hypoxia, EPA prohibition of discharging seafood processing waste offshore
Hawaii	marine mammal entanglements
Alaska	wild fish stocks, market price impacts on wild-caught fish, diversifying income for fishers
United States	lack of federal leases or other legal mechanisms that establish site control
Canada (Nova Scotia and British Columbia)	phasing out nonnative aquaculture and finfish aquaculture, adverse impacts of antibiotics
Denmark	national prohibition on offshore aquaculture development
Scotland	fish escapes
Norway	fish escapes, carbon footprint, food systems and distribution of farmed products
Chile	fish escapes
Tasmania	fish escapes
Faroe Islands	fish escapes

Aligning with California's Ocean Policies

State agencies, organizations, and individuals provided information and supporting documents about CA ocean policies and ongoing aquaculture planning. Some comments recommended that the draft PEIS consult relevant State agencies to ensure that all State-required procedures, permits, and fees are anticipated and adhered to, including those imposed by new legislation and/or regulation. State and Federal agencies commented that the draft PEIS should provide the basis for additional NEPA and CEQA reviews, including State agency permitting in addition to Federal permitting that would be triggered by future farms proposed within an AOA. Some comments from organizations and individuals asserted the draft PEIS should also trigger a federal consistency review under the Coastal Zone Management Act (CZMA). In addition to the many region-specific examples summarized in other sections of this report -- for topics such as suitable gear and species, ecosystem-based management, and working waterfronts -- the following documents were mentioned as a way to provide guidance and inform comprehensive development of offshore aquaculture:

- Draft Aquaculture Action Plan (Guiding Principles for Sustainable Marine Aquaculture in California (Cal-OPC 2021), available online at

https://www.opc.ca.gov/webmaster/_media_library/2021/06/Aquaculture-Principles-Public-20210604.pdf;

- Water Quality Control Plan for Ocean Waters of California (SWRCB and CA EPA 2019), available online at https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/oceanplan2019.pdf;
- Regional Water Quality Control Board (RWQCB) Basin Plan (Region 3 last edited 2019), available online at https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/;
- RWQCB Basin Plan (Region 4 last edited 2022), available online at https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/;
- Draft Statewide Microplastics Strategy (Cal-OPC 2021), available online at https://www.opc.ca.gov/webmaster/_media_library/2021/12/Statewide-Microplastics-Strategy_Public-Draft_12.21.2021.pdf;
- Environmental Justice Policy and Implementation Blueprint (SLC 2018), available online at https://www.slc.ca.gov/wp-content/uploads/2018/11/EJPolicy.pdf;
- California Cooperative Oceanic Fisheries Investigations (CalCOFI) larval fish data sets, available online at https://calcofi.org/; and
- CDFW Final California Commercial Landings Tables - Poundage and Value of Landings by Port, available online at https://wildlife.ca.gov/Fishing/Commercial/Landings.

Next Steps

Preparing the Programmatic Environmental Impact Statement

The next step in the NEPA process is the preparation of the draft PEIS. NMFS WCR and its cooperating agencies will review and consider all substantive information from scoping comments and supplementary information. The agencies will also explore and gather data that may not have been available at the time NCCOS conducted the spatial modeling for the Atlas. The agencies will work collaboratively to refine the proposed alternatives and scope of the draft PEIS.

NMFS WCR will keep the AOA website up to date with the latest information on the process, and provide updates to subscribers of the regional aquaculture newsletter. The link to subscribe to the NMFS WCR aquaculture newsletter is available online at https://public.govdelivery.com/accounts/USNOAAFISHERIES/subscriber/new. Additionally, NMFS WCR will provide regular updates on the draft PEIS process at PFMC meetings. These meetings are open to the public (in-person and virtual). For those unable to attend, meeting recordings are available on the Council's website, https://www.pcouncil.org/council-meetings/.

NMFS WCR plans to develop the draft PEIS through 2023. The public will have another opportunity for comment when NMFS WCR publishes the draft PEIS in the Federal Register. NMFS WCR will respond to public comment on the draft PEIS in accordance with NEPA, and then publish the final PEIS. After a minimum of 30 days after the final PEIS is published in the Federal Register, there will be a Record of Decision (ROD) on the proposed action and

preferred alternative. NMFS WCR will continue to update the timeline on the AOA website and notify the public should this timeline change significantly.

Appendix A. Written Letters

July 20, 2022

Scott M. Rumsey

Acting Regional Administrator

NOAA Fisheries West Coast Region

Sent electronically

RE: NOI to prepare a programmatic environmental impact statement for identification of one or more Aquaculture Opportunity Area(s) in Southern California

Dear Administrator Rumsey,

Who we are

The Alliance of Communities for Sustainable Fisheries (ACSF) is a 20-year-old 501(c)(3) not-for-profit organization, founded for the purposes of educating the public on fisheries issues, connecting fishing men and women ("fishermen") with their communities, and representing fishing interests in state and federal processes. The ACSF is a regional organization, with commercial fishing leaders, representing Monterey, Moss Landing, Santa Cruz, Morro Bay, Pillar Point, and Port San Luis, on our Board of Directors. Port communities, several recreational fishing organizations, and the California Wetfish Producers Association (squid, sardines, etc), also have representatives on our Board. Thus, the ACSF represents a large cross-section of fishing and community interests for the Central Coast of California.

General Comments

The ACSF appreciates the opportunity to comment on the Notice of Intent (NOI) to Prepare a Programmatic Environmental Impact Statement (PEIS) for

Identification of One or More Aquaculture Opportunity Area(s) in Southern California.

First, we herein establish that we fully support both the comments provided by the Pacific Fishery Management Council and the non-profit organization, Commercial Fishermen of Santa Barbara. The ACSF will not seek to reiterate those comments, but we may provide emphasis and/or added detail.

Our organization also appreciates the approach that NOAA has taken in attempting to create an Atlas to help identify areas of least conflict for new ocean uses, and NOAA's willingness to conduct the PEIS prior to advancing leases or projects. This is right approach, and we contrast it with BOEM's problematic approach of leasing first, then conducting more complete environmental analysis for offshore wind development.

The main message

Fishermen do not support aquaculture projects that remove productive fishing grounds from harvest opportunity. We have lost, and are continuing to lose, areas to MPA's (state and federal), wind energy projects, telecommunication cables, shipping lanes, etc. These closures, plus temporary closures such as to avoid whale interactions, have already put California fishermen on the ropes.

Addressing certain requested sixteen areas of information:

(2) Suitable species and gear for aquaculture.

The ACSF strongly concurs with the Commercial Fishermen of Santa Barbara recommendations that non-native species and finfish aquaculture be disallowed in all designated aquaculture areas, and elsewhere in federal waters.

Although not part of the PEIS scope, we strongly believe that the Pacific Ocean Aquafarm finfish project should not be permitted, anywhere.

(5) Potential impacts to biological, physical, social, cultural, and economic resources.

First, we share the environmental concerns expressed in both previously cited letters.

Second, finfish aquaculture has the potential to seriously upend the social, cultural, and economic fabric of wild-capture fisheries and the communities that depend upon and identify with these historic fisheries. Finfish aquaculurists would not develop these businesses if they did not believe that their products will have a competitive advantage over wild-captured seafood. This will, of course, gut the value of wild capture products.

Perhaps even more disturbing is the question: Why is the US government and NOAA seeking to advance finfish aquaculture instead of enabling its existing fisheries to harvest greater percentages of the total allowable catch (to OY) of many west coast species? The groundfish fishery, for example, has left multi-millions of pounds of fish unharvested each year since the ITQ system was adopted. The ACSF respectfully submits that NOAA would be more helpful to fishermen and US citizens if it put more energy into enabling more fish to be harvested responsibly. West coast fisheries do not have an overfishing problem, but many do have an underutilization problem.

(11) Potential interactions with commercial and recreational fishing industries...

The NOS-developed Atlas is a peer-reviewed science product that claims to have been vetted by a panel of experts. However, as documented in the PFMC letter, numerous errors are made, including mis-using location monitoring data sets. Even more perplexing is that we can find no Santa Barbara and Ventura area fishermen who were consulted to ground truth the proposed areas of least conflict. To quote the PFMC letter:

"This above results in less confidence in the analysis provided in terms of potential impacts to fisheries and fishing communities. As such, we recommend NOAA engage with the local commercial and recreational fishing industries in an effort to validate and correct the datasets provided in the Atlas and used in the Area identification process."

The ACSF believes that the eight northern region aquaculture sites must be put on hold until NOAA consults with the regional fishing industry. If corrections to the Atlas are not made, at minimum NOAA should consult with local fishermen to obtain finer-scale information about the proposed Selected Site Options and alternative locations.

12) Information on other current or planned activities...

Aquaculture projects should not be sited in locations that interfere with long-standing scientific surveys and stock assessments. The PEIS should evaluate this potential interference and suggest ways to avoid or mitigate this interference.

(15) **Input related to how an AOA could simultaneously support aquaculture development along with environmental, economic, and social sustainability—including ways to incorporate mitigation and cost-benefit analyses.**

In the event that offshore aquaculture projects advance to the permitting/lease stage, the ACSF believes that appropriate mitigations must occur. These could be in the form of opening a section of the ocean currently closed with similar habitat to fishing, and/or requiring aquaculture developers to enter into binding Fishing Community Benefit Agreements (FCBA). FCBA's would provide yearly funding to affected commercial fishing port-based associations to compensate the industry as a whole by creating funded programs aimed at enhancing the economic resilience of regional fisheries. West Coast fisheries can not continue to absorb the loss of fishing grounds (to offshore wind, MPA's, cable routes, etc) if it is to survive.

The PEIS should examine, under "cumulative effects", the socioeconomic and cultural effects of further displacement of fisheries.

Thank you for considering comments from the Alliance of Communities for Sustainable Fisheries.

Alan Alward

Co-Chair

ACSF

4alliancefisheries@gmail.com

PUBLIC SUBMISSION

As of: 7/22/22 8:37 PM
Received: July 22, 2022
Status: Pending_Post
Tracking No. l5w-wo3c-glfs
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0036
Comment from AFFTA Fisheries Fund

Submitter Information

Email: whitney.tilt@affta.org
Organization: AFFTA Fisheries Fund

General Comment

IIt is the position of AFFTA Fisheries Fund that no offshore finfish aquaculture should be permitted in U.S. Federal Waters, in the Gulf of Mexico, Southern California Bight or elsewhere, until such facilities demonstrate the ability to sufficiently protect the surrounding marine environment, including valuable commercial and recreational fisheries. Given the demonstrated negative impacts resulting from near-shore finfish aquaculture, it is incumbent on the proponents of offshore finfish aquaculture to demonstrate that the siting and operation of offshore finfish aquaculture facilities does not pose a threat to marine fisheries and their habitats.

Some specific areas of concern include:

Regulatory Uncertainty. As the EO makes clear, there is the need to create a siting, permitting, and regulatory framework that leads to sound and accountable decisions. At present, development of commercial aquaculture facilities in U.S. federal waters is hamstrung by an unclear permitting and regulatory process that includes a clutter of federal agencies including the Environmental Protection Agency, National Oceanic and Atmospheric Administration, Army Corps of Engineers, U.S. Navy, U.S. Coast Guard, and the U.S. Fish and Wildlife Service — all sharing some form of overlapping, and even conflicting, jurisdictions. A clear, transparent, and accountable system of siting, permitting, regulating, and

monitoring must be put into place prior to any approval of offshore finfish aquaculture facilities.

Waste. Fish farms create a high amount of waste, adding nutrients and an array of pharmaceuticals and other prophylactics to the surrounding waters. These additional nutrients increase biological oxygen demand, contribute to algae blooms, and other environmental degradation. Placing fish cages in offshore areas with currents sufficient to "wash away and dilute" the pollution may address the immediate needs of the cage aquaculture, but it does not remove the nutrients and waste from the system. To suggest such waste does no damage is dangerously naïve. It might be forgiven in the 1800s but not in the 21st century.

Sustainability of fish feed sources. In general, penned fish are fed diets containing fish meal and fish oil sourced from wild fisheries. The majority of fish meal and oil comes from wild-caught forage fish such as menhaden, anchovies, and capelin. The remainder of the diet comprises processed fish remains generated by wild and farmed fish alike. This heavy reliance on wild fisheries to feed finfish aquaculture is a major concern as the abundance and sustainability of countless commercially- and recreationally-important finfish species are directly dependent on healthy forage fish stocks. This poses an enormous challenge for proponents to demonstrate the sustainability of offshore finfish aquaculture and, at best, is a limiting factor in the growth of such aquaculture.

Escapes and Disease Transmission. The high density of fish in the cages make these areas prone to disease and parasites. Their control calls for the continual use of pharmaceuticals and other prophylactics. In addition, escape of caged fish is common and can contribute to spreading disease, creating inter-species competition for food, and transfer of antibiotic resistance from farmed to wild fish. These issues have been documented in other ocean aquaculture operations and it must be assumed that these concerns remain as the practice moves further offshore. The short- and long-term impacts of these factors to valuable commercial and recreational marine species is unknown and must be addressed.

Other Impacts and Hazards. The presence of large fish cages and fish feed in offshore waters will attract fish which must be presumed to have an effect on fish migrations and abundance by attracting predators (e.g., sharks and seals) and by acting as fish attraction devices (FADs) that aggregate wild fish stocks that in turn can be easily targeted, resulting in increased harvest. Beyond the obvious hazards to navigation posed by the physical facilities, hurricanes, typhoons, tsunamis, and other severe weather can likely damage or destroy facilities with resulting loss of fish and flotsam posing its own concerns.

Logistics. Operating offshore aquaculture facilities presents a set of technical difficulties and uncertainties not encountered in near-shore waters and onshore operations. Rougher waters, stronger winds and currents, longer supply chains and maintenance cycles, and ship traffic to name a few. To date, only a few experimental aquaculture research facilities have operated in the U.S. federal waters and all commercial aquaculture facilities have been sited in nearshore waters under state or territorial jurisdiction.

PUBLIC SUBMISSION

As of: 7/22/22 9:09 PM
Received: July 22, 2022
Status: Pending_Post
Tracking No. l5w-j9nc-zos5
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0026
Comment from Anonymous

Submitter Information

Name: Anonymous Anonymous

General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of “Salmonidae, transgenic fish species,

or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

PUBLIC SUBMISSION

As of: 7/22/22 6:18 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-dpcj-7qsx
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0018
Comment from Anonymous

Submitter Information

Name: Anonymous Anonymous

General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s

operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

PUBLIC SUBMISSION

As of: 7/22/22 6:15 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-aqx7-xcks
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0016
Comment from Anonymous

Submitter Information

Name: Anonymous Anonymous
Email: tnkjewell@Gmail.com

General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

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with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

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This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Elizabeth Besom

2118 REED AVENUE, SAN DIEGO, CA 92109

July 17, 2022

NOAA West Coast Regional Office
Office of Aquaculture California

To Whom It May Concern,

As a resident of Southern California and student in the MAS Marine Biodiversity and Conservation program at UCSD, I would like to submit my comments on the NMFS West Coast Region's proposed Aquaculture Opportunity Areas (AOAs) to be located in Federal waters off the coast of Southern California, NOAA-NMFS-2022-0051.

It is my understanding that the public is being asked to comment on the following alternatives:

- **Alternative 1:** No Action Alternative: no AOA would be identified in Southern California.
- **Alternative 2:** Santa Barbara Channel: one or more AOAs would be identified within Federal
  waters offshore of Santa Barbara and Ventura Counties in the Santa Barbara Channel.
- **Alternative 3:** Santa Monica Bay: one or more AOAs would be identified within Federal waters
  offshore of Los Angeles County in Santa Monica Bay.
- **Alternative 4:** Santa Barbara Channel and Santa Monica Bay: one or more AOAs would be identified from within the boundaries of either study area in the alternatives analysis, up to a maximum area to be determined by NOAA Fisheries with input from the public.

Upon reviewing the proposed AOAs described in *An Aquaculture Opportunity Area Atlas for the Southern California Bight,* I am in favor of Alternative 1: No Action Alternative. I believe the proposed AOA sites pose a significant risk to California's natural resources, will compete with existing aquaculture operators and will provide few benefits to the people of California.

When considering Alternatives 2, 3 and 4, all prospective AOAs are classified as BIA (Biologically Important Areas) for cetaceans. Blue whales were observed in the Santa Barbara Channel a total of **3**,117 times over an 18 year period and the Santa Monica Bay a total of 764 times over a five year period.[1]

Blue whales are listed as endangered under the Endangered Species Act and are federally protected. Gray whales are known to migrate through the Santa Barbara Channel and Santa Monica Bay. Individuals head south from October to March and north from late January to July.[2] The Santa Barbara Channel AOAs are all located within a kilometer of Critical Habitats for humpbacks.[3] As all AOAs are not movable during migration seasons, there are risks of entanglement and loss of critical habitat for these cetaceans.

The Southern California Bight, in which the proposed AOAs are located, is also considered EFH (Essential Fish Habit) for fourteen species. Protected species, such as sea turtles, giant mantas, scalloped hammerhead sharks and Guadalupe fur seals, are also present.[4] I worry about the additional stress caused by more congestion in this essential area which already supports fishing, recreational and industrial traffic.

I also urge you to consider the effect on local California aquaculture. California Department of Fish and Wildlife lists twenty-two commercial aquaculture operators.[5] California operators use a combination of land-based and in-water methods tailored to the areas where they are located. For example, two commercial abalone operators are land-based, while a third uses cages suspended from floating rafts and under a wharf.[6] They are sensitive to the communities they serve. The proposed aquaculture sites will compete directly with existing aquaculture operators, including one already located in Santa Barbara Channel.

California currently has no finfish aquaculture and has chosen instead to create less problematic programs like OREHP, Ocean Resources Enhancement and Hatchery Program, which support wild fish stock. Hubbs-SeaWorld Research Institute (HSWRI), operates a hatchery for White seabass. The juvenile seabass are raised by volunteer groups and in classrooms throughout Southern California. At about 8-10 inches, these fish are released into the ocean to support wild stock.[7] California is at the front of creative scientific solutions to global problems.

In conclusion, I would like to restate my support for Alternative 1: No Action Alternative: no AOA would be identified in Southern California. The proposed AOAs are in areas with significant natural resource considerations, including endangered species. They are all located in high traffic areas with a history of oil spills and the release of pollutants such as Dichloro-diphenyl-trichloroethane (DDT) and polychlorinated biphenyls (PCBs).[8] The AOAs will also visually impact residents along the coast. The benefits to the local community seem minimal. Lastly, despite the AOAs being located in federal waters, their position between the Channel Islands and the California coast, means that any environmental impact or disruption to local fishing and whale watching industries, will place an undue burden on the local California communities.

My suggestion if any AOAs are approved, is to prioritize aquaculture projects that minimize environmental impacts such as macro-algae. I would also like NMFS/NOAA, as representatives of the federal government, to explain in a clear and transparent manner what insurance coastal communities have in case of natural disasters such as storms or if operators end up in bankruptcy that there is a plan to remove damaged/abandoned aquaculture apparatus and to return the area to its original condition.

Sincerely yours,

Elizabeth Besom

1. John Calambokidis,et al. *Aquatic Mammals 4. Biologically Important Areas for Selected Cetaceans Within U.S. Waters - West Coast Region* (2015) 41(1), 39-53, DOI 10.1578/AM.41.1.2015.39: 41
2. Ibid., 45
3. Morris, J.A. et al., National Centers for Coastal Ocean Science (U.S.) *An Aquaculture Opportunity Area Atlas for the Southern California Bight*, (2021) Series : NOAA technical memorandum NOS NCCOS; 298 DOI : https://doi.org/10.25923/TMX9-EX26: 160,163, 166, 186, 189, 192, 195, 198, 218, 221
4. Ibid., 225- 227
5. California Department of Fish and Wildlife, Final Report to the California Fish and Game Commission, *THE STATUS OF COMMERCIAL MARINE AQUACULTURE IN CALIFORNIA* (May 2020, corrected) https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=187229&inline: 6
6. Ibid., 16
7. California Department of Fish and Wildlife https://wildlife.ca.gov/Conservation/Marine/OREHP
8. Morris, J.A. et al., National Centers for Coastal Ocean Science (U.S.) *An Aquaculture Opportunity Area Atlas for the Southern California Bight*, (2021) Series : NOAA technical memorandum NOS NCCOS; 298 DOI : https://doi.org/10.25923/TMX9-EX26: 228

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July 22, 2022

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NOTICE OF INTENT TO PREPARE A PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR IDENTIFICATION OF ONE OR MORE AQUACULTURE OPPORTUNITY AREA(S) IN SOUTHERN CALIFORNIA

Dear Mr. Rumsey:

The California Department of Fish and Wildlife (Department) received a Notice of Intent (NOI) to Prepare a Programmatic Environmental Impact Statement (PEIS) for identification of one or more Aquaculture Opportunity Area(s) in Southern California (Project) from the National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA). The Department previously submitted comments jointly with the California Ocean Protection Council, California State Lands Commission, and California Coastal Commission in response to the NMFS Request for Information on December 22, 2020 (see Attachment 1).

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the California Fish and Game Code.

DEPARTMENT ROLE

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state (Fish and Game Code, Section 711.7, subd. [a] and 1802; California Public Resources Code, Section 21070). The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, Section 1802). The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California (Fish and Game Code Sections 2850-2863) and ensuring fisheries are sustainably managed under the Marine Life

Management Act (Fish and Game Code Sections 90-99.5, 7050-7051, 7075-7059, 7060-7062, 7070-7078, 7080-7088, 7090, and 8585–8589.7). Pursuant to our jurisdiction, the Department has the following comments and recommendations regarding the Project.

PROJECT DESCRIPTION SUMMARY

Proponent: NMFS

Objective: The objective of the Project is to identify one or more Aquaculture Opportunity Areas (AOAs) in federal waters off the Southern California coast, as was required by the Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O. 13921) on May 7, 2020. AOAs are specific geographic areas that have been evaluated and determined to be suitable for commercial aquaculture development, including finfish, shellfish, macroalgae, and multi-species aquaculture. The AOA selected site options currently being considered by NMFS are the result of a complex spatial analysis conducted by NOAA's National Centers for Coastal Ocean Science, presented in the Aquaculture Opportunity Area Atlas for the Southern California Bight (Atlas). The analysis included data relevant to administrative boundaries, national security, navigation and transportation, energy and industry infrastructure, commercial and recreational fishing, natural and cultural resources, and oceanography. The Project is a long-term planning initiative; no aquaculture facilities are currently being proposed. Future aquaculture development within the Southern California AOA(s) would go through separate, project-level environmental review and permitting.

Location: The 10 selected site options currently being considered for the identification of one or more AOAs are located within the Southern California Bight, including eight site options between five and 11 nautical miles offshore Ventura and two site options between four and five nautical miles offshore Santa Monica. The Department notes that the coordinates presented in the Atlas (Tables 3.7 and 3.11) for the North selected site options are incorrect. The longitudes should begin with -119, not -199.

Timeframe: The Project timeframe is not discussed in the NOI. However, it is the Department's understanding that the AOA(s) will exist permanently once established.

BIOLOGICAL SIGNIFICANCE

The marine ecosystems of the Southern California Bight host diverse habitats and thousands of species of marine plants, fish, invertebrates, seabirds, turtles, and mammals, some of which are unique to Southern California. This biological complexity stems from the region's dynamic ocean environment, where upwelling provides nutrient-rich water to the coast and complicated current patterns mix cold- and warm-water communities. Southern California's variety of marine habitats, such as hard (rocky or reef) and soft (sand or mud) substrate, kelp forests, and seagrass beds, provide marine organisms with nursery grounds, shelter, and areas to forage and reproduce. These habitats and species contribute to the state's economy by supporting numerous commercial and recreational fisheries, ecotourism, commerce, and recreation.

COMMENTS AND RECOMMENDATIONS

The Department offers the comments and recommendations below to assist NMFS in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife resources. Editorial comments or other suggestions may also be included to improve the document.

I. Aquaculture Registration and Licensing

It is the Department's understanding that future aquaculture facilities within the AOA(s) would harvest products onsite and transport them to one of the state's ports or harbors. All facilities used for the controlled growing and harvest of aquatic plants and animals in California must be registered annually, including the land-based component(s) of facilities located outside of state waters. Registration forms are issued by the Department under provisions of the Fish and Game Code (Section 15101) and regulations of the California Fish and Game Commission.

The state is currently evaluating mechanisms to monitor and track offshore aquaculture facilities, including compliance with permit conditions, transiting of products through state waters, and landing of products at state ports. NMFS and future aquaculture facility proponents should consult with the Department and other relevant state agencies to ensure that all state-required procedures, permits, and fees are anticipated and adhered to, including those imposed by new legislation and/or regulation.

II. Suitable Species and Gear for Aquaculture

It is within the Department's authority to prohibit an aquaculture operation or the culturing of any species where it is determined it would be detrimental to adjacent wildlife (Fish and Game Code Section 15102). Within waters of the Pacific Ocean that are regulated by the state, it is unlawful to spawn, incubate, or cultivate any species of finfish belonging to the family Salmonidae, transgenic fish species, or any exotic species of finfish (Fish and Game Code Section 15007). Offshore finfish operations are currently not supported in California state waters by policy directives (COPC 2020), as state agencies are focused on developing best practices for sustainable low-trophic seaweed and shellfish aquaculture before addressing the more complex issues associated with open coast finfish aquaculture. As such, the Department is concerned about potential inconsistency between aquaculture priorities for state and federal waters and is committed to working with NMFS to align our approaches. Should finfish operations be proposed in the AOA(s), the Department stresses the importance of carefully and thoroughly addressing all concerns raised by state agencies, stakeholders, scientists, and the state's Tribal communities prior to their authorization.

Certain materials used in (or coated on) gear to control biofouling, such as copper, can leach into the surrounding water and be harmful to marine life (Fitridge et al. 2012). For example, the Department recently expressed concerns with Pacific Ocean Aquafarms'

proposed use of copper-alloy mesh in nets. The Department recommends that the PEIS include a discussion of all materials and chemicals that could be used in gear in the AOA(s) and how these materials could impact marine organisms. The Department also recommends that NMFS prohibit the use of potentially harmful materials within the AOA(s).

III. Fisheries Impacts

The Department is concerned that the Project could impact commercial and recreational fisheries. Adverse impacts could result from the loss of accessible fishing area, loss of fishing gear from snagging on infrastructure, navigational hazards, degradation of habitat, and effects on wild populations. The 10 selected site options being considered are located within Essential Fish Habitat for various federally managed fish species within the Pacific Coast Groundfish Fishery Management Plan (FMP), Coastal Pelagic Species FMP, and FMP for U.S. West Coast Fisheries for Highly Migratory Species under the Magnuson-Stevens Fishery Conservation and Management Act. The site options are also located within potential habitat and fishing areas for state-managed fisheries, such as California halibut (*Paralichthys californicus*), barred sand bass (*Paralabrax nebulifer*), white seabass (*Atractoscion nobilis*), and sea cucumbers (*Parastichopus* spp.).

The Department recommends that the PEIS include a detailed commercial and recreational fisheries analysis that focuses on impacts to both federally and state-managed fisheries, species, and associated habitats. In addition to fisheries data, the analysis should include other relevant data sources such as the California Cooperative Oceanic Fisheries Investigations (CalCOFI) larval fish data sets. The fisheries analysis should be described in detail in the PEIS, including any outreach to the fishing community. The PEIS should also include discussion of mitigation measures that may be required. The Department strongly recommends continued consultation with the Department, commercial and recreational fishers, and the Pacific Fishery Management Council regarding potential impacts to fisheries and the appropriate site locations throughout the development of the PEIS and into the future as aquaculture facilities are proposed in the AOA(s).

IV. Fully Protected and CESA-Listed Species

Several fully protected species and species listed under the California Endangered Species Act (CESA) are present in the Project area and may be impacted by aquaculture development. As such, the Department may need to exercise its regulatory authority as provided by the Fish and Game Code. Construction and operation of future aquaculture facilities within the AOA(s) may result in “take,” as defined by state law, of species protected under CESA (Fish and Game Code Section 2050 et seq.), and related authorization as provided by the Fish and Game Code may be required. Fully protected species may not be taken or possessed at any time and no licenses or

permits may be issued for their take (Fish and Game Code Sections 3511, 4700, 5050, and 5515).

Fully protected (FP) and CESA-listed species that may be present near the Project include:

- Pacific leatherback sea turtle (*Dermochelys coriacea*); CESA endangered
- Southern California steelhead (*Oncorhynchus mykiss*); CESA endangered candidate
- North Pacific right whale (*Eubalaena japonica*); FP
- Guadalupe fur seal (*Arctocephalus townsendi*); CESA threatened, FP
- Northern elephant seal (*Mirounga angustirostris*); FP
- California least tern (*Sterna antillarum browni*); CESA endangered, FP
- California brown pelican (*Pelecanus occidentalis*); FP

The Project should not disrupt fully protected or CESA-listed species. The PEIS should document all fully protected and CESA-listed species that could be present in the Project area, potential impacts to these species, and proposed mitigation. The Department recommends identifying seasonal abundance, migration routes, and known breeding and feeding areas of these species in the vicinity of the Project—including considering best available science regarding how climate impacts may impact seasonal abundance, migration, and breeding and feeding areas—as well as any potential mitigation and permits required. Migration routes and breeding and feeding areas should be avoided by the Project to the greatest extent possible.

V. Impacts to Biological Resources

1. Interactions with Wildlife

Aquaculture facilities may interact with wildlife in a variety of ways that may result in impacts. Aquaculture infrastructure will likely attract fish and invertebrates by providing hard structure and food in the form of excess feed, waste, and/or fouling communities (Holmer 2010; Callier et al. 2018). Aggregating fish may have abnormal body condition and reproductive success, altered movement and migration routes, and may be at greater risk of capture by fishermen (Callier et al. 2018).

Aggregation of wild fish and invertebrates around infrastructure will likely also attract predators and other large fauna, including protected marine mammals, sea turtles, and seabirds. Negative interactions with finfish farms, including fatal entanglements, have been well documented in the past for seals, sea lions, dolphins, and baleen whales (Kemper et al. 2003); however, there are few recent, published studies that have addressed marine mammal interactions with fish cages (Price and Morris 2013). Several cases of whale and sea turtle entanglement with buoy and grow ropes used in longline shellfish aquaculture have been reported globally (Young 2015). Feeding seabirds may also become entangled in nets and lines (Price and

Morris 2013). In addition, lost fishing gear that has snagged on aquaculture infrastructure could entrap marine wildlife.

Of significant concern with finfish aquaculture is the possibility of cultured fish escapement into the wild, which could cause several potentially significant impacts to wild populations. Escapees may interbreed with wild fish and thereby decrease the genetic diversity of wild populations, compete with wild fish for important habitat and food resources, and increase the risk of disease transmission to wildlife (Holmer 2010). Cultured fish may also be able to "escape through spawning" if fish are grown until maturity (Holmer 2010).

The Department recommends that the PEIS address potential impacts to wild fish populations and other marine wildlife that may result from interactions with aquaculture operations in the AOA(s). The PEIS should discuss how future facilities will avoid, minimize, and respond to wildlife interactions, including entanglement, and fish escapement, which have the potential to significantly impact California's marine resources. The Department recommends that the PEIS discuss how aquaculture gear will withstand storm events to prevent escapement and entanglements. Regular inspection of infrastructure will be necessary to prevent these impacts. The Department also recommends that future projects be required to develop and implement marine species entanglement prevention and response plans as well as a monitoring, maintenance, and training plans which include safe navigation considerations.

2. Changes to Oceanographic Conditions

The Project may result in changes to oceanographic conditions that could impact marine resources, impacts that may be compounded by locating multiple aquaculture facilities a short distance from one another. Nutrient enrichment from fish and shellfish excrement and excess feed can result in harmful algal blooms, oxygen depletion of the water column and underlying sediments, and detrimental impacts to benthic communities and habitat (Holmer 2010; Wilding 2012; Price and Morris 2013). Nutrient enrichment can further intensify existing threats to marine ecosystems, including increasing acidic ocean conditions (Cai et al. 2011).

Possible changes in hydrodynamics caused by facilities may exacerbate impacts due to nutrient enrichment and/or lead to changes in sedimentation and larval transport and dispersal. Offshore bivalve aquaculture has been shown to reduce current velocity and alter circulation patterns in some instances (e.g., Stevens 2008, Lin et al. 2016). In an area of high-density suspended kelp and bivalve aquaculture in China, He et al. (2022) found that alterations in onshore currents, upwelling, and water exchange led to a significant reduction in nutrient supply. However, most research on this topic has occurred in nearshore environments. There is a need to better understand the hydrodynamic effects of offshore/open ocean aquaculture

facilities and how these effects may lead to changes in the transport of nutrients, sediment, and larvae.

The Department recommends that the PEIS analyze potential impacts to oceanographic conditions including water quality, benthic conditions, and hydrodynamics that may be caused by aquaculture development within the AOA(s). The PEIS should also describe siting decisions and best management practices that future projects will use to minimize waste and water quality impacts. To best track changes to oceanographic conditions and the benthic community, the Department recommends that future aquaculture facilities implement ongoing monitoring that includes baseline assessments of habitat and ocean conditions in the area prior to construction. NMFS and future project proponents should consult with the Department and other resource agencies when developing monitoring plans.

3. Disease and Invasive Species

The Department is concerned about possible introduction of pathogens and/or invasive species resulting from aquaculture development within the AOA(s). Pathogens spread easily among densely stocked cultured fish, which are also more susceptible to stress and infection, and can be transmitted to wild populations directly or by escapees (Wartenberg et al. 2017). Suspended culture sites may also facilitate introduction or spread of invasive species that require habitat with three-dimensional structure or hard substrate. This has been demonstrated extensively in suspended bivalve aquaculture (McKindsey et al. 2011).

The Department recommends that NMFS require future aquaculture development within the AOA(s) to implement risk analysis and management plans, such as Hazard Analysis and Critical Control Point (HACCP) plans, detailing measures to detect and control aquatic invasive species and pathogens at the facilities. The HACCP plans should include methods to prevent the introduction of aquatic invasive species into facilities, operational practices that prevent the spread of aquatic invasive species and pathogens within and outside facilities, and detailed monitoring plans. Particular attention should be paid to ensure that the utilization of antibiotics to reduce the risk of pathogen spread does not result in additional harm to the marine environment and public health. Fish and Game Code Section 15510 prohibits the importation of live plants and animals from infected or diseased areas and provides that no live plants or animals may be imported without the prior written approval from the Department pursuant to California Fish and Game Commission regulations. Given the proximity of the AOA alternatives to state waters, comprehensive HACCP plans are critical to the protection of state resources from invasive species and disease transmission.

4. Pollution and Hazards

Aquatic pollution and hazards could result from support vessel spillage during Project construction and operation or from poorly maintained and lost equipment. Aquaculture facilities, depending on how they are constructed, operated, and maintained, may contribute marine debris to surrounding waters that pose a risk to marine life. Of additional concern with finfish aquaculture is the introduction of chemicals into the environment from antibiotics, therapeutants, antifoulants, and heavy metals in feed (Price and Morris 2013). Fish feed often has additional constituents over and above high levels of nutrients that may pose ecological risks. Fish and Game Code Section 5650 states that it is unlawful to deposit into, permit to pass into, or place where it can pass into waters of the state any substance or material deleterious to fish, plant life, mammals, or bird life. Spills, chemicals, and marine debris also create hazards to human health and safety.

The Department recommends that the PEIS discuss and plan for the prevention of spills and marine debris. Contingency planning is important for protecting sensitive resources from damage and for improving cleanup strategies and methods. NMFS should consult with the U.S. Coast Guard and the Department's Office of Spill Prevention and Response regarding federal and state protocols that exist for these types of projects. The Department recommends that, prior to construction activities, aquaculture projects develop and implement, at minimum, spill prevention and response/control plans, debris management plans, and gear marking and recovery plans. Best management practices should be used for all hazardous materials present during aquaculture activities. The Department recommends that contingency plans include inspections following storm events, debris reduction trainings for field employees, quarterly inspections and cleanup events, secure storage of tools and construction materials, and comprehensive debris cleaning and removal activities.

In addition, the Department recommends that the PEIS include a thorough discussion of how NMFS plans to avoid or minimize the use of chemicals in AOA aquaculture operations, potential impacts to marine resources and human health from chemical use, and proposed mitigation measures. It is critical that the PEIS include an analysis of the potential constituents in fish feed, the risk these constituents pose, and mitigation recommendations to eliminate these risks. The PEIS should also include an assessment of the potential ecological and human health risks posed by using antibiotics in marine aquaculture and recommendations to mitigate or eliminate those risks as needed.

VI. Monitoring and Oversight

The Department asserts that a strong monitoring program is key to the success of any marine aquaculture project and the preservation of marine resources. This will be especially important for new activities off the California coast, such as development of large offshore facilities and finfish aquaculture. The Department recommends that

comprehensive monitoring and reporting plans be established for aquaculture facilities within the AOA(s). The plans should include, but not be limited to, regular independent monitoring to assess proper gear functioning and required maintenance, impacts to fisheries and marine wildlife, water quality impacts, changes to hydrodynamics and sediment deposition, benthic and substrate impacts, and introduction/transport of pathogens and invasive species. The plans should also include procedures for marine debris management (with unique marking/branding of all aquaculture gear with contact information) and rapid reporting of entanglement events. The Department recommends working with state and federal resource agencies to include in the plan detailed adaptive management strategies to determine trigger points that, when reached, require consultation and corrective actions to avoid negative impacts.

The Department acknowledges the significant challenge regarding regulatory oversight, compliance, and accountability presented by commercial aquaculture facilities in federal waters. The Department expects that further consideration of the Project would include the required oversight, accountability, and compliance with all state and federal regulations.

VII. Closely Related Past, Present, and Probable Future Projects

The Department is aware of multiple offshore aquaculture facilities that are either located or proposed to be in federal waters in the Southern California Bight:

- The proposed Avalon Ocean Farm is a 2,000-acre suspended longline shellfish aquaculture project planned to be located approximately 3.3 nautical miles off the coast of Huntington Beach.
- Six miles off the coast of Huntington Beach is an existing, but recently closed, 100-acre mussel aquaculture facility (formerly known as Catalina Sea Ranch) that may resume commercial operations in the future.
- The proposed Pacific Ocean AquaFarms is a 1,000-acre finfish aquaculture project that would include 28 submersible pens and be located either four nautical miles off the San Diego coast or four nautical miles off Huntington Beach.
- The proposed Ocean Rainforest Aquaculture Project is an 86-acre kelp cultivation project planned to be located approximately 4.4 nautical miles offshore of the Santa Barbara County coast.

Existing and proposed aquaculture facilities within state waters in the Southern California Bight include the following:

- Santa Barbara Mariculture Company is a currently operating 72-acre shellfish aquaculture facility that includes submerged longline mussel culture and is located approximately 0.75 miles offshore of Hope Ranch, Santa Barbara County.

- The proposed Santa Barbara Sea Ranch is a 176-acre mussel aquaculture facility that would include 100 submerged longlines located five miles west of Santa Barbara Harbor.
- The proposed Malibu Oyster Company is a 100-acre shellfish and seaweed aquaculture facility that would consist of a submerged longline system with 100 longlines and attached floating cages located approximately 0.5 miles offshore of the Malibu Pier.

Additionally, offshore wind energy development is being planned along California's Central and North Coasts, with the closest project areas proposed in state waters offshore of Vandenberg Space Force Base.

The Department is concerned about the potential cumulative impacts that could occur from the association of Project impacts and those of the projects above. It will be important for the PEIS to evaluate the cumulative impacts of the above facilities along with those of the facilities that will be located within the AOA(s).

The Department also recommends that the PEIS evaluate the potential cumulative impacts of nutrient enrichment from the Project in combination with that from existing ocean outfall pipelines (i.e., treated sewage/wastewater). All existing ocean outfall pipelines and the fate and transport of their sewage effluent plumes under variable conditions near the AOA alternatives should be identified and evaluated within the PEIS.

VIII. Other Comments

As noted in the Project Description Summary above, the coordinates presented in the Atlas (Tables 3.7 and 3.11) for the North selected site options are incorrect. The longitudes should begin with -119, not -199. The Department recommends making this correction in the Atlas and presenting the correct coordinates in the PEIS. Exact location information is necessary to completely evaluate spatial conflicts.

CONCLUSION

The Department appreciates the opportunity to comment on the NOI to assist NOAA in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Amanda Canepa, Environmental Scientist, at (831) 277-9740 or Amanda.Canepa@Wildlife.ca.gov.

Sincerely,

Craig Shuman, D. Env
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Attachment

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CENTER FOR FOOD SAFETY

July 22, 2022

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Submitted Electronically via Regulations.gov

Re: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for the Southern California Aquaculture Opportunity Area

Thank you for the opportunity to comment on the National Marine Fisheries Service's (NMFS's) Notice of Intent to Prepare a Programmatic Environmental Impact Statement for the Southern California Aquaculture Opportunity Area.[1] On behalf of themselves and their members, the organizations listed below submit the following comments to identify key issues that NMFS must address before it designates Aquaculture Opportunity Areas in Southern California.

INTRODUCTION

The Center for Food Safety (CFS) is a nonprofit, public interest organization with a mission to protect public health and the environment by curbing the proliferation of harmful food production technologies, such as industrial aquaculture practices, and by promoting sustainable forms of food production. CFS represents over one million members who reside in every state across the country, who support safe, sustainable food production, including members in southern California. CFS has long had a specific aquaculture program, dedicated to addressing the adverse environmental and public health impacts of industrial aquaculture, including numerous policy, scientific, and legal staff. In its program, CFS strives to ensure and improve aquaculture oversight; further policy and cultural dialogue with regulatory agencies, consumers, chefs, landowners, and

[1] NMFS, Notice of Intent to Prepare a Programmatic Environmental Impact Statement for the Southern California Aquaculture Opportunity Area (May 23, 2022) (NOI).

legislators on the critical need to protect public health and the environment from industrial aquaculture; promote and protect more sustainable alternatives; and push for transparent seafood labeling.

San Diego Coastkeeper is a non-profit public benefit corporation organized under the laws of the State of California. Founded in 1995, San Diego Coastkeeper is dedicated to the preservation, protection, and defense of the environment, wildlife, and natural resources of San Diego County watersheds and marine ecosystems.

Oceanic Preservation Society is a California-based organization that works to inspire, empower, and connect a global community using high-impact films and visual storytelling to expose the most critical issues facing our planet.

The Environmental Defense Center is a public interest environmental law firm that protects and defends the environment of California's south central coast through education, advocacy, and legal action.

Friends of the Earth fights to protect our environment and create a healthy and just world by promoting clean energy and solutions to climate change, keeping toxic and risky technologies out of the food we eat and products we use, and protecting marine ecosystems and the people who live and work near them. This work includes highlighting the dangers of industrial ocean fish farming and supporting sustainable seafood production alternatives. The organization has over 4.7 million members and activists across all 50 states working to make these visions a reality. The organization is part of the Friends of the Earth International federation, a network in 74 countries working for social and environmental justice.

LA Waterkeeper seeks to undo the harms done and restore our coastal and riparian habitats through research, fieldwork, community engagement, broad-based coalition building and regulatory and legal advocacy and policy work. The programs integrated projects provide community members – especially those living in historically underserved communities – the tools necessary to take ecological health and human use assessments, address pollution in their waterways, and make their voices heard as LA County addresses its water resource and pollution challenges. All of these efforts aim to improve the health and safety of our communities and encourage shared stewardship of our environment.

Recirculating Farms is a 501c3 non-profit collaborative of farmers, educators, and activists committed to building an equitable food system from farm to fork. We run ecologically and socially responsible programs, that provide local, affordable food through innovative, eco-efficient methods, rooted in historic practices. Through training, outreach, and advocacy, we advance sustainable farming and create stable

jobs in green businesses, in diverse communities, to foster physical, mental, and financial wellness.

Santa Barbara Channelkeeper is a 501(c)3 non-profit organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds through science-based advocacy, education, field-work, and enforcement. Since 2001, Channelkeeper has monitored water quality in the Santa Barbara Channel and surrounding coastlines of the Central Coast and Channel Islands. Channelkeeper views aquaculture as an emerging industry with significant potential to impact the Channel's marine ecosystems. Channelkeeper is dedicated to ensuring that aquaculture development in the Santa Barbara Channel is thoroughly evaluated and regulated to protect public trust natural resources.

The Environmental Action Committee of West Marin (EAC) is a nonprofit, public interest organization with a mission to protect and sustain the unique lands, waters, and biodiversity of West Marin. Established in 1971 and based in Point Reyes Station, California, EAC represents approximately 1,200 members. With a focus on Tomales Bay and West Marin, we have extensive experience in marine and aquaculture policy in the state of California. We are committed to preserving the health of California's estuaries, bays, and watersheds.

Don't Cage Our Oceans is a coalition of national, regional, and local organizations and businesses working to stop offshore fish farming while uplifting values-based sea-food systems led by local communities.

SUMMARY OF COMMENTS

The National Marine Fisheries Service (NMFS) plans to designate one or more locations as Aquaculture Opportunity Areas (AOAs) in southern California. These designations will identify suitable areas for future offshore finfish, shellfish, macroalgae, or multi-species aquaculture in federal waters in southern California. Designation will streamline the approvals of industrial aquaculture operations in the marine space within the Exclusive Economic Zone along the coastline between Point Conception and the U.S./Mexico border known as the Southern California Bight, as well as the Channel Islands, to the detriment of the regional economy and the environment.[2] NMFS's proposed designation would also designate areas for commercial offshore aquaculture in the federal waters of the United States, without proper legal authority and without complying with the relevant federal statutes.

[2] NMFS, Notice of Intent to Prepare a Programmatic Environmental Impact Statement for the Southern California Aquaculture Opportunity Area (May 23, 2022) (NOI).

Contrary to NMFS's assertion of authority under the Executive Order, the Fifth Circuit has already determined that NMFS does not have statutory authority to set up a system of commercial offshore aquaculture in federal waters, absent new aquaculture-specific Congressional delegation.[3] On the basis of the lack of authority alone, NMFS must halt the consideration of these southern California Aquaculture Opportunity Areas.

If, however, NMFS does proceed with the AOA designations, NMFS must thoroughly assess the myriad impacts of offshore aquaculture on the marine ecosystem, human health, and the economy. NFMS must address the lack of federal authority to regulate aquaculture in federal waters and take a "hard look" at the proposed AOA designations, its alternatives, all reasonably foreseeable direct, indirect, and cumulative impacts of each proposed alternative (including intertwined socioeconomic impacts), and the feasibility and enforceability of any mitigation measures proposed, as required by the National Environmental Policy Act (NEPA). Additionally, NMFS must also ensure compliance with other federal statutes, including the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), Magnuson-Stevens Act (MSA), Coastal Zone Management Act (CZMA), Migratory Bird Treaty Act (MBTA), and National Marine Sanctuaries Act (NMSA). Failure to do so would violate federal environmental law.

STATUTORY BACKGROUND

A. Magnuson-Stevens Conservation and Management Act

The Magnuson-Stevens Act (MSA) is the nation's longstanding program aimed at the management and conservation of ocean fish and fishing resources.[4] In order to address threats to wild fisheries and the coastal communities that rely on them, in 1976 Congress passed the MSA to "prevent overfishing, to rebuild overfished stocks, to insure conservation, to facilitate long-term protection of essential fish habitats, and to realize the full potential of the Nation's fishery resources."[5] The MSA aims to conserve and protect these resources through a system for setting catch levels for the nation's wild fisheries.

The MSA created regional fishery management councils, charged[6] with preparing fishery management plans and implementing regulations that are necessary and appropriate to manage and conserve the fisheries under their

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[3] *Gulf Fishermens Ass'n v. Nat'l Marine Fisheries Serv.*, 968 F. 3d 454 (5th Cir. 2020).
[4] 16 U.S.C. § 1801(a); *id.* § 1801(b)(1).
[5] *Id.* § 1801(a)(6); *id.* § 1801(a)(1)-(3).
[6] *Id.* §§ 1851; 1801.

authority.[7] The Western Pacific Fishery Management Council is one such council, charged with managing fisheries in federal waters off the coast of California.

The MSA defines "fishing" as "(A) the catching, taking, or harvesting of fish; (B) the attempted catching, taking, or harvesting of fish; (C) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or (D) any operations at sea in support of, or in preparation for, any activity described [above]."[8] Under this authority, NMFS may grant fishing permits solely to fishing "vessels," the operators of such vessels, and processors.[9]

The MSA requires that Plans contain conservation measures, minimize impacts to essential fish habitat, use the best scientific information, and be consistent with the Act's national standards, which include preventing overfishing, achieving optimum yield, reasonably allocating fishing privileges among fishermen, and minimizing impacts to fishing communities and bycatch.[10]

The MSA's key regulatory unit is a "fishery," defined as "(A) one or more stocks of fish which can be treated as a unit for purposes of conservation and management and which are identified on the basis of geographical, scientific, technical, recreational, and economic characteristics; and (B) any fishing for such stocks."[11] A key MSA purpose is to prevent "overfishing," defined as "a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum sustainable yield."[12]

The MSA tasks NMFS with the narrow role of reviewing a finalized FMP to ensure that "it is consistent with the national standards, the other provisions of this Act, and any other applicable law."[13] NMFS also has the authority to promulgate regulations to implement an approved FMP within the timeframes set forth in the MSA.[14] The MSA requires that NMFS, in promulgating relevant rules and regulations under the Act, ensure that "irreversible or long-term effects on fishery resources and the marine environment are avoided"[15] and that "a multiplicity of options available with respect to future uses of [fishery] resources."[16] NMFS must

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[7] *Id*. § 1852(h).
[8] *Id*. § 1802(16).
[9] *Id*. § 1853(b)(1).
[10] *Id*. §§ 1801; 1851; 1853; 1854.
[11] *Id*. § 1802(13)(A)- (B).
[12] *Id*. § 1802(34).
[13] *Id.* § 1854(a)(1)(A).
[14] *Id.* § 1854.
[15] *Id.* § 1802(5)(ii).
[16] *Id.* § 1802(5)(iii).

ensure that "national fishery conservation and management programs utilize[], and [are] based upon, the best scientific information available."[17]

B. The National Environmental Policy Act

NEPA establishes the federal government's policy "to use all practicable means and measures to foster and promote the general welfare, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." [18] Its purpose is to require federal agencies to consider relevant environmental information and to provide the public with that information and an opportunity to comment.[19] NEPA is a procedural statute, enacted to ensure that federal agencies engage in a public process in taking actions, and that they take a "hard look" at the environmental consequences of their decisions.[20]

NEPA and its implementing regulations require federal agencies like NMFS to prepare an Environmental Impact Statement (EIS) regarding all major federal actions "significantly affecting the quality of the human environment."[21] The EIS must be prepared before the agency commits "resources prejudicing selection of alternatives."[22] "Action" broadly includes "[a]doption of official policy, such as rules, regulations, and interpretations."[23] "Major federal action[s]" under NEPA include "activit[ies] or decision[s] subject to Federal control and responsibility."[24] "If any 'significant' environmental impacts might result then an EIS must be prepared before the action is taken."[25]

NEPA prohibits an agency from avoiding significance, and thus from performing an environmental assessment, by dividing a proposed project into component parts.[26] A federal agency should prepare a programmatic EIS for the adoption of new agency programs.[27] A programmatic EIS ensures that an agency's

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[17] *Id.* § 1801(a)(6).
[18] 40 C.F.R. § 1500.1(a); 42 U.S.C. §§ 4331-4370h.
[19] 40 C.F.R. § 1500.1(a).
[20] *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 193-94 (D.C. Cir. 1991); *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council*, 462 U.S. 87, 100 (1983).
[21] 42 U.S.C. § 4332(2)(C).
[22] 40 C.F.R. § 1502.2(f).
[23] *Id.* § 1508.1(q)(3)(i).
[24] *Id.* § 1508.1(q).
[25] *Sierra Club v. Peterson*, 717 F.2d 1409, 1415 (D.C. Cir. 1983).
[26] 40 C.F.R. § § 1502.4(a).
[27] *Id.* § 1502.4(b); *id.* § 1508.1(q)(3)(iii). (definition of major federal action includes "adoption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.")

NEPA review is "relevant to the program decision and timed to coincide with meaningful points in agency planning and decision making" and "should be available before the program has reached a stage of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives."[28]

An EIS, including a programmatic EIS, must disclose all the consequences of the proposed action, including the direct, indirect, and cumulative effects.[29] In addition to direct and indirect, a cumulative effect results from the incremental impact of the proposed action "when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency ...undertakes such other actions." [30]

NEPA's implementing regulations define cumulative impact as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non–Federal) or person undertakes such other actions" and can result from "individually minor but collectively significant actions taking place over a period of time."[31] In considering cumulative impacts, "an agency must provide some quantified or detailed information; . . . general statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definite information could not be provided."[32]

C. The Endangered Species Act

The ESA is the most comprehensive legislation for the preservation of endangered species ever enacted by any nation.[33] Congress's "plain intent . . . in enacting [the ESA] was to halt and reverse the trend towards species extinction, whatever the cost."[34] The ESA's "language, history, and structure" make clear that "Congress intended endangered species to be afforded the highest of priorities."[35]

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[28] *Id*. § 1502.4.
[29] *Id*. § 1508.1(g).
[30] *Id*. § 1508.1(g)(3).
[31] *Or. Natural Res. Council v. U.S. BLM*, 470F.3d 818 (9th Cir. 2006); 40 C.F.R. § 1508.1(g)(3).
[32] *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402F.3d 846, 868 (9th Cir. 2004) (quoting *Kern v. U.S.*, 284 F.3d 1062, 1075 (9th Cir. 2002); *Muckleshoot Indian Tribe v. U.S. Forest Serv*., 177 F.3d 800, 810 (9th Cir. 1999); *Ctr. For Env't Law & Policy v. U.S. Bureau of Reclamation*, 655 F.3d 1000, 1007 (9th Cir. 2011).
[33] *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 180 (1978).
[34] *Id*. at 184
[35] *Id*. at 174; *see also* 16 U.S.C. § 1536(a); 1531(c)(1) ("[A]ll Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of this [Act].").

To fulfill the purposes of the ESA, "each Federal agency shall, in consultation with and with the assistance of the [FWS], insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [the critical] habitat of such species."[36] The scope of agency actions subject to consultation is broad, and includes "all activities *or programs* of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies."[37] The ESA's definition of "effect" is also broad, and includes "all consequences to listed species and critical habitats that are caused by the proposed actions, including the consequences of other activities that are caused by the proposed action," including those that "may occur later in time."[38]

The ESA prohibits federal agencies from making "any irreversible or irretrievable commitment of resources" that would "forclos[e] the formulation or implementation of any reasonable and prudent alternative measures" through the consultation process.[39] An agency is required to review its actions "at the earliest possible time."[40]

D. Migratory Bird Treaty Act

Congress passed the Migratory Bird Treaty Act (MBTA)[41] to implement the respective conventions between the United States and Great Britain, Japan, Mexico, and Russia. The MBTA prohibits the "take" of migratory birds, defining "take" as "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any covered migratory bird . . . or any part, nest, or egg of any such bird."[42] The Secretary of the Interior may authorize the otherwise prohibited take of migratory birds through regulations; however, current regulations do not expressly address the incidental take of migratory birds.

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[36] 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a).
[37] 50 C.F.R. § 402.02 (emphasis added).
[38] *Id*.
[39] 16 U.S.C. § 1536(d).
[40] 50 C.F.R. § 402.14(a).
[41] *Id.* §§ 703 *et seq*.
[42] *Id.* § 703(a).

E. Marine Mammal Protection Act

All marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals.[43] "Take" is defined under the MMPA as "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect."[44] Pursuant to this law, NMFS is charged with protecting whales, dolphins, porpoises, seals, and sea lions, and the U.S. Fish and Wildlife Service (FWS) is charged with protecting walrus, manatees, otters, and polar bears. NMFS and FWS have promulgated joint implementing regulations.

F. Coastal Zone Management Act

The purpose of the Coastal Zone Management Act (CZMA) is to "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations."[45] To accomplish these ends, the CZMA encourages the states to draw up "management plans" for their coastal zones and requires that "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."[46] A federal agency ensures consistency of its proposed actions with state management programs by submitting a "consistency determination to the relevant State agency."[47] Federal agencies must provide State agencies with a consistency determination "at the earliest practicable time in the planning … of the activity."[48] After receipt of the consistency determination, the "State agency shall inform the Federal agency of its concurrence with or objection to the Federal agency's consistency determination."[49]

G. National Marine Sanctuaries Act.

The National Marine Sanctuaries Act (NMSA) prohibits the destruction, loss of, or injury to any sanctuary resource managed under the law or by permit, and requires Federal agencies to consult with NOAA on actions that are likely to destroy, injure, or cause the loss of any sanctuary resource.[50] If an applicant plans to conduct activities prohibited under the NMSA but authorized under a valid

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[43] *Id.* §§ 1361 et seq.
[44] *Id.* § 1362(13).
[45] 16 U.S.C. § 1452(1).
[46] *Id.* § 1456(c)(1)(A).
[47] *Id.* § 1456(c)(1)(C); *see also* 15 C.F.R. § 930.36.
[48] 15 C.F.R § 930.36 (b)(1).
[49] 15 C.F.R. § 930.41.
[50] 16 U.S.C. §§ 1431-1445; 15 C.F.R. pt. 922.

Federal or state lease, permit, license, approval, or authorization, the applicant must obtain a permit from NOAA for the activities and comply with terms and conditions to protect marine sanctuaries.[51]

COMMENTS

I. NMFS lacks legal authority to designate Aquaculture Opportunity Areas in federal waters.

As NMFS is aware, in 2018, CFS, along with other conservation and fishing groups, successfully challenged NMFS's authority to regulate aquaculture in federal waters under the MSA.[52] In August 2020, the Fifth Circuit Court of Appeals affirmed the lower court's decision to vacate the nation's first commercial aquaculture permitting scheme in the Gulf of Mexico and concluded that the MSA "unambiguously precludes the agency from creating an aquaculture regime."[53] This is because "nothing in the [MSA's] definition [of 'fishing'] plausibly suggests the agency has been given authority to regulate aquaculture."[54] Accordingly, NMFS currently lacks the authority to designate AOAs in federal waters, and NMFS's position as the lead agency of the DPEIS process is improper.[55]

NMFS attempts to circumvent this decision in its Atlas by pointing to authority in the National Aquaculture Act of 1980, the NOAA Marine Aquaculture Policy, and Executive Order 13921, "Promoting American Seafood Competitiveness and Economic Growth" (May 7, 2020). But none of these sources provide authority. First, the policy document from 2011 assumes authority from the Magnuson-Stevens Act in direct contradiction to the Fifth Circuit's decision.[56] It states incorrectly that NMFS may regulate aquaculture in the Exclusive Economic Zone through Fishery Management Plans under the MSA.[57] As noted above, the Fifth Circuit definitively determined it may not.

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[51] 15 C.F.R. §§ 922.48-49.
[52] *See Gulf Fishermens Ass'n v. NMFS*, 341 F. Supp. 3d 632 (E.D. La. 2018).
[53] *Gulf Fishermens Ass'n v. NMFS*, 968 F.3d 454 (5th Cir. Aug. 2020).
[54] *Id*. at 465.
[55] *See, e.g., AquAlliance v. U.S. Bureau of Reclamation*, 287 F. Supp. 3d 969 (E.D. Cal. 2018).
[56] NOAA Marine Aquaculture Policy, at 3 (2011), https://media.fisheries.noaa.gov/2021-01/2011-noaa-marine-aquaculture-policy.pdf?VersionId=null.
[57] *Id*.

Second, it is black letter law that executive orders cannot confer authority on agencies because the president's powers are executive, not legislative, in nature.[58] Rather, the President's authority to act "must stem either from an act of Congress or from the Constitution itself." *Id*. at 585. As a result, Executive Order 13921 cannot allow NMFS to establish a novel offshore aquaculture industry without statutory authority from Congress.

And third, nothing in the National Aquaculture Act grants authority for NMFS, or to any agency, to designate massive swaths of federal ocean waters for industrial aquaculture. Rather, Congress passed the National Aquaculture Act more than forty years ago only to demonstrate support for the aquaculture industry.[59] Specifically the Act assigned the Department of Agriculture to serve as lead agency in 1) establishing a National Aquaculture Information Center,[60] 2) serving as a central source to monitor and assess the industry,[61] and 3) establishing a National Aquaculture Development Plan.[62] The Act's only provision with potential to even *affect* regulatory oversight was its mandate to the Department of Agriculture to simply *identify* "regulatory constraints" to the industry and produce a report due forty years ago.[63]

The Act barely assigns responsibilities to the Department of Commerce, let alone authority to designate AOAs. The Act requires only consultation with the Department of Commerce for a biennial report on the status of aquaculture,[64] and several studies due 35 years ago.[65] None of these submissions required NMFS to determine locations suitable for industrial aquaculture.

Without *any* plain text in support, NMFS cannot establish its authority to designate AOAs in the Southern California Bight. The courts have already held NMFS lacks this authority to do this and must return to Congress if it is to proceed. NMFS's attempts here to spearhead an entire brand-new industry without pointing to statutory text cannot proceed.[66] Indeed, when Congress passed the National

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[58] *Doe #1 v. Trump*, 957 F.3d 1050, 1062 (9th Cir. 2020) (citing *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 587 (1952) ("[T]he President's power to see that the laws are faithfully executed refutes the idea that he is to be a lawmaker.").
[59] 16 U.S.C. §§ 2801-2810.
[60] *Id*. § 2801(b)(3).
[61] *Id*. § 2804.
[62] *Id*. § 2803(a)(2).
[63] *Id*. § 2808.
[64] *Id*. § 2804(d).
[65] *Id*. § 2804(c)(1)(C), (D) (requiring the Department of Commerce to submit studies by December 31, 1987).
[66] *See FDA v. Brown & Williamson Tobacco Corp*., 529 U.S. 120, 159-160 (2000); *Nat'l Fed'n of Indep. Bus. v. Dep't of Lab., Occupational Safety & Health Admin.*, 142 S. Ct. 661, 666, 211 L. Ed. 2d 448 (2022).

Aquaculture Act, it knew how to delegate authority to regulate aquaculture because it had done so under the Water Pollution Control Act, yet it refused to delegate that same authority under the National Aquaculture Act. This lack of text is significant and does not grant permission to regulate a novel industry with unprecedented impacts on ocean waters.

II. NMFS must not ignore the numerous impacts of offshore aquaculture.

Even if NMFS *had* authority to regulate offshore aquaculture, NMFS must fully assess industrial aquaculture's wide breadth of environmental problems in its DPEIS. This massive designation of large swaths of the Southern California Bight for aquaculture, potentially covering up to 60,347 acres,[67] will undoubtedly have harmful environmental and economic impacts that any future permit conditions cannot mitigate or avoid. NEPA plainly mandates that NMFS fully assess these problems, or the proposed AOA designation will remain vulnerable to legal challenge.

A. Under NEPA, NMFS must take a hard look at the direct, indirect, and cumulative impacts of the AOA designations in a DPEIS.

NMFS must take a hard look at the direct, indirect, and cumulative impacts of the AOA designations in the DPEIS.[68] NMFS cannot satisfy this requirement with "conclusory assertions that an activity will have only an insignificant impact on the environment."[69] Rather, NMFS must "consider[ ] all foreseeable direct and indirect impacts" and analyze adverse impacts in a manner that "does not improperly minimize negative side effects."[70] In doing so, NMFS must apply "reliable existing data" and ensure the scientific integrity of its analyses.[71]

Here, there is no question that it is "reasonably foreseeable" that NMFS's AOA designations will result in industrial aquaculture facilities in those locations. The Executive Order plainly states its purpose to remove regulatory burdens for offshore aquaculture.[72] The DPEIS therefore must encompass the myriad of

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[67] *See* James A. Morris Jr. *et. al.*, *An Aquaculture Opportunity Area Atlas for the Southern California Bight* (2021), https://doi.org/10.25923/tmx9-ex26 15, 102 (Atlas); *id*. at 15.
[68] *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1211 (9th Cir. 1998); 40 C.F.R. § 1508.1(g).
[69] *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 402 F.3d 846, 864 (9th Cir. 2004).
[70] *League of Wilderness Defenders-Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, 689 F.3d 1060, 1075 (9th Cir. 2012).
[71] 40 C.F.R. § 1502.23.
[72] Exec. Order No. 13,921, 85 Fed. Reg. 28,471 (May 12, 2020).

environmental and economic impacts industrial aquaculture will have in the Southern California Bight.

Furthermore, much of NMFS's DPEIS must assess the cumulative impacts designation of multiple AOAs will have on Southern California. NEPA defines cumulative impacts as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions."[73] Here, multiple AOAs will cumulatively impact species, water quality, public health, and local fishing communities. NMFS must therefore consider cumulative impacts of multiple AOA designations, as well as other activities affecting species and water quality in Southern California.

1. Offshore aquaculture may contribute to oxygen depletion and harmful algal blooms, exacerbating hypoxia in the Southern California Bight.

First, NMFS must fully assess impacts to water quality from the fish feed, dead fish, and fish feces industrial aquaculture facilities will directly discharge into the Southern California Bight. Nutrient pollution decreases oxygen levels in our waters, killing off aquatic life and creating low-oxygen "dead zones" and harmful algal blooms.[74] Climate change further exacerbates these risks of harmful algal blooms, as warmer, more acidic ocean waters (due to higher carbon dioxide levels) increase both the frequency and toxicity of these events.[75] Harmful algal blooms produce toxic chemicals that can kill fish and other vertebrates by affecting their central nervous systems, and can cause serious illness in humans with severe or chronic respiratory conditions.[76] Southern California has already been experiencing an increase in harmful algal blooms in recent years and harbors some of the world's highest concentrations of domoic acid, an algal toxin dangerous to wildlife and people who eat local seafood.[77] NMFS must consider the likelihood of algal blooms in all study areas and assess the potential harms that could occur to the region.

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[73] 40 C.F.R. § 1508.1(g)(3).
[74] Donald Boesch *et al.*, Pew Oceans Comm'n, *Marine Pollution in the United States* 20-22 (2001).
[75] Margaret Crable, *Climate change could make toxic algal blooms in our oceans more deadly* (July 17, 2020), https://phys.org/news/2020-07-climate-toxic-algal-blooms-oceans.html#:~:text=Harmful%20algal%20blooms%20will%20likely,and%20toxicity%20of%20these%20events.
[76] NOAA, *Harmful Algal Blooms*, https://oceanservice.noaa.gov/hazards/hab/.
[77] Gary Polakovic, *Southern California Coast Emerges as a Toxic Algae Hot Spot*, (Aug. 21, 2018), https://news.usc.edu/147515/southern-californias-coast-emerges-as-a-toxic-algae-hot-spot/.

2. NMFS must properly assess aquaculture's pathogen and parasite discharges.

Second, NMFS must assess impacts from industrial aquaculture facilities' pathogen and parasite discharges. Housing large populations of animals inevitably breeds pests and disease, which agriculture and aquaculture sectors respond to with a pharmacopeia of chemicals. Recent research indicates that active aquaculture sites have 2.72 times the probability of detecting pathogen environmental DNA versus inactive salmon farm sites.[78] In 2012, off the coast of Bainbridge Island, a massive viral outbreak in Atlantic salmon net pens led to the deaths of over one million pounds of farmed Atlantic salmon.[79] NMFS must assess these potential discharges since these pathogens, parasites, and the chemicals used to treat them can easily spread to wild fish.

Climate change only exacerbates this possibility of diseases spreading. Fish are vulnerable to changes in their aquatic habitat, especially, in the case of net pens, where they cannot move away.[80] Not only does climate change increase the risk of escapes, but it can also impact the production environment including pathogen prevalence and/or virulence and host susceptibility (immunosuppression) and transmission.[81]

3. NMFS must assess industrial aquaculture's contributions to antibiotic resistance.

Third, NMFS must assess the potential threat to human health and the environment caused by antibiotic use at the proposed AOA designations. The crowded nature of industrial aquaculture operations will inevitably breed pests and disease for which operators will likely use antibiotics. This use will not only leave residues in seafood, but it will also leach into the ocean, contaminating nearby water and marine life. For example, the salmon aquaculture industry widely uses

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[78] L.N. Frazer, et al., Environmental DNA (eDNA) from multiple pathogens is elevated near active Atlantic salmon farms, Proceedings of the Royal Society (2020), http://dx.doi.org/10.1098/rspb.2020.2010.

[79] Our Sound, Our Salmon, *New Federal Analysis Finds Puget Sound Commercial Net Pens Are Harming Salmon, Steelhead, And Other Protected Fish*, (June 30, 2022), https://www.oursound-oursalmon.org/news/2022/5/18/new-federal-analysis-finds-puget-sound-commercial-net-pens-are-harming-salmon-steelhead-and-other-protected-fish.

[80] Food and Agriculture Organization of the United Nations, *Impacts of Climate Change on Fisheries and Aquaculture*, at 526 (2018), http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1152846/.

[81] *Id*.

Emamectin benzoate to treat sea lice, which could result in drug resistance.[82] In Nova Scotia, the use of this antibiotic resulted in "widespread damage to wildlife," including "substantial, wide-scale reductions" in crabs, lobsters and other crustaceans close to marine finfish facilities.[83] In fact, up to 75% of antibiotics the industrial aquaculture industry uses directly absorb into the surrounding environment.[84] Such impacts could harm marine life throughout the entire region. NMFS must take a hard look at the potential damages to water quality, marine life, and human health by continual antibiotic use.

4. NMFS must assess impacts from escaped fish.

Fourth, NMFS must take a hard look at the inevitable[85] fish escapes that will result from industrial aquaculture in southern California. Around the world, industrial finfish aquaculture has repeatedly resulted in fish escapes, which impact wild fish and other species. For example, in January 2020, 73,600 salmon escaped from a net pen in Mowi, Scotland, marking the third major escape in the area since October 2019.[86] Similarly, approximately four million fish escaped fish in a single year in Norway.[87] In Washington just five years ago, an industrial net pen operation maintained by Cooke Aquaculture Pacific, LLC allowed for approximately 160,000 farmed Atlantic salmon to escape into Puget Sound and the Pacific.[88]

In fact, in countries where the majority of marine finfish farms operate, escapes are not isolated or rare occurrences. In a given year, a single company or facility will likely experience multiple escapes. AquaChile, for example, reported the

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[82] Chun Ting Lam, et. al, *Sea lice exposure to non-lethal levels of emamectin benzoate after treatments: a potential risk factor for drug resistance* (Jan. 22, 2020), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6976678/.
[83] Rob Edwards, The Sunday Herald, *Scottish government accused of colluding with drug giant over pesticides scandal* (June 2, 2017), http://www.heraldscotland.com/news/15326945.Scottish_government_accused_of_colluding_with_drug_giant_over_pesticides_scandal/.
[84] United Nations, Fro*ntiers 2017: Emerging Issues of Environmental Concern*, at 15 (2017), https://www.unenvironment.org/resources/frontiers.
[85] FAO, *State of World Aquaculture* (2006), http://www.fao.org/docrep/009/a0874e/a0874e00.htm (FAO describing escapes on fish farms as "inevitable").
[86] *Escape calls high energy salmon sites into question*, The Fish Site (Jan. 20, 2020), https://thefishsite.com/articles/mowi-reports-mass-salmon-escape-from-colonsay.
[87] Nat'l Marine Fisheries Serv. Pac. Islands Reg'l Off., Draft Programmatic Env't Impact Statement (DPEIS), at 171 (2021).
[88] E. Tammy Kim, *Washington State's Great Salmon Spill and the Environmental Perils of Fish Farming*, The New Yorker (Sept. 13, 2017), https://www.newyorker.com/tech/elements/washington-states-great-salmon-spill-and-the-environmentalperils-of-fish-farming.

escape of 787,929 fish in 2013 due to bad weather damaging cages.[89] Five years later, in 2018, 680,000 fish escaped from Marine Harvest Chile,[90] 109,515 from Bakkafrost Faroe Islands, 258,000 from Scottish Sea Farm in Scotland in 2000, and 120,000 from Huon Aquaculture in Tasmania in 2018.[91] Recognizing the regularity of fish escapes from ocean-based net pens, the U.S. Council on Environmental Quality has stated that it "must be *assumed* that escapes will occur" from net pens.[92]

These fish escapes impact local stocks in a variety of ways, including predation, competition for food, habitat, and spawning areas, and interbreeding with wild populations of the same fish. For example, Atlantic salmon that have escaped from aquaculture operations in Washington State and British Columbia compete with wild Pacific stocks, and increasing numbers of Atlantic salmon have been observed returning to rivers on the West Coast.[93] In the Atlantic region, the U.S. Fish and Wildlife Service has determined that "Atlantic salmon that escape from farms and hatcheries pose a threat to native Atlantic salmon populations."[94] They also predict that "escapement and resultant interactions with native stocks are expected to increase given the continued operation of farms and growth of the industry under current practices."[95]

Furthermore, reliance on the sterility of farmed fish to prevent interbreeding is never 100% guaranteed; therefore, the "long-term consequences of continued farmed [fish] escapes and subsequent interbreeding … include a loss of genetic diversity."[96] Studies have also shown that when farmed and wild fish interbreed

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[89] Lola Novarro, *Here are the largest recorded farmed Atlantic salmon escapes in history*, IntraFish (Feb. 1, 2019), https://www.intrafish.com/aquaculture/here-are-the-largest-recorded-farmed-atlantic-salmon-escapes-in-history/2-1-388082.
[90] *Id*.
[91] *Id*.
[92] Council for Environment Quality & Office of Science and Technology Policy, Case Study No. 1: Growth-Enhanced Salmon, at 23 (2001), https://clintonwhitehouse5.archives.gov/media/pdf/salmon.pdf..
[93] Goldburg, et al., *Marine Aquaculture in the United States: Environmental Impacts and Policy Options*, Pew Oceans Commission (2001), https://fsi-live.s3.us-west-1.amazonaws.com/s3fs-public/marine_aquaculture_pew_2001.pdf.
[94] Endangered and Threatened Species; Proposed Endangered Status for a Distinct Population Segment of Anadromous Atlantic Salmon (Salmo salar) in the Gulf of Maine, 64 Fed. Reg. 62627, 62635 (Nov. 17, 1999).
[95] *Id*.
[96] Fisheries and Oceans Canada, *Newfoundland and Labrador Region, Stock Assessment of Newfoundland and Labrador Atlantic Salmon* (2016), http://waves-vagues.dfo-mpo.gc.ca/Library/40619655.pdf ("Genetic analysis of juvenile Atlantic Salmon from southern Newfoundland revealed that hybridization between wild and farmed salmon was extensive throughout Fortune Bay and Bay d'Espoir (17 of 18

their offspring have diminished survival skills, reduced fitness, and potentially altered life history characteristics such as altered timing of development events.[97] Researchers in Ireland, for example, have found that the interactions of farm escapees and wild salmon reduced the overall fitness of wild species and could lead to the extinction of wild populations.[98]

In California currently, shellfish aquaculture relies almost exclusively on cultivation of three non-native species, the Pacific oyster (Crassostrea gigas), Mediterranean mussel (Mytilus galloprovincialis) and Manila clam (Venerupis (Ruditapes) philippinarum).[99] This has resulted in persistent populations of Pacific oysters outside of cultivation on Catalina Island and from Los Angeles Harbor south to the Tijuana River Estuary and potentially in Tomales Bay.[100] The Pacific oyster is invasive and poses risks to marine species and the environment.[101]

Even when facilities use broodstock collected from the wild, escaped fish pose a threat to wild stocks.[102] The longer a broodstock line is developed (i.e., bred to improve growth, quality, and disease resistance, etc.) the greater the chance that their genes may begin to drift from their wild counterparts.[103]

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locations), with one-third of all juvenile salmon sampled being of hybrid ancestry."); *see also* Mark Quinn, *DFO study confirms 'widespread' mating of farmed, wild salmon in N.L.* (Sept. 21, 2016), https://www.cbc.ca/news/canada/newfoundland-labrador/farmed-salmon-mating-with-wild-in-nl-dfo-study-1.3770864.

[97] This occurs because farmed fish selected for aquaculture are bred to thrive in controlled, rather than wild, environments. Congressional Research Service, Open Ocean Aquaculture, at 7 (Aug. 9, 2010), https://crsreports.congress.gov/product/pdf/RL/RL32694/19; *see also* Yajie Liu et al., *Fishy Fish? The Economic Impacts of Escaped Farmed Fish*, Aquaculture Economics & Management (July 2014), https://www.researchgate.net/publication/264125499_FISHY_FISH_THE_ECONOMIC_IMPACTS_OF_ESCAPED_FARMED_FISH (exploring the economic impacts of escaped fish on commercial and recreational fishing).

[98] *Id*.

[99] California Coastal Commission, *Coastal Development Permit Application Guidance* (July 2020), https://documents.coastal.ca.gov/assets/cdp/Draft-CDP-Application-Guidance-Aquaculture-and-Marine-Restoration.pdf

[100] *Id*.

[101] *Id*.

[102] NMFS, Draft Programmatic Environmental Impact Statement: Pacific Islands Region Aquaculture Management Program (May 7, 2021), https://www.regulations.gov/document/NOAA-NMFS-2021-0044-0003.

[103] *Id*.

NMFS notes in its recent biological opinion on aquaculture in the Puget Sound, that efforts to recapture escaped fish result in significant bycatch.[104] These efforts are undertaken despite the likely resultant harm and infeasibility of recapture.[105] In Puget Sound, a "normal" year without a large-scale failure still results in thousands of escaped fish (0.3% of total farmed fish) wreaking havoc on local wild fish populations and habitats.[106] These escaped fish can also travel into tributary rivers and streams, resulting in longer-term, and wider-ranging habitat effects.[107]

5. NMFS must fully assess cumulative impacts on federally listed species, and other wildlife.

Fifth, NMFS must assess impacts on species. NMFS's Atlas reveals that eighteen threatened and endangered species occur in the Southern California Bight, including several whale species, several sea turtle species, giant manta rays, black and white abalone, the Guadalupe fur seal, and the gulf grouper.[108] Additionally, nineteen species of marine mammals may occur the proposed areas,[109] and fourteen fish species whose Essential Fish Habitat overlaps with proposed AOA sites.[110] Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks.[111] NMFS even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions"[112] and admits that indirect impacts to marine mammals and other wildlife may occur as well.[113] Because the proposed facilities will be located in, or near, species' migration

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[104] NMFS, Reinitiation of Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response for the Environmental Protection Agency's Approval of Washington State Department of Ecology's Sediment Management Standards (Feb. 16, 2022), https://wildfishconservancy.org/wp-content/uploads/2022/04/2022_02-16_FinfishRearingReinit_WCRO-2018-00286-3.pdf.
[105] *Id.* at 105.
[106] *Id.* at 126.
[107] *Id.* at 62-63.
[108] Atlas at 25.
[109] *Id.* at 25-26.
[110] *Id.* at 193-195.
[111] Marc Cota-Robles, *Drone footage captures cluster of juvenile great white sharks off Pacific Palisades coast* (Aug. 11, 2021), https://abc7.com/great-white-shark-pacific-palisades-will-rogers-state-beach-california-population/10945063/; Beth Farnsworth, *Santa Barbara Coast is a nursery 'hot spot' for great white sharks* (Jan. 27, 2022), https://keyt.com/news/santa-barbara-s-county/2022/01/27/santa-barbara-coast-is-a-nursery-hot-spot-for-great-white-sharks/.
[112] Atlas at 194.
[113] *Id.*

routes or in their habitat, NMFS must sufficiently analyze the designations' cumulative effects on species.[114]

Industrial aquaculture may impact these species in numerous ways. Namely, entanglement from ropes, lines, and net pens may harm endangered species and other wildlife in the proposed area. This risk is significant considering the large scale of the proposed designations and current estimations that entanglement in fishing gear already results in the deaths of some 300,000 marine mammals each year.[115] Entanglement can lead to life-threatening side effects for whales because it can interfere with their ability to swim, feed, and breathe.[116] In 2020, 13 of the 52 confirmed entanglements in U.S. waters occurred on the West Coast (accounting for 25 percent of all confirmed live entanglements that year),[117] seven of which occurred in the Southern California Bight[118] where many endangered whale species migrate and live.[119] NMFS must assess how the increased aquaculture activity in the Bight will affect entanglement numbers and propose alternative solutions to prevent risks to endangered and threatened whales.

Moreover, the facilities' propensity to act as fish aggregating devices (FADs) further exacerbates risks of entanglements and vessel strikes, as species are drawn to the facilities. Industrial aquaculture may attract predators as a result of fish escapes, food drifting outside the pens, and other animals aggregating around the pens.[120] An increase in the presence of predators of ESA-listed species and other species could lead to adverse effects such as injury or death. The FAD effect may result in more frequent encounters with protected species, which could increase the likelihood of injury from structures or equipment associated with the facility.[121]

Also, NMFS must assess anthropogenic noise pollution from these facilities and the boats that serve them. NMFS's Atlas acknowledges that the designations

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[114] *See* 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.02.
[115] European Union, *Entanglement in fishing gear and other installations* (Jan. 4, 2022), https://marine-mammals.info/entanglement/.
[116] NOAA, *National Report on Large Whale Entanglements Confirmed in the United States in 2020*, at 1 (June 2022), https://media.fisheries.noaa.gov/2022-06/National%20Report%20on%20Large%20Whale%20Entanglements%20Confirmed%20in%20the%20United%20States%20in%202020.pdf.
[117] *See id.* at 5-7 (breaking down which how many confirmed entanglements there were per species and in which region).
[118] *Id.* at 7.
[119] Atlas at 193 (species such as the blue whale, humpback, gray whale are known to be found in the area depending on the season).
[120] Luke T. Barrett, et al., *Impacts of marine and freshwater aquaculture on wildlife: a global meta-analysis*, Reviews in Aquaculture (2018).
[121] *Id.*

may increase marine traffic.[122] Noise pollution from this traffic can harm marine mammals by masking their communications at almost all frequencies these mammals use.[123] "Masking" refers to a "reduction in an animal's ability to detect relevant sounds in the presence of other sounds."[124] Such an impairment to communication could also result in harmful impacts to these protected species and warrants thorough assessment.

NMFS must also assess light pollution from the facilities, boat traffic, and other coastal zone development that will be necessary to support offshore aquaculture.[125] Light pollution harms species by affect mating cycles and habits,[126] as well as rendering fish more active at night and increasing their exposure to predators.[127] Light pollution at night can also disorient marine birds.[128]

6. NMFS must take a hard look at cumulative impacts on coral.

NMFS must also fully assess impacts on coral. NMFS placed all four study areas near hardbottom habitats (natural reefs), with the majority of sites anywhere from 0.25- 4.5 kilometers away.[129] Hardbottom areas include a range of animal and plant life including a thin veneer of live corals.[130] NMFS itself has expressed increasing concern that these fragile deep-sea coral reefs, sponges, and their

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[122] Atlas at 44.
[123] *See e.g.,* Hildebrand, J.A., Impacts of Anthropogenic Sound, in Marine Mannal Research: Conservation Beyond Crisis (Reynolds, J.E. III et al., eds. 2006); Weilgart, L., 2007, The Impacts of Anthropogenic Ocean Noise on Cetaceans and Implications for Management, 85 Canadian J. Zoology 1091-1116 (2007).
[124] National Research Council, *Ocean Noise and Marine Mammals*, at 96 (2003), *available at* http://www.nap.edu/openbook.php?record_id=10564&page=R1.
[125] Atlas at 44, 205.
[126] *See* Sonia Aronson, *Study draws Southern California coastal light pollution into focus* (Mar. 17, 2020), https://phys.org/news/2020-03-southern-california-coastal-pollution-focus.html (UCLA and USC scientists are attempting to map light pollution in southern California in order to understand how it affects native and endangered aquatic species).
[127] *Light Pollution Makes Fish More Courageous* (Sept. 21, 2018), https://www.sciencedaily.com/releases/2018/09/180921113456.htm.
[128] *Id.*
[129] Atlas at 55-57, 59. One of the Santa Barbara sites in the Northern Study Area is furthest from the coast. *Id.* at 157. The closest sites are in the Southern Study Area, deemed unsuitable for AOA development. *Id.* at 56. Within the Central Southern Study Area, the closest sight is within 0.25 km of gray whale migration paths and hardbottom habitats. *Id.* at 189.
[130] Atlas at C-5.

associated resources may be in serious danger.[131] The additional coastal development needed to sustain the aquaculture industry would only increase the stress on these communities. Due to the proximity of the AOAs to these critically fragile habitats, NMFS must sufficiently analyze the cumulative impacts of the proposed projects to hardbottom areas.

7. NMFS must consider the impacts of DDT in their cumulative impact analysis.

NMFS must assess the cumulative impacts of designating an AOA near old DDT dump sites. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT dumped in the Pacific Ocean off Catalina Island near NMFS's proposed AOA option CN1-B. [132] Investigations have determined that "[b]etween 1947 and 1971, Montrose Chemical Corporation … dumped millions of pounds of chemical sludge containing DDT … off the California coast [and] into the Los Angeles wastewater system."[133] EPA's recent map shows the 14 deep-water disposal locations' approximate placement in the Southern California Bight, near the Channel Islands and NMFS's Northern Study Area.[134]

DDT is highly toxic and carcinogenic and linked to a wide variety of health problems in both humans and wildlife.[135] Specifically, DDT plays a significant role in the development of a specific type of cancer in sea lions.[136] It is also very durable, and as decades of science has shown, biomagnifies and bioaccumulates as it travels through food webs. As a result, marine wildlife and fish populations are still recovering from the toxic effects of illegal dumping. NMFS must assess DDT's potential to harm human health by accumulating in farmed fish, as well as the cumulative impacts the proposed designations may have on species already harmed by toxic DDT.

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[131] Thomas F. Hourigan *et al.*, *The State of Deep-Sea Coral and Sponge Ecosystems of the United States*, at 99-100 (Dec. 2017), https://spo.nmfs.noaa.gov/sites/default/files/OHC4_v2.pdf (maps showing where coral populations have been found in the Southern California Bight, compared to where trawling and fixed gear industries occur); Atlas at 114 (describing marine pollution in the Southern California Bight as a "major stressor[ ] on deep-sea coral communities.").

[132] Samantha Haugen, *How Barrel After Barrel of DDT Ended Up On the Ocean Floor*, OCEAN BLUE PROJECT (Jan. 13, 2021) https://oceanblueproject.org/ddt-effects-on-the-environment/.

[133] Haugen *et al.*, *supra* n. 132.

[134] EPA, *Southern California Ocean Disposal Site #2 Investigation*, https://www.epa.gov/ocean-dumping/southern-california-ocean-disposal-site-2-investigation.

[135] *Id.*

[136] *Id.*

8. NMFS needs to account for sewage and oil spills and how they affect aquatic life.

NMFS also needs to assess the AOA designations' cumulative impacts in an area already recovering from numerous recent sewage and oil spills. Santa Monica Pier currently has poor water quality,[137] in part resulting from storm drain runoff and recent oil spills.[138] In this past year alone, 89 sewage spills have occurred in Los Angeles County, amounting to 20,322,566 gallons of sewage/waste flowing into the ocean and other bodies of water.[139] Similarly, in Santa Barbara County, there have been 3 sewage spills over the past year, amounting to 5,643 gallons of sewage/waste flowing into the ocean.[140] And these figure do not even include the oil that has spilled into waterways, and in some areas, still requires clean-up. NMFS's Atlas acknowledges numerous recent oil spills including a 2015 spill of more than 100,000 gallons at Refugio Beach in Santa Barbara and an October 2021 spill of an estimated 125,000 gallons off the coast of Huntington Beach.[141] NMFS must therefore assess cumulative impacts on these sensitive areas from its proposed AOAs.

9. NMFS must consider impacts from marine debris.

Offshore aquaculture projects have the potential to generate significant marine debris including plastic waste. Industrial shellfish operations create water pollution with toxic plastic and Styrofoam from cages, rack-and-bags, trays, surface or floating structures, or long lines suspended over the tide bed. For example, geoduck (clam) aquaculture uses PVC tubes stuck into the bed at a rate of 42,000 tubes per acre, which are covered with plastic "anti-predator" netting. The plastic gear used in production can be dislodged in storms or break down into microplastics, adding more plastics to our oceans and beaches and acting as a poison pill to marine species that ingest microplastics coated in whatever pollutants are in the water (including the very shellfish grown for human consumption).[142]

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[137] *See* Heal the Bay, *2021-2022 Beach Report Card* (2022), https://healthebay.org/wp-content/uploads/2022/06/Beach-Report-Card-2021-2022.pdf (the report considers factors such as rain fall average, water quality, and sewage/oil discharge to rate beaches across the West Coast to provide information to the general public on conditions and public health concerns).
[138] *Id.* at 12, 19.
[139] *Id.* at 31.
[140] *Id.* at 30.
[141] Atlas at 196.
[142] Bendell, L.I., *Favored use of anti-predator netting (APN) applied for the farming of clams leads to little benefits to industry while increasing nearshore impacts and plastics pollution*, Marine Pollution Bulletin (2015).

According to the California Coastal Commission, one of the shellfish farms currently active in California uses roughly 1,000 total miles of nylon rope and line and over 250,000 individual plastic mesh baskets. The Coastal Commission historically imposes multiple best management practices including monitoring and cleanup requirements to reduce generations of marine debris, however, large-scale growth in offshore aquaculture operations in the Santa Barbara Channel would inevitably result in generation of marine debris. Mitigation for such impacts would be difficult, at best, in the marine-operational environment.

10. NMFS must consider impacts from pesticide use.

NMFS must also consider pesticide use in industrial shellfish production, which creates its own suite of risks and adverse impacts. Pesticide use to clear away wild species and allow intensive shellfish farming has harmful impacts on biodiversity.[143] For example, in Washington state, shellfish growers have historically used pesticides to kill native burrowing shrimp, recently changing from carcinogenic carbaryl to experiments with the neonicotinoid imidacloprid.[144] Currently, Washington permits shellfish growers to use the herbicide, imazamox, to control Japanese eelgrass.[145] If used at facilities in the AOAs, these pesticides and herbicides would not only kill the target species — they would also harm other invertebrates, fish, and the species that rely on these species as a food source.

11. NMFS must assess greenhouse gas emissions from increased vessel traffic.

NMFS must also assess climate change impacts from increased vessel traffic. The AOA designations could potentially result in dozens of offshore industrial aquaculture operations, with the farthest area 46.3 kilometers offshore.[146] These

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[143] *See e.g.*, CFS, *Water Hazard 2.0: Continued Aquatic Contamination by Neonicotinoid Insecticides in the U.S.* (2017), http://bit.ly/32rDyov; Morrissey, C. A., et al., *Neonicotinoid contamination of global surface waters and associated risk to aquatic invertebrates: a review*, Environment International 74:291-303; Margaret Eng et al., *A neonicotinoid insecticide reduces fueling and delays migration in songbirds* (2019), Science, https://science.sciencemag.org/content/365/6458/1177; D. Goulson, *An overview of the environmental risks posed by neonicotinoid insecticides*, 977-87, Journal of Applied Ecology, 50(4) (2017).

[144] Wash. Dept. of Ecology, *Burrowing shrimp control (Imidacloprid)*, https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Aquatic-pesticide-permits/Burrowing-shrimp-control-Imidacloprid.

[145] Mallory Gruben, *Ecology reissues permit for 'low toxcitiy' Japanese eelgrass herbicide*, The Daily News (March 7, 2020), https://tdn.com/news/local/ecology-reissues-permit-for-low-toxcitiy-japanese-eelgrass-herbicide/article_b8b79f47-6f7b-5676-8ba6-0014b3ef63b2.html.

[146] Atlas at 14.

facilities will inevitably increase vessel traffic, and as a result, emit more harmful greenhouse gases.

12. NMFS must thoroughly assess impacts on sensitive areas near the proposed AOAs.

a. NMFS must assess impacts on areas of special biological significance.

The proposed AOA designations will impact numerous areas of special biological significance, which NMFS must assess. Maintained by the State Water Resources Control Board, these areas support a variety of aquatic life and unique species. Here, for example, NMFS placed the Northern Study Area near the biologically diverse Channel Island chain, which already faces threats from development and contamination from shipping lanes.[147] Additionally, NMFS placed cluster CN-1 near the Santa Barbara and Anacapa Island Area of Special Biological Significance, which also faces threats from urban runoff from mainland coastal development, contamination from shipping channels, and oil development.[148] Other areas of special biological significance in the Southern California Bight near the proposed AOAs include the Northwest Santa Catalina Island Area of Special Biological Significance, the San Clemente Island Area of Special Biological Significance, and the San Nicolas Island & Begg Rock Area of Special Biological Significance.

b. NMFS must assess impacts on state and federal marine protected areas.

Beyond areas of specifical biological significance, NMFS must also assess impacts on state and federal marine protected areas. NMFS proposes to designate these AOAs near numerous national marine sanctuaries and marine protected areas, such as the Channel Islands National Marine Sanctuary, which protects endangered species, sensitive habitat, historic shipwrecks, and cultural resources.[149] Other marine protected areas in the Southern California Bight near the proposed AOAs include Point Dume State Marine Reserve and Marine Conservation Area, Campus Point Marine State Conservation Area, and Point Conception State Marine Reserve.[150]

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[147] State Water Resources Control Board, *California's Areas of Special Biological Significance*, https://www.waterboards.ca.gov/water_issues/programs/ocean/asbs_map.shtml.
[148] *Id*.
[149] Atlas at Appendix C-5.
[150] California Department of Fish & Wildlife, *Southern California Marine Protected Areas*, https://wildlife.ca.gov/Conservation/Marine/MPAs/Network/Southern-California#27158536-campus-point-state-marine-conservation-area.

c. NMFS must assess impacts on the proposed Chumash Heritage National Marine Sanctuary.

NMFS must also assess impacts on the proposed Chumash Heritage National Marine Sanctuary, located near the North Study Area. NOAA's Office of National Marine Sanctuaries initiated the designation process for this sanctuary in November 2021 and plans to complete the designation by winter 2023.[151] The nominated approximately 7,670 square-mile sanctuary, adjacent to San Luis Obispo and Santa Barbara counties and the boundaries of Monterey Bay and Channel Islands national marine sanctuaries, aims to preserve Chumash tribal history and protect the area's biodiversity, including its kelp forests, sandy beaches, coastal dunes, and wetlands, nursery grounds for numerous fish species, and habitat for numerous threatened and endangered species.[152]

13. NMFS must not overlook impacts to local economies and markets for wild fish.

NMFS must also take a hard look at economic harms to coastal communities, food producers (on land and at sea), and other marine-reliant industries. Commercial and recreational fishing, tourism, and recreation account for a large portion of Southern California's economy and workforce,[153] with the majority of marine jobs in tourism and recreation.[154] California's fishing industry also supports seafood markets regionally, statewide, and internationally.[155] The Atlas proposes three clusters of AOA site options in areas overlapping with significant portions of these marine jobs and marine GDP. The two clusters in Marina del Ray and Redondo Beach have two harbors used for recreational and "small vessels" access,[156] as well as supporting commercial fisheries.[157]

Members of the wild-capture fishing industry have collectively voiced their trepidations over attempting to coexist with the marine aquaculture industry, stating that "this emerging industrial practice is incompatible with the sustainable commercial fishing practices embraced by our nation for generations and

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[151] NOAA, *Proposed Designation of Chumash Heritage National Marine Sanctuary,* https://sanctuaries.noaa.gov/chumash-heritage/
[152] *Id.*
[153] Atlas at 13.
[154] *Id.* at 192 (tourism and recreation accounts for 75 percent of marine jobs, followed by the transportation sector which accounts for 19 percent).
[155] *Id.* at 13.
[156] *Id.* at 201-2.
[157] *Id.* at 201.

contravenes our vision for environmentally sound management of our oceans."[158] NMFS's proposed AOA designations could close off and essentially privatize large swaths of the ocean that are currently available for numerous other commercial purposes, including fishing, tourism, shipping, and navigation. Finally, given what we know about economies-of-scale and the business models of modern agriculture and terrestrial food production, we can only expect a similar trend at sea: that is, the marine finfish aquaculture industry could easily push out responsible, small-scale seafood producers and crop growers. This dynamic equates to an alarming imbalance of power, and allows corporations to dominate business structures, production methods, and management policies within the industry. Giving corporations disproportionate influence over food production also severely limits consumer choices.[159]

a. NMFS must acknowledge the possibility of physical displacement of local fishermen.

NMFS's DPEIS must assess the cumulative impacts of aquaculture projects' expansion on local commercial fishermen. California is "the largest ocean-based economy in the U.S." with thousands of commercial fishing vessels fishing offshore of Southern California.[160] NMFS's Atlas already acknowledges potential impacts on commercial fishing operations and the significant geographical overlap between the AOAs, commercial traffic, and fishing trawls.[161] NMFS also explicitly acknowledges that commercial fishing supports many communities along the coastline by providing employment, income, and revenue from seafood sales, stating that the seafood industry in California supported more than 150,000 jobs in 2017.[162] The change in the availability of resources and wild fish stocks due to the prolonged presence of aquaculture may drastically alter the patterns and routes of commercial fishermen. Changing migration patterns, species displacement, or hypoxia may

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[158] Open letter to Members of the U.S. House of Representatives and Senate, Dec. 4, 2018, re: Opposition to marine finfish aquaculture in U.S. waters, *available at* http://foe.org/DecFishFarmingSignOnLetter/.

[159] *See World's 100 Largest Seafood Companies*, Undercurrent News (Oct. 7, 2016) https://www.undercurrentnews.com/report/undercurrent-news-worlds-100-largest-seafood-companies-2016/; Tom Seaman, *World's top 20 salmon farmers: Mitsubishi moves into second place behind Marine Harvest*, Undercurrent News (June 29, 2016) https://www.undercurrentnews.com/2016/06/29/worlds-top-20-salmon-farmers-mitsubishi-movesinto-second-place-behind-marine-harvest/; Aslak Berge, *These are the world's 20 largest salmon producers*, Undercurrent News (July 30, 2017) http://salmonbusiness.com/these-are-the-worlds-20-largest-salmon-producers/.

[160] Atlas at 13.

[161] *Id.* at 74-76.

[162] *Id*. at 13.

force wild fish and fishermen into new waters. Therefore, NMFS must also address these cumulative future impacts on the physical displacement of local fishermen.

b. NMFS must assess harms to markets for wild fish.

NMFS must also assess the AOA designations' impact on the value of local catch. Aquaculture corporations in the Bight could potentially flood local and state-wide markets with farmed versions of native species, thus decreasing the price of the same wild stocks and consequently harming local fishermen. For example, salmon farming and its resulting constant supply of farmed salmon in the global market drastically reduced the price of salmon—wild or farmed—worldwide.[163] Indeed, rather than complementing wild-capture fisheries in the Bight,[164] offshore aquaculture in the Bight may flood the market with an abundance of farmed finfish—resulting in net loss to the local fishermen. In the worst-case scenario, flooding the market with farmed fish could lead to local fishermen's' inability to continue operating due to competition and the harm to wild fish. This could lead to large numbers of unemployment and closure of many commercial fishing operations.

c. NMFS must fully assess impacts to wild caught fisheries.

NMFS must also assess the AOA designations' impacts on wild caught fisheries. Rather than replacing wild fish consumption, farmed fish production in other regions has instead exacerbated the diminishing populations of wild fish. This will be especially true in offshore aquaculture farming carnivorous fish species not native to Southern California, which would require a diet high in fishmeal and oil often derived from wild-caught fish stocks that are already under pressure due to increased coastal development and oil/sewage spills.[165] The industry's ever-growing demand for feed jeopardizes the survival of wild stocks and disrupts the balance of the marine ecosystem.[166] The removal of wild fish to produce fish feed reduces the natural supply of food for the farmed fish's wild counterparts, as well as seabirds

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[163] R. Naylor *et al., Salmon Aquaculture in the Pacific Northwest: A global Industry with Local Impacts*, 45 Environment, No. 8 (Oct. 2003) at 18-39.
[164] NOAA, Press Release, NOAA Announces Regions for First Two Aquaculture Opportunity Areas under Executive Order on Seafood (Aug. 20, 2020).
[165] Albert Tacon & Marc Metian, *Fishing for Feed or Fishing for Food: Increasing Global Competition for Small Pelagic Forage Fish*, 38 Ambio, No. 6 (Sept. 2009) at 294-302; R. Naylor & M. Burke, *Aquaculture and Ocean Resources: Raising Tigers of the Sea*, 30 Annual Review of Envtl. Resources, 185-218 (2005); Brian Halweil, *Farming Fish for the Future* 20 (Worldwatch Inst. 2008).
[166] Changing Markets Foundation, *Until the Seas Run Dry* (2019), http://changingmarkets.org/wp-content/uploads/2019/04/REPORT-WEB-UNTILL-THE-SEAS-DRY.pdf.

and other marine life.[167] Ten years ago, the FAO reported that most reduction fisheries were already fully exploited and some were considered overexploited, meaning they were already producing catches at or near the maximum sustainable level, and they risked depletion of stocks if catches were not reduced.[168]

B. Any mitigation measures must have adequate explanation and support.

While NMFS can use terms in a DPEIS to prevent harm from an impact, the "feasibility of mitigation measures is not self-evident," and the record still needs to support the conclusion that the measures attached to the DPEIS will actually have the intended effect.[169] NMFS must support the conclusion that their proposed conditions will render significant impacts from oxygen depletion, pathogen spread, antibiotic resistance, fish escapes, federally listed species and other wildlife, and local economies insignificant. Failing to properly support their conclusions renders them arbitrary and capricious and contrary to law.

III. NMFS must initiate formal programmatic ESA Section 7 consultation on the proposed AOA designations and prepare a Biological Assessment.

NMFS acknowledges that numerous listed species may be present in throughout the Southern California Bight, even overlapping with the proposed AOAs, yet NMFS has yet to consult with the Services or prepare a biological assessment as required by 16 U.S.C. § 1536(c)(1). The ESA regulations plainly state that "[a]ny request for formal consultation may encompass … a number of similar individual actions within a given geographical area or a segment of a comprehensive plan. This does not relieve the Federal agency of the requirements for considering the effects of the action as a whole."[170] Accordingly, NMFS must engage in programmatic consultation regarding impacts of these AOA designations on federally protected species throughout the Southern California Bight.

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[167] Tacon & Metian, *supra* n. 165; Marine Aquaculture Task Force, Woods Hole Oceanographic Inst., *Sustainable Marine Aquaculture: Fulfilling the Promises, Managing the Risks* 16 (27).

[168] FAO, *The State of the World Fisheries* (2012), http://www.fao.org/docrep/016/i2727e/i2727e.pdf.

[169] *See O'Reilly v. U.S. Army Corps of Eng'rs*, 477 F.3d 225, 234 (5th Cir. 2007) (holding that the agency did not provide a rational basis for determining that the USACE has adequately complied with NEPA because "the EA provides only cursory detail as to what those measures are and how they serve to reduce those impacts to a less-than-significant level.").

[170] *Nat'l Wildlife Fed'n v. Brownlee*, 402 F. Supp. 2d 1, 10 (D.D.C. 2005) (citing 50 C.F.R. § 402.14(c)).

As detailed above, offshore aquaculture facilities present serious environmental concerns, both on an individual level and cumulatively. Based on this fact and the ESA regulations, it is therefore unequivocal that AOA specific designations or consultation on each individual permit aquaculture facilities must obtain in the future does not relieve NMFS of its duty to consult on the AOA designations at a programmatic level. While AOA-specific or project-specific consultation is also clearly required for any project that may affect listed species, NMFS cannot justify its potential designation of multiple AOAs in the Southern California Bight based on that later, site-specific consultation. Relying only on site-specific consultation fails to capture the cumulative impacts that the southern California AOA designations may have on listed species. The only way to ensure that the designations will not jeopardize listed species is to complete a programmatic consultation – otherwise the Services are not provided the opportunity to identify which areas may be problematic for listed species, and to provide reasonable and prudent measures to minimize harm, such as measures to ensure that NMFS gathers and analyzes sufficient data to prevent jeopardy to listed species.

A. Numerous endangered and threatened species would be threatened by AOA designations.

The Atlas documents numerous threatened and endangered species vulnerable to the impacts of offshore aquaculture facilities in the Southern California Bight. Critical habitat for the humpback whale overlaps with the Northern Study Area,[171] while NMFS lists seventeen other endangered and threatened species known to occur in the Southern California Bight.[172] These species include numerous other endangered whale species, several sea turtle species, giant manta rays, black and white abalone, the Guadalupe fur seal, and the gulf grouper.[173]

B. NMFS's AOA designations pose a risk of direct, indirect, and cumulative adverse impacts on listed species.

AOA designations would thus pose a risk of direct and cumulative adverse harm to these ESA listed species, which, as discussed above, must be analyzed through formal consultation. In addition to cumulative impacts discussed above, discharges from offshore aquaculture operations typically contain organic and inorganic solids, nutrients, and chemicals used in the prevention and treatment of various diseases. Any of these discharges could impair the water quality in the receiving water and harm endangered species, especially when discharged from multiple facilities. At elevated concentrations, chlorine and ammonia are toxic to

[171] Atlas at 36.
[172] *Id*. at 25.
[173] *Id*.

aquatic life, while discharged nutrients could cause periodic extreme decreases in dissolved oxygen. These impacts must be assessed on a programmatic level to ensure the protection of endangered species.

C. NMFS cannot commit resources to the proposed designations without first consulting with the Services.

Under Section 7(d) of the ESA, NMFS may not act until the agency consults with the Services, and the Services concur with NMFS's determination. Section 7(d) of the ESA provides that, once a federal agency initiates consultation on an action under the ESA, the agency "shall not make any irreversible or irretrievable commitment of resources with respect to the agency action which has the effect of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate subsection (a)(2) of this section."[174]

Since the purpose of Section 7(d) is to maintain the environmental status quo pending the completion of consultation, Section 7(d) prohibitions remain in effect while NMFS completes its programmatic consultation. These prohibitions must also remain in effect throughout the consultation period and until the federal agency has satisfied its duty under Section 7(a)(2) to insure that the action will not result in jeopardy to listed species or adverse modification of critical habitat. Hence, NMFS may not designate AOAs until it has complied with the statutory mandates of the ESA.

D. NMFS must consult with the Services for a Biological Opinion prior to designating AOAs.

Due to the far-reaching nature of the proposed designations and the multiple impacts on species throughout southern California, NMFS will also need to prepare a Biological Opinion (BiOp). The result of formal consultation is the preparation of a BiOp by the expert wildlife agencies (FWS and NMFS) which provide their analysis of the best available scientific data on the status of the species and how they would be affected by the proposed designations.[175] Additionally, a BiOp must include a description of the proposed action, a review of the status of the species and critical habitat, a discussion of the environmental baseline, and an analysis of the

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[174] 16 U.S.C. § 1536(d).

[175] When preparing a biological opinion, the consulting agency must (1) "review all relevant information," (2) "evaluate the current status of the listed species," and (3) "evaluate the effects of the action and cumulative effects on the listed species," 50 C.F.R. § 402.14, using "the best scientific and commercial data available." 16 U.S.C. § 1536(a)(2); *see also Greenpeace v. Nat'l Marine Fisheries Serv.*, 80 F. Supp. 2d 1137, 1149-50 (W. D. Wash. 2000) (remanding biological opinion where agency failed to "meaningfully analyze" the risks to the species and the key issues).

direct and indirect effects of the proposed action and the cumulative effects of reasonably certain future state, tribal, local, and private actions.[176]

E. Incidental take statements must be prepared on an individual level.

While formal programmatic consultation is required, it would be improper and unlawful for any incidental take statement to be issued as part of the Services' biological opinion.[177] Numerous different ESA-protected species and their designated critical habitats are likely to be adversely affected. It remains unclear whether sufficient protections at the programmatic level will be implemented to ensure that listed species are not jeopardized by cumulative impacts from activities covered by these designations.

Moreover, there is no feasible way that the Services can predict, let alone quantify, the amount of incidental take of currently-listed species that will result from offshore aquaculture facilities throughout the Southern California Bight in the years to come. Further, the Services could not possibly analyze or quantify incidental take for future-listed species that will be adversely affected by the proposed AOA designations. Rather, incidental take can only occur, and can only be analyzed and appropriately permitted, at the site-specific and species-specific level. Therefore, the programmatic consultation should acknowledge that it is a framework programmatic consultation under which any incidental take will be subsequently authorized under a permit-specific Section 7 or Section 10 process.[178]

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[176] *See* Consultation Handbook at 4-14 to 4-31.

[177] It is well-settled that programmatic biological opinions do not require an incidental take statement where those opinions explicitly mandate future site-specific consultations for take authorizations. *See Gifford Pinchot Task Force v. USFWS,* 378 F.3d 1059, 1067–68 (9th Cir.) *am. by* 387 F.3d 968 (9th Cir. 2004); *Forest Serv. Employees for Env't Ethics*, 726 F. Supp. 2d at 1224–1225; *W. Watersheds Project v. BLM*, 552 F. Supp. 2d 1113, 1139 (D. Nev. 2008); *Swan View Coal., Inc. v. Turner,* 824 F. Supp. 923, 934–35 (D. Mont. 1992). Here, should the Services issue a no-jeopardy opinion on the AOA designations, it should not be accompanied by an incidental take statement because all incidental take should only be authorized, if at all, via a Section 10 permit or Section 7 consultation.

[178] *See* 80 Fed. Reg. 26,832 (May 11, 2015) (adding definition of "framework programmatic action" to 50 C.F.R. § 402.02 and adding 50 C.F.R. § 402.14(i)(1)(6) on incidental take statements not being required at the programmatic level where subsequent actions resulting in incidental take will be separately consulted on); *see also* Interagency Handbook at 4-50-51 (stating that in programmatic consultations that cannot determine anticipated levels of incidental take "the incidental take statement should indicate that the issue will be reexamined during the consultation process for site-specific actions under the umbrella of the larger planning document.").

IV. NMFS must also comply with the Marine Mammal Protection Act.

Due to potential "takes" of marine mammals, NMFS must obtain proper authorization before finalizing any AOA designations. Offshore aquaculture facilities approved under this program could result in harassment of nineteen marine mammal species in the proposed areas.[179] Thus, NMFS must complete an accurate assessment of risks posed by designations to marine mammals.

V. NMFS must comply with the MBTA.

NMFS has also failed to consider whether the AOA designations may result in the "take" of migratory birds, despite the fact that migratory birds will likely interact with offshore aquaculture facilities. Several of NMFS's proposed sites fall within Important Bird Areas,[180] which provide habitat for migrating birds. Now, pursuant to the MBTA, NMFS must undertake this evaluation before finalizing the AOA designations.

VI. NMFS must ensure protection of essential fish habitat, as required under the MSA.

The MSA established procedures to identify, conserve, and enhance Essential Fish Habitat (EFH) for species regulated under a federal Fisheries Management Plan.[181] The MSA requires consultation with NMFS on all actions, including proposed actions, which may adversely affect EFH.[182] To "adversely affect" means any impact that reduces the quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.[183] When NMFS is consulted on impacts to EFH under the MSA, it must "recommend to such agency measures that can be taken by such agency to conserve such habitat," and, should the action agency fail to adopt those measures, it must explain its reasons for not following those measures.[184]

Here, before NMFS can finalize any designations, NMFS must ensure that none of the proposed sites will adversely affect the EFH for all federally managed

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[179] Atlas at 26.
[180] *Id*. at 112, 131.
[181] 16 U.S.C. §§ 1801 *et seq*.
[182] *Id*. § 1855(b)(2).
[183] 50 C.F.R. § 600.810.
[184] 16 U.S.C. § 1855(4).

fish species. NMFS's Atlas identifies fourteen fish species whose EFH overlaps with proposed AOA sites,[185] rendering this consultation all the more essential.

VII. NMFS must consult on National Marine Sanctuaries.

The National Marine Sanctuaries Act established procedures to ensure protection of National Marine Sanctuaries. NMFS's proposed AOAs are located near Marine Protected Areas, with the Northern Study Area even overlapping with the Channel Islands National Marine Sanctuary.[186] This critical sanctuary protects 1,470 mi² of ocean waters around the Northern Channel Islands: Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands and protects endangered species, sensitive habitat, historic shipwrecks, and cultural resources.[187] As a result NMFS must consult with itself regarding whether the designations are likely to destroy, injure, or cause the loss of any sanctuary resource.[188]

VIII. Designating the AOAs without a consistency determination would violate the Coastal Zone Management Act.

NMFS has yet to submit a CZMA consistency determination to the pertinent California agencies so that they and the public can comment on the designations' consistency with California's Coastal Management Program. This failure to make such a determination violates the CZMA and its regulations. NMFS's regulations specify that federal agencies must provide state agencies with a consistency determination "at the *earliest* practicable time in the planning … of the activity."[189] Submitting consistency determinations to California after NMFS's NEPA review and eventual designation plainly delays this determination beyond the "earliest" time in the process. Furthermore, NMFS's proposed designation of major areas of southern California will undoubtedly impact protected areas in California's Coastal Management Program as discussed *supra*. Allowing California agencies to review the NMFS consistency determination is vital, given how the proposed designations likely conflict with the protections currently provided in California's Coastal Management Program.

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[185] Atlas at 195.
[186] *Id*. at 55.
[187] *Id*. at Appendix C-5.
[188] 16 U.S.C. § 1434(d); *see also Greenpeace Foundation v. Mineta*, 122 F.Supp.2d 1123, 1127 n.5 (D. Haw. 2000) (noting that where "NMFS is both the acting and consulting agency ... NMFS consults with itself").
[189] 15 C.F.R § 930.36 (b)(1) (emphasis added).

CONCLUSION

For the foregoing reasons, NMFS should halt its AOA designations until proper federal oversight has been established. If NMFS does proceed, the agency must comply with the mandates of NEPA, the MMPA, the MSA, the ESA, the NMSA, the CZMA, and the MBTA.

Thank you for your consideration of these comments.

Sincerely,

Center for Food Safety

LA Waterkeeper

San Diego Coastkeeper

Santa Barbara Channelkeeper

Environmental Defense Center

Don't Cage Our Oceans Coalition

Recirculating Farms Coalition

Oceanic Preservation Society

Friends of the Earth

Environmental Action Committee of West Marin

PUBLIC SUBMISSION

As of: 7/22/22 6:29 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-lgm5-em1l
Comments Due: July 22, 2022
Submission Type: API

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0025
Comment from Center for Food Safety

Submitter Information

Email: jlee@centerforfoodsafety.org
Organization: Center for Food Safety

General Comment

See attached file(s)

The attached spreadsheet contains 5850 comments from Center for Food Safety members in column S. The comments read as follows:

I am writing to voice my opposition to aquaculture facilities everywhere due to the risks that they pose to local fishing communities, our environment, and endangered species.

These industrial fish farms directly discharge a whole host of pollutants into public waters including anti-foulants, excess feed, and untreated fish waste. Inevitable fish escapes could spread pathogens and parasites to wild species. They attract and harm predators and other wildlife.

These factory fish farms are also leading to the demise of our wild fishing communities by placing downward pressure on fishing prices and creating competition for limited marine space.

Every state near California's AOA has bans on nonnative factory fish farms in state waters. It is intellectually dishonest to build these farms just a few miles further off the coast in federal waters and claim to be representing the interests of the people who clearly don't want them there.

The NOAA is charged with protecting our oceans. Permitting factory fish farms contradicts your mission. Please do everything you can to stop the industrialization of our oceans with factory fish farms.

Attachments

No Cal AOA Comments_Center for Food Safety

Commercial Fishermen of Santa Barbara

This Public Comment represents the views of Commercial Fishermen of Santa Barbara, Inc, a 501c3 port association serving all fisheries and aquaculture operating out of the port of Santa Barbara since 1971.

We strongly oppose the conversion of fishing grounds to aquaculture farms. Our industry has already suffered major loss of valuable grounds and access from decades of dramatic regulatory reform, marine protected area closures, oil spills and oil and gas infrastructure, and new challenges on the horizon in the form of giant wind farms, associated cables, a new National Marine Sanctuary, and the State's 30x30 initiative. In addition, we face challenges related to climate change, a flood of cheap (often IUU) seafood imports that hurt our prices, loss of affordable shoreside space and aging infrastructure. Fishing capacity and production has been lost as the number of fishing vessels have rapidly declined over the past two decades due to the challenges of these combined assaults.

We do not support taking more grounds away to experiment with new installations that have a very mixed track record of success in our waters. Past aquaculture installations in California have: littered the sea floor with trash that was never recovered, gone out of business, and led to loss of human life. At the same time, wild fish stocks are booming and many are underexploited.

Installing and servicing equipment far offshore is costly and risky and will require larger installations, and likely an industrial scale approach by international corporate entities in order to financially succeed. Weather windows enabling harvest from grow sites located far offshore are few. Larger farms will be more disruptive to fishing grounds, port infrastructure and negatively impact markets for wild products. It would be more sensible to focus new aquaculture on the coastline with small installations by local small businesses. That the State of California is not willing or able to support development of small-scale aquaculture in State waters in a timely fashion does not mean that federal waters make for a good or successful alternative.

There are important data gaps in the AOA input data for fishing that must be filled before the AOA areas are finalized. Also, the charts provided are not sufficient in terms of nautical standards - They should show fathom curves and other navigational elements. The fisheries data used to designate the Northern AOA options were incomplete and flawed. For instance, there are no Dungeness harvested in the Santa Barbara Channel. To our knowledge, Pink Shrimp is also not a viable fishery in this region. By including data layers like these that are either wrong or not important to local boats dilutes the power of the layers representing locally important fisheries that are badly impacted to influence the model's results. These flaws must be addressed and locally important fisheries must not be impacted, both by loss of grounds or navigational hazards along transit routes.

The local seafood products produced by our trawl and gillnet fisheries include highly sought after species such as Halibut, Angel Shark, Ridgeback Shrimp, Sea Cucumbers, Swordfish and Yellowtail. These fisheries are critical to the successful functioning and resilience of our port communities on the Santa Barbara Channel, and are some of the fisheries that are already most

compromised by lost grounds and substantial fishing restrictions of their gear. Trawl and gillnet fishing are highly efficient methods that can catch quantities of fish that enable commercial viability compared to line fishing which is a much slower, low volume process. Decades of regulatory reform have ensured that they are low-bycatch fisheries that do no significant harm to populations of protected species. Net gear requires large buffer zones, so placing farms on the edges of net fishing grounds will still impact fishing access to those grounds and pose dangerous navigational hazards.

The fisheries data used in the Atlas are not fine-scaled enough to capture the value of specific habitat features that are critical to fisheries and should be avoided. Fishing relies on decades of accumulated knowledge of finescale bottom features that aggregate fish and make for efficient and successful fishing trips.

Even if and when AOA areas are re-calculated using better data, fishing behavior is far from static and what appears as low value areas in the 2010's may be high value areas in, e.g., the 2030's due to changes in gear technology, markets and climate. For instance, at the moment there is not high demand for Sand Dabs, due to lack of shoreside infrastructure for rapid processing of these highly perishable fish, but the area selected for the northern AOA contains great San Dab habitat that can be efficiently and cleanly harvested with trap fishing. Opportunity costs like these should be considered in the permitting process and mitigation requirements.

If an aquaculture permit application process moves forward, funding support and regulatory requirements for tailored, timely, permit-specific spatial planning with strong stakeholder input is imperative to avoid loss of fishing grounds. We would like to see it required that maps of fishing ground value that are generated by commercial and recreational fishing stakeholder input are part of the permit application. The permittee should use these maps to demonstrate avoidance of fishing grounds that are valued by the local fishing community. The economic losses related to disruptions to fishing caused both directly and indirectly by the proposed installation must be quantified in the application process and used to inform a mitigation strategy for losses.

We suggest that NOAA's economists and social scientists utilize economic data that were generated to calculate losses caused by the Plains All American Pipeline oil spill at Refugio Beach to California fishing businesses and processors.

Local stakeholder input is also needed in the vetting process of the corporate entities that apply for permits, to make sure they have appropriate know-how and show promise to be good neighbors on the water and in the port.

We would like to see permitting that favors local known entities that have the appropriate experience and standing in the port community that they are joining. There is great fear that outside large corporations will come into a port and cause disruption to the operations of existing seafood harvesters. We would like to see the PEIS develop a framework for defining a role for local stakeholders in the permitting process and for including information about experience and local ties in the permit applications. Metrics related to these characteristics should be part of the permitting prioritization and evaluation process, such as years of experience operating in related coastal or offshore industries, and the number of employees with history of local,

maritime-related employment.

There will be new strain on port facilities and new competition for the shared port infrastructure that all seafood harvesters rely on. The permitting process must require quantification of the amount, types and hours of usage of piers, launch ramps, hoists, ice, and other facilities that are already overtaxed. A Fishing Community Benefit Agreement that lays out commitments and consequences related to these conflicts should be required in the permitting process. The Benefit Agreement would describe a plan for funding contributions toward port infrastructure upkeep, mitigation measures and disbursement plans for negative impacts, a conflict resolution framework and budget for mediation strategies for reducing impact to existing and port ocean users. Aquaculture operators should show evidence of insurance policies that cover damages to fishing vessels, gear and human injury or loss of life due to the presence and activities of farm installations.

We would like to see a designated liaison paid for by the Aquaculture industry and selected by the fishing community to handle communications about on the water and in the port activity, problem solve conflict and organize mitigation programs may be needed similar to the Joint Oil/Fisheries Liaison Office, which has been a very successful arrangement.

The federal government's budget for promotion of domestic aquaculture should include funding for port infrastructure improvements and expansions. New aquaculture production has the potential to negatively impact prices for seafood products, further hurting our commercial fleet. Funds are also needed to promote the domestic seafood sector and expand access to marketing opportunities that can benefit all seafood harvesters, both wild-capture and farmed.

Lastly and very importantly, we are adamantly against finfish aquaculture in the federal waters off of California. Finfish farming is not suitable for our waters because of its well-known risks of disease transfer, genetic pollution and ecological disruption from escapes, as well as unavoidable sewage, feed pollution and market disruption to wild capture fisheries. Finfish farming is far more expensive to operate, requiring larger installations to be economically viable. Southern California has a huge diversity of important fishery species like yellowtail, bigeye tuna, halibut, white sea bass and swordfish that will be at risk of genetic pollution, disease transfer, disruption of seasonal migrations and more unknowns from finfish aquaculture.

Thank you,

Kim Selkoe, Ph.D.
Executive Director,
Commercial Fishermen of Santa Barbara

July 22, 2022

Scott M. Rumsey
Acting Regional Administrator
NOAA Fisheries West Coast Region
1201 NE Lloyd Blvd #1100
Portland, OR 97232

Submitted online at Docket No. NOAA-NMFS-2022-0051 at https://regulations.gov

RE: Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Dear Dr. Rumsey:

Don't Cage Our Oceans is a coalition of national, regional, and local organizations and businesses working to stop industrial-scale offshore fish farming while uplifting values-based sea-food systems led by local communities. More responsible forms of aquaculture are community-driven, responsibly sited and appropriately scaled, and use more appropriate

species and methods. We respectfully submit these comments in response to NOAA's "Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California" (Agency/Docket Number RTID 0648-XB875). Please note that **we also endorse the comments submitted by the Center for Food Safety. We support Alternative 1, the No Action Alternative,** in which no AOAs would be identified in Federal waters offshore of Southern California.

There are several reasons why the most prudent option is for NOAA (through the National Marine Fisheries Service, NMFS) to take no action in designating AOAs pursuant to former President Trump's Executive Order 13921. Chief among these is that NOAA lacks the legal authority to regulate aquaculture in federal waters. Furthermore, there are several grave ecological consequences and inevitable financial harms to the regional economy in allowing offshore finfish farming in U.S. federal waters. A few of these concerns would be partially addressed by unbiased application of relevant environmental law, but EO 13921 seeks to bypass those critical safeguards. Finally, NOAA's activist role in promoting industrial-scale offshore finfish aquaculture introduces unwarranted bias in the decision-making process, and flies in the face of scientific understanding on known harms, violating the precautionary principle.

Legality

NOAA repeatedly asserts authority in setting up and permitting an unprecedented nation-wide system of commercial offshore aquaculture across all U.S. waters, even though Congress has never passed any legislation granting the agency authority to do so. Furthermore, the courts have affirmed this lack of authority to oversee aquaculture activities in federal waters: in 2020 the Fifth Circuit held that NOAA indeed lacks any statutory authority to regulate aquaculture.[1]

The 5th Circuit court case *Gulf Fishermens Ass'n* held that NOAA does not have authority to permit or regulate aquaculture in the U.S. federal waters of the Gulf of Mexico, as there is no Congressional authorization to do so under MSA. This ruling pertained to U.S. federal waters, so reasonably extends to other federal waters as well, like those off of southern California. For years, NOAA had claimed that MSA had provided authority under the contorted view that aquaculture falls under the statutory definition of "fishing" for purposes of MSA, as fish are ultimately extracted from net pens, and that NOAA could thus create a fishery management plan (FMP) to regulate aquaculture. The 5th Circuit Court saw through this nonsensical justification, and ruled against it.

[1] *Gulf Fishermens Ass'n v. Nat'l Marine Fisheries Serv*., 968 F. 3d 454 (5th Cir. 2020).

Across several administrations, the agency has acted as an activist and promoter of industrial aquaculture. Following the circuit court ruling, the Trump Administration issued an executive order to grant NOAA authority where Congress had not. While EO 13921 does nothing to bolster NOAA's authority, the agency might argue otherwise. Executive orders cannot confer authority on agencies because the president's powers are executive, not legislative, in nature.[2] Rather, the President's authority to act "must stem either from an act of Congress or from the Constitution itself."[3] As a result, EO 13921 cannot allow NOAA to establish a new offshore aquaculture industry in the absence of any statutory authority granted by Congress.

More recently, NOAA has claimed authority to regulate aquaculture via its role in the interagency Subcommittee on Aquaculture,[4] established by the National Aquaculture Act of 1980.[5] This legislation identifies the U.S. Department of Agriculture as the lead agency on aquaculture, and barely assigns *any* responsibilities to the Department of Commerce (NOAA) at all, let alone authority to designate AOAs. The Act requires only consultation with the NOAA for a biennial report on the *status* of aquaculture,[6] and several studies due *35 years ago*.[7] None of these submissions required NOAA to determine locations suitable for industrial aquaculture in federal waters.

Absent *any* plain text in support, NOAA cannot establish its authority to designate AOAs in southern California. In June 2022, the U.S. Supreme Court made plain that an agency must "point to 'clear congressional authorization' for the authority it claims."[8] NOAA's attempts here to promote and lead a brand-new, highly controversial industry without pointing to statutory text provides just such an "extraordinary case" in which the "history and the breadth of the authority that [the agency] has asserted," provides a "reason to hesitate before concluding that Congress" meant to confer such authority.[9]

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[2] *Doe #1 v. Trump*, 957 F.3d 1050, 1062 (9th Cir. 2020) (citing *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 587 (1952) ("[T]he President's power to see that the laws are faithfully executed refutes the idea that he is to be a lawmaker.").

[3] *Id.* at 585.

[4] NSTC Subcommittee on Aquaculture, A Strategic Plan to Enhance Regulatory Efficiency in Aquaculture. Feb. 2022, (https://www.ars.usda.gov/sca/Documents/2022%20NSTC%20Subcomittee%20on%20Aquaculture%20Regulatory%20Efficiency%20Plan_Final%20508%20compliant.pdf

[5] 16 U.S.C. §§ 2801-2810.

[6] *Id*. § 2804(d).

[7] *Id*. § 2804(c)(1)(C), (D) (requiring the Department of Commerce to submit studies by December 31, 1987).

[8] *W. Virginia v. EPA*, No. 20-1530, 2022 WL 2347278, at *3 (U.S. June 30, 2022) (citing *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 324 (2014)).

[9] *W. Virginia*, 2022 WL 2347278, at *3; *see also FDA v. Brown & Williamson Tobacco Corp*., 529 U.S. 120, 159-160 (2000); *Nat'l Fed'n of Indep. Bus. v. Dep't of Lab., Occupational Safety & Health Admin.*, 142 S. Ct. 661, 666, 211 L. Ed. 2d 448 (2022).

Here, there is no ambiguity at all. Congress has never given NOAA the authority to regulate aquaculture in federal waters, and the courts have agreed with this interpretation. EO 13921 is an attempt to circumvent Congress, which has repeatedly demonstrated immense skepticism of offshore aquaculture, in order to lay the groundwork for large-scale fish farming in federal waters — an industrial activity that is severely lacking in public approval or buy-in when the details and risks of that development are made plain to the American public. NOAA should stop considering these southern California AOAs because of its clear lack of authority alone. However, even if NOAA's permitting and regulating of aquaculture were to be legal, there are a variety of other compelling reasons why this activity should not move forward.

The Federal Government's "water grab" and misappropriation of public funds is overwhelming rejected by the public

Aquaculture Opportunity Areas (AOAs) are the ocean-based equivalent of a land grab; they are a "water grab" by the federal government for the benefit of massive corporate interests. Cordoning off large portions of the Southern California Bight for the exclusive use of the private sector actively harms coastal communities and the livelihoods of Californians who live and work along the water.

For years, NOAA has been funneling millions of dollars of taxpayer money into research, development, and start-up funding to develop Confined Animal Feedlot Operations (CAFO)-style finfish farms in U.S. waters. These funds have been transferred to the aquaculture industry through programs like Sea Grant and the Saltonstall-Kennedy program. The agency is hardly a disinterested partner in this space, and is listed as a member of the Ocean Stewards Institute, in its California Sea Grant capacity. The Ocean Stewards Institute identifies as "a trade organization advocating for the emerging open ocean aquaculture industry."[10]

Privatizing public resources for the benefit of large corporations, especially those not the U.S., is inherently un-American. Offshore aquaculture proponents have requested long-term (25-year) leases for their facilities spanning hundreds of acres, which is essentially blocking off a swath of public oceans for more than an entire generation. Through the AOA designation process, NOAA is proposing to carve up and hand control of our federal ocean spaces, a public resource that should be managed for the benefit of all Americans, to private corporations and foreign interests. In rushing through permitting for marine finfish aquaculture, NOAA is actively harming fishing families and the many small businesses in coastal communities that support

[10] Ocean Stewards Institute, https://www.oceanstewards.org/

them. NOAA should instead focus on supporting independent fishermen and co-ops, as their small businesses continue to recover from the ongoing COVID pandemic.

Indeed, it is incredible that the Biden Administration would push through an unnecessary and unpopular program like industrial scale marine finfish aquaculture when it is so detached from actually supporting people with access to food. These factory farms take significant time and money to build; they are not community driven nor will they benefit people from coastal communities. The species grown in these facilities are high-trophic level fish that are destined for high-end local and foreign markets. CAFO-style fish farming has been repeatedly met with fierce opposition from the public, Congress, and even the courts.

Few people want to see this industry get a foothold in our public waters except for the mega-corporations (like Cargill, Merck, Sysco, etc.) and their shareholders[11] who see an opportunity to profit from industrially produced fish. In the recent NOAA listening sessions for NOAA's 5 year draft strategic plan on aquaculture, people overwhelmingly voiced their opposition to the inclusion of marine finfish aquaculture as part of NOAA's vision in the first place, and urged its removal from the strategic plan. Participants in the commercial fishing industry have collectively voiced their concerns over being forced to coexist with the marine aquaculture industry, stating that "this emerging industrial practice is incompatible with the sustainable commercial fishing practices embraced by our nation for generations and contravenes our vision for environmentally sound management of our oceans."[12] NOAA has failed to secure public buy-in or societal license to push forward industrial fish farms in federal waters.

Creating AOAs to promote offshore finfish farming harms fishing families and fishing communities

NOAA's AOA Atlas already concedes potential impacts on commercial fishing operations and the significant geographical overlap between the AOAs, commercial traffic, and fishing.[13] The agency also explicitly acknowledges that commercial fishing supports many communities along the

[11] Stronger America through Seafood, https://www.strongerthroughseafood.org/sats-members
[12] Open letter to Members of the U.S. House of Representatives and Senate, Dec. 4, 2018, re: Opposition to marine finfish aquaculture in U.S. waters, *available at* http://foe.org/DecFishFarmingSignOnLetter/.
[13] Morris, J.A. Jr, MacKay, J.K., Jossart, J.A., Wickliffe, L.C., Randall, A.L., Bath, G.E., Balling, M.B., Jensen, B.M., and Riley, K.L. 2021. An Aquaculture Opportunity Area Atlas for the Southern California Bight. NOAA Technical Memorandum NOS NCCOS 298. Beaufort, NC. 485 pp. https://doi.org/10.25923/tmx9-ex26, 74-76.

coastline by providing employment, income, and revenue from seafood sales, stating that the seafood industry in California supported more than 150,000 jobs in 2017.[14]

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, the state of Washington investigated the site's operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.[15] The true number of fish that escaped ended up being roughly 263,000 Atlantic salmon in the Pacific Ocean, much higher than Cooke Aquaculture was willing to admit.[16] As a result, in 2018 Washington Governor Jay Inslee signed into law House Bill 2957 which phases out industrial ocean fish farms in state waters. It does so by banning new leases to non-native net pen operations and prohibits the renewal of existing leases.

Around the world, industrial finfish aquaculture has repeatedly resulted in fish escapes, which impact wild fish and other marine wildlife. For example, in January 2020, 73,600 salmon escaped from a net pen in Mowi, Scotland, marking the third major escape in the area since October 2019.[17] In Norway, approximately four million fish escaped in a single year.[18] AquaChile reported the escape of 787,929 fish in 2013 due to bad weather that damaged cages.[19] In 2018, 680,000 fish escaped from Marine Harvest Chile, 109,515 from Bakkafrost Faroe Islands, and 120,000 from Huon Aquaculture in Tasmania.[20] Recognizing the regularity of fish escapes from ocean-based net pens, the U.S. Council on Environmental Quality has stated that it "must be *assumed* that escapes will occur" from net pens.[21]

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[14] *Id*. at 13.

[15] Wilson, Deborah. *Report blames negligence, not eclipse, for Washington fish farm collapse.* CBC, February 2, 2018. https://www.cbc.ca/news/canada/british-columbia/fish-farm-collapse-cooke-aquaculture-report-washington-state-1.4516075

[16] Mapes, Lynda V. *Fish farm caused Atlantic salmon spill near San Juans, then tried to hide how bad it was, state says*. Seattle Times, February 2, 2018. Accessible at: <https://www.seattletimes.com/seattle-news/fish-farm-caused-atlantic-salmon-spill-state-says-then-tried-to-hide-how-bad-it-was/>

[17] *Escape calls high energy salmon sites into question*, The Fish Site (Jan. 20, 2020), https://thefishsite.com/articles/mowi-reports-mass-salmon-escape-from-colonsay.

[18] Nat'l Marine Fisheries Service Pac. Islands Reg'l Off., Draft Programmatic Env't Impact Statement (DPEIS) 171 (2021).

[19] Lola Novarro, *Here are the largest recorded farmed Atlantic salmon escapes in history*, IntraFish (Feb. 1, 2019), https://www.intrafish.com/aquaculture/here-are-the-largest-recorded-farmed-atlantic-salmon-escapes-in-history/2-1-388082.

[20] *Id*.

[21] Council for Environment Quality & Office of Science and Technology Policy, Case Study No. 1: Growth-Enhanced Salmon, at 23 (2001), https://clintonwhitehouse5.archives.gov/media/pdf/salmon.pdf; *CEQ and OSTP Assessment: Case*

Fish escapes can disrupt the marine ecosystem and threaten wild fish stocks and fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks.

Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters;[22] setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters (and should also trigger a federal consistency review under the Coastal Zone Management Act).

If farmed finfish from facilities sited within AOAs are actually sold in the U.S., they will likely undercut wild fisheries, and drive small fishing businesses to closure – the impacts of global salmon farming on small-boat salmon fishermen in Alaska during the 1990s are a textbook example of this effect, which caused economic insecurity and contributed to permit loss in small fishing communities.

Floating CAFO-style fish farms incubate and proliferate parasites and diseases (e.g., sea lice) that then spread to the wild fish populations. This is harmful to both the marine ecosystem and wild fisheries. There is more evidence that pathogens from farmed salmon spread to wild salmon: piscine orthoreovirus (PRV) is widespread in farmed salmon and is associated with heart and skeletal muscle inflammation. *Tenacibaculum maritimum* is known to cause disease and mortality. The toxic chemicals that offshore fish farm operators use to treat these diseases are widely known to harm other marine life and commercially-sought species as well, as discussed further below. That NOAA would nonetheless enthusiastically pursue the permitting of factory fish farms that are known to harm the very fisheries that the agency is tasked with conserving and managing is deeply troubling.

Creating AOAs would harm the marine environment and exacerbate climate change

For a variety of logistical reasons, the AOAs have generated minimal interest from companies looking to engage in shellfish or seaweed farming. Instead, the agency must be honest in acknowledging that the farming of high-trophic level finfish - that is, carnivorous or omnivorous

Studies of Environmental Regulations for Biotechnology, https://hygeia-analytics.com/wp-content/uploads/2016/12/RP_RegGETech_CEQ.pdf.

[22] California Code, Fish and Game Code - FGC § 15007

fish that require high animal protein inputs - is the ultimate endgame for these public-turned-private spaces.

Industrial offshore finfish aquaculture **leads to overfishing** of forage fish. Most farmed marine fish require large amounts of fish in their feed – much of this comes from globally-sourced wild forage fish, including anchovies, menhaden, sardines and other small fish that are critically important to the diet of marine wildlife, including birds, dolphins, sharks, and other fish. Removing massive amounts of forage fish from our oceans reduces prey availability for other marine species and can change relationships in our ecosystem with potential widespread consequences.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that eighteen threatened and endangered species can be found in the southern California bight, including several whale species, several sea turtle species, giant manta rays, black and white abalone, the Guadalupe fur seal, and the gulf grouper.[23] Additionally, nineteen species of marine mammals may traverse the proposed areas,[24] and fourteen fish species whose Essential Fish Habitat overlaps with proposed AOA sites.[25] Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks.[26] NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions."[27] and admits that more indirect impacts to marine mammals and other wildlife may occur as well.[28] Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.[29]

Entanglement from ropes, lines, and net pens may harm endangered species and other wildlife in the proposed areas, especially as the facilities' propensity to act as fish aggregating devices

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[23] Morris Jr., *supra* n. 13 at 194.
[24] *Id.*
[25] *Id.*
[26] Marc Cota-Robles, *Drone footage captures cluster of juvenile great white sharks off Pacific Palisades coast* (Aug. 11, 2021), https://abc7.com/great-white-shark-pacific-palisades-will-rogers-state-beach-california-population/10945063/; https://abc7.com/great-white-shark-pacific-palisades-will-rogers-state-beach-california-population/10945063/; Beth Farnsworth, *Santa Barbara Coast is a nursery 'hot spot' for great white sharks* (Jan. 27, 2022), https://keyt.com/news/santa-barbara-s-county/2022/01/27/santa-barbara-coast-is-a-nursery-hot-spot-for-great-white-sharks/.s/
[27] Morris Jr., *supra* n. 13 at 194.
[28] *Id*.
[29] *See* 33 U.S.C. § 1371(c)(1).

(FADs) further exacerbates risks of entanglements and vessel strikes as species are drawn to the facilities. Recently, NOAA has admitted that industrial aquaculture may attract predators as a result of fish escapes, food drifting outside the pens, and other animals aggregating around the pens.[30] In March 2017, an endangered Hawaiian Monk Seal died due to entanglement in net pens at Blue Ocean Mariculture, which is a NOAA research farm.[31] The FAD effect may result in more frequent encounters with protected species, which could increase the likelihood of injury from structures or equipment associated with the facility.[32]

Waste from intensive finfish farming (excess feed, fish poop and any chemicals used on the fish or pens) readily flows from the net pens into surrounding waters. In many cases, the nitrogen outputs associated with the concentrated rearing of hundreds of thousands of fish in a limited area is equivalent to the sewage output of major U.S. cities; worse, in this case, it is *untreated.*

Nutrient pollution decreases oxygen levels in our waters, killing off aquatic life and creating low-oxygen "dead zones" and harmful algal blooms.[33] Climate change further exacerbates these risks of harmful algal blooms, as warmer, more acidic ocean waters increase both the frequency and toxicity of these events.[34] Harmful algal blooms produce toxic chemicals that can kill fish and other vertebrates by affecting their central nervous systems, and can cause serious illness in humans with severe or chronic respiratory conditions.[35] Southern California has already been experiencing an increase in harmful algal blooms in recent years and harbors some of the world's highest concentrations of domoic acid, an algal toxin dangerous to wildlife and people who eat local seafood.[36] NOAA must consider the likelihood of algal blooms in all study areas and assess the potential harms that could occur to the region, including harm to the local fishing industry from more frequent and severe disruptions due to Domoic Acid.

The spread of disease is also of grave concern. In 2012, off the coast of Washington's Bainbridge Island, in waters that are home to wild Pacific salmon species, a massive viral outbreak in Atlantic salmon net pens led to the deaths of over one million pounds of farmed Atlantic

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[30] Luke T. Barrett, et al., *Impacts of marine and freshwater aquaculture on wildlife: a global meta-analysis*, Reviews in Aquaculture (2018).

[31] Jones, Caleb. Rare monk seal dies in fish farm off Hawaii. USA Today. March 17, 2017. https://www.usatoday.com/story/news/nation/2017/03/17/rare-monk-seal-dies-fish-farm-off-hawaii/99295396/

[32] *Id.* at 186.

[33] Donald Boesch *et al.*, Pew Oceans Comm'n, *Marine Pollution in the United States* 20-22 (2001).

[34] Crable, M. Climate change could make toxic algal blooms in our oceans more deadly. *Phys.org* (2020) https://phys.org/news/2020-07-climate-toxic-algal-blooms-oceans.html

[35] NOAA, Harmful Algal Blooms, https://oceanservice.noaa.gov/hazards/hab/.

[36] Polakovic, G. *Southern California's coast emerges as a toxic algae hot spot.* University of Southern California News, Aug 2018. https://news.usc.edu/147515/southern-californias-coast-emerges-as-a-toxic-algae-hot-spot/

salmon.[37] NOAA must assess these potential discharges since these pathogens, parasites, and the chemicals used to treat them can easily spread to wild fish, including wild populations that are listed as endangered or threatened under the Endangered Species Act.

There are documented studies of large populations of sea lice having left their origin sites of fish farms into the broader ocean environment, both in the Atlantic and Pacific oceans. In March 2022, a study from *Scientific Reports* notes: "Our results suggest that salmon lice in the Pacific Ocean have recently evolved substantial resistance to the antibiotic EMB [“SLICE”], and that salmon-louse outbreaks on Pacific farms will therefore be more difficult to control in the coming years.”[38] A May 2021 study from *Royal Society* shows how the industry is losing the "arms race” in the North Atlantic Ocean because multiresistant salmon lice are dispersed throughout.[39] As parasites develop resistance to these chemicals, there is a growing trend to increase the level of toxicity of the chemicals used in response; this of course further increases the load of toxic chemicals in the marine environment.

The chemicals used as anti-foulants, antibiotics, and pesticides are often **carcinogenic and toxic to marine life**; these chemicals (e.g., organophosphates, cypermethrin) are openly discharged into the marine environment. In fact, up to 75% of antibiotics used by the industrial aquaculture industry directly absorb into the surrounding environment.[40] In Nova Scotia, the use of the antibiotic EMB resulted in “widespread damage to wildlife,” including “substantial, wide-scale reductions” in crabs, lobsters and other crustaceans close to marine finfish facilities.[41]

When it comes to carbon footprint, proponents of offshore finfish farming compare apples to oranges, in contrasting various farmed fish species to land-based livestock, instead of comparing

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[37] Our Sound, Our Salmon, *New Federal Analysis Finds Puget Sound Commercial Net Pens Are Harming Salmon, Steelhead, And Other Protected Fish*, (June 30, 2022), https://www.oursound-oursalmon.org/news/2022/5/18/new-federal-analysis-finds-puget-sound-commercial-net-pens-are-harming-salmon-steelhead-and-other-protected-fish.

[38] Godwin, S.C., Bateman, A.W., Kuparinen, A. *et al.* Salmon lice in the Pacific Ocean show evidence of evolved resistance to parasiticide treatment. *Sci Rep* 12, 4775 (2022). https://doi.org/10.1038/s41598-022-07464-1.

[39] Fjørtoft Helene Børretzen, Nilsen Frank, Besnier Francois, Stene Anne, Tveten Ann-Kristin, Bjørn Pål Arne, Aspehaug Vidar Teis and Glover Kevin Alan. 2021. Losing the ‘arms race’: multiresistant salmon lice are dispersed throughout the North Atlantic Ocean *R. Soc. open sci.* 8: 210265. https://doi.org/10.1098/rsos.210265.

[40] United Nations, Fron*tiers 2017: Emerging Issues of Environmental Concern*, at 15 (2017), https://www.unenvironment.org/resources/frontiers.

[41] Rob Edwards, The Sunday Herald, *Scottish government accused of colluding with drug giant over pesticides scandal* (June 2, 2017), http://www.heraldscotland.com/news/15326945.Scottish_government_accused_of_colluding_with_drug_giant_over_pesticides_scandal/.

it to land-based fish farming such as predominantly herbivorous species like tilapia or catfish. The carbon footprint for farmed carnivorous finfish is also significantly miscalculated in most models. There is a **massive carbon footprint** associated with the global sourcing, capturing, blending, and shipping of feed inputs to go into the fishfeed, and related infrastructure associated with keeping the farmed fish in cages, feeding them, medicating them, and harvesting them. Instead, most models that calculate the carbon footprint of farmed salmon, for example, rely on the unrealistic expectation that a unit of farmed salmon in Norway was fed from fishfeed derived exclusively from within Norway, and will be eaten by a person in Norway. This does not reflect the reality that industrially-grown salmon is sold globally, and that the international fishfeed industry - both globally sourced and globally distributed - is not structured in such a "local" manner.

CAFO-style fish farming does not feed Americans or help alleviate hunger

In most cases, it takes more fish to feed the farmed fish than it does to simply eat the lower-trophic level fish in the first place. This is an **inherently unsustainable and energy-intensive model** that leads to a **net loss in fish and animal protein**, mocking the purported "feed the world" claims of NOAA and industry alike, through offshore finfish aquaculture.

The higher trophic level fish is aimed to be sold to the higher-end market, since it will be so expensive to set up the infrastructure. This often includes foreign markets, as most of our country's landed fish and aquaculture is sold abroad. In other words, opening up our waters for foreign investors and mega corporations does not necessarily mean that the farmed fish would be sold domestically, beyond a few expensive restaurants and boutique grocery retailers, nor at an affordable price: it will go where the money is, and leave us with an ecological and economic mess and little else.

Better technology cannot "save" an open flow-through CAFO

Other countries, like Denmark and Canada – both often considered global leaders in offshore marine finfish aquaculture – are moving away from the practice after recognizing harmful effects from it. Prime Minister Trudeau has ordered the phasing out of open water salmon farming, and that these operations should be land-based instead. This is in no small part to the devastating impact that the salmon farming industry has on wild fish stocks, First Nations, and the marine environment. This begs the question: why would the U.S. start pursuing the promotion of an outdated, largely unwanted, and dangerous form of finfish farming when there are so many better ways to provide seafood?

Scientifically unsound in conception and siting

It is Incredible that NOAA - an agency with so many qualified scientists and experienced fishery regulators on staff - is pushing forward in creating AOAs for offshore finfish farming. This siloed approach to management demonstrates a profound lack of knowledge of fisheries on the part of the agency's proponents, and a grave miscalculation on how important science and public input is in the fisheries regulatory process. The members of this coalition encourage agency staff to talk with fellow staff from different departments entirely, and to also engage with scientists and colleagues *outside* of the aquaculture industry. This can help cut down on both groupthink and agency capture.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite, with the latter AOA site even closer. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. [42] Following these discoveries, in July 2022 the EPA launched an investigation into this dumpsite and several other areas in southern California.[43] DDT is highly toxic and carcinogenic and linked to a wide variety of health problems in both humans and wildlife; unfortunately it is also very durable, as it biomagnifies and bioaccumulates as it travels through food webs.[44] It is difficult to imagine how NOAA ever deemed these areas to be ideal at any stage of the siting process.

For the many reasons above, including the lack of authority to regulate aquaculture under existing law, our members strongly urge NOAA to refrain from identifying any Federal waters offshore of Southern California (or anywhere else) as Aquaculture Opportunity Areas. We recommend the no action alternative.

Sincerely,

James Mitchell
Legislative Director
jmitchell@dontcageouroceans.org
202-643-1830

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[42] Samantha Haugen, *How Barrel After Barrel of DDT Ended Up On the Ocean Floor*, Ocean Blue Project (Jan. 13, 2021) https://oceanblueproject.org/ddt-effects-on-the-environment/.
[43] EPA, Southern California Ocean Disposal Site #2 Investigation, https://www.epa.gov/ocean-dumping/southern-california-ocean-disposal-site-2-investigation
[44] *Id.*

July 22, 2022

Scott M. Rumsey
Attn: Southern California Aquaculture Opportunity Area PEIS Scoping Comments
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Re: Docket Number NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Mr. Rumsey:

Thank you for the opportunity to comment on the NOAA Fisheries (Agency) Programmatic Environmental Impact Statement (PEIS) for the proposed Southern California Aquaculture Opportunity Areas (Proposal) and share our recommendations on federal aquaculture development opportunities and priorities. The Environmental Defense Fund (EDF) shares in a vision that offshore, federal waters aquaculture can be part of a healthy ocean strategy. We support the expansion of aquaculture into federal waters and believe that Aquaculture Opportunity Areas (AOAs) can play an important role in ensuring that the nation applies a clear focus on environmental and social impacts coupled with management practices grounded in data and research as a foundation for progress. AOAs can also play an important and timely role in building public knowledge, awareness and acceptance of critical advances necessary to inform long term advances in U.S. aquaculture policy and practice.

We commend the Agency and its West Coast Regional team for the extensive research that went into developing the AOA Atlas for the Southern California Bight (Atlas). We believe that this process can advance efforts to fill significant knowledge gaps on offshore aquaculture that must be addressed in the AOAs to provide better outcomes for commercial aquaculture operations in the proposed locations. We also believe this process can help bring privately held data and experiences into offshore aquaculture decisions. Accordingly, please accept the following recommendations into the Proposal. We welcome your responses and look forward to continuing to work with you in charting a responsible path forward for offshore aquaculture.

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Environmentally, Socially, and Economically Suitable Areas for AOAs

We are pleased to see that the Proposal will account for the most common types of aquaculture, including finfish farming. Although the Atlas notes that "the final proposed aquaculture size and configuration of aquaculture operations, as well as species cultivated, would require extensive scoping and project planning, permitting, and environmental review," we urge the Agency to also analyze the impacts that various cultivated species would have on their surrounding environment in the initial PEIS. These differing impacts may vastly alter the findings from the Proposal, especially for fed finfish farming because these operations can lead to excess nutrients and waste in the surrounding waters.[1] It also may illuminate potential positive ecological impacts from bivalves or multitrophic farms.[2] Given the paucity of published research on how offshore aquaculture affects the marine environment, we suggest that the Agency define criteria for which species can be farmed in AOAs based on their potential environmental impact and suitability for the area(s).

We agree that any AOA needs to be environmentally, socially and economically suited to its location. The Proposal would benefit from metrics for measuring the social, economic and environmental suitability of AOAs. We ask that the Agency provide more clarity on what, in the Agency's view, would make an AOA suitable in all three of the categories. Similarly, the Proposal would benefit from the Agency adding clarifying metrics for measuring success in these three categories through the siting –and use—of the AOAs.

Specifically, we'd value clarity on how the Agency will assess social and economic suitability for aquaculture in a given location because it is more difficult, but equally important, to assign metrics to these two fields than to science-based environmental suitability. Analysis for social and economic suitability will necessitate that the Agency analyze onshore social and economic impacts of offshore seafood farms in the proposed AOAs, such as from trade and seafood infrastructure development. We recommend developing metrics for social and economic suitability by actively engaging communities that could be affected by expanding the aquaculture industry in nearby waters of the proposed AOA locations and explaining and collaborating on potential benefits. Accordingly, we recommend working with multiple sector

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[1] *See* Weitzman, J., Steeves, L., Bradford, J., Filgueira, R., (2019) Far-Field and Near-Field Effects of Marine Aquaculture, *World Seas: an Environmental Evaluations (Second Edition)* 3: 197-220, https://doi.org/10.1016/B978-0-12-805052-1.00011-5 (Metabolic waste from finfish can travel 1-2 km away in nearshore farms); *see also* Kong, W., Huang, S., Yang, Z., Shi, F., Khatoon, Z, (2020) Fish Feed Quality is a Key Factor in Impacting Aquaculture Water Environment: Evidence from Incubator Experiments, *Scientific Reports* 10, 187, https://doi.org/10.1038/s41598-019-57063-w (researchers found low oxygen zones and eutrophication are a result from metabolic waste in nearshore fish farms specifically); *see also* Fernandes, M., Angove, M., Sedawie, T., Cheshire, A., (2007) Dissolved nutrient release from solid wastes of southern bluefin tuna (Thunnus maccoyii, Castelnau) aquaculture, *Aquaculture Research* 38(4): 388-397, https://doi.org/10.1111/j.1365-2109.2007.01680.x (Researchers found nutrient leaching from pellets, baitfish, and also fish metabolism from finfish pens); *Cf.* Buck, B., Troell, M., Krause, G., Angel, D., Grote, B., Chopin, T., (2018) State of the Art and Challenges for Offshore Integrated Multi-Trophic Aquaculture (IMTA), Frontiers in Marine Science, https://doi.org/10.3389/fmars.2018.00165 (Researchers have found much lower levels of metabolic waste generally from offshore farms.).

[2] For example, researchers found that Integrated Multi-Trophic Aquaculture (IMTA) can reduce excess metabolic waste and nutrients by having shellfish and seaweed absorb it, showing that shellfish and seaweed are actually waste-negative and improve water quality (*see* Buck et al. 2018).

stakeholders and coastal state communities to determine which metrics should be used for measuring social and economic success through farming in an AOA. We urge the Agency to build consensus with diverse groups of local stakeholders and resolve questions before concluding on the environmental, social and economic suitability of the AOAs.

Environmental Impact and Knowledge Gaps

EDF's ecological research leads us to conclude that there are many key knowledge gaps that need to be addressed before the United States is ready to authorize aquaculture operations in federal waters. We commend the Agency on the marine spatial planning and extensive research that went into selecting these initial sites and believe the Agency must determine if there is a strong-enough foundation of scientific knowledge to declare that an area is ready for aquaculture infrastructure and operations. The Atlas will serve as an excellent input to the PEIS, indicating areas that may be suitable for aquaculture based on the factors listed. However, a substantial portion of the PEIS must be concerned with evaluation of potential impacts to the human environment (which includes both the biophysical and human dimensions of the social-ecological systems of which aquaculture is an element). The Agency acknowledges these potential impacts in some detail in the Proposal, and we agree that many of the ecological risks that could be associated with offshore aquaculture could be evaluated with available information. Lessons from overseas data and analysis may also be instructive. Despite the paucity of published research on how offshore aquaculture affects the marine environment, research we performed in 2021 to analyze available data for application to offshore aquaculture indicates that there is currently insufficient information to credibly evaluate all these ecological risks and how to mitigate them.

Below are key knowledge gaps on risks and mitigations for aquaculture offshore that we urge the Agency to address before approving any AOA to ensure the AOAs lead to truly sustainable and safe seafood production for a wide range of aquaculture types and systems:

Feed and Species Selection. Aquaculture operators can dramatically reduce fish in/fish out (FIFO) ratios through selective breeding, careful feed formulation, the use of alternatives to fishmeal/fish oil, and other methods for certain, extremely well-studied, farmable species like salmon[3] or cobia.[4] This means that although the Agency can characterize the ecological risks associated with the use of fishmeal and fish oil derived from reduction fisheries and identify how to further mitigate such risks for those farmable species, these risks will likely persist for the

[3] *See* Aas, T., Ytrestoyl, T., Asgard, T., (2019) Utilization of feed resources in the production of Atlantic salmon (Salmo salar) in Norway: An update for 2016, *Aquaculture Reports* 15, https://www.sciencedirect.com/science/article/pii/S235251341930256X; *see also* Kok, B., Malcorps, W., Tlusty, M., Eltolth, M., Auchterlonie, N., Little, D., Harmsen, R., Newton, R., Davies, S., (2020) Fish as feed: Using economic allocation to quantify the Fish In : Fish Out ratio of major fed aquaculture species, *Aquaculture* 528, https://www.sciencedirect.com/science/article/pii/S0044848620309741.

[4] *See* Benetti, D., Suarez, J., Camperio, J., Hoenig, R., Tudela., C., Daugherty, Z., McGuigan, C., Mathur, S., Anchieta, L., Buchalla, Y., Alarcón, J., Marchetti, D., Fiorentino, J., Buchanan, J., Artiles, A., Stieglitz, J., (2021) A review of cobia, Rachycentron canadum, aquaculture, *Journal of the World Aquaculture Society* 52(3): 691-709, https://doi.org/10.1111/jwas.12810 ("80% FM could be replaced in larger size cobia, attaining a "Fish-In-Fish-Out" (FIFO) ratio of 1.3, without compromising growth performance or health," implying a decrease in FIFO).

foreseeable future due to the cost and lack of production scale of alternative ingredients. It is also currently unclear which species will dominate offshore aquaculture, as offshore growing environments are quite different from nearshore environments. Certain profitable seafood species could grow better than others in offshore farms – and these strategically selected species may not be as well studied with respect to how to improve feed conversion and reduce fishmeal/fish oil content in feeds.

Effluent Concentrations. While it is possible that offshore aquaculture will allow for lower fish densities than inshore aquaculture, resulting in less disease and reduced need for antibiotic use, this is still unproven due to the lack of commercial scale offshore finfish operations that are collecting and sharing detailed data on growth rates, disease incidence and antibiotic use. Similarly, it is also possible that higher energy currents and waves present in U.S. federal waters will result in the dispersion of metabolic waste and unused feed from offshore farms, thereby limiting impacts on marine ecosystems. Additional data on offshore aquaculture effluent concentrations and dispersal may exist but are not publicly available. Yet, from our research, the risk of pollution "hotspots" remains to the extent that offshore farms are clustered in AOAs and that ocean circulation patterns tend to concentrate effluent.[5]

Farm Infrastructure. The higher energy currents and waves associated with offshore environments like those found in U.S. federal waters and the location of the proposed AOAs increases the risk of infrastructure loss or damage.[6] This can increase the risk of escapement.[7] Intact offshore structures also cause fish and other marine wildlife to aggregate, even if farms minimize feed losses through "precision farming."[8] These factors in combination give rise to an enhanced risk of wildlife entanglement and mortality.

Monitoring Sufficiency: We acknowledge that modern aquaculture, especially operations farther from shore, is often a technologically advanced enterprise. There may be sophisticated monitoring models to incorporate into offshore aquaculture operations, yet we've found that there are still significant unknowns related to how offshore farms can be monitored such that risks can be minimized to acceptable levels and ensure that performance standards are being met. Monitoring compliance with performance standards and transporting crews and

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[5] *See* Buck et al. 2018 (Researchers identified risks for metabolic waste accumulation from the aggregation of offshore farm units in close proximity); *see also* Gentry, R., Lester, S., Kappel, C., White, C., Bell, T., Stevens, J., Gaines, S., (2016) Offshore aquaculture: Spatial planning principles for sustainable development, Ecology and Evolution 7, no. 2: 733-743, https://doi.org/10.1002/ece3.2637 (Researcher reference the use of models to predict accumulation and flow of nutrients to inform the siting of farms).

[6] *See* Buck, B., Langan, R., (2017) *Aquaculture Perspective of Multi-Use Sites in the Open Ocean*, https://link.springer.com/book/10.1007/978-3-319-51159-7.

[7] *See* Jensen, T., Thorstad, E.B., Uglem, I., Fredheim, A., (2010) Escapes of fishes from Norwegian sea-cage aquaculture: causes, consequences and prevention, *Aquaculture Environment Interactions* 1, https://doi.org/10.3354/aei00008.

[8] *See* Callier, M., Byron, C., Bengtson, D., Cranford, P., Cross, S., Focken, U., Jansen, H., Kamermans, P., Kiessling, A., Landry, T., O'Beirn, F., Petersson, E., Rheault, R., Strand, O., Sundell, K., Svåsand, T., Wikfors, G., McKindsey, C. (2018) "Attraction and repulsion of mobile wild organisms to finfish and shellfish aquaculture: a review" *Aquaculture* 10(4), https://onlinelibrary.wiley.com/doi/full/10.1111/raq.12208; *see also* Dempster, T., Uglem, I., Sanchez-Jerez, P., Fernandez-Jover, D., Bayle-Sempere, J., Nilsen, R., Bjørn, P.A., (2009) Coastal salmon farms attract large and persistent aggregations of wild fish: An ecosystem effect. *Marine Ecology Progress Series* 385, https://doi.org/10.3354/meps08050.

equipment to remedy problems may be more challenging in remote offshore farms than in nearshore farms, posing risks associated with undetected equipment failures, endangered species encounters and lack of compliance.

Changing Ocean Conditions. We also urge the Agency to incorporate climate change predictive modeling assessments into AOA planning, including the Proposal, as warming oceans and shifting fish stocks could drastically affect the suitability for growing aquacultured organisms in a fixed location.

Through the PEIS, the Agency should carefully consider whether information on nearshore aquaculture and existing offshore pilot studies is sufficient for evaluating the ecological risks of offshore aquaculture within the proposed AOAs or AOA alternatives, and whether new risks (relative to well-studied risk and mitigation measures) may arise. As the Agency continues its evaluations, we suggest incorporating performance standards into AOA criteria, which could help both mitigate impacts such as those related to feed and species selection and drive industry performance forward. We also recommend that the Agency carefully consider whether novel studies, including pilot farms within the AOAs, are required to fully characterize these risks and to develop effective mitigation measures as a critical step toward full-scale development of sustainable aquaculture in the AOAs.

Social Impact

We commend the Agency for asking for comments on how the proposed AOAs could impact local communities. We see value in the Agency incorporating engagement with local stakeholders and communities into every step of the AOA scoping process. Especially in historically marginalized communities, more intentional outreach may be necessary to engage with local stakeholders about how an AOA would affect and benefit their community.

More generally, there are several terms that would be more impactful if clear definitions were included in the Proposal. We appreciate the Agency specifically facilitating feedback for "underserved communities and underrepresented groups, and/or regions and communities that could either benefit from or be adversely impacted by the siting of AOAs." Clear criteria for how the Agency will determine that a community or group is underserved or underrepresented would ensure that the Agency performs intentional outreach to these groups. These metrics may refer to or include a process for how AOA decisions incorporate federal, state, or local environmental justice and equity laws or guidance.

On a community level, we urge the Agency to ensure that shore-side requirements for aquaculture operations are factored into AOA siting decisions. This could include whether a community has sufficient seafood infrastructure or if it would need to be built, road conditions, and increased pollution and traffic congestion due to increased trade activities. Environmental justice impacts considered may include any disproportionate negative environmental, health, cultural or economic impacts to vulnerable communities. Alternatively, compatible shoreside investment could enhance community economic opportunity while taking steps to minimize negative impacts.

Economic Impact

We agree that the PEIS should include socio-economic factors to evaluate how this new industry would affect existing industries, jobs and communities. Prior to establishing AOAs, we strongly recommend increasing the socio-economic data upon which to base the benefits and risks to state communities and other stakeholder sectors from the placement and use of the AOAs, as well as provide a mechanism to continue to incorporate new data into the AOA Atlases. An important aspect of this should include how aquaculture products can act as a complement to wild-caught seafood and an examination of how the expansion of the aquaculture industry could benefit or harm the wild-caught fishing industry.

We also recommend that the economic aspects of the PEIS include a focus on community-level impacts of an expanding aquaculture industry, with a focus on equity and potential for entrepreneurship. For example, will there be opportunities for smaller-scale actors to enter the supply chain or will the AOAs and expanded seafood supply chain be mostly accessible to larger, vertically integrated companies? We also recommend the Agency evaluate the economic impact of expanding offshore aquaculture on existing nearshore and on-land aquaculturists.

We believe more research is needed on the impact that expanding the U.S. aquaculture industry would have on the seafood trade deficit and where U.S.-grown seafood would be consumed—in local communities, domestically, or exported abroad. If farmed products are primarily exported, this will influence Administration-wide goals to reduce greenhouse gas emissions as well as stabilize supply chains. We recommend that greenhouse gas emissions from the entire sector be included in the scope of the PEIS, whether that is for hatchery and rearing infrastructure, seafood processing, transportation or the greenhouse gases tied to aquafeed.[9]

As the offshore aquaculture industry is new to the United States, there is an opportunity to ensure it incorporates equity from the start. We recommend including an evaluation of local workforce readiness in each AOA PEIS to understand where there are opportunities to partner with local universities and job training programs to grow interest in aquaculture as a career choice and educate and train community members interested in aquaculture. This is also an opportunity for the Agency to reach out to diverse groups who have been historically disadvantaged and excluded from cost-prohibitive industries to ensure they have and retain access to workforce development programs and can engage in aquaculture if they wish it.

[9] *See* Xu, J., Xu, C., Su, G., Zhao, K., Xu, X., Li, Z., Hu, Q., Xue, Y., (2022) Current status of greenhouse gas emissions from aquaculture in China, *Water Biology and Security* 1(2), https://doi.org/10.1016/j.watbs.2022.100041.

Conclusion

EDF sees opportunities for a profitable aquaculture industry that advances in an environmentally and socially responsible manner. Utilizing this PEIS process can significantly aid work to address outstanding questions and knowledge gaps. It can additionally be very useful in bringing privately held data and experiences into the public sphere. We appreciate your investigation into the conflicts and opportunities for seafood farming in marine waters off Southern California and for the opportunity to contribute our recommendations to the proposed PEIS for the Southern California Aquaculture Opportunity Areas. We stand ready to discuss our recommendations, the Proposal, and additional opportunities to develop a sustainable aquaculture industry.

Ruth Driscoll-Lovejoy
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

July 22, 2022

Diane Windham
NOAA Fisheries West Coast Region
501 West Ocean Blvd., Suite 4200
Long Beach, CA 90802

Subject: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Aquaculture Opportunity Areas (AOAs) in Federal waters off the coast of Southern California

Dear Ms. Windham:

The Environmental Protection Agency has reviewed the May 23, 2022 Notice of Intent to prepare a Programmatic Environmental Impact Statement for the proposed identification of one or more Aquaculture Opportunity Areas (AOAs) to be located in Federal waters off the coast of Southern California. Our comments are provided pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The Federal action proposed in the PEIS is to identify one or more locations (referred to as AOAs) that may be suitable for future offshore aquaculture projects in Federal waters off Southern California, and to evaluate the impacts of siting aquaculture in those locations. AOAs identified through this process would be considered potentially suitable for finfish, shellfish, macroalgae, or multispecies aquaculture. We acknowledge that the proposed action is a long-term planning effort and not a regulatory or permitting action. The analysis may be used to inform such processes for individual projects proposed later in time.

The EPA is a cooperating agency on this document. Section 402 of the Clean Water Act establishes the National Pollutant Discharge Elimination System (NPDES) and authorizes EPA or authorized states/territories to issue permits for point source discharges of pollutants into waters of the U.S., including the territorial seas. All point sources that discharge directly into U.S. waters are required to obtain an NPDES permit from the EPA and the EPA has a statutory responsibility to respond to applicant requests for NPDES permits. Each NPDES permit typically includes effluent limitations for pollutants and includes monitoring and reporting requirements. An NPDES permit may be required for off-shore aquaculture operations depending on the production thresholds and the types of culturing systems. Shellfish and macroalgae operations that add no substances or materials to waters of the U.S. at any time during operations, may not be required to obtain NPDES permit coverage.

To assist in the scoping process for this project, we offer the following detailed comments, and we look forward to continuing to work with you on the development of the PEIS. We appreciate the opportunity to review this

NOI and are available to discuss our comments. If you have any questions, please contact me at (415) 972-3098 or gordon.stephanies@epa.gov

Sincerely,

STEPHANIE GORDON

Digitally signed by STEPHANIE GORDON
Date: 2022.07.22 10:57:30 -07'00'

Stephanie Gordon
Environmental Review Branch

Enclosures: EPA's Detailed Comments

U.S. ENVIRONMENTAL PROTECTION AGENCY DETAILED COMMENTS ON THE NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT FOR AQUACULTURE OPPORTUNITY AREAS IN FEDERAL WATERS OFF OF SOUTHERN CALIFORNIA—JULY 22, 2022

Statement of Purpose and Need

The Draft Programmatic Environmental Impact Statement prepared for the Aquaculture Opportunity Areas (AOAs) should clearly identify the underlying purpose and need to which the NOAA is responding in proposing the alternatives. The *purpose* of the proposed action is typically the specific objectives of the activity, while the *need* for the proposed action may be to eliminate a broader underlying problem or take advantage of an opportunity.

The purpose and need should be a clear, objective statement of the rationale for the proposed project, as it provides the framework for identifying project alternatives. The EIS should concisely identify why the project is being proposed, why it is being proposed now, and should focus on the specific desired outcomes of the project (e.g., clear, concise, aquaculture policy, promotion of seafood, economic growth). The purpose and need should also clearly describe NOAA's role and federal action in the project and possible future federal actions.

Alternatives Analysis

All reasonable alternatives that fulfill the project's purpose and need should be evaluated in detail. The EIS should provide a clear discussion of the reasons for the elimination of alternatives which are not evaluated in detail. A robust range of alternatives will include options for avoiding significant environmental impacts. The EIS should clearly describe the rationale used to determine whether impacts of an alternative are significant or not.

The environmental impacts of the proposal and alternatives should be presented in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14(b)). The potential environmental impacts (including benefits) of each alternative should be quantified to the greatest extent possible (e.g., acres of marine habitat impacted; change in water quality parameters).

The No Action Alternative should clearly describe the current aquaculture projects proposed and underway within the designated project area. It should specify the regulatory vehicles that govern the operational regimes including the Endangered Species Act, Clean Water Act, Coastal Zone Management Act, and include details of all permits and transfers related to the current proposed facilities.

Regulatory Framework

The EIS should include a comprehensive description of the primary federal permits needed for aquaculture facilities. For detailed information, see NOAA's Guide to Permitting Aquaculture in the United States.[1] We recommend incorporating much of the information contained in this guide into the PEIS.

National Pollutant Discharge Elimination System (NPDES) Permit

Section 301(a) of the Clean Water Act prohibits the "discharge of any pollutant" except in compliance with prescribed provisions of the CWA, including section 402. Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) and authorizes EPA or authorized states/territories/tribes to issue permits for point source discharges of pollutants into waters of the U.S., including the territorial seas. The NPDES implementing regulations are at 40 CFR Parts 122 through 129. In addition, Section 403 of the CWA, Ocean Discharge Criteria, provides that no NPDES permit may be issued for discharges into the territorial sea, the waters of the contiguous zone, or the oceans except in compliance with guidelines for the determination of degradation of those waters, per 40 CFR Part 125, Subpart M. An NPDES permit may be required for off-shore aquaculture operations depending on the

[1] https://media.fisheries.noaa.gov/2022-07/Guide-Permitting-Marine-Aquaculture-United-States-June2022.pdf

production thresholds and the types of culturing systems. Shellfish and macroalgae operations that add no substances or materials to waters of the U.S. at any time during operations, may not be required to obtain NPDES permit coverage.

NPDES permits may be individual (tailored to a single facility) or general (tailored to cover multiple operations with similar types of discharges, often within a specified geographic area). For individual permits applicable to federal waters, EPA Form 1 must be submitted by all NPDES applicants; Concentrated Aquatic Animal Production (CAAP) operations must also submit Form 2B. Where general permits exist, applicants will usually request coverage using a specified Notice of Intent (NOI).

In federal waters, EPA will also request baseline environmental survey information in order to adequately assess for compliance with the Ocean Discharge Criteria. EPA may also request additional information in order to fulfill requirements under the Clean Water Act Section 401, National Environmental Policy Act, the Endangered Species Act, Coastal Zone Management Act, and the essential fish habitat requirements of the Magnuson-Stevens Fisheries Conservation and Management Act.

Once EPA has drafted the permit it will publish notice of the draft permit for public comment, typically for 30 to 60 days depending on the level of public interest. If requested to do so, EPA may also hold a public hearing. Following the close of the public comment period, the agency will consider all comments received and, as appropriate, finalize the permit.

The final permit will be published along with a document explaining how EPA responded to all comments received, including any changes made to the permit as a result of the comments. NPDES permits are issued for a period not to exceed five years. Monitoring results must be regularly reported (the frequency will be identified in the permit), and annual reports may also be required. The agency may also perform compliance inspections at the facility. Permits must be reapplied for every 5 years for as long as the facility continues to discharge.

Water Quality and Other Environmental Impacts

The primary impact of aquaculture's effects on water quality is the addition of nutrients associated with feed inputs and the associated waste products. These potential impacts should be discussed in appropriate qualitative or quantitative detail, including indirect effects of the addition of nutrients (e.g. eutrophication, harmful algal blooms).

As stated in the Notice of Intent, other potential environmental impacts could include modifications to marine habitat, underwater noise, risk of marine debris, including microplastics, interactions of native and/or protected living marine resources with infrastructure and vessels, interactions of cultivated aquatic organisms with disease, invasive and/or nuisance species found in the marine environment, and interactions among naturally occurring organisms and cultivated species such as food-web dynamics or genetic interactions. EPA encourages NOAA to analyze these impacts within the PEIS to the extent practicable, and to reference existing data and examples from existing aquaculture facilities in state and federal waters to strengthen the analyses.

Biological Resources

The PEIS should identify all proposed/candidate and listed threatened and endangered species and critical habitat (final or proposed) that might occur within the project area. The document should identify and quantify which species or critical habitat might be directly, indirectly, or cumulatively affected by each alternative and mitigate impacts to these species; emphasis should be placed on the protection and recovery of species due to their status or potential status under the federal or state Endangered Species Act.

Timing and Coordination of NEPA documents

The NOI states that "the NMFS West Coast Region proposes to identify geographically discrete areas within

Federal waters (outside of State waters within the U.S. EEZ) off the coast of Southern California that would be suitable to site future aquaculture development." The EPA is aware that some site-specific projects may be proposed in the future, and some have not yet completed the NEPA process (e.g., Pacific Ocean Aquafarms). The EPA recommends that the EIS discuss the prospects and "triggers" for developing additional NEPA documentation, including site-specific Environmental Assessments (EAs) or EISs for individual projects. The basis for such additional NEPA (or CEQA) reviews should be described, including federal or state agency permitting that may trigger environmental document development.

Cumulative and Indirect Impacts

The cumulative impacts analysis should identify how resources, ecosystems, and communities in the project have already been, or will be, affected by past, present, or future activities in the project area. These resources should be characterized in terms of their response to change and capacity to withstand stresses. Trends data should be used to establish a baseline for the affected resources, to evaluate the significance of historical degradation, and to predict the environmental effects of the project components.

For the cumulative impacts assessment, we recommend focusing on resources of concern or resources that are "at risk" and/or are significantly impacted by the proposed project, before mitigation. For this project, NOAA should conduct a thorough assessment of the cumulative impacts to aquatic and biological resources, especially in the context of the other developments occurring and proposed in and around the Southern California Bite.

The EPA recommends that the PEIS identify which resources are analyzed, which ones are not, and why. For each resource analyzed, the PEIS should:

- Identify the current condition of the resource as a measure of past impacts.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify all on-going, planned, and reasonably foreseeable projects in the study areas, including planned Pacific Ocean Aquafarms, which may contribute to cumulative impacts.
- Identify the future condition of the resource based on an analysis of impacts from reasonably foreseeable projects or actions added to existing conditions and current trends.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource and provide a specific measure for the projected impact from the proposed alternatives.
- When cumulative impacts are identified for a resource, mitigation should be proposed.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify opportunities to avoid and minimize impacts, including working with other entities.

The PEIS should consider the cumulative impacts associated with other development projects proposed in the area and the potential impacts on various resources including water quality, endangered species, and habitat.

The PEIS should quantify cumulative impacts across resources areas, as well as describe and evaluate feasible mitigation measures to avoid and minimize the identified adverse cumulative impacts. Although these mitigation measures may be outside the jurisdiction of the lead agency or project proponents, describing them in the EIS would serve to alert other agencies or officials who can implement these extra measures (CEQ 40 Questions No. 19(b)).

Climate Change

Consistent with the policies of Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, the EPA recommends that NOAA identify measures to provide for diverse, healthy ecosystems that are resilient to climate stressors; require effective mitigation; and identify and protect areas of potential climate refugia. We also recommend considering whether additional conservation commitments may be warranted to achieve the

goal in Section 216 of Executive Order 14008 of conserving 30 percent of the nation's lands and waters by 2030.

The EIS should consider how climate change could potentially influence the study area, and how implementation of the proposed project could lessen or potentially mitigate for these impacts. Conversely, the EIS should assess how the projected impacts could be exacerbated by climate change.

Coordination with Tribal Governments

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes.

The PEIS should describe the process and outcome of government-to-government consultation between NOAA, tribes, issues that were raised, and how those issues were addressed in the selection of the proposed alternative. There are Indian Trust Assets affected by the Trinity River Division and the potential impacts of CVP operation on those assets should be examined in the EIS.

National Historic Preservation Act and Executive Order 13007

Consultation for tribal cultural resources is required under Section 106 of the National Historic Preservation Act. Historic properties under the NHPA are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer. Under NEPA, any impacts to tribal, cultural, or other treaty resources must be discussed and mitigated. Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources, following regulation in 36 CFR 800.

Executive Order 13007, *Indian Sacred Sites* (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site.

The Draft EIS should address the existence of Indian sacred sites in the project areas. It should address Executive Order 13007, distinguish it from Section 106 of the NHPA, and discuss how NOAA will avoid adversely affecting the physical integrity, accessibility, or use of sacred sites, if they exist. The Draft EIS should provide a summary of all coordination with Tribes and with the SHPO/THPO, including identification of NRMP eligible sites, and development of a Cultural Resource Management Plan.

Environmental Justice

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (February 16, 1994), directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. It further directs agencies to develop a strategy for implementing environmental justice and providing minority and low-income communities access to public information and public participation. As such, we recommend that NOAA address adverse environmental effects of the proposed project on these communities and outline measures to mitigate for impacts.

A minority population does not need to meet a 50 percent standard if "the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other

appropriate unit of geographic analysis."[2] To best illustrate the presence of a minority population, we recommend that NOAA analyze block groups, the smallest geographical unit that the U.S. Census Bureau publishes data for. We caution using larger tracts in the analysis, such as counties or cities, as these may dilute the presence of minority populations.

The NEPA Committee of the Federal Interagency Working Group on Environmental Justice has noted that, in some cases, it may be appropriate to use a threshold for identifying low-income populations that exceeds the poverty level.[3]

After NOAA has determined if minority and low-income populations exist in the project area, we recommend that the Draft EIS discuss whether these communities would be potentially affected by individual or cumulative actions of the proposed action. We also recommend addressing whether any of the alternatives would cause any disproportionate adverse impacts, such as higher exposure to toxins; changes in existing ecological, cultural, economic, or social resources or access; cumulative or multiple adverse exposures from environmental hazards; or community disruption.

If it is determined that minority and low-income populations may be disproportionately impacted, describe in the Draft EIS the measures taken by NOAA to fully analyze the environmental effects of the action on minority communities and low-income populations and identify potential mitigation measures. Clearly identify a monitoring and adaptive management plan to ensure that mitigation is effective and successful.

Present opportunities for affected communities to provide input into the NEPA process. In the PEIS, include information describing what was done to inform these communities about the project and the potential impacts it will have on their communities (notices, mailings, fact sheets, briefings, presentations, translations, newsletters, reports, community interviews, surveys, canvassing, telephone hotlines, question and answer sessions, stakeholder meetings, and on-scene information), what input was received from the communities, and how that input was utilized in the decisions that were made regarding the project.

[2] Council on Environmental Quality. Environmental Justice: Guidance Under the National Environmental Policy Act. December 1997. Available at https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf.

[3] Federal Interagency Working Group on Environmental Justice & NEPA Committee. Promising Practices for EJ Methodologies in NEPA Reviews. March 2016. Available at: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.

PUBLIC SUBMISSION

As of: 7/22/22 6:24 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-hv9n-jskr
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0022
Comment from French, Lori

Submitter Information

Name: Lori French
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Morro Bay, CA, 93442
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General Comment

Why in God's Name are we considering polluting our oceans with farmed fish? Chemicals and diseases that would pass into the wild stocks? No! Just NO!

PUBLIC SUBMISSION

As of: 7/22/22 6:16 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-cj23-5rqw
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0017
Comment from Griffith, Lisa

Submitter Information

Name: Lisa Griffith
Address: United States,
Email: lisa@nffc.net

General Comment

I urge you to adopt Alternative 1, the 'No Action Alternative', in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish

farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site's operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative. Once again, I urge you to support the No Action Alternative, as well.

6/22/2022

HOLDFAST AQUACULTURE

To whom it may concern at the NOAA Fisheries PEIS panel, including USACE, USCG, and EPA representatives:

This letter is written to express our full support of AOA development in both the Santa Barbara Channel and in Santa Monica Bay. Specific to the PEIS process, Holdfast Aquaculture suggests that this panel specifically indicate the costs of *not* identifying an AOA in each of these zones (as we understand it, the No Action Alternative). "Costs", in this case, are in reference to:

- the continued greenhouse gas footprint associated with importation of the foods that may be grown at AOAs in Southern California,
- the number of jobs and associated economic benefit lost (including employment on farms, distribution, restaurants, equipment manufacturing, divers, boat builders, blue robotics, climate change resilience, alternative fuel development, etc.),
- the cultural benefit lost (scientific community engagement, community education, tribal participation, ocean-facing lifestyle culture, etc.)
- the ecological benefit lost (increased native species, conservation aquaculture potential)
- and the reputational harm that would result if our region was to *continue* to fail at achieving sustainable offshore aquaculture to support our ~11M residents.

The public should have a clear understanding of the benefit of establishing sustainable aquaculture practices in Southern California via AOAs, and this will be most clearly established by identifying the costs associated with failing to develop this industry.

Sincerely,
Holdfast Aquaculture Co-founders:
Dr. Diane Kim (CEO)
Dr. Nathan Churches (CSO)
Kelly Stromberg (COO)
Ian Jacobson (Chief Engineer)

Kristen Johannes, PhD

22 July 2022

Dr. Scott M. Rumsey
Acting Regional Administrator
West Coast Region, NOAA Fisheries
National Oceanic and Atmospheric Administration
1201 Northeast Lloyd Blvd., Suite 1100
Portland, OR 97232

RE: Public comment on NOI to prepare a Programmatic Environmental Impact Statement (PEIS) for identification of one or more Aquaculture Opportunity Areas in Southern California

Dear Dr. Rumsey:

I respectfully submit a public comment in support of the "No Action" Alternative (Alternative 1) to the NOAA Notice of Intent to prepare a PEIS for identification of one more Aquaculture Opportunity Areas (AOAs) in Southern California.[1] Below, I highlight two issues for consideration that support the No Action Alternative, outlining: 1) short- and long-term risks to Biologically Important Areas (BIAs), critical habitats, and protected species; and 2) resource competition with existing ecologically, economically, and socially important natural resources and offshore activities. Based on these considerations, I advocate for a *precautionary approach*[2] to aquaculture siting and planning, and where appropriate, recommend smaller-scale mariculture initiatives.

Risks to Biologically Important Areas, Critical Habitats, and Protected Species

The introduction of offshore aquaculture facilities in the identified regions poses threats of known and unknown magnitudes to cetaceans and other species listed on the Endangered Species Act.[3] Proposed sites in the North (N1, N2) and Central North (CN1A, CN1B) regions overlap with BIAs and critical habitats for endangered cetacean species,[4] including blue whales, North Pacific gray whales, and humpback whales. While the current balance of risk to these areas is assessed based on historical understanding of migratory and feeding patterns, recent studies reveal that migration schedules and routes for blue whales,[5] humpback whales,[6] and North Pacific gray whales[7] are modulated by environmental and population-specific factors.

Variation in local oceanography, regional basin climate, and prey availability over the course of the last decade have significantly altered the timing and duration of feeding migrations for blue and

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[1] Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California, 87 FR 31210 (May 23, 2020).

[2] Kriebel D., *et al.* (2001). The precautionary principle in environmental science. *Environmental Health Perspectives* 109(9):871-6.

[3] The Endangered Species Act as Amended by Public Law 97-304 (the Endangered Species Act Amendments of 1982). Washington: U.S. G.P.O., 1983.

[4] Morris J.A. Jr, *et al.* (2021). An Aquaculture Opportunity Area Atlas for the Southern California Bight. NOAA Technical Memorandum NOS NCCOS 298. 485 p.

[5] Szesciorka, A.R., Ballance, L.T., Širović, A. *et al.* (2020). Timing is everything: Drivers of interannual variability in Blue whale migration. *Scientific Reports* 10, 7710.

[6] Ingman K., *et al.* (2021). Modeling changes in baleen whale seasonal abundance, timing of migration, and environmental variables to explain the sudden rise in entanglements in California. *PLoS ONE* 16(4): e0248557.

[7] Guazzo R.A., *et al.* (2019) Gray whale migration patterns through the Southern California Bight from multi-year visual and acoustic monitoring. *Marine Ecology Progress Series* 625:181-203.

humpback whales.[8,9] These species arrive earlier to and stay longer in Central and Southern California waters, increasing the risk of equipment entanglements and ship strikes.[10] Similarly, North Pacific gray whales have shifted to *inshore* migration corridors along the Southern California Bight, increasing population vulnerability to negative human impacts.[7] Necessary periods of pre-construction, construction, operation, and decommissioning of proposed aquaculture sites will both amplify the intensity of disruptions to marine habitats and increase the geographical areas impacted by aquaculture activities.

Resource competition with existing economically and ecologically important and activities

California's fishing and seafood industries are valued, as total impacts in 2019, at approximately $10 billion[11], and sustainable commercial and recreational fishing activities in the Southern California Bight contribute substantially to this value. Each of these sectors makes contact with the regional network of Marine Protected Areas (MPAs), including no-take MPAs, in geospatially constrained ways that would be further impacted by the proposed intervening areas of offshore aquaculture.

While there is some uncertainty in publicly available data about the spatial extent of wild-caught fisheries in the Southern California Bight, regional studies have highlighted the importance of productive interactions between wild-caught fisheries and the surrounding network of MPAs, including no-take areas. This relationship is demonstrated in the case of the spiny lobster fishery in Southern California.[12] Spill-over of lobsters from MPAs, combined with increased production of eggs and larvae within protected areas, conferred substantial benefits to the fishing effort and catch for these species outside of these MPAs.[10] This type of ecologically and economically significant relationship between wild-caught fisheries and MPAs requires fishers to have safe access to the waters around protected areas. This access is likely to be disrupted for some fisheries by the siting locations of proposed AOAs in the Southern California Bight.

The benefits of California's Marine Protected Areas also apply to recreational fishing industries. MPAs that allow restricted recreational fishing generate combined economic output, value added, and income that historically represents about12%[13] of California's approximately $4.6 billion[14] current recreational fishing market. In order for these economic benefits to be realized, recreational fishers need safe access to these corridors. Currently, recreational vessel access corridors overlap with proposed AOA siting (63.9% in Northern sites, 92.5% in Central Northern sites).[15] It is reasonable to assume that this overlap will be greater and more impactful during pre-construction, construction, and decommissioning periods.

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[8] Szesciorka, A.R., *et al.* (2020). *Scientific Reports* 10, 7710

[9] Ingman K., *et al.* (2021). *PLoS ONE* 16(4): e0248557.

[10] Guazzo R.A., *et al.* (2019) *Marine Ecology Progress Series* 625:181-203.

[11] National Marine Fisheries Service (2022). Fisheries Economics of the United States. NOAA Tech Memo. NMFS/SPO-229A, 236 p.

[12] Lenihan, H.S., Gallagher, J.P., Peters, J.R. *et al.* (2021). Evidence that spillover from Marine Protected Areas benefits the spiny lobster (*Panulirus interruptus*) fishery in southern California. *Scientific Reports* 11, 2663.

[13] Leeworthy, V., & Schwarzmann, D. (2015). Economic Impact of the Recreational Fisheries on Local County Economies in California's National Marine Sanctuary 2010, 2011 and 2012. Marine Sanctuaries Conservation Series ONMS-2015-07. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 27 p.

[14] National Marine Fisheries Service (2022). Fisheries Economics of the United States.

[15] Morris J.A. Jr, *et al.* (2021). An Aquaculture Opportunity Area Atlas for the Southern California Bight.

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I propose that future revisions to the PEIS consider the potential loss of productivity and nutrition, in regional wild-caught fisheries, triggered by the introduction of large-scale aquaculture to the Southern California Bight. In order to be a viable industry in this region, the economic contributions of the proposed aquaculture will need to generate both federal and state economic gains that account for any suppression of, or resources competition with, existing regional fishing industries. Recent research comparing aquaculture yields of finfish, molluscs/shellfish, and seaweeds suggests that the economics of offshore aquaculture necessitates cultivating carnivorous finfish species, as the edible biomass of molluscs, shellfish, and seaweeds does not justify the cost of growing these food sources in *offshore* environments.[16] On the other hand, the ecological risks and maintenance costs associated with farming of carnivorous finfish often outweigh the potential benefits.[17,18]

Taken together, my concerns point to the need for a precautionary approach[19] to aquaculture planning. Entailed in this approach is preventative action in the face of unknown information or uncertainty, including the true impacts of AOA sites on areas including Biologically Important Areas, as well as the need to explore a wide range of possible alternatives, possibly smaller-scale hatchery initiatives. I appreciate the invitation for public participation at the outset of this impactful planning process and hope that the burden of proof for safe aquaculture, with minimal impacts, will be taken up by NOAA, cooperating agencies, and the aquaculture industry before AOA environmental assessments and planning moves forward. These comments are made in my capacity as a resident of Southern California and as a student of Marine Biodiversity and Conservation at the Scripps Institution of Oceanography.

Sincerely,

Kristen Johannes, PhD

[16] Belton, B., Little, D.C., Zhang, W. *et al.* (2020). Farming fish in the sea will not nourish the world. *Nature Communications* 11, 5804

[17] California Environmental Associates (2018). Offshore Finfish Aquaculture: Global Review and U.S. Prospects

[18] Jillian Fry, J., David Love, D., & Gabriel Innes, G. (2018) *Ecosystem and Public Health Risks From Nearshore and Offshore Finfish Aquaculture,* Johns Hopkins Center for a Livable Future.

[19] Kriebel D., *et al.* (2001). *Environmental Health Perspectives*

PUBLIC SUBMISSION

As of: 7/22/22 6:01 PM
Received: July 20, 2022
Status: Pending_Post
Tracking No. l5t-vz6b-bb4n
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0010
Comment from Marina del Rey Sportfishing,Inc

Submitter Information

Email: rick@mdrsf.net
Organization: Marina del Rey Sportfishing,Inc

General Comment

Rick Oefinger, President Marina del Rey Sportfishing here. ..
We operate Public and Private Sportfishing and Whale Watching trips from Marina del Rey, annually taking upwards of 50,000 folks out on our excursions as well as providing Live and Frozen Bait to many of the Private Boaters that moor in or launch from MdR...
Regarding the Santa Monica Bay proposal, I am of mixed opinions.
I haven't read the Hundreds of pages, and know little of Aquaculture beyond what I've seen and been told over the past 40 some years with the Oysters in San Quintin Bay Baja, But, The idea of introducing huge numbers of possibly Non Native(?) species and all that comes with their life cycle in an area not customarily used by such creatures, as well as what Chemicals, Vitamins and whatever else is necessary to cultivate them concerns me a bit.
On the other hand, The thought of having Giant Rafts floating out there with their attendant life extending down into the water could prove to be a Huge Pelagic fish attractant.
What I'd like to see and know are:
The pictures of maps showing where they want to locate the units are vague but appear to be along the edge of the canyon, West of Marina del Rey, and they might be on some popular fishing spots for our boats as well as the many Private Boaters that leave from MdR...

How about sharing the Correct Latitude and Longitude numbers for the Proposed Locations. and asking us for input if they would interfere with some of these spots?
What about fishing near and around these structures? One would expect Mutually Agreed, Respectful access to what're bound to Powerful Fish Magnets.
A Short, Concise report of what's going to be cultivated, what the cultivated emit into the water and what's going to be used to grow them while keeping them Healthy.
That's it from us in a nutshell, Thanks for looking,
'Look froward to hearing back and being involved with this!
You may Feel Free to contact me at any time with any questions..
Rick Oefinger, President
Marina del Rey Sportfishing,Inc.
13759 Fiji Way
Marina del Rey,CA 90292
310 372 3712 Office
310 901 6613 Cel'
rick@mdsf.net
www.mdrsf.com

PUBLIC SUBMISSION

As of: 7/25/22 12:23 PM
Received: July 22, 2022
Status: Pending_Post
Tracking No. l5x-c0cn-3n0h
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0047
Comment from McCrea, Merit

Submitter Information

Name: Merit McCrea
Address:
Santa Barbara, CA, 93103
Email: meritmccrea@hotmail.com
Phone: 8056873474

General Comment

Fishers should be allowed to fish within AOAs and aquaculture sites. I realize some commercial gear types and techniques will not be possible to use and this is a concern. However, recreational anglers should not be barred by rules from fishing. No aquaculture lessee/facility operator should be permitted to post and/or enforce a "No Fishing" sign.

Anglers should not being restricted from fishing recreationally within or around aquaculture facilities. Safety concerns should be addressed using other means than blanket spatial exclusion or restriction from using usual recreational fishing methods. Aquaculture facilities operators should be required to bear the burden of tolerating the occasional recreational gear entanglement as part of their lease requirements. Conversely, recreational anglers should tolerate the additional risk of gear entanglements, should they choose to fish in close proximity to aquaculture facilities. Recreational spear fishers should bear their own risks, as they would in the wild, understanding such facilities may present both provide

additional safety, and risk consideration in diving in and around them.
I understand many commercial fisheries methods have the potential to be heavily negatively impacted, and these too should be addressed.

PUBLIC SUBMISSION

As of: 7/22/22 6:23 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-gvkx-yi44
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0021
Comment from Natsoulas, Andrianna

Submitter Information

Name: Andrianna Natsoulas
Address:
Bloomington, NY, 12411
Email: anatsoulas@earthlink.net
Phone: 2022030716

General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s

operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

PUBLIC SUBMISSION

As of: 7/22/22 8:16 PM
Received: July 22, 2022
Status: Pending_Post
Tracking No. l5w-ltyo-fzjx
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0028
Comment from National Family Farm Coalition

Submitter Information

Email: antonio@nffc.net
Organization: National Family Farm Coalition

General Comment

James A Morris Jr, PhD
National Centers for Coastal Ocean Science, National Ocean Service
National Oceanic and Atmospheric Administration,
101 Pivers Island Rd., Beaufort, NC 28516

Re: “Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California” (Agency/Docket Number RTID 0648-XB875)."

On behalf of the members of the National Family Farm Coalition (NFFC), I thank you for the opportunity to offer comments on Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California.

NFFC is an alliance of grassroots farmer- and advocate-led groups across 42 states representing the rights and interests of independent family farmers, ranchers, and fisherfolk. NFFC's 30 state, regional, and national farm and rural organizations are bound by the common belief that communities have the right to determine how their food is grown and harvested; that everyone in the food system should receive fair prices or wages; that all producers should have equitable access to credit, land, seeds, water, markets, and other resources; and, that our food and agriculture policy must support sustainable farming, ranching, and fishing practices.

One of our members, the North America Marine Alliance, is an integral part of our membership because we saw the connection in the food system as one and see that issues that happen with farming are similar with those at sea. The same way that consolidation has destroyed family farmers, is the same way that has affected fisherfolks and the proposed offshore aquaculture proposal is very similar to what happens on concentrated animal feeding operations (CAFOs).

The negative impacts of CAFOs on family farms is well documented (Wender, 2011; Ikerd, 2017; Kilalea, 2022); while just a few corporations benefit from these operations, not just farmers, but whole rural communities are economically and environmentally affected. It is clear that to run offshore operations only large producers will be able to invest and benefit from it, while traditional fisheries and coastal communities will suffer similar consequences.

For these reasons, I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Other experts had also noticed additional risks to this endeavor. The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site's operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude (Bratspies, 2007; Johns, 2012).

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems. Thank you for considering my comments and my support of the No Action alternative. If you have any additional questions please contact me at antonio@nffc.net,

Sincerely

Antonio Tovar PhD
Senior Policy Associate
National Family Farm Coalition

Bibliography

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Ikerd, J. (2011). Corporate Agriculture versus Family Farms; A Battle for Hearts and Minds. Retrieved, December, 1, 2017.
Killalea, L. (2022). " Horrible Outcomes for Pigs and Humans Alike": North Carolina's Right to Farm Law as an Unconstitutional Taking of Property near Pork Production Facilities. Geo. Wash. J. Energy & Env't L., 13, 68.

Bratspies, R. M. (2007). Can transgenic fish save fisheries?. Globalization: Effect on Fisheries Resources, William W. Taylor, Michael G. Schechter & Lois G. Wolfson, eds., Cambridge University Press.
Johns, K. L. (2012). Farm fishing holes: Gaps in federal regulation of offshore aquaculture. S. Cal. L. Rev., 86, 681.

PUBLIC SUBMISSION

As of: 7/22/22 6:25 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-i5p8-jfkq
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0023
Comment from Nguyen, My

Submitter Information

Name: My Nguyen
Address: United States,

General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish

farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site's operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

United States Department of the Interior

NATIONAL PARK SERVICE
Interior Regions 8, 9, 10, and 12
333 Bush Street, Suite 500
San Francisco, CA 94104-2828

IN REPLY REFER TO:
1.D. Temporary 3 years (PW-P)

July 21, 2022

Diane Windham
West Coast Region Aquaculture Coordinator
National Oceanic & Atmospheric Administration,
National Marine Fisheries Service
socalaoa.wcr@noaa.gov

Dear Ms. Windham:

Thank you for the opportunity to review the Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California. We offer the following comments.

Potential impacts and of aquaculture operations in marine waters include following:

- Introduction of non-native species including those that may become invasive. These could be cultured species that escape from pens / enclosures or "hitchhiker" species that are associated with those cultured species
- Genetic introgression of cultured species into wild stocks
- Introduction/spread of pathogens and parasites associated with cultured organisms
- Degradation of water quality from cultured organism feces and waste products, uneaten feed fertilizers and/or antibiotics and other chemical treatments applied to cultured organisms

These impacts, especially those associated with escapes or unintentional releases of organisms can spread well beyond sites where aquaculture occurs. All of the potential aquaculture sites in Southern California Bight North Study Area, including those with high suitability ratings based on the final natural and cultural resources submodel (Morris et al. 2021), are in relatively close proximity to Channel Islands National Park. The waters surrounding the Park are managed as a marine protected area by the National Park Service and the State of California. Due to the potential for aquaculture associated impacts on the native species and biological communities of these waters, particularly impacts of unintentional introductions of nonnative/invasive species, we recommend that NOAA eliminate the North Study Area from consideration as an Aquaculture Opportunity Area.

For questions or further information, please contact John Wullschleger, Fish and Aquatic Invasive Species Program Lead (john_wullschleger@nps.gov).

Sincerely,

Digitally signed by MARTHA CRUSIUS
Date: 2022.07.21 11:24:34 -07'00'

Martha Crusius
Park Planning & Environmental Compliance Program Manager
National Park Service, Interior Regions 8, 9, 10, and 12

cc:
John Wullschleger (john_wullschleger@nps.gov), Water Resources Division, Fish and Aquatic Invasive Species Program Lead
Denise Louie, denise_louie@nps.gov, Regional Natural Resources & Science Lead
Ethan McKinley (CHIS_Superintendent@nps.gov), Channel Islands National Park Superintendent

Citation:

Morris JA Jr, MacKay JK, Jossart JA, Wickliffe LC, Randall AL, Bath GE, Balling MB, Jensen BM, Riley KL. 2021. An Aquaculture Opportunity Area Atlas for the Southern California Bight. NOAA Technical Memorandum NOS NCCOS 298. 485 p. DOI: 10.25923/tmx9-ex2

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July 22, 2022

Ms. Diane Windham
NMFS West Coast Region Aquaculture Coordinator, *socalaoa.wcr@noaa.gov*.
Comments on NOAA-NMFS-2022-0051

RE: Comments on the Scope of NMFS' Programmatic Environmental Impact Statement for Southern California Aquaculture Opportunity Areas

Dear Ms. Windham:

Oceana is the largest international marine conservation organization dedicated solely to protecting the world's oceans. We have over 100,000 members in California and have been working in ocean and fisheries conservation off the US West Coast since 2003. Our science-based organization has been actively engaged in aquaculture regulation and management in several countries where we operate throughout the world. Please accept these comments on the scope of the upcoming Programmatic Environmental Impact Statement (PEIS) on the establishment of Aquaculture Opportunity Areas (AOAs) in Southern California.

Currently, we support Alternative 1, the no action alternative. We oppose the establishment of any AOAs in federal waters of the Southern California Bight unless and until it can be demonstrated that aquaculture can be constructed and operated without posing risks of irreparable to harm to ocean ecosystems, marine wildlife, wild fish stocks, existing commercial and recreational fisheries, or coastal communities. As such, we ask NMFS to cease further consideration of AOA designation in Southern California, and the associated National Environmental Policy Act process.

Hailed by marine scientists as a "Blue Serengeti," the Southern California Bight marine ecosystem is a globally important migratory route and foraging destination for whales, dolphins, sea turtles, sharks, and large fish. It has some of the highest diversity and densities of deep-sea coral and sponge gardens that provide rich biodiversity and essential fish habitat for commercial and recreational fisheries. Based on proposals and advocacy by Oceana, NMFS recently designated nearly the entire Southern California Bight as Essential Fish Habitat Conservation Areas where bottom trawling is prohibited to protect sensitive and long-lived seafloor habitats. The area is a basin-scale nursery for great white sharks, mako sharks, blue sharks, and many other top predators. It is renowned for sportfishing and responsible commercial fishing and provides immeasurable value to the citizens of the United States through ecosystem services and both consumptive and non-consumptive uses. Simply put, the Southern California Bight is an exquisite wild ocean ecosystem and a national treasure.

The potential harms to the economy, wild fish stocks, habitats, and ecosystems could outweigh any positive economic benefits provided by new aquaculture operations in Southern California federal waters. We are concerned that the purpose and need of the action is based on a false premise that aquaculture is needed to meet the increasing US demand for seafood. We question the purpose and need of the action, as it is not clear that an "increasing demand for seafood" is a problem that can be remedied by additional aquaculture. In NMFS' description of the purpose and need for the action in public webinars, NMFS emphasized the importation of seafood as a reason to promote aquaculture in

Southern California. If NMFS truly considers the importation of seafood to be problematic, NMFS must explain why they have not acted under the Magnuson Stevens Act and Marine Mammal Protection Act to restrict seafood imports that do not meet U.S. bycatch standards and why current exports of US caught seafood cannot address this. Furthermore, NMFS must explain how proposed aquaculture will increase the net global food supply by accounting for feed inputs and potential harms to wild fisheries. To meet an "increasing U.S. demand for seafood", NMFS should instead focus on restoring the abundance of wild fish stocks, encourage domestic consumption of US-caught seafood that is currently exported, and directly address problematic seafood imports through its existing legal authorities.

We are concerned that NMFS is severely downplaying and underestimating the potential impacts of offshore aquaculture, while holding an overarching false assumption that impacts are either insignificant or will be mitigated. The global literature is clear that there are a wide range of impacts from offshore ocean aquaculture operations -- many of which are currently impossible to completely avoid or mitigate -- including but not limited to:

- Escapes of farmed species into the natural environment, which may impact the genetics of wild, native marine species, compete with wild species, and/or displace wild species.
- Incubation and spread of diseases, parasites, and pathogens to wild populations.
- Use of chemicals and/or antibiotics both to prevent prophylactically and to treat bacterial infections and diseases.
- The construction, operation, maintenance, and existence of offshore structures alter natural habitats, and may impact migrations and safe passage of sensitive wildlife species.
- Aquaculture operations can unnaturally attract predators such as seabirds and sharks, resulting in the need for predator controls and deterrence that may harm these natural species.
- For aquaculture species that require feeding, the use of feeds puts pressure on wild forage fish stocks and/or land-based agriculture operations that may impact marine ecosystems, destroy natural habitats, contribute to greenhouse gas emissions, and create a net loss of the global supply of edible protein.
- Uneaten feeds and waste products may impact local food webs in the water column as well as impact benthic habitats in the vicinity of aquaculture operations.
- Adverse impacts to essential fish habitats, habitat areas of particular concern, and marine protected areas.
- Displacement and harm to existing commercial and recreational fishing.
- Disruption, harm, and/or conflict with other existing human uses of the marine environment.
- Impacts to Endangered Species Act listed species
- Alterations or disruptions to foraging, reproduction, and migration of fish and wildlife, including seabirds, marine mammals, and sea turtles.

The above-listed environmental impacts of offshore aquaculture operations have been well documented, and unfortunately are unlikely to be solved with technological innovation in the near future. Throughout the world, even aquaculture industry leaders continue to struggle to address impacts of their operations on wild species and ecosystems, and we should not expect the situation to be any different in Southern California. The specific areas NMFS has identified in the Santa Barbara Channel and Santa Monica Bay host renowned wildlife, ecosystems, benthic habitats, and fishing areas.

If NMFS chooses to move forward with the PEIS, it must include an exhaustive examination of all potential impacts that may originate from all possible aquaculture operations based on the global literature and experience with aquaculture to date. It must assess what the worst-case scenarios could look like, including a thorough an examination of the biological and economic impacts, such as the harm to wild fish stocks and endangered species. If NMFS does choose to move forward, we request that NMFS exclude any form of finfish aquaculture and limit its consideration to algae and bivalve culture operations only.

In summary, the environmental impacts of the proposed AOAs in Southern California are legitimate, wide-ranging, serious, and well established in the scientific literature. The marine ecosystems surrounding and affected by the proposed projects are exceptional, from the seafloor throughout the water column. We are concerned with any assumption that the effects will be insignificant or can be readily mitigated. These conclusions fail to reflect the wide body of literature and experience with offshore aquaculture farms throughout the world. Despite the industry's best efforts to mitigate such impacts over many decades, history has shown that to date many of the impacts of aquaculture are irreparable, irreversible, and cannot be mitigated. Given the state of aquaculture technology, the economy and ecosystem of the Southern California Bight cannot afford the risks posed by designating Aquaculture Opportunity Areas at this time. We ask NMFS to redirect its resources away from aquaculture in this region and toward actions that will further benefit wild fish, wildlife, and ecosystems.

Thank you for considering these comments.

Sincerely,

Geoff Shester, Ph.D.
California Campaign Director & Senior Scientist

ORANGE COUNTY SANITATION DISTRICT
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Fountain Valley, CA 92708
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www.ocsan.gov

July 22, 2022

Diane Windham
West Coast Aquaculture Coordinator

Submitted online via: www.regulation.gov
Docket#: NOAA-NMFS-2022-0051

SUBJECT: Comments Regarding Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California - NOAA-NMFS-2022-0051

The Orange County Sanitation District (OC San) appreciates the opportunity to provide comments in response to the National Oceanic and Atmospheric Association's (NOAA) Federal Register (85 FR 55667) Notice of Intent to prepare a Programmatic Environmental Impact Statement (Notice of Intent) for the first two Aquaculture Opportunity Areas (AOAs) for Southern California. The AOAs are a result of the Presidential Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O.13921, May 7, 2020). This Executive Order requires the Secretary of Commerce to identify geographic areas containing locations suitable for commercial aquaculture.

OC San appreciates the importance of U.S. aquaculture as an innovative means to provide a domestic and sustainable food source and supports responsibly managed aquaculture operations in well-mixed coastal waters. OC San, however, would like to take this opportunity to highlight several issues associated with siting any aquaculture operation (aquafarm) adjacent to any wastewater ocean outfall, especially for those with existing or pending ocean monitoring programs mandated by federal and state National Pollutant Discharge Elimination System (NPDES) ocean discharge permits. For these reasons, OC San respectfully requests that NOAA update its criteria to exclude AOAs that are sited within existing or planned NPDES ocean discharge monitoring areas.

As an additional consideration, the "Aquaculture Opportunity Area Atlas for the Southern California Bight" concluded that the Long Beach / Huntington Beach area is an unsuitable AOA location due to several security and siting constraints (Morris et al. 2021). The Notice of Intent does not include the Long Beach / Huntington Beach location as a potential AOA or alternative AOA. OC San supports the exclusion of this area from the Notice of Intent. In Appendices A and B of this letter, OC San submits several additional regulatory and environmental considerations that further demonstrate the unsuitability of this region for aquafarm operations.

As requested in the Notice of Intent, OC San submits the following:

- A summary of OC San-specific concerns,
- Background and technical rationale - Appendix A, and
- Specific technical questions and requests to NOAA - Appendix B

Summary of Concerns:

- **Infringement on OC San's long-term ocean discharge monitoring area**
  OC San conducts NPDES-permit ocean monitoring in an area over 185 square miles in the near coastal region ranging from Seal Beach to Dana Point. Many of OC San's monitoring stations serve as regional indicators of environmental status and health in the Southern California Bight (SCB). Siting aquaculture operations near or within OC San's monitoring area along the San Pedro Shelf will significantly disrupt OC San's NPDES permit-mandated ocean monitoring program by impeding access to monitoring locations and would inhibit OC San's core mission of protecting public health and the environment through rigorous wastewater treatment and environmental monitoring. The re-location of established monitoring stations could result in the loss of historical reference stations and would require significant time and consultation with regulatory staff as the current permit would need to be formally re-opened and re-negotiated.

- **Impacts to water/sediment quality in OC San's ocean monitoring area**
  Should any aquaculture operations be sited on the San Pedro Shelf, there could be impacts to receiving water and sediment quality at OC San's sentinel monitoring stations. This could occur through the release of contaminants such as copper and plastic shed from net materials, use of anti-foulants or antibiotics, and nutrients from waste and excess feed. Increases in contaminant levels could lead to non-compliance in the water column or sediment at nearby stations, which could result in financial penalties and additional costly monitoring to OC San.

- **Disturbances to sensitive and established ecological communities in the region**
  The fluxes and deposition of aquafarm nutrients, debris, and contaminants from excess feed and waste would adversely impact the health and composition of pelagic and benthic communities in adjacent areas. Diseased fish in the ecosystem may lead to increased rates of disease and parasitism for native populations, while the physical structure of aquafarms would create additional novel habitat and could act as an attractive nuisance. Through decades of successful and continuous wastewater treatment and ocean monitoring, OC San's ocean monitoring area is comprised of ecological communities that are healthy, abundant, diverse, and sustainable. Allowing large-scale aquaculture enterprises to disturb or threaten such vibrant ecological communities seems neither necessary nor justified.

- **Additional constraints in the Long Beach and Orange County region**
  There are numerous constraints in these regions that would pose a risk to the quality and success of an aquafarm operation, including heavily trafficked cargo shipping lanes and ferry routes, military operations, offshore oil rig structures and natural oil seeps. The coastal areas of Orange County also support a strong community of commercial and recreational fishers, whose buy-in will be imperative to the successful establishment of future aquafarm projects.

- **Use of established and accepted oceanographic models to inform site selection**
  As oceanographic models will be used to determine site selection, it will be critical to select models developed for the SCB that are well validated and that have stakeholder acceptance. The evaluation process for model selection and the quality criteria used to assess model output should be made publicly available for review and feedback prior to implementation.

Again, OC San appreciates the opportunity to comment on NOAA's Notice of Intent for the first two AOAs in Southern California. If you have any additional questions or would like additional information on the issues identified in this letter, please do not hesitate to contact Dr. Sam Choi, Environmental Lab and Ocean Monitoring Manager, at (714) 593-7497 or by email at schoi@ocsan.gov.

Sincerely

Lan C. Wiborg
Director of Environmental Services
Orange County Sanitation District

Ed Parnell, Ph.D.
Associate Researcher
Scripps Institution of Oceanography

SC:LCW:pe
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Appendix A: Supplementary information

Background

OC San is responsible for safely collecting, treating, recycling, and disposing of the wastewater generated by 2.6 million people living in its 479 square mile service area in central and northwest Orange County, California. It has a 25-member governing board comprised of one County Supervisor, 20 City Council members, two Sanitary District representatives and two Water District representatives. OC San has a joint federal and state NPDES ocean discharge permit (No. CA0110604/Order No. R8-2021-0010) and has been in continuous operation for over 68 years. The NPDES ocean discharge permit is regulated under the Federal Clean Water Act, the California Ocean Plan, and the Regional Water Quality Control Board Basin Plan. OC San conducts one of the largest ocean monitoring programs on the west coast of the United States and has a long history of responsibly managing and monitoring its ocean discharge to protect public health and the environment.

In October 2021, OC San was made aware by NOAA and the Environmental Protection Agency (EPA) of their efforts to prepare an Environmental Impact Statement (EIS) for the establishment of a large-scale aquaculture operation (approximately 1,000 acres) for California yellowtail (*Seriola dorsalis*) at three potential locations in Southern California. The locations proposed by Pacific Ocean AquaFarms (POA) include an area four nautical miles offshore from Mission Beach in San Diego, Santa Monica Bay (later dropped from the proposal for unspecified reasons), and a site named “Long Beach” but geographically located on the San Pedro Shelf approximately four nautical miles offshore from Huntington Beach. For the sake of clarity, the “Long Beach” site will be referred to as the Long Beach/Huntington Beach site for the remainder of this letter for clarity.

OC San staff met with NOAA and EPA staff responsible for the POA EIS on two occasions in late 2021, which was approximately one year after the first public scoping meetings on October 14 and 16, 2020, to discuss the proposal and OC San’s concerns with the Long Beach/Huntington Beach location and the potential adverse impacts on OC San’s long-term ocean monitoring stations (Figure 1). As of June 2022, the viability or status of any of the proposed locations for the POA proposal including the Long Beach/Huntington Beach site remains unclear.

As of the June 27, 2022, public scoping meeting, two Southern California AOAs proposed for evaluation in the Notice of Intent are in the Santa Barbara Channel and Santa Monica Bay. These sites in the Southern California Bight were selected based on results of spatial suitability modeling by the National Centers for Coastal Ocean Science (NCCOS) which resulted in the publication of the AOA Atlas (Morris et al. 2021).

The AOA Atlas considered suitability based on a variety of military, navigational, energy infrastructure, beneficial uses, and oceanographic factors. Although the AOA Atlas did consider the presence of public infrastructure such as Publicly Owned Treatment Work (POTW) discharge outfalls, it did not factor in their NPDES permit-mandated and long-standing required monitoring programs. Notably, the AOA Atlas identified several constraints in the Central South study area, which

encompasses POA's proposed Long Beach/Huntington Beach site, that demonstrated the unsuitability of this region for consideration as an AOA.

We highlight below several additional ways in which offshore aquaculture operations on the San Pedro Shelf could negatively impact OC San's NPDES discharge permit compliance and Ocean Monitoring Program (OMP), as well as other long-standing monitoring programs within or near the proposed AOA sites.

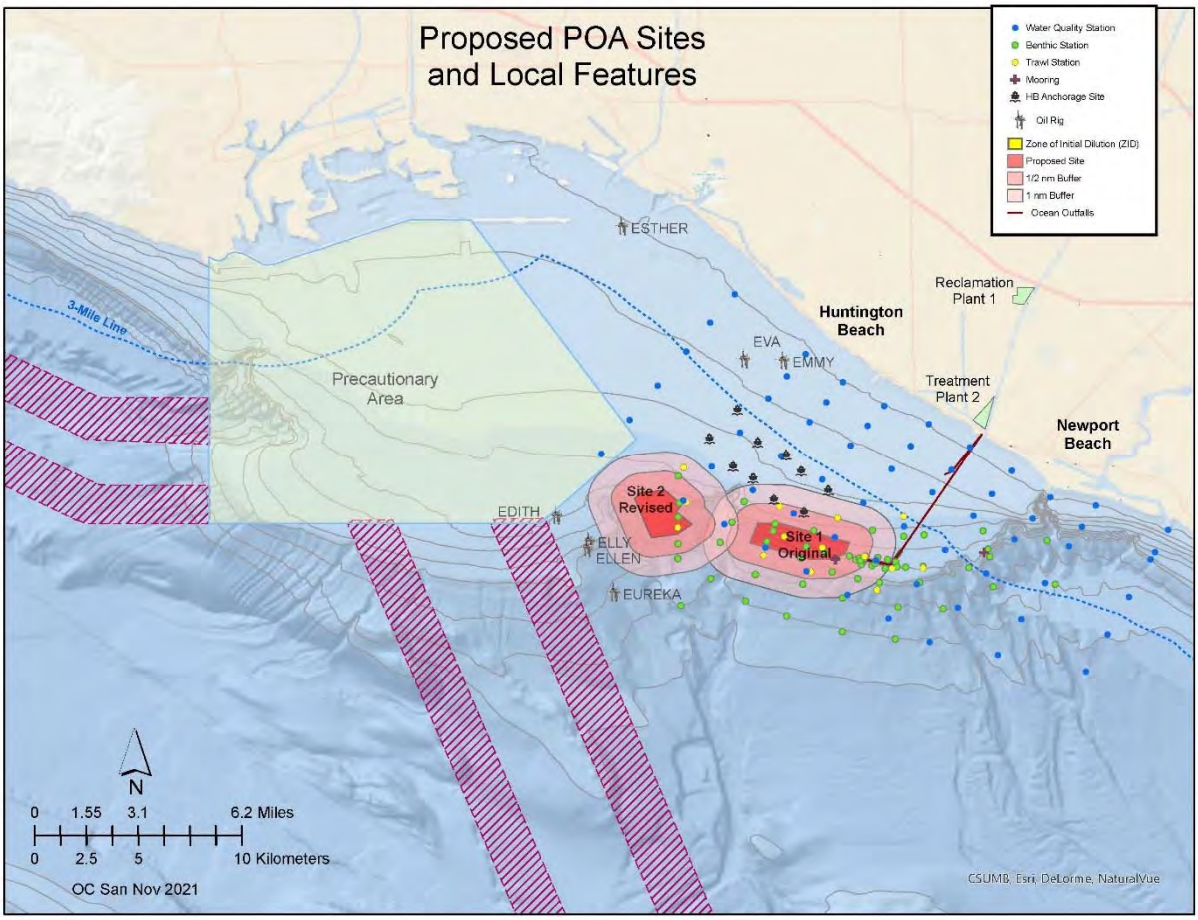

Figure 1: Map showing the two locations proposed by NOAA/EPA for the Pacific Ocean AquaFarms project in 2021-2022. 'Site 1' (original) represents the first iteration of the proposed location, while 'Site 2' was revised after discussions with the NOAA/EPA project evaluation team. The proposed POA project boundaries are shown in dark red and are outlined by two 0.5 nautical mile buffers for illustrative purposes. OC San's monitoring stations and ocean outfall are depicted in colored circles and dark purple lines, respectively, according to the legend. The 'Precautionary Area' and purple hatched bars represent the cargo shipping lanes and traffic region for the Port of LA/Long Beach.

Offshore aquaculture operations could restrict access to compliance monitoring programs

It does not appear that the Long Beach/Huntington Beach location is proposed for analysis in the PEIS. OC San supports this exclusion.

Should the region offshore of Huntington Beach and South of Long Beach be considered as an AOA, or considered for any large-scale aquafarming operation, it would pose several impediments to the continued management of OC San's NPDES permit-mandated OMP that has been established since the 1970s. The OC San core OMP elements include water column sampling, benthic sediment sampling for pollutant chemistry and invertebrate community composition, trawl fish and epibenthic invertebrate community assessments, and hook-and-line fishing to assess sport fish pollutants for human consumption along the San Pedro Shelf
(Figure 1).

The location of a large-scale aquafarm operation within or adjacent to this long-standing monitoring area would have direct impacts to permit compliance by restricting access to compliance sampling locations. Furthermore, it would pose risks and safety concerns to the field staff, sampling efforts, and the ocean monitoring vessel. Additionally, siting of a large-scale aquaculture operation in this area could restrict access to several reference and regional monitoring stations that have been used since 1994 as indicators of environmental status and health in the SCB. The re-location of established monitoring stations would require significant time and effort in locating, evaluating, and negotiating alternative stations through a formal NPDES discharge permit re-opener. Placement of any aquaculture operation further offshore and away from the nearest monitoring stations would be an acceptable solution to avoid such impacts.

Offshore aquaculture operations could adversely impact receiving water quality

The siting and operations of a large-scale aquaculture operation within or adjacent to OC San's monitoring area could directly impact regional water quality in several ways. For example, net pens could create hydrological disruptions such as cage-induced downwelling and could alter the existing depositional characteristics of the area (Froelich et al. 2017). Impacts to water and sediment quality could arise from inadequate cleaning or substantial biofouling of the net pen material, which could lead to increases in disease transmission and water quality issues, such as decreased water clarity. Net pen cleaning itself could lead to the release of debris, plastic, and metals such as copper from Copper Alloy Material (CAM) nets that are commonly used due to their biocidal properties. Copper would have the potential to cause toxicity to sensitive organisms such as fish or invertebrate larvae in the nearby water column or benthos (Earley et al. 2020).

To address the intensity of these impacts, OC San suggests first and foremost that aquaculture operations should be placed further offshore and away from any existing monitoring programs. Permitting and monitoring practices for AOAs should include modern and responsible management practices for aquaculture projects such as frequent net cleaning and replacement, extensive monitoring and maintenance of appropriate biomass and fish stock density, regular culling and collection of sick and dead fish, and the systematic review and improvement of aquafarm operations (Belle and Nash 2009).

Offshore aquaculture operations could adversely impact ecological communities

Evidence-based studies have documented that the added carbon, ammonia-nitrogen, and phosphorus from uneaten fish feed and fecal waste can cause imbalances to nutrient profiles and surrounding ecological systems (Bannister et al. 2014). The increases in debris and nutrients could in turn adversely impact the composition, diversity, and abundance of benthic and pelagic organisms in areas directly under or in proximity to an aquafarm (Gao et al. 2005). Studies have also linked the increase in nutrients from excess feed or waste to increases in algal productivity and blooms (Gokul et al. 2020). Nutrient-related impacts can be mediated in part by the use of high-quality feed designed for nutrient retention and reduced metabolic waste output, feed delivery methods that are efficient and regularly adjusted based on accurate biomass records, and the use of feeding trials to select formulations that have minimal environmental impacts (Belle and Nash 2009).

Impacts from increased nutrient loading could be exacerbated by the composition of fish feed and the use or presence of antibiotics, growth hormones, herbicides or other legacy pollutants such as metals or polychlorinated biphenyls. Increases in contaminant loading would have repercussions for sensitive or pollution intolerant species (Bannister et al. 2014), threatened or endangered species, and commercially important species such as the white seabass (*Atractoscion nobilis*) that inhabit or transit through the region (Vojkovich et al. 1983). Microbial decomposition of waste products from aquafarms may lead to increased oxygen demand and accumulation of sulfides in the sediments which could in turn impact benthic communities (Holmer 2010). In OC San's monitoring region, any of these additions or community changes could lead to regulatory noncompliance for several chemical and ecological parameters such as sediment toxicity which have been measured monthly or quarterly for decades as part of OC San's OMP.

Studies have shown that farmed fish may transmit diseases or induce epizootics in native fish populations (Krkošek et al. 2006; Bouwmeester et al. 2020). The death and decay of diseased fish in the system may lead to increased rates of disease, parasitism, and poor water quality (Egusa 1983), while excess feed could create an attractive nuisance (Templeton 2018). This could lead to increased visitation frequencies for large predatory animals such as sharks and sea lions and increase the potential long-term establishment of non-native species. However, responsible aquafarm management including the use of predator deterrence methods, frequent collection of sick and dead fish, and thoughtfully designed feeding programs can limit the occurrences and reduce adverse impacts to the community (Belle and Nash 2009, Benetti et al. 2010a,b).

The physical structures used in aquaculture operations would also cause impediments to the local ecological communities. The establishment of large anchors, tethering systems, and net structures could lead to degraded benthic habitats as well as entanglement of animals such as turtles and pinnipeds that forage and transit through the region. Frequent monitoring and record-keeping of the physical structures using divers or remotely operated video cameras and continuous monitoring of the benthic communities could be used to document and mediate any of these potential impacts (Belle and Nash 2009).

Additional constraints posed by security, navigational, and economic factors in Orange County

As addressed in the AOA Atlas, there would be numerous risks to the security, siting, and quality of fish stocks produced from a Long Beach/Huntington Beach aquaculture operation. For example, constraints would be caused by military operations and heavily trafficked cargo shipping lanes and moorages in proximity to the nearby ports of Long Beach and Los Angeles that would limit the number of viable sites for aquaculture operations. The presence of energy infrastructure such as offshore oil rig structures, natural oil seeps, and occasional oil spills would further threaten the health of farmed fish stocks that could ultimately impact their production success (Benetti et al. 2010a; Morris et al. 2021).

Feedback from the public and commercial fishing community should also be taken into consideration. For example, a large-scale offshore aquaculture operation established through an AOA should have the support of local fishers as it would have direct economic impacts to the local commercial and recreational fishing community (Benetti et al. 2010a), as well as local tourist and beach communities, and Marine Protected Areas in proximity to an AOA. We urge that these stakeholders, as well as other local agencies and conservancy groups, be directly notified and invited to engage and provide input on the AOAs as many agencies are not made aware of notices in the Federal Register that may impact them.

Site selection should be informed by established and accepted oceanographic models

Physical and biogeochemical modeling will be required prior to site selection, and model selection should involve stakeholder input as it is highly influential on the decision-making outcomes. While physical oceanographic models can be considered a mature tool for use in the SCB, the use of biogeochemical models is generally in its infancy. Models under consideration for the SCB should be extensively vetted before use in site selection. At this time, there is no stakeholder accepted biogeochemical model for the SCB.

Furthermore, stakeholders should be provided the opportunity to evaluate the selected models, and this process should include clearly defined descriptions of the selected model structure, including initial choices and assumptions, model biases, and output quality. Finally, any model selected should have known and clearly defined model output quality criteria and would greatly benefit from having a Quality Assurance Project Plan.

Modeling includes many critical a priori decisions including assumptions and biases, spatial domain, boundaries, boundary inputs, vertical and horizontal spatial resolution, modeling time steps, output averaging, model output, and endpoint metrics. Issues like "*Will the physical oceanographic model be a nested model?*" need to be addressed at the outset. The model selection and output evaluation processes should be made publicly available for review and feedback prior to implementation. Please see Appendix B for additional modeling issues that need to be addressed.

More detailed information about the project is needed to ensure a thorough PEIS

OC San understands the importance of aquaculture as an innovative means to provide a sustainable food source. However, the ultimate location of future AOAs will need to consider the concerns and potential impacts described in this letter, particularly for specific operations such as the POA project which was recently proposed for the Long Beach/Huntington Beach location.

OC San respectfully requests full consideration for each of the concerns listed in Appendix A. It is recommended that evidence-based, site-specific data from pilot-scale projects and baseline environmental site surveys should be used to assess potential impacts from the proposed aquafarm operations (Belle and Nash 2009). Studies should be designed to delineate specific impacts clearly and thoroughly from the aquafarm operations on existing and planned beneficial uses of the affected area through proper documentation of conditions before, during, and after installation of a pilot-scale project. Stakeholder involvement in designing the study is highly recommended. Please refer to Appendix B for a complete list of specific accompanying questions and requests prepared by OC San.

OC San acknowledges and supports the overarching goal of establishing safe and sustainable aquaculture in US waters. We look forward to collaborating with NOAA and the Southern California POTWs to identify suitable locations in Southern California that are compatible with the highest and best use of these coastal resources.

References:

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Appendix B: Technical questions and requests

OC San respectfully requests a response to the following:

1. Aquaculture Opportunity Areas
    a. Are sites in the vicinity of Long Beach and Huntington Beach still under consideration for current or future aquaculture operations, including the Pacific Ocean AquaFarm (POA) proposal, despite the regional constraints and limitations found in the AOA Atlas?
    b. OC San requests that the PEIS accurately name the location of the aquaculture site with respect to the nearest geographic city rather than Port, particularly within the Central South Study Area. As mentioned above, POA proposed an alternative aquafarm operation as being located in Long Beach; however, the exact location of the alternative site was in Huntington Beach.
    c. OC San requests that in the unlikely event that any placement of an aquafarm within the Orange and Long Beach Counties is considered, a public hearing should be held in Huntington Beach and all stakeholders in the Orange County region should be directly notified and invited to provide public comment.
2. Impacts to ecological communities
    a. What additional coordination is planned with NMFS as part of the PEIS to address impacts to local or transient threatened and endangered species in the AOAs, as impacts to many of these species were not included in the AOA Atlas analysis (p.23)?
    b. What risk assessments have been conducted on the metazoan parasites of California yellowtail as has been done for yellowtail kingfish (*Seriola lalandi*) in Australia (Hutson et al. 2007)?
3. Modeling approach to determine specific aquafarm site selection
    a. Will regional stakeholders within each proposed AOA be provided the opportunity to evaluate the selected models, including clearly defined descriptions of the selected model structure, assumptions, model biases, and output quality?
    b. Will the models chosen for site selection have known model output quality criteria and a Quality Assurance Project Plan?
    c. In March 2022, OC San provided 5 years of historical datasets for water quality, sediment chemistry, currents, and benthic infauna in response to NOAA's request for deposition and water column modeling to assess the POA project. OC San requests that the model selection, model features, and model outcomes for this project be shared with OC San staff.
    d. Additional and specific questions regarding the models used to assess the AOAs include:
        i. Will the physical oceanographic and biogeochemical models be coupled?
        ii. Will the model resolutions used for both models be sufficient to ascertain fine-scale (e.g., <100 m) ocean dynamics and near field effects?
        iii. What are the specific (site) and general (regional) conditions and inputs used?
        iv. What conditions will be modeled (e.g., averages or extremes)?
        v. Will runs following EPA guidance for point source initial dilution modeling (e.g., zero current flow with maximum stratification) be included?
        vi. What is the modeling timeframe, and will it capture enough ocean state variability?

vii. What is the anticipated temporal resolution for model output?
viii. What is the model's vertical resolution? Does it vary with ocean depth?
ix. Model output is dependent on accurate representation of local bathymetry. Will the model be able to effectively incorporate local features such as submarine canyons which are known depositional areas?
x. Will the model run consist of a single model run or will multiple runs be done using different initial state starting conditions?

Reference:

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July 22, 2022

NOAA Fisheries West Coast Region
Attn: Scott M. Rumsey, Acting Regional Administrator
1201 Northeast Lloyd Boulevard, Suite 1100
Portland OR 97232

Re: **Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California**

Dear Dr. Rumsey,

The Ocean Protection Council and California Coastal Commission appreciate the opportunity to provide comments on the Notice of Intent to prepare a Programmatic Environmental Impact Statement for the identification of one or more Aquaculture Opportunity Area(s) in Southern California. We acknowledge and appreciate the enormous effort it took to complete the Southern California AOA Atlas and are impressed by the level of detail and thoroughness throughout the document. However, we would like to offer feedback on several areas that may have been overlooked or could be more thoroughly addressed in the spatial planning effort and also, as requested, are providing the following recommendations for inclusion in the PEIS.

Misalignment with California's ongoing aquaculture planning efforts

In parallel with NOAA's AOA process, the California Ocean Protection Council convened leadership from state resource management, public health, and food and agriculture agencies. This leadership team developed the Guiding Principles for Marine Aquaculture in California[1] designed to increase coordination and transparent decision-making for sustainable aquaculture. These principles push the state to 1) develop and utilize best available science, 2) ensure aquaculture sustainability, 3) build governance and management partnerships, 4) ensure effective aquaculture planning, 5) develop and implement effective aquaculture oversight, and 6) protect public health and food safety. The Guiding Principles were released publicly in June 2021. These Guiding Principles are providing essential near-term guidance and informing the development of a more comprehensive statewide Aquaculture Action Plan (completion projected for early 2023). The Action Plan will create a consistent, science-based framework and policy for marine aquaculture in California that protects habitats, biodiversity and public health while supporting the state's sustainable blue economy. The Plan will focus on marine algae and shellfish in state marine waters and land-based/recirculating tank operations for marine algae, shellfish, and finfish. At present, California does not support development of large-scale, offshore, finfish culture operations. In their current capacity, such operations are not consistent with our efforts to maintain

[1] https://www.opc.ca.gov/webmaster/_media_library/2021/06/Aquaculture-Principles-Public-20210604.pdf

healthy and productive marine ecosystems for all Californians to enjoy. While the creation of the Action Plan was noted in the Atlas's introduction section, the Guiding Principles were not factored into any of the spatial analysis. Again, as stated in our December 2020 letter, we strongly believe that any offshore aquaculture proposed in federal waters, within the Southern California AOA or elsewhere, should be consistent with the Guiding Principles and forthcoming Action Plan.

Data on Tribal usage or cultural significance

Also addressed in our December 2020 letter (which recommended NOAA engage the appropriate tribal governments as early as possible and ensure an inclusive and robust Consultation process under Section 106 of the National Historic Preservation Act) we were surprised to see that no data on tribal lands, historical uses or areas of cultural significance were incorporated into any of the spatial analysis or siting evaluations. We appreciate and recognize that this data may be sensitive or privileged in nature, and this may have prohibited its inclusion but wanted to encourage the incorporation of such data if it were to be made available. The Southern California Bight, which includes the AOA, comprises ocean waters offshore from the ancestral territories of numerous federally and non-federally recognized California Native American Tribes, including but not limited to the Chumash, Luiseño, Gabrielino-Tongva, and Kumeyaay. These tribes have been stewards of California's ocean and coast since time immemorial. We are concerned that the apparent absence of any consideration of tribal use or significance in the analysis of proposed sites which hold cultural significance for Native American tribes will allude to the conclusion that these areas are culturally insignificant. The PEIS should include detail on how tribal consultation informed the designation of specific AOAs, and what steps will be taken to ensure that the AOAs do not adversely affect tribal natural or cultural resources.

In addition to the above concerns, we are providing information and recommendations to address some of the specific areas outlined by NMFS for public input.

1. The scope of the NEPA analysis, including the range of reasonable alternatives described in the NOI.

   We are generally supportive of the current scope of the NEPA analysis that presents a range of alternatives and also considers a broad range of potential impacts. The Coastal Zone Management Act,[2] in particular, recognizes that certain actions have "reasonably foreseeable impacts" that should be considered in the decision-making process. In essence, while the AOA atlas does not offer approval of any specific project, it is reasonable to expect that the publication of these areas and preparation of a PEIS will result in specific project proposals that will have impacts to marine and cultural resources, the benthic environment, and other ocean uses. While there may be some variation in the specificity of these impacts on a project-by-project basis, it is important to provide a high-level analysis of what these may be in order to provide information to the public and other interested parties. This approach (preparing a programmatic EIS) is consistent with a recent Coastal Commission Action that expanded upon the federal agencies NEPA analysis to examine reasonably foreseeable impacts from offshore wind energy areas (siting).[3]

2. Types of aquaculture (*e.g.,* finfish, shellfish, seaweed, integrated multi-trophic aquaculture) that could be supported and/or analyzed.

[2] CZMA § 307 (16 U.S. Code § 1456)

[3] Pg 34: W7a-6-2022-Report (ca.gov).

California does not currently support finfish culture in state waters. Finfish aquaculture can have a variety of factors that require additional consideration and components that could result in potential negative effects to the marine environment including (1) escape of cultured organisms, (2) ecosystem effects, (3) organic pollution and eutrophication, (4) use of chemicals/antibiotics, (5) physical impacts to the seafloor, (6) anti-predation, (7) marine mammal entanglement and (8) additional challenges with monitoring and oversight.[4] As stated in the Guiding Principles, the state's focus is to further develop shellfish and algae aquaculture in state waters in a sustainable and systematic fashion while minimizing associated environmental impacts. Given the likelihood that finfish culture will be proposed, information would likely have to come from operations in other countries as there are currently no finfish farms in California's federal offshore waters to reference. As such, the Southern California Bight's unique physical and biological characteristics might limit the effectiveness of comparisons based on data from outside the Southern California Bight.

3. Potential impacts to biological, physical, social, cultural, and economic resources.

Proximity to heavily populated areas and associated water quality issues.

The coastal land adjacent to the Southern California Bight is one of the most densely populated coastlines in the country, home to two of the largest cities in the United States and the second largest city in Mexico and as such, is challenged by the coastal water-quality issues associated with proximity to such a large human population. While the physical environment in the Southern California Bight is, for many reasons, conducive to offshore aquaculture development, we have some apprehension over siting potential food production facilities in proximity to such a large human population and heavily used coastline. Of note are two of the ten potential sites listed in the atlas within the Central North Study Area. These sites in the Santa Monica Bay have a long, public history of severe run-off and water quality issues from both stormwater runoff and wastewater discharge, including most-recently in July 2021, where 17 million gallons of untreated sewage were discharged into Santa Monica Bay through the Hyperion Water Reclamation Plant's one-mile discharge pipe due to a plant malfunction. Subsequent to this discharge, beaches were closed and the Hyperion Treatment Plant had major difficulties meeting their NPDES permit discharge requirement. The Hyperion plant is one of the largest treatment plants in the world, serving the Los Angeles metropolitan area and its 5-mile-long outfall pipe terminates within the AOA's Central North Study Area. While we appreciate the variety of water-quality data sources used in the atlas, any designation of Santa Monica Bay as an aquaculture area would need to be accompanied by robust environmental monitoring. The need for such monitoring as well as analysis of potential run-off and discharge patterns should be included in the PEIS.

Besides potential issues due to runoff and water quality, aquaculture operations can affect marine wildlife and habitat by aggregating wild fish species; introducing chemicals (e.g. antibiotics, feed contaminants, nutrients, etc.), pathogens or invasive species; creating entanglement risk for marine-mammals and sea turtles; contributing to marine debris problems; damaging or destroying habitat through placement of infrastructure; changing water quality and hydrodynamics; and increasing

[4] For additional information that should be used to evaluate the efficacy of finfish aquaculture operations, please see the Coastal Commission October 2020 comment on the Notice of Intent prepare an Environmental Impact Statement for the Pacific Ocean Aquafarms Project

marine debris, and potential pollution sources. All these issues should be accounted for when considering proposed operations within each of the AOA study areas.

Impacts to pelagic larval and juvenile fishes

It was unclear if the siting and modeling efforts in the AOA atlas accounted for the extent that offshore habitat in the Southern California Bight is critical for larval fish habitat and fish recruitment. While a 500-meter easement surrounding each California Cooperative Oceanic Fisheries Investigations (CalCOFI) sampling station was noted, it may still be insufficient to account for the various non-point sampling methods used to quantify larval-fish and zooplankton, sampling critical to larger-scale, ecosystem-based management efforts. We are also concerned about the potential impact that dense concentrations of cultured marine predators or filter-feeders could have on recruitment of commercially and recreationally important fish and crustacean species with pelagic larval and juvenile phases (i.e. most rockfish (*Sebastes*) species) and recommend incorporating data on larval fish and crustacean abundance as well as modeling potential impacts of large-scale culture of potential predatory species into the PEIS.

Reliance on AIS underestimates potential for vessel interactions with protected species

Potential non-fisheries interactions with the proposed AOA areas were quantified largely using AIS. However, as acknowledged in the document itself, "certain vessels are not required by regulations to carry AIS transponders (e.g., smaller recreational vessels); therefore, not all vessel traffic is represented within the dataset." While we appreciate that this shortfall is stated in the document, there are no suggestions as to how account for smaller, largely recreational, vessel traffic. One possible method to help understand potential for interactions with recreational boaters would be to examine boater registration data as well as proximity to available launch-ramps at all area ports (data may be available from the California Department of Parks and Recreation's Division of Boating and Waterways or USCG). Factoring these data into the PEIS might allow for the creation of a potential-interaction index or score for each of the potential AOA areas.

4. Information related to climate change and climate equity.

   The PEIS should, to the extent feasible, account for potential issues resulting from the increasing pace of climate change and resulting increase in environmental variability within the Southern California Bight and California Current Ecosystem (CCE).

   Generally, the Southern California Bight and the larger California Current Ecosystem fluctuate between relatively cool and warm regimes that differ in their environmental conditions, species composition/distribution, and overall food web productivity. As the CCE cycles between cool and warm regimes, these environmental conditions drive a variety of biological processes, all of which can and will affect species and aquaculture output. Historically, warm and cool phases have been relatively consistent in terms of their accompanying conditions, however, in the face of increased warming and climatic variability, these patterns are becoming more variable, less consistent and harder to predict[5]. Such anomalous environmental conditions can increase the frequency or intensity of disease, parasite, or biotoxin outbreaks including harmful algal blooms[6]; such outbreaks

[5] Sydeman, W.J., Santora, J.A., Thompson, S.A., Marinovic, B. and Lorenzo, E.D. (2013), Increasing variance in North Pacific climate relates to unprecedented ecosystem variability off California. *Global Change Biology*, 19:1662-1675.
[6] Tirado, M.C., Clarke, R., Jaykus, L.A., McQuatters-Gollop, A., Frank, J.M. (2010), Climate change and food safety: A review. *Food Research International*. vol 43, 7:1745-1765.

will have direct and indirect impacts on cultured species. For example, in 2015-16, extremely warm temperatures along the California coast contributed to the unprecedented size and persistence of a harmful algal bloom event that forced closures of the Razor Clam, Dungeness Crab, and Rock Crab fisheries and the resulting economic impacts ultimately led to several federal fisheries disaster declarations[7]. Had there been aquaculture operations in the area, they undoubtedly would have been affected as well. The potential impacts of large-scale environmental changes in the Southern California Bight will need to be factored into the PEIS in terms of modeling risk, potential for interactions with harmful algal blooms, operation siting, choices of cultured species.

5. Potential interactions with protected species, essential fish habitat, and other sensitive habitats.

   Absent of a better understanding of the amount and size of aquaculture operations within the proposed AOA areas, it's difficult to predict potential interactions with protected species, essential fish habitat, and other sensitive habitats. However, the likelihood of negative interactions increases with number and size of offshore structures and equipment. The proposed sizes (500-2000 acres) are larger than all existing offshore and nearshore operations in the United States and highlights the need for more refined analysis within the PEIS as well as improved monitoring within the proposed AOA areas.

   Marine mammal entanglement risks from moored aquaculture gear

   Cetacean species are susceptible to entanglement, injury and mortality due to the presence of vertical lines, ropes and cables in the water column. Considering the amount of data for marine mammal species analyzed in the spatial analysis, there is a notable absence of data on gray whales. While current understanding indicates that gray whales are generally to be found nearshore during their seasonal migrations, considering the bathymetry and coastline of the Southern California Bight, it's not uncommon to find them further offshore as well (for more detail, please refer the NMFS designated Biologically Important Area for gray whale migration in southern California). Considering the current issue of elevated marine mammal entanglements impacting vertical line fisheries along the west coast, we encourage the analysis of all relevant marine mammal data in the PEIS. We also request that the PEIS fully evaluates entanglement risks from potential aquaculture operations and requires measures and design features that would reduce the likelihood of potentially lethal marine wildlife interactions. The PEIS should also describe the potential for secondary entanglement associated with aquaculture facilities and the subsequent risk to marine mammals and turtles. Such measures may include the use of tensioned lines where possible, smaller diameter lines, reduced breaking strengths, regular inspections to identify and repair broken gear, and other best practices for facility maintenance from around the world. Finally, if the PEIS is to rely on facility design and operational maintenance features such as constant line tension and frequent inspection and repair activities by facility operators to help ensure entanglement risks are minimized, a mechanism should be provided for independent monitoring and oversight to help ensure that such measures are being implemented on an ongoing basis and that contingency efforts are immediately taken if they are not. Contingency measures should include use of performance bonds or other dedicated funding that can be drawn on by management agencies to quickly resolve issues that are not adequately addressed by facility operators.

   Potential increased risk of marine mammal – vessel interactions

[7] Bellquist L, Saccomanno V, Semmens BX, Gleason M, Wilson J. 2021. The rise in climate change-induced federal fishery disasters in the United States. *PeerJ.* 9:11186

Another potential impact to be evaluated in the PEIS is the potential for shifts in marine mammal swimming patterns due to avoidance of aquaculture operations. This could potentially result in an increased risk of interactions with ships in the Southern California Bight and lead to an increase in ship strike mortality.

6. Potential interactions with commercial and recreational fishing industries, tourism and recreation, and other offshore ocean users.

   Fishing (both commercial and recreational) are inherently spatially variable activities and current locations where either targeted fish species or fishing activity occurs do not necessarily dictate where such activities or species will occur in the future. This is especially true now, as we are already experiencing increased environmental variability within the Southern California Bight marine environment due in part to anthropogenic climate change. Such variability affects both offshore fisheries and recreational activities (whale watching, etc.) particularly those that target highly migratory species that are not tied to specific habitats but rather base their movements on ephemeral environmental cues such as prey abundance and water temperatures.

   Additionally, new structures in the marine environment can cause safety or navigational hazards, especially to vessels actively engaged in fishing, some of which may be already restricted in movement (such as trawl vessels). There are multiple anecdotal accounts of recreational boating accidents, including one fatality, occurring when boaters ran into structures and gear associated with the failed Catalina Sea Ranch offshore shellfish aquaculture site. The numerous incidents at this one site highlight the need for independent oversight and early engagement in siting potential projects to minimize potential adverse impacts and encourage industry to industry conversations.

7. Independent oversight and regulatory compliance

   As tragically demonstrated by the Catalina Sea Ranch facility's failure, the existing regulatory structure governing marine aquaculture in federal waters does not adequately consider, evaluate and manage day-to-day operations or provide a mechanism for independent oversight. Unlike most other types of similar development in federal waters, marine aquaculture facilities can be installed and operated without federal leases or other legal mechanisms that establish site control and provide a robust regulatory pathway to ensuring that facilities are installed, operated and managed consistent with their designs and the assumptions made during environmental review (including implementation of best management practices and resource protective measures). This situation needs to be comprehensively addressed and resolved prior to development of the proposed AOAs with new aquaculture facilities. Key to this resolution should be a mechanism of providing, funding and transparently providing to public stakeholders and federal, state and local resource management agencies the results of regular independent third-party inspections and assessments of facility operations and regulatory and environmental compliance efforts. In addition, a series of contingency measures to resolve foreseeable operational issues and environmental impacts should be developed and integrated into all relevant facility authorizations to provide a proactive and transparent method of addressing potential challenges along with clearly identified action triggers. In addition to identifying and evaluating potential adverse impacts to environmental and public resources from marine aquaculture development in federal waters, the PEIS should also identify relevant adaptive management and contingency measures and clarify how they will be implemented and ensured.

8. Other information relevant to the Proposed Action and its impacts on the human environment.

California's coastal and marine ecosystems contain a wide variety of habitats, including estuaries, rocky shores, seagrass beds, and kelp forests. These unique places are home to thousands of species of marine plants, invertebrates, fish, seabirds, and mammals. Our state's marine biodiversity provides essential ecosystem services to millions of Californians, helping drive a multibillion-dollar marine economy and has cultural significance to Californians and California Native American tribes. We are working hard to encourage the development of a sustainable marine aquaculture industry in California that can safely coexist with the ecosystem services provided by our marine environments (our Strategic Plan to Protect California's Coast and Ocean 2020-2025[8] includes "Promoting sustainable aquaculture" as an explicit objective), protecting the health of our coastal and marine ecosystems is paramount.

While we believe that an expanded and strengthened domestic open-ocean aquaculture industry holds considerable promise, it should be advanced with an awareness of the unprecedented threats currently facing our coastal and marine environments (climate change, nutrient and plastics pollution, destructive fishing, resource extraction, etc.) and acknowledge the potential for this industry to both contribute to and help alleviate some of those threats. Thank you for consideration of our feedback and we look forward to engaging in many more substantive conversations around the development of aquaculture along the California coast.

Sincerely,

Mark Gold, D. Env.
Deputy Secretary, Coast and Ocean Policy
Executive Director, Ocean Protection Council

John Ainsworth
Executive Director
California Coastal Commission

[8] http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20200226/OPC-2020-2025-Strategic-Plan-FINAL-20200228.pdf

PUBLIC SUBMISSION

As of: 7/22/22 6:09 PM
Received: July 20, 2022
Status: Pending_Post
Tracking No. l5u-9ela-75hg
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0013
Comment from Oceanic Preservation Society

Submitter Information

Email: courtney@opsociety.org
Organization: Oceanic Preservation Society

General Comment

To NOAA Fisheries, regarding Aquaculture Opportunity Areas in Southern California:

As a California-based organization, we urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

In addition, offshore finfish aquaculture pens pose a real threat for the entanglement for a variety of other marine species, including marine mammals. Entanglement and death of endangered monk seal in a fish farm occurred in Hawaii (2017), for instance.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering our comments and our support of the No Action alternative.

Courtney Vail
Campaign Director
Oceanic Preservation Society

PUBLIC SUBMISSION

As of: 7/22/22 6:12 PM
Received: July 20, 2022
Status: Pending_Post
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Document: NOAA-NMFS-2022-0051-DRAFT-0014
Comment from Pahnke, Anthony

Submitter Information

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General Comment

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NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

PACIFIC COAST FEDERATION of FISHERMEN'S ASSOCIATIONS

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July 22, 2022

Scott M. Rumsey
Acting Regional Administrator
NOAA Fisheries West Coast Region
1201 NE Lloyd Blvd #1100
Portland, OR 97232

Submitted online at Docket No. NOAA-NMFS-2022-0051 at http://regulations.gov

RE: *Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California*

Dear Dr. Rumsey,

The Pacific Coast Federation of Fishermen's Associations ("PCFFA") appreciates the opportunity to provide the following comments on the Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California ("PEIS Notice"). Our members are reliant upon fishing grounds located within the proposed AOAs in the Southern California Bight ("Bight") and/or are based in ports/harbors which likely to be directly impacted by future activities leading to offshore aquaculture development

PCFFA is the largest organization of commercial fishermen and women on the West Coast. For forty years, we have been leading the industry in protecting the rights of individual fishermen and fighting for the long-term survival of commercial fishing as a productive livelihood and way of life. PCFFA members include local fishermen's associations from Santa Barbara, California to Alaska.

At the outset, **we fully support and incorporate by reference the comment letters submitted by the Pacific Fishery Management Council ("PFMC") with some exceptions and the Alliance of Communities for Sustainable Fisheries ("ACSF"). We also agree with the sentiments included in the comment letter submitted by the Commercial Fishermen of Santa Barbara** We attempt to be concise and only offer additional comments which are not duplicative of the above referenced letters.

We also very much appreciate all of the work that has gone into the preparation and publication of *An Aquaculture Opportunity Area Atlas for the Southern California Bight*[1] ("Atlas"). One of the shortcomings of publishing the document as a Tech Memo is the lack of opportunity for public feedback on it. As noted in the PFMC's comment letter, there are some deficiencies in the Atlas which would have been identified had fishing industry participants in the area had a chance to review it. We very much appreciate having been contacted by Dr. James Morris during the research phase of the Atlas' preparation. **We recommend engaging with the local fishing industry in order to modify the Atlas so that it contains correct and accurate information.** We do not offer an opinion, at this time, whether updating the Atlas was result in changing locations of the proposed AOAs; but we believe that is a distinct possibility.

We also very much appreciate the process being utilized by NOAA as required under Section 7 of Executive Order 13921 - Promoting American Seafood Competitiveness and Economic Growth[2] ("E.O. 13291"). Subsection (c) of Section 7 requires the Secretary of Commerce in identifying specific geographic areas to "seek to minimize unnecessary resource use conflicts with * * * commercial and recreational fishing * * *." We contend that placing AOAs in the proposed locations will result in unnecessary use conflicts with commercial and recreational fishing. As such, **we recommend that any of the proposed AOAs which affect productive historic fishing grounds, or likely future important fishing grounds given changing ocean conditions, from harvest opportunities, impact navigation and/or vessel or human safety be removed from consideration.**

The PEIS Notice indicates that commercial and recreational fishers **may** be potentially affected user groups. We disagree. Commercial and recreational fishermen and women **will** surely be affected along with employees and consumers within the regional seafood sector who are dependent upon the commercial and recreational fishing industries in the Bight.

We understand this effort is a planning initiative only and continues the scoping process which will inform development of the Programmatic Environmental Impact Statement ("PEIS"). We further understand that this effort does not propose any aquaculture facilities or permits.

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[1] Morris JA Jr, MacKay JK, Jossart JA, Wickliffe LC, Randall AL, Bath GE, Balling MB, Jensen BM, Riley KL. 2021. An Aquaculture Opportunity Area Atlas for the Southern California Bight. NOAA Technical Memorandum NOS NCCOS 298. 485 p. DOI: 10.25923/tmx9-ex26

[2] https://www.govinfo.gov/content/pkg/FR-2020-05-12/pdf/2020-10315.pdf (last visited July 20, 2022)

The PEIS Notice identifies four preliminary alternatives. Alternative 4 is somewhat vague and we recommend that additional clarification be added. It could be read in a way that allows more than 10 AOAs to be designated in the North Study Area and/or Central North Study Area. **We recommend that Alternative 4 be reworded to place a limit on the number of AOAs which could be collectively identified in those study areas at ten.**

In the PEIS Notice, NMFS requests public input on sixteen specific items. We offer the following comments which are in addition to the comments on these specific items included in the comment letters referenced above.

(1) The Scope of the NEPA analysis

As noted above, we recommend Preliminary Alternative 4 be reworded for clarity purposes.

(2) Suitable Species and gear for aquaculture

We recommend that finfish be excluded from consideration. Our organization signed on to a letter to Congress in December of 2018 opposing marine finfish aquaculture in U.S. waters[3]. As stated in that letter, "This emerging industrial practice is incompatible with the sustainable commercial fishing practices embraced by our nation for generations and contravenes our vision for environmentally sound management of our oceans." The letter then provides a lengthy list of reasons why finfish aquaculture should not be considered in U.S. waters including but not limited to, economic burdens, marine pollution, and farmed fish escapes. The reasoning and rational provided therein is equally applicable today.

In the event NOAA moves forward with considering finfish for farming in the Southern California Bight, **we recommend that no non-native finfish stocks be considered**.

In terms of non-finfish forms of aquaculture, we are very concerned about the propagation of non-native species. The risk of introducing potentially invasive species into the California Current Large Marine Ecosystem is too great the absolute certainty that there is no possibility of these non-native shellfish or macroalgae spreading beyond the confines of the facility.

(4) Types of Aquaculture

Based on the above, **we recommend that finfish be excluded from the analysis and not be supported**.

(5) Potential impacts to biological, physical, social, cultural, and economic resources.

[3] See - 2018-12-3-Aqua-fishing-industry-letter_final_signed-by-139.pdf (netdna-ssl.com). Last accessed July 20, 2022.

Commercial fishing is deeply embedded in the culture of the areas near the AOAs. In 2019, the Santa Barbara Port Complex[4] accounted for 14,424,189 pounds of seafood with ex-vessel revenues of $24,142,390[5]. Only the Eureka Port Complex has higher ex-vessel revenues amongst the State's nine different port complexes.

Aquaculture developments within the AOAs will have economic consequences to commercial fishermen and women operating in the area. Two of the most important assets these harvesters possess are their permit(s) and vessel(s). Most, if not all, of the fisheries which operate in the area are limited entry. Meaning that a harvester must have a permit to prosecute that fishery. The loss of productive grounds will necessarily result in the diminution of the value of those permits. Commercial fishery participants use fishing vessels that are typically designed and outfitted to participate in a specific fishery utilizing a specific gear type. These assets will also decline in value with any decline in access or fishery production. Any attempt to mitigate will also come at significant cost of limited entry permits to gain access, as well as new vessels or reconfiguration of their current vessels to utilize different gear types.

(11) Potential interactions with commercial and recreational fishing industries, tourism and recreation, and other offshore ocean users.

As noted above, there will be interactions with the commercial and recreational fishing industries. These will be in the form of loss of fishing grounds, loss of direct navigational routes and increased risk of safety concerns to fishermen and women and their vessels. **We recommend that NOAA engage with the local fishing industry to understand and address these concerns.**

(12) Information on other current or planned activities in, or in the vicinity of, the areas described in this NOI and their possible impacts on aquaculture development, or the impact of aquaculture developments on those activities.

The fishing industry in Southern California is facing threats from a number of sources, many of which are mentioned in the letters reference above. In October of 2020, Governor Newsom executed Executive Order N-82-20[6] which established "the goal of the State to conserve at least 30 percent of California's land and coastal waters by 2030." In January of 2021, President Biden executed Executive Order 14008[7] - Executive Order on Tackling the Climate Crisis at Home and Abroad. Section 2016 of that Executive Order set a "goal of conserving at least 30 percent of our lands and waters by 2030." Neither Executive Order defined "conserve". To the extent "conserve" is interpreted to exclude commercial fishing activities, the fishermen and women utilizing areas near the proposed AOAs will feel the cumulative effects of these actions. This in addition to offshore wind developments, offshore

[4] The Santa Barbara Port Complex consists of Port Hueneme, Oxnard, Ventura, Santa Barbara, and Gaviota Beach.
[5] See - California Department of Fish and Wildlife - Table 15 - Poundage and Value of Landings of Commercial Fish into California by Area - 2019 Table 15 2020 CFLs (ca.gov). Last accessed July 19, 2022
[6] 10.07.2020 EO N-82-20 (ca.gov). Last accessed July 20, 2022
[7] Executive Order on Tackling the Climate Crisis at Home and Abroad | The White House

gas and oil developments, fiber optic, and other, cables, Marine Protected Areas, National Marine Sanctuaries, Department of Defense activities in and around Point Mugu and Vandenburg Space Force base, etc. **We recommend that NOAA analyze the cumulative impacts of all of these external pressures and impacts on the local fishing industry and wild-capture seafood economy.**

We thank you for your consideration of these comments and are available to discuss any of the above at your convenience.

Sincerely,

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Pacific Fishery Management Council

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22 July 2022

Dr. Scott M. Rumsey
Acting Regional Administrator
NOAA Fisheries West Coast Region
1201 NE Lloyd Blvd #1100
Portland, OR 97232

RE: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Dear Dr. Rumsey,

The Pacific Fishery Management Council (Council) submits the following comments in response to the National Oceanic and Atmospheric Administration (NOAA) Notice of Intent (NOI) to prepare a Programmatic Environmental Impact Statement (PEIS) on the Southern California Aquaculture Opportunity Areas (AOAs).

The Council is one of eight Regional Fishery Management Councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA). The Council is charged with sustainably managing West Coast fisheries and the habitats upon which they depend and develops fisheries management actions for Federal fisheries of Washington, Oregon, California, and Idaho. The Council is required to achieve optimum yield for public trust marine fishery resources, which requires sustainably managing these resources, their habitats, and the fishing communities that rely on their harvest.

The Council very much appreciates the approach NOAA is taking in this planning initiative and supports the programmatic approach to environmental impact analysis. We understand the resulting Draft PEIS will address an initial programmatic decision and analysis and establishes a tiering process for subsequent decisions to be made that are supported, in part, by the analysis detailed in the PEIS. Seeking stakeholder engagement before siting decisions are made will allow the public to have confidence that their voice is heard as the process unfolds, which will support an informed decision-making process, consider a reasonable range of alternatives, and review the environmental impacts of the Proposed Action.

Council Authorities and Responsibilities

Essential Fish Habitat

The Council is particularly focused on actions that may adversely affect the essential fish habitat (EFH) of Council-managed species. The MSA requires the identification, conservation, and enhancement of EFH for species managed under the Council's fishery management plans (FMPs). The MSA authorizes the Council to comment on actions that may affect the habitat, including

EFH, of a fishery resource under its authority (Section 305(b)(3)(A)) and requires the Council to comment on actions that are likely to substantially affect the habitat of an anadromous fishery resource under its authority (Section 305(b)(3)(B)).

Consistent with 50 CFR 600.10, the Council describes EFH conservation measures in its FMPs. The Pacific Coast Groundfish FMP describes Essential Fish Habitat Conservation Areas, which are spatially discrete areas of particularly sensitive or productive benthic habitats where fishing with some or all types of bottom-contact fishing gear is prohibited. The MSA also authorizes the Council to designate habitat areas of particular concern (HAPC), a subset of EFH, and therefore subject to consultation, based on one or more of the following considerations:

(i) The importance of the ecological function provided by the habitat.
(ii) The extent to which the habitat is sensitive to human-induced environmental degradation.
(iii) Whether, and to what extent, development activities are, or will be stressing the habitat type.
(iv) The rarity of the habitat.

HAPC designations for Pacific Coast Groundfish include rocky seafloor, canopy kelp, seagrass, estuaries, and unique areas such as seamounts and canyons. HAPC designations for Pacific salmon include kelp, estuaries, spawning habitat, submerged aquatic vegetation, complex flood channels and thermal refugia. Many other important habitat features are included in the overall description of EFH, including methane seeps, sand, mud, and coral/sponge habitats.

MSA National Standards
The MSA includes ten National Standards (NS) that are principles to be followed in any FMP to ensure sustainable and responsible fishery management. NMFS has developed regulatory guidance for the ten National Standards (50 CFR Part 600 Subpart D). With those standards in mind, the Council **recommends** that the analysis of the effects of offshore aquaculture activities on fishery resources consider:

- The effects of the proposed action on the ability of fisheries to continue to achieve optimum yield from managed wild fish stocks (NS1 – 50 CFR § 600.310).
- The effects of the proposed action on the sustained availability of fishery resources to fishing communities near any proposed or designated AOA, and on the sustained participation of those fishing communities in fisheries (NS8 – 50 CFR § 600.345).
- The effects of the proposed action on fishing vessel safety of navigation and safety of human life at sea (NS10 – 50 CFR § 600.355).

Scope of Council Comments
The NOI describes the proposed action identification of geographically discrete areas within Federal waters off the coast of Southern California that would be suitable to site future aquaculture development. It further outlines four preliminary alternatives, one of which is the No Action Alternative.

NOAA seeks comments "*concerning the scope of the proposed action, its potential impacts to the natural and human environment, means for avoiding, minimizing, or mitigating potential impacts, the range of preliminary alternatives proposed in this notification, and any additional reasonable alternatives that should be considered within the Southern California Bight*." Additionally, NOAA

is requesting public comments on 16 specific items. The Council provides the following comments on several items that are particularly relevant to Council mandates and authorities.

(1) The scope of the National Environmental Policy Act (NEPA) analysis, including the range of reasonable alternatives described above

Again, the Council appreciates NOAA's thoughtful approach with this effort. The Council fully supports the preparation of a PEIS and considers the preliminary alternatives to appropriately represent the range of potential alternatives. As we understand the scope of the PEIS, it would not include designating areas outside the boundaries of the North or Central North Study Area Selected Site Options (SSOs), although alternative areas within those Study Areas could be proposed. We offer our comments with that understanding. The Council **recommends** that the scope of the NEPA analysis be comprehensive in nature and include the following social, economic, ecological, and environmental effects for seaweed, finfish or shellfish mariculture. These effects are further discussed in the relevant sections of this letter:

- Physical effects on seafloor habitats and benthic organisms through disturbance from anchoring systems, shading, smothering, scouring, etc.;
- Physiological effects on benthic organisms and to benthic community composition from increases in organic nutrient loads and eutrophication from excess feed, excrement, etc.;
- Changes in hydrodynamics caused by facility infrastructure (e.g., reduced current velocity, altered circulation patterns);
- The cumulative and synergistic effects of aquaculture when coupled with climate-induced ocean changes;
- Chemical contamination from therapeutants, antimicrobials, antifoulants, algaecides, pesticides, etc.;
- Changes in water chemistry from feed and metabolic waste (e.g., phosphorus, nitrogen, turbidity, dissolved oxygen);
- Spread of antimicrobials, etc. to wild stocks;
- Transmission of disease to wild stocks and/or other native species in the ecosystem;
- Effects of cultivation and introduction of non-indigenous species on wild, native species and habitats;
- Escape of cultured (native and non-native) seaweed/kelp gametes, colonizing and affecting wild seaweeds/kelps. Recent catastrophic collapse of kelp forests coastwide indicate wild kelp populations are a vulnerable resource that could be further compromised by genetic mixing and competition from cultured species operations;
- Escape of cultured (native and non-native) finfish, progeny, and gametes; predation on or colonizing wild fish stocks, including interbreeding with wild fish, decrease in genetic diversity and resilience; and competition for habitat and food;
- Escape of cultured (native and non-native) shellfish, progeny, and gametes;
- Escape of genetically modified fish, shellfish, or macroalgae. California prohibits transgenic species without a restricted species permit (T14 671(c)(11)). Further, these permits are only issued for transgenic species held in CLOSED systems (T14 671.1(a)(8)(A));
- Attracting and concentrating predators of wild fish stocks and other species (sharks, marine mammals, seabirds);

- Attracting wild fish to the site, possibly reducing fishing access to those fish. Conversely, attraction and crowding can affect reproduction, movement, and migration, resulting in increased capture rate;
- Entanglement of marine mammals, seabirds and turtles in floating and hanging lines and other gear associated with any installations, and increased risk of vessel strikes, and how impacts to these fisheries-constraining species could affect Council and non-Council managed fisheries;
- Effects of marine debris (nets, lines, cages, etc.) on fish and shellfish species, habitats, fishing gear, and navigational safety;
- Anchored mooring systems are at risk for breakage during frequent and severe regional storms, potentially damaging rocky reefs and creating navigation hazards;
- Social and economic losses to current users, including commercial and recreational fisheries, and other recreational users, including passenger excursions.

(2) Suitable species and gear for aquaculture

The Council has serious concerns about the potential introduction of non-native species (fish, shellfish and macroalgae) into waters of the California Current Large Marine Ecosystem, and the potential effects on native species. Top among our concerns is the risk these species pose, including disease transmission, competition for resources, and interbreeding. Additional concerns are noted above under scoping. Many harvesters and stakeholders are not in favor of non-native species being propagated in the Southern California Bight. For these reasons, the Council is very concerned about the cultivation of any non-native species (finfish, shellfish, or macroalgae), or inclusion of these species in the PEIS. The PEIS should include detailed analysis of effects associated with the presence and propagation of non-native species.

To avoid and minimize potential impacts, gear should have as small a surface footprint as possible. Safety should be of paramount importance and all necessary steps must be taken to ensure mariner and public safety. For example, grow lines for shellfish operations should be weighted and incapable of floating to the surface should they break free from any mooring systems. Buoys should be marked and lit in compliance with United States Coast Guard requirements for navigational safety buoys, and the locations should be made readily available to the maritime community via the Local Notice to Mariners and communicated to coastal and fishing communities in the Southern California Bight.

All potential gear types should be analyzed for potential impacts to habitat, fish/shellfish species, protected species, the California Current Ecosystem, safety, and navigation. Best practices regarding gear configurations, deployment and maintenance should be followed to avoid impacts, including those identified above. If finfish aquaculture is proposed for individual projects covered by this PEIS, net pens should undergo greater scrutiny than shellfish or macroalgae projects due to the risk of damage and escapement. They should be rigorously tested for their ability to withstand severe ocean conditions or other circumstances that could damage the integrity of the net pens and risk escapement of cultured fish, such as the catastrophic escapement of net-pen farmed Atlantic salmon in Puget Sound in 2017. Additionally, NOAA should consider requiring double walls and/or other requirements to minimize the possibility of escapement. Current finfish technology utilizes underwater cages that appear to be less prone to failure.

The Council is also concerned that offshore aquaculture operations could result in an increased presence of marine debris from lost equipment, which can pollute and impact the surrounding marine environment, including nearby coral and sponge habitat, fish nursery grounds, or other important or sensitive habitat features. The Council **recommends** the PEIS adequately analyze the risks of marine debris and include a requirement for a Marine Debris Management and Monitoring Plan to minimize the risk of aquatic pollution. Such a plan should also include unique marking or branding of all aquaculture gear with contact information. If consistent discoveries of certain gear types are found, the project should evaluate and implement use of alternative gear types or practices that would reduce these consistent sources of debris.

NOAA should also consider insurance, bonding requirements, or other financial guarantees to ensure a project operator will have funds available for any necessary gear cleanup and/or any damages resulting from escape. The PEIS should evaluate the appropriate amount of insurance, bonding, or financial guarantee.

(3) Suitable reporting requirements for owners and operators of aquaculture facilities

Project applicants should be required to regularly and publicly report on all aspects of the operations, functions, impacts, and problems associated with site surveys and characterization, facility construction and maintenance, as well as decommissioning activities. In addition to regularly scheduled monitoring and reporting, project applicants should be required to immediately report any interactions or accidents such as interactions with non-project vessels and/or gear deployed by those vessels, marine wildlife, any loss of aquaculture gear or other infrastructure associated with the facility, high mortality or escapement of species being propagated, efforts to recover escaped species (see comments under Item 2 above), accidental release of contaminants, excess feed or waste material, etc.

Aquaculture facilities should also be required to report the details of aquaculture project production, including species, weight, product form (frozen, fresh, filleted, round, etc.), and to the extent possible, the destination markets of aquacultured product. This information will help to understand the potential effects on wild-caught fisheries and markets.

Project applicants should be required to regularly monitor the facility and operations. This monitoring, at a minimum, should include visual inspections of all ropes, cables, and equipment to help determine if any entanglement of marine wildlife has occurred, to document the as-built condition of the facility, and to ensure that: (a) no part of the facility has been broken, lost or unintentionally removed; (b) all longlines, anchor lines, buoy lines, grow lines, or any other lines utilized by the facility remain taut and in good working condition; and (c) any derelict fishing gear or marine debris that collects on the facility is removed and disposed of at an appropriate onshore facility.

The Council **recommends** that the PEIS analyze the feasibility and the need of requiring a comprehensive long-term Operations and Monitoring plan for identifying operational issues that could cause adverse effects to water quality, wild marine species, and benthic habitat. This monitoring plan should be developed in conjunction with the appropriate Federal and State permitting agencies. Monitoring measures should be described with sufficient detail in the PEIS to support the evaluation of monitoring plans proposed by project applicants. The Council

recommends adding that owners/operators study new technologies and propose alternatives that reduce or prevent discharge of uneaten feed or metabolic waste.

To assess whether aquaculture facilities are causing an effect on environmental conditions will first require obtaining substantial baseline information on water quality, ocean dynamics, species composition and age class, and habitat characterization at the AOAs. The Council **recommends** an Environmental/Species Baseline Assessment Plan be required in addition to a Monitoring Plan with spatial coverage beyond the proposed lease area to account for drift effects. The Council also **recommends** that baseline information be gathered seasonally and for a minimum of two years to account for natural variability. Similarly, post-project monitoring should also account for seasonal and annual variability for species and oceanographic conditions. The monitoring plan should also be used to assess whether the proposed setbacks from EFH HAPCs, deep sea coral and sponges, and hard bottom habitat are sufficient to avoid impacts to those sensitive habitats. Additionally, the Council **recommends** the PEIS include a detailed mitigation and adaptive management plan that can be immediately implemented if impacts to water quality, marine species, or benthic habitat are observed during monitoring.

(4) Types of aquaculture (e.g., finfish, shellfish, seaweed, integrated multi trophic aquaculture) that could be supported and/or analyzed

Integrated multi-trophic aquaculture contemplates propagation of multiple aquatic species from different trophic levels are farmed in an integrated fashion to improve efficiency, reduce waste, and provide ecosystem services, such as bioremediation. While this may be appealing in a controlled environment, we remain concerned about prevailing currents and sea states in the SSOs which may not lend themselves to such an approach. The benefits of finfish multi-trophic aquaculture systems, primarily characterized as reducing the net discharge of organic wastes leading to subsequent oxygen drawdown via water column respiration, and efficient trophic transfer directly among culture species, are entirely dependent on details of the aquaculture systems, species, growth conditions, and site hydrography that are far from standardized in the nascent field of multi-trophic aquaculture. Most implementations of these approaches are still experimental and unproven at commercial scales. The effects of multi-trophic mariculture are likely to include disease transmission, attraction of wild species, biofouling, mechanical or chemical control, and other impacts associated with more common ocean aquaculture operations. The Council **recommends** that before finfish multi-trophic aquaculture is considered, the project proponent(s) be required to show proof of concept. The proposed PEIS may not be appropriate for experimental industries such as finfish multi-trophic aquaculture, where outcomes and impacts are not well-established, and have not been tested on the U.S. West Coast.

(5) Potential impacts to biological, physical, social, cultural, and economic resources

This section describes some (but not all) of the potential biological and physical impacts we identified under Item #1 (Scope). While these comments and recommendations are focused on the operations of aquaculture facilities, they are also applicable to pre-construction surveys, site characterization, and decommissioning activities.

Impacts to Water Quality, Benthic Habitat, and Ocean Conditions

The Atlas identified biologically important and sensitive habitats that were deemed unsuitable for AOA development. To minimize potential impacts, the Atlas considers setbacks from certain

habitats or management areas: rocky reef EFH HAPCs with a 500-ft setback, deep sea coral and sponge observations with a 500-m setback, hard bottom habitat with a 500-ft setback, fish havens with a 500-ft setback, and National Marine Sanctuaries. However, the Council is concerned that the proposed setbacks may be insufficient to protect these sensitive habitats. Nutrient enrichment from fish and shellfish excrement and excess feed can result in benthic algal growth, harmful algal blooms, oxygen depletion of the water column and underlying sediments, smothering of benthic invertebrates, and other detrimental impacts to benthic communities and habitat (Holmer 2010; Wilding 2012; Price and Morris 2013). Nutrient enrichment from aquaculture projects can further intensify existing threats to marine ecosystems, including increasing acidic and hypoxic ocean conditions (Cai et al. 2011, Kessouri et al. 2021). Of particular concern among climate scientists is the potential for cumulative and synergistic effects of hypoxia and ocean acidification. Organic nutrient load is an important driver in ocean acidification and hypoxia processes, and finfish mariculture projects should be scrutinized as they can introduce substantial amounts of organic material depending on production volume, both individually and cumulatively. In fact, the Environmental Protection Agency now prohibits discharges of offshore seafood processing waste in nearly 3,770 square miles on the continental shelf off Oregon and Washington after concluding that seafood processing waste has the potential to exacerbate hypoxia in the region (EPA NPDES Permit No. WAG520000). The Council **recommends** adding the water quality requirement recently imposed by Washington Department of Ecology that owners/operators study new technologies and propose alternatives that reduce or prevent discharge of uneaten feed and metabolic waste.

The Council is also concerned with impacts on water quality and sensitive habitats from the use of pharmaceuticals, such as antimicrobials and antifungals, and other pollutants and/or chemicals such as antifoulants, algaecides and pesticides. Some materials used in aquaculture gear, such as those designed to prevent or control biofouling, can leach into the surrounding water and be harmful to marine resources or the surrounding ecosystem. Additionally, impacts to water quality and benthic habitat could occur during transportation and mooring of aquaculture support vessels, from spills of oil and other hazardous material, or from scouring of benthic habitat from vessel anchors.

The Council **recommends** the PEIS analyze all potential impacts to water quality, species, benthic habitat, and the surrounding ecosystem associated with different aquaculture proposals (e.g., gear types, species) and at various spatial configurations and scales to determine the type, spacing, and scale of projects that will be the least impactful and most compatible with marine resources. The analysis should address impacts noted above throughout these comments. The PEIS should examine whether a 500-foot buffer around sensitive habitats (e.g., rocky reef HAPC, coral/sponge habitat, kelp beds, etc.) is sufficient to prevent impacts to these resources. The Council **recommends** the PEIS describe siting decisions, gear types, and best management practices that future aquaculture operations will use to avoid and minimize the effects noted above; as well as analyzing.

Offshore aquaculture can also cause changes in ocean conditions by reducing current velocity and altering circulating patterns (Stevens et al. 2008; Lin et al. 2016). There remains a need to better understand the effects of finfish, shellfish, and macroalgae offshore aquaculture facilities on ocean hydrodynamics. Given the large size of each discrete AOA (between 500-2,000 acres), and the

potential for AOAs to be sited in a single, continuous geographic space, aquaculture infrastructure will likely alter circulation patterns and current speeds. Changes in local hydrodynamics caused by aquaculture infrastructure could exacerbate stressors that are already impacting offshore and coastal habitats, such as hypoxia, ocean acidification, marine heat wave events, and ocean warming. Impacts to currents and circulation patterns can also lead to changes in sedimentation and larval transport and dispersal. The Council **recommends** the PEIS analyze potential impacts of aquaculture infrastructure and gear on the surrounding ocean conditions and how that is predicted to be exacerbated by climate change.

Monitoring of Water Quality, Habitat and Ocean Conditions
As discussed under Item #3 (Reporting), the Council **recommends** that the PEIS require a comprehensive long-term Environmental Monitoring Plan to identify operational issues that could cause adverse effects to water quality, wild marine species, and benthic habitats.

Fish Escapes, Naturally Occurring Toxins, and Introduction of Non-native Species, Pathogens, and Parasites
Of significant concern is the escape of cultured species into the wild, and the potential for unintended introduction of a non-native fish, shellfish, and macroalgae species, which could cause significant impacts to native species and habitats. Escaped cultured fish may interbreed with wild fish and thereby decrease the genetic diversity of wild populations, compete with wild fish for important habitat and food resources, consume native species as prey, and increase the risk of disease transmission to wildlife (Holmer 2010). If fish are grown to maturity, escaped eggs and larvae can also disperse into the environment (Jørstad et al. 2008, Uglem et al. 2012, Holmer 2010). Pathogens associated with cultured fish may be transmitted to wild populations, an impact that could persist within native populations even if escaped cultured fish are unsuccessful at establishing reproductively viable populations (Mordecai et al. 2021; Morton et al. 2017). In 2018 net pen aquaculture of non-native fish was banned in the state of Washington after a massive escapement of Atlantic salmon. Similar legislation is proposed in British Columbia, largely due to the risks of non-native fish escapes and transmission of diseases. Suspended culture sites may also facilitate introduction or spread of invasive species. This has been demonstrated extensively in suspended bivalve aquaculture (McKindsey et al. 2011). There is also risk of escapement of cultured species and pathogens during transportation of live and processed products to and from the AOAs.

Depending on the time of year and ocean conditions, there can be algal blooms resulting in saxitoxin (Paralytic Shellfish Poisoning). Also, in California domoic acid is monitored due to Amnesic Shellfish Poisoning concerns. Both toxins are monitored by the California Department of Public Health, Environmental Management Branch Marine Biotoxin, and Phytoplankton Monitoring Programs[1]. These are just a couple of the naturally occurring toxins which can cause consumer illness[2]. Harvests could be shut down due to red tides and Paralytic Shellfish Poisoning, or the presence of high levels of domoic acid in seafood, which is shown to disproportionally

[1] See - Shellfish Program (ca.gov)
[2] A more complete list can be found here - Fish and Fishery Products Hazards and Controls Guidance Fourth Edition – August 2019 Chapter 6: Natural Toxins (fda.gov)

impact small-scale fishers[3]. The Council **recommends** the PEIS consider the potential impacts of naturally occurring harmful algal blooms on farmed species and on human consumers.

The Council **recommends** that the PEIS evaluate how AOA operations will avoid, minimize, and respond to fish escapement at the facility and during transport of live and processed products to and from the AOAs. The PEIS should analyze the potential impacts from accidental introduction of non-native species (fish, shellfish, and macroalgae) into the marine environment and the impacts from potential introduction of new pathogens or parasites that these species may carry.

Impacts to social and economic resources
The PEIS should analyze social and economic impacts to current users, including commercial and recreational fisheries, and other recreation activities such as sailing, whale watching and other passenger excursions, and other maritime operations not covered above. The Council recognizes that some economic impacts may not be readily calculable, for example opportunity costs and recreational values. Increased fuel consumption by vessels having to avoid the AOAs will increase the carbon footprint (climate cost) in addition to higher expenditures on fuel. The PEIS should also analyze changes in both supply and demand for current seafood products, with particular attention to consumer preferences in the geographic areas in and around the AOAs. Any loss of locally sourced, wild-capture seafood may have a negative impact on the local seafood economies in those areas. Additionally, the potential loss of market value of wild-capture finfish due to new competition from cheaper farmed finfish should be analyzed as well.

Cumulative Effects
The Council **recommends** the PEIS evaluate the potential cumulative effects from multiple aquaculture projects within the AOAs as well as with other ongoing and foreseeable activities in the project area. Other proposed aquaculture projects offshore of southern California include Pacific Ocean Aquafarms, Ocean Rainforest, and Avalon Ocean Farm. Other activities that should be included in the cumulative effects analysis include, but are not limited to, navigational channel maintenance dredging, future renewable energy projects, and subsea cable installation. Additionally, the cumulative effects analysis should consider the potential environmental impacts to sensitive habitats and species from concentrating fishing effort that has been displaced outside of AOAs.

(8) Information related to diversity, equity, and inclusion in aquaculture and the seafood sector

The Council very much appreciates NOAA's commitment to diversity, equity, and inclusion, and supports the need to ensure that the aquaculture and seafood sectors are part of those discussions. The fishing, processing, and related industry sectors depend on a diverse workforce, and the Council supports recognition of the entire seafood industry and the impacts to the businesses and employees, in considerations of AOAs. Other proposed offshore activities that could or would impact these sectors often neglect to include the fishing, processing, and related sectors in planning processes.

[3] Jardine, Sunny L., et al. "Inequality in the economic impacts from climate shocks in fisheries: the case of harmful algal blooms." *Ecological Economics* 176 (2020): 106691.

Specifically related to diversity, equity, and inclusion in aquaculture and the seafood sector are concerns surrounding the marketing of the catch. As NOAA considers the economic feasibility of offshore aquaculture, NOAA should be communicating with the California Department of Public Health, Environmental Management Branch and the Food and Drug Administration's Division of Seafood Safety[4]. These agencies can advise on processes in place that are implemented when toxins reach certain action levels, warnings and quarantines are issued to protect the recreational fishing public and shellfish consumers.

(10) Potential interactions with protected species, essential fish habitat, and other sensitive habitats

The Atlas provides information on areas important to humpback whales in Table 2.3. Table 2.4 identifies ESA-listed species providing their status and population trend. Table 2.5 identifies marine mammals protected under the Marine Mammal Protection Act. The North Study Areas SSOs lie within the Santa Barbara Basin Important Bird Area.

The Atlas specifically mentions critical habitat for black abalone, seagrasses, and humpback whale. The Council **recommends** analysis of other potentially applicable critical habitats for the species identified in Table 2.4 and inclusion of potential impacts to the Southern California Distinct Population Segment (DPS) of steelhead. Critical habitat for the Southern California DPS of steelhead includes the Ventura River, Coyote Creek, and the Santa Clara River. The close proximity of the North Study Areas SSOs to the mouths of those rivers could impact the steelhead's abilities to return to the river to spawn. As noted in Table 2.4, white abalone is listed as endangered under the Endangered Species Act (ESA), but no critical habitat has been designated[5]. White abalone live on rocky substrates alongside sand channels, which tend to accumulate the algae they eat. They are usually found at depths of 50 to 180 feet, making them the deepest living abalone species. Historically, white abalone were found in the Pacific Ocean from Point Conception, California, to Punta Abreojos, Baja California, in Mexico[6]. Blue whales are also listed as endangered under the ESA, and there is currently no critical habitat designation for the blue whale. This does not violate the ESA, as it is not required to identify critical habitat for species listed prior to 1978. The Atlas acknowledges that blue whales are known to occur in the Southern California Bight. Stakeholders have noted that blue whales frequent areas near the North Study Areas Selected Site Options.

When discussing NMFS Protected Resources, the Atlas appears to have limited its analysis to highly vulnerable protected species (Atlas, page 23) "so there are a number of protected species, especially marine mammals, that were excluded. Those species will need to be considered during the PEIS stage to determine overall suitability of potential AOA options." Of the species listed on Table 2.5, the following are known to frequent both SSOs: harbor seal, California sea lion, eastern North Pacific gray whale DPS, and all of the dolphin species listed except the coastal bottlenose dolphin. The Draft U.S. Pacific Marine Mammal Stock Assessments: 2021[7] removes all references

[4] https://www.fda.gov/media/85073/download

[5] NOAA Fisheries has determined that it is not prudent to designate critical habitat because identification of such habitat is expected to increase the threat of poaching for white abalone. See 66 FR 29046 (2001)

[6] See - White Abalone | NOAA Fisheries

[7] See - Draft 2021 Pacific SARS.pdf (noaa.gov)

to coastal bottlenose dolphin. We suggest clarifying or explaining the status of the coastal bottlenose dolphin.

Interactions of aquaculture structures and support vessels with protected species can be detrimental to their existence. As these species also tend to constrain fisheries, impacts to protected species can further constrain fishing. These impacts include changes in migratory patterns which make co-occurrence with fishing gear more likely than in the absence of aquaculture structures. The PEIS should attempt to quantify the potential for interactions with, and impacts to, protected species and consider this in their final selection of AOAs.

(11) Potential interactions with commercial and recreational fishing industries, tourism and recreation, and other offshore ocean users

There will necessarily be interactions and impacts to the commercial and recreational fishing industries. These may range from the significant, such as the loss of access to important fishing grounds, to the insignificant, such as having to alter course slightly to get to your intended destination. The impacts will differ depending on the fishery and the sector. For example, tuna or swordfish harvesters based in the area will not likely be displaced from fishing grounds, but the North Study Areas SSOs are located on grounds important to highly migratory species fishermen targeting thresher sharks as well as non-highly migratory species fishermen targeting ridgeback prawn, sea cucumber, California halibut, coastal pelagic species, and other fisheries. Before the decline of the salmon fishery, those areas were important to salmon trollers. The impacts will be felt by the commercial and recreational fishermen and women as well as by members of the fishing and coastal communities which are dependent upon their activities. We note, as was highlighted in the Atlas, commercial fishing is not allowed in the Central North Study Area, with limited exceptions.

Data Improvement

We appreciate the thoroughness of the Atlas and the amount of work that went in to preparing the document. We do, however, have some recommendations for how the data utilized in the Atlas can be improved upon:

- Vessel traffic was a consideration in identifying the AOAs. The Atlas correctly states that Automated Identification Systems (AIS) are required on fishing industry vessels. However, the Atlas misstates those requirements when it says, "fishing industry vessels of various size and tonnage are required to carry AIS transponders to support commercial fishing and fish processing." Coast Guard regulations require AIS on commercial fishing vessels 65 feet or more in length[8]. This requirement went into effect on March 1, 2016[9]. Based on input from fishermen in the area, the vast majority of commercial and recreational vessels which utilize the area in and around the AOAs are less than 65 feet in length, and thus not required to have on board an operational AIS. Reliance on AIS data likely underestimates the amount of fishing industry vessel traffic in the Study Areas. The Council **recommends** NOAA engage with local commercial and recreational fishery participants in an effort to gain a better understanding regarding the use of the Study Areas by commercial and recreational fishing vessels.

[8] 33 CFR §164.46
[9] 33 CFR §164.46(j)

- The Atlas states that fishing vessel transits in 2019 in the North Study Area are focused from the harbors of Ventura, Santa Barbara, and Channel Islands (Atlas p 60). This fails to capture the importance of Port Hueneme to the commercial fishing industry. 2010 – 2019 landings and ex-vessel revenues coming into Port Hueneme are provided in the table below[10]:

Year	Pounds	Ex-vessels revenues
2019	3,294,274	$2,514,511
2018	13,908,010	$8,264,201
2017	35,936,403	$18,481,438
2016	17,224,213	$9,300,002
2015	17,886,149	$5,849,371
2014	34,677,838	$11,507,240
2013	36,324,835	$11,923,632
2012	36,791,416	$10,707,442
2011	58,916,159	$14,768,970
2010	60,385,096	$17,985,224

The vast majority of offloads into Port Hueneme consists of market squid and other coastal pelagic species.

- Throughout the Atlas, vessel monitoring system (VMS) datasets are used to identify where certain types of commercial fishing activity occurs. The VMS data provided only covers 2010 – 2017. The Council **recommends** including more recent datasets for VMS and other fishery datasets incorporated into the model[11]. We are also concerned that VMS data is provided for two fisheries which are not prosecuted in the Southern California Bight – the Pink Shrimp Trawl fishery and the Dungeness Crab Trap or Pot Gear fishery; and references VMS data for fisheries for which VMS is not required - for example, sheephead trap or pot gear and Dungeness crab trap or pot gear. Table 3.5 references VMS dataset 269 – "A gear that is not listed above." Examples of gear types that would fall under this category would be helpful.

- In the North Study Areas there would be conflicts with commercial passenger fishing gear and private boat fishing operations, especially in waters deeper than 100 meters. These areas have become more accessible to anglers lately because of changes in regulations, in addition to improvements in fish finder and fishing gear technology.

- The Council is generally aware of ecotourism which takes place in and around the North Study Areas, particularly whale watch excursions. It does not appear that the Atlas captures those operations or associated vessel traffic.

[10] Values from CDFW Final California Commercial Landings, Table 19 PUB - Poundage And Value Of Landings By Port, SANTA BARBARA Area for each year, 2010 – 19. See - Final California Commercial Landings

[11] A number of datasets incorporate data up to and including 2019. These should be expanded to cover 2021 (or 2022 for those fisheries for which that data is available. For example – commercial passenger fishing vessels, CRFS, Observer data, microblocks for market squid and lobster.

- This above results in less confidence in the analysis provided in terms of potential impacts to fisheries and fishing communities. As such, the Council **recommends** NOAA engage with the local commercial and recreational fishing industries in an effort to validate and correct the datasets provided in the Atlas and used in the area identification process.

Safety concerns

The safety of vessels and their crews near aquaculture facilities within AOAs is extremely important and should be addressed. Providing for safety other than blanket spatial exclusions or restrictions from accustomed commercial and recreational fishing methods is insufficient. Aquaculture facilities should bear some of the burden of and tolerance for the occasional fishing gear entanglement as part of their lease requirements. Previously permitted aquaculture operations in Federal waters off the Southern California coast were required to implement a Lost/Damaged Fishing Gear Compensation Plan as a condition for their Consistency Certification[12]. Conversely, commercial and recreational fishermen should be aware of the additional risk of gear entanglements, should they choose to fish in proximity to aquaculture facilities. Regarding recreational fishing near aquaculture facilities, we note that recreational anglers historically have not been excluded from fishing near structures such as oil rigs, except under specific Homeland Security measures. Even then, rig operators use discretion to enforce the rules, such as when rig maintenance or crane work is performed that may endanger recreational vessels and fishermen. Similar rules should apply to aquaculture facilities, recognizing the occasional loss of recreational gear. That is, anglers should not be excluded from fishing around aquaculture facilities, provided they can do so safely, without losing recreational gear or entangling the aquaculture facility.

As NOAA further conducts the analysis required to refine the marine spatial planning outlined in the Atlas, we suggest undertaking an effort to forecast which areas will be important to different or new fisheries under changing ocean conditions. Fishermen remain concerned about how regulations may affect current (or near-future) fishing and the effects it will have on those future fisheries. That is, sport and commercial fishing regulations and/or other forms of limiting access may change such that fishermen will have to look to other areas for harvest; some of those areas may have aquaculture operations in effect by then. We must also be mindful of fisheries which are currently closed due to the status of the stock, but which will likely be re-opened when appropriate – for example, the directed fishery for Pacific sardine which has been closed since 2015.

(12) Information on other current or planned activities in, or in the vicinity of, the areas described in this NOI and their possible impacts on aquaculture development, or the impact of aquaculture developments on those activities

There are a number of current, planned, or proposed activities in the vicinity, or likely to be serviced by vessels in the vicinity. Generally, they fall into three categories: current maritime uses, offshore renewable energy development, and other aquaculture projects.

Current Maritime Uses:

[12] See Condition 7 of the California Coastal Commission's Staff Report for Consistency Certification CC-035-12, KZO Sea Farms – (California Coastal Commission Staff Report and Recommendation Regarding consistency Certification No. CC-035-12 (KZO SeaFarms, Los Angeles County)) and Special Condition 8 of the California Coastal Commission's Staff Report for Consistency Certification CC-0003-21, Ocean Rainforest, Inc. – (F12a-10-2021-report.pdf (ca.gov))

- As was more fully developed under Item 11 above, recreational and commercial fishing activities are currently utilizing all of the Selected Site Options for fishing or navigational purposes. Vessels of all types and uses transit through the areas. We suspect that vessels servicing the oil platforms off the Ventura coast may also transit through these areas.

Offshore Renewable Energy:

- The Bureau of Ocean Energy Management has recently published a Proposed Sale Notice for the Morro Bay Wind Energy Area. Winning bidders will be allowed to conduct site assessment and site characterization activities in and around the Monterey Bay Wind Energy Area.
- There are two proposed offshore wind pilot projects in State waters (within 3 nautical miles of the coast) near Point Arguello.

It is unlikely that site assessment and/or site characterization activities will impact the aquaculture development, but questions remain as to whether wind development proposals may affect the suitability of any areas for aquaculture. These two efforts don't seem very coordinated and could have overlaps that affect the suitability of locations for either. However, if vessels performing site assessment or site characterization activities, or vessels aiding in the construction or deployment of those activities, or vessels servicing those areas are based in Ventura Harbor, Channel Islands Harbor, or Port Hueneme, there is a possibility that aquaculture development could be impacted. Depending on the prevailing weather conditions and the size and type of those vessels, there may be navigation challenges. Some of the areas in the North Study Areas SSOs lie in a direct course line between those harbors and Point Conception and/or Point Arguello. Some of these vessels may have significantly deeper drafts than the vast majority of other vessels which typically use, or transit through, those areas.

Other Aquaculture Projects

- Pacific Ocean Aquafarms. It is our understanding that NOAA is undertaking an Environmental Impact Statement for the proposed Pacific Ocean Aquafarms development of a commercial-scale finfish aquaculture facility. This project is proposed to be located approximately four nautical miles off the coast of San Diego, with an alternate site off Huntington Beach. The project proposes construction, operation, and maintenance of an offshore marine finfish aquaculture facility composed of submersible net pens.

- Ocean Rainforest. In 2021, the California Coastal Commission issued a conditional concurrence on a consistency certification request to temporarily install and operate a demonstration seaweed aquaculture facility on an 86-acre site in Federal waters approximately 4.4 nautical miles offshore of Santa Barbara[13]. The facility would be comprised of a variety of ropes, lines, buoys, and cultivation equipment that would be anchored to the seafloor and held submerged at a depth of between 33 and 49 ft below the ocean surface. The depth at the proposed site is between 246 and 262 ft. The facility itself would occupy 16 acres and would be used to grow native giant kelp on an array of 32 cultivation lines. The project is intended to last for two years, at which point the project

[13] See - F12a-10-2021-report.pdf (ca.gov)

applicants would fully remove the aquaculture facility and all associated anchors, buoys, cultivation lines, and kelp.

- Avalon Ocean Farm. In early 2020, Avalon Aquafarms submitted an Application for Permit[14] to the U.S. Army Corps of Engineers, Los Angeles District, for an aquaculture facility – Avalon Ocean Farm. In the summer of 2021, the Applicant submitted an updated Application with a revised location and project description[15]. It is proposed to be located in the Pacific Ocean offshore of Long Beach. A map of the proposed location can be found in the application included in footnote 5. The proposed activity is to install a 1,860-acre shellfish and macroalgae aquaculture facility in Federal waters offshore from Long Beach and/or Huntington Beach. The facility would consist of three commercial scale subsurface aquaculture plots consisting of multiple submerged longlines on which shellfish and kelp would be grown.

Scientific Surveys

The Council is concerned about the potential for spatial conflicts with fisheries surveys and other marine scientific surveys, including long-term ocean monitoring that may occur in these areas. The loss of data from these scientific surveys due to spatial conflicts from aquaculture installations would likely increase uncertainty in certain stock assessments. Increased uncertainty may translate into reduced opportunity (e.g., lower catch limits) under the precautionary principle and economic impact to fishing communities. The Council **recommends** that the PEIS analyze whether any of the AOAs will conflict with NOAA, the California Cooperative Fisheries Research Investigations, or other scientific surveys[16], and avoid such impacts to the extent possible.

(14) Input related to the risks and/or benefits of whether an AOA should be a single, continuous geographic space, or a collection of discrete areas separated from one another.

The Council **recommends** analysis of the impacts of a larger continuous AOA space versus a collection of smaller discrete areas. The Council is concerned about navigation and transit as it pertains to fishing activities, search and rescue operations, scientific surveys, and other important navigation activities.

(15) Input related to how an AOA could simultaneously support aquaculture development along with environmental, economic, and social sustainability—including ways to incorporate mitigation and cost-benefit analyses.

When developing the PEIS, NOAA should consider whether impacts or changes that justify mitigation be more specifically defined. This could proactively contemplate changes/impacts that are likely to being blamed on other factors (e.g., offshore wind energy development). This is particularly concerning for species with large natural fluctuations since significant changes may be caused by outside factors (i.e., aquaculture) but just attributed to natural variation.

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[14] See - `ramswp51p~«CORPS_LOGO2»PUBLIC NOTICE (army.mil)

[15] See - `ramswp51p~«CORPS_LOGO2»PUBLIC NOTICE (army.mil)

[16] For example, the California Wetfish Producers Association has been conducting various research studies inside the Southern California Bight. Including one in cooperation with the Southwest Fisheries Science Center where a smaller purse seine vessel is performing a nearshore acoustic survey for Coastal Pelagic Species in waters inaccessible to the larger NOAA vessels. See - 2021 California Current Ecosystem Survey | NOAA Fisheries.

(16) Other information relevant to the Proposed Action and its impacts on the human environment.

The Atlas also mentions naturally occurring oil seeps[17] which are prevalent in the North Study Areas SSOs. In areas off Ventura, fishermen have noted the potential incompatibility of aquaculture in those areas with the prevalence of natural oil seeps, and the prevailing winds and currents which could cause contamination.

The Council appreciates the opportunity to provide comments on NOAA AOAs. We look forward to the draft PEIS and intend to provide further comments when it is released. If you have any questions, please contact Kerry Griffin on Council staff (Kerry.griffin@noaa.gov; 503-820-2409).

Sincerely,

Marc Gorelnik,
Chairman

KFG:kma\ael

Cc: Council Members
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July 22, 2022

Submitted online via: www.regulation.gov
Docket#: NOAA-NMFS-2022-0051

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SUBJECT: Comments Regarding Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California - NOAA-NMFS-2022-0051

The Southern California Alliance of Publicly Owned Treatment Works (SCAP) appreciates the opportunity to provide comments in response to the National Oceanic and Atmospheric Administration's (NOAA) Federal Register (85 FR 55667) Notice of Intent to prepare a Programmatic Environmental Impact Statement (PEIS) for Aquaculture Opportunity Areas (AOAs) in Southern California. The AOAs are a result of the Presidential Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O.13921, May 7, 2020).

SCAP represents over 80 public water/wastewater agencies in Southern California. SCAP members provide essential water supply, wastewater collection, and wastewater treatment for approximately 20 million people in San Diego, Orange, Los Angeles, Santa Barbara, Riverside, San Bernardino, and Ventura counties. SCAP's wastewater members provide environmentally sound, cost-effective management of more than two billion gallons of wastewater each day and, in the process, convert wastewater into resources for beneficial uses such as recycled water and renewable energy.

SCAP would like to take this opportunity to highlight several issues associated with siting an aquaculture operation (aquafarm) in the vicinity of a wastewater ocean outfall.

Summary of Concerns:

- **Limited notification and communication with key wastewater stakeholders**
  Wastewater stakeholders should be involved early, frequently, and in a sustained manner throughout NOAA's marine spatial planning (MSP) process to facilitate collection of information on a wide range of expectations and conflicts that may occur in locations within a given area of interest. While input from other federal agencies, Fishery Management Councils, Marine

Fisheries Commissions, states and tribes, and the public was obtained to inform the AOA identification process which resulted in the technical report "*An Aquaculture Opportunity Area Atlas for the Southern California Bight*" (AOA Atlas), SCAP or effected SCAP public wastewater agencies were not directly notified to provide feedback. Notification and communication to all key stakeholders at the onset of NOAA's MSP are critical to a successful MSP outcome which would grow trust in NOAA's process.

- **Exclusion of state waters in the marine spatial planning process**
  NOAA's MSP focused on federal waters between three to 25 nautical miles within the U.S. Exclusive Economic Zone. Wastewater ocean outfalls in the region are as long as four and five miles so there is clearly a potential for overlap in the siting of AOAs. It should be noted that the MSP study boundaries do not provide a barrier to limit the influences of ecological processes or the geographic distribution of animals between federal and state waters. Hence, any ecosystem impacts of aquafarming in federal waters would extend into state waters, and as such, aquafarming in the Southern California Bight (SCB) would also be regulated by state agencies that also regulate public wastewater agency dischargers.

- **Use of established and accepted oceanographic models to inform site selection**
  As oceanographic models will be used to determine site selection, it will be critical to select models developed for the SCB that are well validated and that have stakeholder acceptance. The evaluation process for model selection and the quality criteria used to assess model output should be made publicly available for review prior to implementation.

- **Disturbances to sensitive and established ecological communities in the region**
  The fluxes and deposition of aquafarm nutrients, debris, and contaminants from excess feed and waste would alter the health and composition of pelagic and benthic communities in adjacent areas. Diseased fish in the ecosystem may lead to increased rates of disease and parasitism for native populations, while the physical structure of aquafarms would create additional novel habitat and could act as an attractive nuisance. Allowing large-scale aquaculture enterprises to disturb or threaten vibrant ecological communities in the SCB seems neither necessary nor justified.

- **Wastewater discharge permit issues**
  National Pollution Elimination Discharge System (NPDES) permits for ocean outfall dischargers require detailed and extensive monitoring plans. The footprint of the monitoring areas can be quite large and extend well beyond the ocean floor footprint of the outfall pipe and diffusers. It appears that every AOA site proposed in Southern California is within the footprint of the NPDES permit required monitoring area. Not only will there be water quality impacts and ecological community impacts from AOAs within the NPDES monitoring areas, but the physical location of the fish pens will interfere with the NPDES required monitoring activities such as benthic sediment sampling, trawling, core water quality sampling and rig fishing. This would interfere with the public wastewater agency's ability to comply with Clean Water Act requirements. This is an untenable situation.

Again, SCAP appreciates the opportunity to comment on NOAA's PEIS for AOAs in Southern California. We welcome the opportunity to meet and organize sharing of critical infrastructure and NPDES permit monitoring information.

If there are any questions regarding these comments, please contact me directly at (760) 415-4332 or sjepsen@scap1.org

Sincerely,

Steve Jepsen, Executive Director - SCAP

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July 22, 2022

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Portland, OR 97232

SENT VIA ELECTRONIC MAIL

Subject: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Dear Dr. Rumsey,

The California State Lands Commission (Commission) staff has reviewed the Notice of Intent (NOI) to prepare a Programmatic Environmental Impact Statement (PEIS) for the identification of one or more Aquaculture Opportunity Area(s) (AOAs) in Federal waters off the coast of Southern California, which is being prepared by the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA). The NOAA NMFS West Coast Region is the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The Commission is designated by the State of California as a trustee agency for projects that could directly or indirectly affect State sovereign land and their accompanying Public Trust resources or uses. Additionally, if the Project involves work on State sovereign land, the Commission would act as a lead or responsible agency pursuant to the California Environmental Quality Act (CEQA)(Pub. Resources Code §21000 et seq.). While the NOI and potential future PEIS are federal documents being prepared by the NOAA NMFS West Coast Region to comply with NEPA, the effects of the federal action could impact lands, resources, and uses within the Commission's purview. Therefore, Commission staff requests that the NOAA NMFS West Coast Region consult with us on preparation of the Draft PEIS.

<u>Commission Jurisdiction and Public Trust Lands</u>

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways.

The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low-water mark and a Public Trust easement landward to the ordinary high-water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Commission staff collaborates on several initiatives related to aquaculture, including the Aquaculture Action Team, convened by the Ocean Protection Council and comprised of state agencies with direct and indirect jurisdiction over aquaculture in state waters. The Guiding Principles for Marine Aquaculture in California, publicly released in June 2021, was designed to increase coordination and transparent decision-making for sustainable aquaculture and will inform the development of a more comprehensive statewide Aquaculture Action Plan. Commission staff also participates on the Southern California Offshore Aquaculture Interagency Working Group, a state-federal coordination forum designed to facilitate effective interagency communication and collaboration around policy, regulatory, and environmental issues. The working group aims to promote information sharing and transparency and ultimately identify shared goals towards sustainable offshore aquaculture.

Project Description

The NOAA NMFS West Coast Region proposes to prepare a PEIS to identify one or more AOAs to be located in Federal waters off the coast of Southern California as part of a planning initiative only, not to propose any aquaculture facilities or permits. The National Centers for Coastal Ocean Science previously completed an informational document entitled *An Aquaculture Opportunity Area Atlas for the Southern California Bight* (AOA Atlas), which is a marine spatial planning endeavor that supports the AOA identification process using

geospatial data, analysis, and modeling to identify areas of potential sensitivity or use conflicts.

This proposed action is in response to the Executive Order on Promoting American Seafood Competitiveness and Economic Growth (E.O. 13921). The proposed action seeks to apply a science-based approach to identify AOAs in Federal waters with the intent to promote American seafood competitiveness, food security, economic growth, and to support the facilitation of the development of domestic commercial aquaculture.

The NOI identifies four preliminary alternatives:

- Alternative 1 – No Action
- Alternative 2 – Between 1 to 8 AOAs that are 5-10 miles offshore from Ventura & Santa Barbara Counties ("North Study Areas")
- Alternative 3 – 1 to 2 AOAs that are 8-9 miles offshore from LA/Santa Monica Bay ("Central North Study Areas")
- Alternative 4 – Any number of AOAs from either study area.

From the description of the proposed action and preliminary alternatives, Commission staff understands that future aquaculture development projects could include potential stressors and environmental impacts that could affect State sovereign land and public trust resources associated with pre-construction, construction, operation and maintenance, and decommissioning activities that might occur in state waters to support operations in federally identified AOAs. These impacts should be discussed in the PEIS and are described in more detail below.

Environmental Review

Commission staff requests that the NOAA NMFS West Coast Region consider the following comments when preparing the Draft PEIS, to promote consistency with the Commission's plans and policies and ensure that impacts to State sovereign land are adequately analyzed. Such consideration would facilitate the Commission's use of the PEIS if a future state lease was eventually necessary as part of AOA construction and operations.

General Comments

1. Programmatic Document: Because the PEIS is a programmatic rather than a project-level document, Commission staff understands that the level of analysis may necessarily be high-level or qualitative, with project-specific analyses conducted as specific projects are proposed in the eventual AOAs. Nonetheless, certain categories of effects are predictable and generally known even at this stage. The PEIS will be most helpful in dealing with the subsequent project-level analyses if it addresses the effects of the program as

specifically and comprehensively as possible. To avoid the improper deferral of mitigation, a common flaw in program-level environmental documents, if the PEIS contemplates and describes mitigation measures, they should either be presented as specific, feasible, or enforceable obligations. As such, the PEIS should be clear about what activities and their mitigation measures are being analyzed in sufficient detail to be covered under the PEIS without additional project-specific environmental review and what activities will trigger the need for additional environmental analysis.

2. All government and local agencies involved should be identified in the Draft PEIS and their role in the proposed action described.

3. Project Description: A thorough and complete project description should be included in the Draft PEIS in order to facilitate meaningful environmental review of potential impacts, mitigation measures, and alternatives. The project description should be as precise as possible in describing the details of all allowable activities, potential species for cultivation, associated stressors and impacts, socio-economic data, and affected user groups.

Specific Comments
The NOI requests comment on the following topic areas (responses given to all that apply):

(1) The scope of the NEPA analysis, including the range of reasonable alternatives described above.

The locations described in the preliminary alternatives are based on information within the AOA Atlas. Given that the AOA Atlas will be an important source reference for the PEIS, the Commission recommends refining the Atlas further to incorporate input from key stakeholder discussions – these stakeholders provided experience-based knowledge from their regular use of the waters within the AOAs and intimate knowledge of the ocean. Commission staff were informed by fishermen stakeholders that the Atlas missed capturing valuable details that would be pertinent to site suitability selection, ones that were not necessarily represented in quantitative spatial datasets. For example, fishermen informed the Commission that a section of one of the southernmost potential AOAs has such consistently choppy waves and irregular currents that experienced fishermen know never to fish there because the rate (and therefore costs) of gear loss is too high. Transecting it carries high safety risks as well. This erratic and dynamic ocean area, however, appears the same on the AOA Atlas as any other area, based on the analysis of the quantitative datasets available. Commission staff recommends that information from key stakeholder groups (i.e., ocean users, like fishermen and shipping crews, that directly use the space identified in the AOAs) should be treated formally in the PEIS as data that informs

the analysis, not just as comments considered and addressed after the Draft PEIS is developed.

(4) Types of aquaculture (e.g., finfish, shellfish, seaweed, integrated multi-trophic aquaculture) that could be supported and/or analyzed.

The Guiding Principles for Marine Aquaculture in California, developed by state partners, including the Commission, maintains that the State's focus is to further develop shellfish and algae aquaculture in state waters in a sustainable manner and also consider land-based/recirculating tank operations for algae, shellfish, and finfish. While Commission staff recognizes that continuing to import large amounts of farmed fish from other parts of the world results in increased greenhouse gas emissions ("carbon footprint") and local environmental and social effects where they are sited, marine finfish cultivation in federal waters offshore California would have potentially adverse impacts to the Southern California Bight marine ecosystem. Commission staff recommends that the PEIS evaluate the following impacts from finfish aquaculture and identify/discuss feasible minimization and mitigation measures: (1) escape of cultured organisms, (2) ecosystem effects, (3) organic pollution and eutrophication, (4) use of chemicals and/or antibiotics, (5) physical impacts to the seafloor, (6) anti-predation, (7) marine mammal entanglement, and (8) additional challenges with monitoring and oversight. We suggest the PEIS identify and evaluate a "land-based/recirculating tanks alternative" that would meet the goal of providing California-based farmed fish and reducing the carbon footprint of importing from distant places, while minimizing or avoiding effects on the marine environments from open ocean fish pens.

(5) Potential impacts to biological, physical, social, cultural, and economic resources.

The Draft PEIS should disclose and analyze all potentially significant effects on sensitive species and habitats in and around the identified AOAs and associated State waters that might be used to facilitate activities within an AOA, including special-status wildlife, fish, and plants, and if appropriate, identify feasible mitigation measures to reduce those impacts.

Water quality impacts will be among the most important considerations of the PEIS. The Central North Study Areas are at particularly high risk of water quality issues due to legacy contamination from thousands (possibly half a million) of DDT barrels illegally dumped in the San Pedro Channel between 1947 and 1961. DDT-related compounds have been observed in much of the marine wildlife off the Southern California Bight, including marine mammals, birds, fish, and invertebrates, and have been linked to many consequential mortality events (recently in sea lion populations, dolphins and coastal California condors, jack mackerels and white croakers). The Central North Study Areas are just south of

the Montrose Chemical Corporation's Superfund site that was identified in the 1980s. The specific locations of additional DDT dumping grounds have recently been found, covering many tens of square miles in federal waters between Catalina Island and San Pedro Bay, potentially intersecting directly with both Central North Study Areas. The PEIS should pay particular attention to the scientific research currently under development regarding the extent of the DDT barrel dumping site, as it was only discovered last year to be substantially larger than was previously known.

Water quality issues due to high volume offshore discharges of wastewater, nonpoint-source polluted runoff, and contaminated spills could potentially affect aquaculture activities. The stretch of land adjacent to the Southern California Bight is densely populated, home to two of the largest cities in the United States (Los Angeles and San Diego) and the second largest city in Mexico (Tijuana) and is challenged by the coastal water-quality issues associated with proximity to such a large human population. Additionally, aquaculture operations could exacerbate existing water quality problems that damage marine wildlife and habitat by aggregating wild fish species, introducing chemicals (e.g. antibiotics, feed contaminants, nutrients, etc.), pathogens or invasive species; creating entanglement risk for marine mammals and sea turtles; contributing to marine debris problems; damaging or destroying habitat through placement of infrastructure; changing water quality and hydrodynamics; and increasing potential sources of pollution. All these issues should be accounted for when reviewing proposed operations within each of the AOA study areas.

The Southern California Bight is critical for larval fish habitat and fish recruitment. It is important that the Draft PEIS incorporate analysis about the potential impact that dense concentrations of cultured marine predators or filter-feeders could have on recruitment of commercially and recreationally important fish and crustacean species with pelagic larval and juvenile phases (i.e., most rockfish (*Sebastes*) species) and recommend incorporating data on larval fish and crustacean abundance as well as modeling potential impacts of large-scale culture of potential predatory species into the PEIS.

Commission staff also recommends incorporating additional considerations of seasonality, timing, and spatial variation of aquaculture activities into the analysis of stressors and impacts. For example, analysis should consider the duration of different aquaculture activities, timing or seasonality of harvest, and spatial requirements depending on type of aquaculture. Variations in timing or seasonality of different aquaculture activities may result in varying socioeconomic impacts, including differences in seasonal or permanent jobs associated with aquaculture operations. Additionally, the Draft PEIS should analyze how increased vessel traffic due to seasonal aquaculture operations

could affect migrating marine mammals or impact existing recreational or commercial vessel traffic. Socioeconomic impact analyses should also be location specific and identify impacts at meaningful scales. For example, by considering what direct impacts could be potentially associated with adjacent coastal zip codes, potential multiplier effects regionally (define the region), and potential national and international market impacts.

(8) Information related to diversity, equity, and inclusion in aquaculture and the seafood sector.

Environmental justice is defined by California law as "the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (Gov. Code § 65040.12) This definition is consistent with the Public Trust Doctrine's principle that management of trust lands is for the benefit of all people.
The Commission adopted an updated Environmental Justice Policy and Implementation Blueprint in December 2018 to ensure that environmental justice is an essential consideration in the agency's processes, decisions, and programs. The twelve goals outlined in the Policy reflect an urgent need to address the inequities of the past, so they do not continue. Through its policy, the Commission reaffirms its commitment to an informed and open process in which all people are treated equitably and with dignity, and in which its decisions are tempered by environmental justice considerations.

Commission staff suggests that NOAA include a section describing the environmental justice community outreach and engagement undertaken in developing the Draft PEIS and the results of such outreach. The California Office of Environmental Health Hazard Assessment developed the CalEnviroScreen mapping tool to assist agencies with locating census tracts near proposed projects and identifying the environmental burdens, should there be any, that disproportionately impact those communities. Environmental justice communities often lack access to the decision-making process and experience barriers to becoming involved in that process. It is crucial that these communities are consulted as early as possible in the project planning process. Commission staff strongly recommends using the CalEnviroScreen tool and then, as applicable, reaching out through local community organizations, such as the California Environmental Justice Alliance. Engaging in early outreach will facilitate more equitable and inclusive access for all community members.

(9) Information related to climate change and climate equity.

Where feasible, the Draft PEIS should incorporate analysis of potential issues related to climate impacts and the resulting environmental variability within the

California Bight and California Current Ecosystem (CCE). Due to increased warming and climate variability, oceanographic and biological processes and patterns are becoming more variable and difficult to predict. Anomalies in environmental conditions can increase the frequency or intensity of disease, parasite, and harmful algal bloom outbreaks, impacting wild and cultured species. Ocean acidification and hypoxia, phenomena related to warmer seawater, are intensifying in the Southern California Bight, weakening and dissolving the calcium carbonate shells and skeletons of marine organisms, including shellfish. Additionally warming temperatures resulting in species migrations could impact commercial fishing areas, leading to increases in conflicting uses within an area. The PEIS should also discuss, qualitatively or quantitatively, the potential greenhouse gas reductions to be achieved by locally cultivating species that are currently imported for California consumers.

(10) Potential interactions with protected species, essential fish habitat, and other sensitive habitats.

With increasing size of the AOAs, there is an increase in the potential interactions between aquaculture activity and associated operations with protected species, essential fish habitat, and other sensitive habitats. The Draft PEIS should analyze the risks of marine mammal entanglement associated with moored aquaculture gear and require measures and design features that reduce the risk of entanglement. Additional analysis should also examine the risks of secondary entanglement associated with different aquaculture activities and recommend measures for reducing such risks.

(11) Potential interactions with commercial and recreational fishing industries, tourism and recreation, and other offshore ocean users.

Recreational and commercial fishing are spatially variable activities, depending on target fish species distribution and movement. Increasing environmental variability due to climate change is and will affect spatial distributions and availability of target fish species, contributing to the spatial variability in fishing activities. Recreational activities, such as whale watching, might also be affected due to increasing environmental variability. The Draft PEIS should analyze these potential interactions and also consider how the placement of new structures in the marine environment my affect safety or navigation of existing commercial and recreational activities.

(16) Other information relevant to the Proposed Action and its impacts on the human environment.

Public trust resources and lands within the state's jurisdiction will be impacted by activities in federal waters. Units of analysis should not be confined to the area directly inside an individual AOA but should consider the connectivity of these

areas to the marine waters, lands, and resources that surround them. The Central North Study Areas in particular are closer in proximity to state waters than the other Study Areas. The Draft PEIS should consider how different types of aquaculture activities and their supporting operations affect the surrounding areas, including public trust land and resources.

Thank you for the opportunity to comment on the NOP for the proposed action. As a trustee and responsible agency, Commission staff requests that you consult with us on this effort and keep us advised of changes to the Project Description and all other important developments. Please send additional information on the proposed action and refer questions to Maren Farnum, Senior Environmental Scientist, at (916) 574-0966 or via email at Maren.Farnum@slc.ca.gov, as the Draft PEIS is being prepared.

Sincerely,

DocuSigned by:
Jennifer Lucchesi
A8DE3BBAE92D437...

JENNIFER LUCCHESI
Executive Officer

cc: Nicole Dobroski, Chief, Division of Environmental and Planning Management, CSLC
Maren Farnum, Senior Environmental Scientist, CSLC

PUBLIC SUBMISSION

As of: 7/22/22 8:20 PM
Received: July 22, 2022
Status: Pending_Post
Tracking No. l5w-nwgx-z4tv
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0029
Comment from Sportfishing Association of California

Submitter Information

Email: KennethFrankeSAC@gmail.com
Organization: Sportfishing Association of California

General Comment

It is evident there was a tremendous amount of work on the Atlas and the foundational work in this project. Our compliments to the team that engaged in the data collection and documentation. That said, it is recommended that the corrected coordinates of the area in questions be updated to all parties to determine if there are overlapping uses by local fishermen. It is also recommended that NOAA reach out to the local sportfishing businesses and live bait haulers to verify there is no impact on their high valued service. The current changing regulations within the state regarding depth and species access for the next few years could potentially make this an important area for these recreational anglers.

PUBLIC SUBMISSION

As of: 7/22/22 5:58 PM
Received: July 18, 2022
Status: Pending_Post
Tracking No. l5r-5jy3-nsye
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0009
Comment from Stardust Sportfishing

Submitter Information

Email: info@stardustsportfishing.com
Organization: Stardust Sportfishing

General Comment

I am Jaime Diamond, owner of Stardust Sportfishing in Santa Barbara, CA. I am also on the board of directors for the Sportfishing Association of California. I have reviewed the AOA's for the Santa Barbara area, and I accept the Santa Barbara area with the exact coordinates as written in the Atlas. I have included pictures of those specific pages and coordinates you (NOAA) listed. However I cannot accept any of the proposed sites shown in pictures. There are no coordinates associated with the pictures of AOA blocks shown, and It looks like it may overlap with our very productive fishing grounds. I see he graphs and models you used to overlay CPFV use in the area, however it only goes through 2019. The problem is federal groundfish fishery regulations, depths, and areas have changed since then, forcing us to fish in areas different from 2010-2019. Especially since there are NO coordinates to the pictures shown for the Santa Barbara zone blocks, I cannot support them. It would be negligent to do so, and I believe it is against the law for you to go through with this as such.

Attachments

AOA 1

AOA 2

PUBLIC SUBMISSION

As of: 7/22/22 6:13 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-2dli-zxs8
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0015
Comment from ChanTang, Dahlia

Submitter Information

Name: Dahlia ChanTang
Address:
Ville Saint-Laurent, Quebec, Canada, H4L 3N6
Email: dahlia@depotmtl.org

General Comment

I am writing to urge you not to allow oceanic factory farms in Southern California. Data in other countries so far have shown that these factory farms are detrimental to the surrounding environment, are a threat to local wild fish populations, and are a harm to public health, the local communities and economy. Furthermore, increasing the access to farmed fish on the market has not proven so far to be an economically viable solution for producers, local communities nor the consumers. Given the environmental impact these factory farms have, it is not in the interest of Southern California to carve up its beautiful coastline in order to accommodate them.

VENTURA
PORT DISTRICT
Established 1952

July 22, 2022

National Marine Fisheries Service
West Coast Region
National Oceanic and Atmospheric Administration

Submitted via email

Re: NOAA-NMFS-2022-0051: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California – Public Comments of the Ventura Port District

Dear Sir or Madam:

On behalf of the Ventura Port District (VPD), I write to provide our comments on the above-referenced matter. Ventura Harbor is the home port to the largest commercial fishing fleet in California, and depending on the year, lands the largest amount of fish, principally market squid. As you know, starting in 2015, VPD worked closely with NOAA, commercial fishers, interested parties and other relevant agencies on the Ventura Shellfish Enterprise (VSE) project, an effort to develop an area for mussel aquaculture farms proximate to the Ventura Harbor. As part of this effort, VPD and its collaborators developed site-specific, detailed, and accurate engineering, economic and environmental analyses regarding shellfish aquaculture and its potential interactions with the area in the Santa Barbara Channel. VPD also engaged in a robust public outreach and education effort to inform and engage with the public, fishers, agency, and academic staff on the role commercial aquaculture can play in addressing social, economic, and environmental impacts that challenge our harbors and oceans. This previous work, some of which has already been prepared with NOAA's involvement and assistance, can provide a valuable starting point for evaluation of potential aquaculture opportunity area (AOA) sites near Ventura Harbor. Diversification of our commercial fishing fleet is essential to maintain our working waterfront, address the significant impacts of climate change, rising sea temperatures, and changes in growing conditions (in 2020, commercial landings of market squid decreased by over 90%), and provide for commercial fishing that provides sustainable sources of locally-grown seafood. VPD strongly supports consideration of multiple potential AOAs in proximity to Ventura Harbor and looks forward to working with NOAA to develop and analyze potential AOA locations during the PEIS process.

A. Consideration of Alternatives

1. VPD Supports the Evaluation of Alternative Sites N2-D and N2-E in the PEIS

We support consideration of Alternative Sites N2-D and N2-E in the PEIS.[1] These sites appear to have a number of distinct advantages:

- They are located in close proximity to Ventura Harbor, thereby reducing the cost to potential aquaculture companies to access the site (which is particularly important with escalating gas prices) and reducing greenhouse gas emissions from aquaculture service vessels. Service vessels can be moored in Ventura Harbor.
- The sites can be supported by the existing infrastructure and support services provided in Ventura Harbor, which already supports the largest commercial fishing community in California. Over the past 10 years, the harbor has invested over $5.3M in commercial fishing, providing new, state of the art docks, upgraded commercial storage facilities, improved fish offloading, fishing pier life extension projects, and innovative incentives to support the continued expansion of commercial fishing. This reduces the need for significant onshore infrastructure development.
- These sites are in close proximity to others previously evaluated by NOAA's National Centers for Coastal Ocean Science ("NCCOS"), which generally found the area to be the most suitable for development of aquaculture farms during consideration of the VSE project, using the same methodology employed by NOAA in development of the Southern California AOA Atlas.
- This same analysis concluded that the area near these locations minimized impacts to important fisheries to the extent possible, noting that it avoided key areas for the trawl fishery and market squid fishery. Many commercial fishers did not actively oppose the VSE project after it moved to federal waters.
- These locations can take advantage of the ideal conditions for aquaculture, which include good water quality without significant sources of pollution and ideal temperature and nutrient conditions present in the Santa Barbara Channel.
- Ventura Harbor and neighboring cities have a number of seafood restaurants and a strong tourism industry that would provide a symbiotic relationship with aquaculture operations.

VPD is excited about the opportunity to continue to develop Ventura Harbor to support both its existing fishery and any aquaculture operations which may be established through the AOA process. The Harbor already has much of the infrastructure that would be needed to service aquaculture projects and we are open to other opportunities to partner with aquaculture companies that want to establish operations that would be serviced by the Harbor. As noted above, VPD has been a strong supporter of aquaculture in the past and would strongly support establishment of an AOA(s) that would facilitate landings and operations in Ventura Harbor.

[1] While we think that Alternative Sites N2-D and N2-E are the most ideal and provide the greatest opportunity for aquaculture farms given their proximity to Ventura Harbor, we generally support the consideration of any of the Ventura Alternative Sites.

2. The PEIS Should Consider a "Shellfish and Seaweed Only" Alternative

While VPD does not necessarily oppose development of sustainable finfish operations, we understand that there are many that are opposed to the development of marine finfish farms in California. We would encourage NOAA to evaluate an alternative that only permits shellfish and seaweed mariculture, so as to not "put all of your eggs in one basket." This would give NOAA more flexibility in the event that there is significant public opposition to finfish farms and allow some projects that may be less controversial to get started within an established AOA if more complicated and/or controversial aspects of finfish farming needed to be sorted out.

3. The "No Project" Alternative Should Consider the Associated Negative Socioeconomic and Environmental Impacts

Relative to the "no project" alternative, we recommend that NOAA consider the potential adverse socioeconomic impacts of not providing for significant acreage for sustainable commercial aquaculture in the Southern California Bight. Specifically, we recommend that this analysis consider potential adverse impacts to commercial fishing absent diversification to commercial aquaculture; potential adverse impacts to the water column due to ocean acidification and other potential harmful impacts should mussel and kelp farming not be pursued; potential incremental economic impacts (regional and large scale) from continued reliance on imported commercial aquaculture products; and the potential adverse impacts (like production of greenhouse gases) from continued reliance on animal protein derived from terrestrial farming.

B. Scope of PEIS

1. Species and Gear

Generally, we believe that the PEIS should be focused on species and aquaculture practices that are readily available and marketable and conduct an in-depth analysis of those species and practices as opposed to a "mile wide and inch deep" approach. A critical value of the PEIS will be to provide a significant amount of environmental analysis that would allow applicants to tier their NEPA analysis off of the PEIS. This is only helpful if the PEIS provides a thorough evaluation of environmental impacts, thereby allowing a focused review of site-specific characteristics in the tiered project-specific analysis.

Based upon our review of available technologies and species as part of the VSE project, we identified Mediterranean mussels (*Mytilus galloprovincialis*), rock scallops (*Cassadoma gigantea*) and cultivatable species of seaweed and kelp as species that should be studied. Utilization of longline aquaculture gear should also be studied. There is significant international (and some domestic) utilization of these species and gear in offshore environments, with commercial success, and existing data and analyses associated with those operations that can inform development of similar projects in Southern California waters. During the VSE project process, both regulatory agencies and several stakeholders recommended a combined mariculture approach where seaweed and kelp would be grown in addition to shellfish species. These species are also preferable as they can be used to combat climate change and ocean acidification through carbon sequestration. There are also environmental benefits associated with the development of local seafood as compared to terrestrial sources of protein and importation of seafood from international markets, which do not have similar environmental and labor protections.

2. Size and Orientation

As described further below, the establishment of an offshore aquaculture farm is an expensive process. The AOAs will need to be large enough to provide economies of scale, which would allow both large grower/producers and smaller companies to work together to reduce operating costs. Based upon a

proforma and economic impact analysis developed during the VSE project, we believe that NOAA has appropriately sized the proposed AOAs at approximately 2,000 acres, noting that it is likely that less than the entire acreage of the AOA will be developed. We recommend developing at least two AOAs within the Santa Barbara Channel near Ventura Harbor to provide potential growers with more options, including different elevations and depths, which may both promote a diversity of operations and make AOAs more attractive to a larger aquaculture industry group with diverse operational needs.

We also recommend that the AOAs be kept as larger blocks of at least 2,000 acres each. During the VSE project, we heard comments that larger blocks may be preferable to reduce potential interactions with marine mammals, as they would only need to navigate one area as opposed to several smaller areas scattered throughout the Channel. It also would allow aquaculture companies to combine resources and investment and allow opportunities for collective monitoring, permitting, health certification, and transportation to and from the AOA area. The larger blocks will need to incorporate navigational channels and buffers as needed, which can be further refined during the PEIS process.

C. Utilization of Existing Data

We encourage NOAA to utilize the existing data and analysis developed during the VSE project to help inform site selection and development of AOAs within the Santa Barbara Channel. We have sent this information to NOAA previously. This includes:

1. A first-of-its-kind navigational risk assessment for offshore aquaculture
2. An engineering analysis for longline shellfish aquaculture to ensure that gear can withstand 100-year storms
3. A biological assessment of potential environmental impacts associated with offshore shellfish aquaculture
4. Several draft monitoring plans, including a benthic monitoring plan, marine mammal monitoring plan, and predator control management plan
5. An aquaculture gear management plan and gear removal plan
6. Site selection analyses (prepared in partnership with NOAA)

These documents were vetted through a number of public meetings hosted by VPD and discussed with a number of relevant regulatory agencies. We believe they provide a strong foundation to address many of the issues related to establishment of AOAs in federal waters.

One critical issue will be evaluating impacts to recreational and commercial fishing. To the maximum extent possible, we encourage NOAA to collaborate with the California Department of Fish and Wildlife to obtain objective data regarding significant fishing areas and share that data to the extent possible with aquaculture applicants, so that they can seek to avoid and/or minimize impacts to the fishing industry to the greatest extent feasible.

D. Socioeconomic Factors

1. **Permitting Costs and Monitoring Requirements are the Most Significant Economic Barriers to Development of Southern California Aquaculture**

The lengthy and expensive process to conduct environmental review and obtain permits is the primary barrier to expanding aquaculture in Southern California. We appreciate NOAA's efforts to develop AOAs to help reduce those costs. Another significant category of costs are those associated with monitoring efforts. We encourage NOAA as part of the AOA process to utilize the best available science when available to reduce the need for monitoring and to develop cost-effective best management practices and

monitoring plans where additional information is needed. More data is always appreciated, but aquaculture companies must be able to operate and run a business, and we believe that certain regulatory agencies have often required monitoring plans without considering the cost to the applicant. If there are opportunities for NOAA or other regulatory agencies to partner with aquaculture applicants to collect monitoring data where needed, we would encourage exploring those efforts.

2. Establishment of a Ventura AOA Will Spur Economic Development throughout Ventura County

An economic analysis prepared by Illuminas Consulting in 2020 for the VSE project, which evaluated a 2,000-acre shellfish aquaculture project, concluded that the project would result in a total of approximately $18 million in annual economic input and create a total of 97 jobs. This includes both the direct economic benefits associated with aquaculture farms and the indirect benefits generated by the companies that would provide supplies, construction labor, and other support services for the aquaculture farms. Including one-time spending for startup equipment, the report estimated that the project would generate a total impact of approximately $37 million for Ventura County. It would also generate approximately $643,000 in tax revenue for local cities over 10 years. These economic benefits would be significantly greater if N2-D and N2-E were fully developed, with 4,000 acres available for aquaculture production.

As noted in the Illuminas report, the economic benefits would not merely accrue to the aquaculture companies themselves but a variety of other industries and services. This includes investment in supplies, utilities, fuel for vessels, repairs and maintenance, and slip and landing fees, as well as downstream consumers of their products, including retail markets, restaurants, and tourism opportunities.

As previously noted by NOAA, the United States currently imports approximately 90% of its seafood from other countries, most of which do not operate pursuant to the stringent environmental and labor protections provided in the United States. Despite being one of the largest consumers of seafood in the United States, California lags behind other states, like Washington and Maine, in developing sustainably sourced seafood through aquaculture. Even within California, Southern California lags far behind Humboldt Bay and Tomales Bay in Northern California in terms of aquaculture production. Existing California aquaculture farms have not been able to meet demand for their product. Particularly at a time when commercial wild fisheries are seeing significant declines in their annual catch and additional regulations placed on catch limits, we need to think creatively to develop additional long-term sources of sustainable seafood. Development of a Ventura AOA can help achieve this goal.

Establishment of a Ventura AOA will also provide a sustainable source of local, farm-to-table seafood for Ventura restaurants. Ventura has a number of excellent seafood restaurants that would benefit from additional seafood sources and the AOAs would be close enough to service the greater Los Angeles area market as well. It also can spur significant tourism opportunities. Aquaculture operations in Washington and Humboldt County have generated shellfish festivals, where thousands of visitors come to enjoy local seafood.

3. Establishment of a Ventura AOA Will Support a Variety of Ventura Communities and Stakeholders

There are several communities within the greater Ventura area that stand to benefit from creation of a Ventura AOA. One of the most important benefits would be the diversification of the aquaculture industry. The cost to develop an aquaculture farm in California is currently cost-prohibitive for most, with some evaluations estimating that the total costs for simply permitting an aquaculture farm can exceed $100,000, which does not include the significant amount of investment required to purchase equipment

and install a farm. The result is that there have been very few new aquaculture companies in California that have successfully established an aquaculture farm over the past several decades and the industry is dominated by larger aquaculture companies that have the resources to develop new farms. Establishment of a Ventura AOA eliminates two key sources of permitting costs - those associated with the complex site selection process and environmental review. While the AOA process would certainly not eliminate all permitting costs, it would significantly decrease the economic barriers to entry for small businesses to enter the market. This can provide the opportunity for a more diverse industry, which can also benefit the industry through the inclusion of new voices and ideas.

Creation of a Ventura AOA also provides opportunities for Ventura's fishing fleet looking for additional sources of off-season income or reliable sources of income that do not depend on a consistent wild fishery. Some local fisheries, like the market squid fishery, have seen precipitous declines in catch over the past several years. The decimation of the Alaskan crab fishery over the past two years has highlighted the need to develop additional sources of income for fishers if they can no longer depend on a stable fish population. Other factors, such as warming sea temperatures, climate change, and additional restrictions on available catch, may make wild fisheries more unpredictable and unstable. While we believe that aquaculture operations must minimize potential impacts to commercial and recreational fishing to the greatest extent possible, it also may provide additional opportunities for those looking to diversity their operation or transition out of the wild fishery business. As noted above, AOAs would also support Ventura's existing restaurant, retail, and tourism communities.

E. Conclusion

Thank you for this opportunity to comment on this important matter. We currently import 90% of our seafood from other countries and California is far behind some other states in development of an aquaculture industry to provide local and sustainable seafood. California has an opportunity to be a leader in this area and NOAA's AOA process is a critical part of that potential. Establishment of one or more AOAs within proximity to Ventura Harbor will build upon our strong existing fishing fleet and Port infrastructure, where NOAA can utilize the wealth of information collected by VPD and others during the seven year-long VSE process. This will provide the ability to diversify our existing fishery and support Port tenants, restaurants, and other suppliers throughout Ventura County. We look forward to working with NOAA throughout the PEIS process to develop well-located AOAs that can facilitate the development of a sustainable aquaculture industry in Southern California while avoiding and minimizing impacts to the environment and the fishing industry.

Sincerely,

Brian D. Pendleton
General Manager

CC: Diane Windham
Board of Port Commissioners
Robert Smith, K &L Gates

PUBLIC SUBMISSION

As of: 6/3/22 2:47 PM
Received: May 27, 2022
Status: Pending_Post
Tracking No. l3o-vkys-u1ud
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0006
Comment from Weaver, Ph.D., Dallas

Submitter Information

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General Comment

I designed, owned, and operated a near-zero discharge recycled fish/shrimp hatchery for 30 years which sold 20 million fish/yr in Southern California. I am now a semi-retired aquaculture consultant and professional engineer. I am well acquainted with Aquaculture Opportunities in Southern California. I was also born and raised in So. California in a family that owned a fishing boat and have significant knowledge about the local marine environment.

As a consultant, it has troubled me to have to break the news to clients who wanted to establish aquaculture businesses in the area to leave the area and the US if they wanted to succeed. The state of California and the US has gone from being a technological leader in aquaculture in the '70s and '80s to zero growth rate and failure in my lifetime. I was operating a fully automated, computerized fish hatchery in 1980 using Apple 11-e computers for the control that progressed to an industrial control system by 1990. These general-purpose hatchery designs were operated with freshwater, brackish water, and seawater capabilities (dial a temperature, salinity, pH, alkalinity, and ionic chemistry systems). They were

capable of producing marine fingerlings for off-shore net pen operations. However, obtaining permissions for off-shore net pens in California became bureaucratically impossible: all attempts to obtain permissions from the government agencies failed. The impossibility of having a market for fingerlings helped led me to close the hatchery and cash out the value of the warehouse that housed it in 2005, before the real estate crash (pure luck). My vision for the future was blocked. The tanks, filters, control systems, etc. of the hatchery were sold separately, and the main high-value filtration and control systems ended up in marine shrimp hatcheries in Mexico. As a consultant, I then provided my proprietary technology to clients around the world. My technology was useless in the US because of the permit hoops and lengthy delays before plans were rejected. The rest of the world -- from Indonesia to Israel -- was not hamstrung and has put the technology to profitable use, providing not only high-quality protein but many employment opportunities.

The area off of Huntington Beach in the region near the Offshore platforms around the 150 - 300 ft deep line would be excellent. Locations south-east of the Edith platform are close enough to the harbor for economical logistics but deep enough to prevent any deposit buildup with the high currents. Offshore pens would be outside the main shipping lanes and the extra-large ship anchorages in Huntington Beach. Fishing and pleasure boats from the LA/LB area heading to the Islands normally go north of Edith on their way to and from the islands.

An attempt to locate a mussel farm in this area was made, but the California Coastal Commission had demands that were outrageous and physically/biologically impossible (measuring movement of larva to and from the area and along the coastline and measuring plankton).

I did an analysis of this area and others in this bight and concluded we could have a 5 billion $/yr industry with about 50,000 jobs. But that is not what we are now increasingly famous for: jobs that might have been created are not created. Instead educated consultants, lobbyists, bureaucrats, and regulators with high-paying jobs, inhibit rather than enhance productivity.

So Cal is ideal for off shore aquaculture: we don't have nasty NorEasterners, Hurricanes, N. Pacific storms, etc. We have enough flushing currents to have sewerage nutrients from 20 million people discharged offshore without measurable eutrophication or biological impacts beyond the discharge points. We also have a huge local demand for fresh and live seafood, some of which come from net pens south of the border.

As a scientist in this area, I have been frustrated by anti-aquaculture activists who have consistently distorted scientific reality. You will hear a lot from these paid or grant driven fulltime activists.

For example, you will hear about fish-in fish/out ratios, but they won't mention that we can make vegan diets for fully carnivorous fish (CK the literature). Fish diets are created with least cost linear programming models, which take the fish/shrimp nutritional requirements and plug them into a program with all the costs, availabilities, digestabilities, and full composition analysis (amino acids, fatty acids, carbohydrate details, anti-nutritional factors, etc.) of all possible raw materials (soy meals, corn products, fish meal, etc.). Fishmeal production has been constant worldwide for almost half a century, while aquaculture has grown from almost nothing to larger than worldwide commercial fisheries.

With rapid, open, permissions to make use of federal waters for aquaculture, we may catch up with the rest of the world and stop importing 90% of our seafood.

PUBLIC SUBMISSION

As of: 7/22/22 6:19 PM
Received: July 21, 2022
Status: Pending_Post
Tracking No. l5v-eatt-qw02
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0019
Comment from Webb, Stephanie

Submitter Information

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General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. Nor will it bolster food security or seafood security in the US. Off-shore aquaculture is often designed for salmon or tuna, which serve luxury markets. Moreover, food insecurity and the trade deficit are not "production problems." The U.S. harvested approximately 7.5 billion2 pounds of wild-caught edible seafood in 2019 and consumed about 6 billion pounds of seafood (NMFS, 2021).

Additionally, the threat of fish escaping into southern California waters is inevitable because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s operator, Cooke Aquaculture, and found that the company could have prevented the escapement with regular attention to maintenance. Canada has implemented a phaseout plan to remove all non-native aquaculture from its marine waters. On December 17th, 2020, Minister Jordan

announced her intention to phase out existing salmon farms in the Discovery Islands by June 30, 2022.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess the impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or the marine ecosystems.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems and could potentially degrade marine waters and violate the Clean Water Act. Little research has been done to measure and monitor the impacts of aquaculture on the quality of marine waters and its effects on beneficial uses. Aquaculture effluent and excess feeding patterns will likely exceed the Water Quality Objectives and Effluent Limitations (Tables 1-3) as outlined in California's Ocean Plan.

Thank you for considering my comments and my support of the No Action alternative.

PUBLIC SUBMISSION

As of: 7/22/22 6:03 PM
Received: July 20, 2022
Status: Pending_Post
Tracking No. l5u-58nu-qh04
Comments Due: July 22, 2022
Submission Type: Web

Docket: NOAA-NMFS-2022-0051
Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California

Comment On: NOAA-NMFS-2022-0051-0001
Notice of Intent To Prepare a Programmatic Environmental Impact Statement for Identification of One or More Aquaculture Opportunity Area(s) in Southern California

Document: NOAA-NMFS-2022-0051-DRAFT-0011
Comment from Zinn, Ryan

Submitter Information

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General Comment

I urge you to adopt Alternative 1, the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California.

Aquaculture Opportunity Areas (AOAs) will not benefit Southern California's marine environment, coastal communities, or overall economy. The legal authority of Executive Order 13921 to push forward with designating Aquaculture Opportunity Areas is a gross power grab. Former President Trump should not have changed the regulatory process through an Executive Order, which circumvents Congress and our democratic electoral process.

The threat of fish escaping into southern California waters is inevitable, because fish escapes are a regular and ongoing occurrence in the fish farming industry. After a massive escape of Atlantic salmon from an aquaculture facility in state waters, Washington State investigated the site’s operator, Cooke Aquaculture, and found that the company lied about both the cause of the escape and its magnitude.

Fish escapes can disrupt the marine ecosystem and threaten wild fisheries. Farmed fish are genetically inferior fish, and when they interbreed with wild stock, they bring down the fitness and survivability of the wild fish stocks. Finfish aquaculture of "Salmonidae, transgenic fish species, or any exotic species of finfish" is illegal in California state waters; setting up salmon farms just beyond the 3-mile marker could threaten California's native salmon stocks, many of which are at risk for extinction, and harm fishermen operating within state and federal waters.

NOAA must assess impacts of these industrial facilities on all species, not just those that are listed under the Endangered Species Act. The agency's AOA Atlas reveals that 18 threatened and endangered species can be found in the southern California bight, including several whale species, sea turtle species, giant manta rays, black and white abalone, and the Guadalupe fur seal. Additionally, 19 species of marine mammals may traverse the proposed areas, and 14 fish species whose Essential Fish Habitat overlaps with proposed AOA sites.

Furthermore, Santa Monica Bay and the Santa Barbara Coast serve as nurseries for great white sharks. NOAA even admits that "[g]iven the high occurrence of these species, it is unlikely that aquaculture activities can avoid interactions." and admits that more indirect impacts to marine mammals and other wildlife may occur as well. Because the proposed facilities will be located in, or near, species' migration routes or in their habitat, NOAA must analyze the AOA designations' cumulative effects of this project and other proposed projects for the full term of any proposed permit on species.

Finally, two of the proposed AOAs in the Southern California Bight (CN1-A and CN1-B) are near a known DDT dumpsite. In 2020, scientists found up to 500,000 barrels of the banned pesticide DDT were found dumped in the Pacific Ocean off Catalina Island near NOAA's proposed AOA option CN1-B. This indicates that NOAA is not making decisions based on the best scientific information for the benefit of Southern California coastal communities or marine ecosystem.

This is not a solution to our world's problems. This type of industrial activity will only exacerbate our environmental, economic, and social problems.

Thank you for considering my comments and my support of the No Action alternative.

Appendix B. Public Scoping Meeting Transcripts

NWX-DOC CONFERENCING

Public Scoping Session 1 of 2
for the
Southern California Aquaculture Opportunity Area (AOA)
Programmatic Environmental Impact Statement (PEIS)

Operator: Welcome and thank you for standing by. Today's call is being recorded; if you have objections you may disconnect at this time. All participants are in the listen-only mode until the public comments section of today's conference. At that time you may press star one on your phone to make a public comment. I would like to turn the call over to your host, Jeff Bash. You may begin.

Jeff bash: Thank you. Hello and welcome everyone. Thank you for taking the time to join us today. I'm Jeff Bash, the Branch Chief for Policy and Planning in the NOAA Fisheries West Coast Regional Office in Seattle, Washington.

NOAA Fisheries is responsible for the stewardship of the nation's ocean resources and marine habitats. We provide vital services for the nation: productive and sustainable fisheries, safe sources of seafood, the recovery and conservation of protected resources, and healthy ecosystems—all backed by sound science and an ecosystem- based approach to management.

To achieve this mission, fairness, diversity, and inclusion need to be valued in our work. Our work is more productive and innovative when there is a diversity of skills, ideas, and experiences that reflect the stakeholder communities we serve.

On May 23, 2022, NOAA Fisheries published a Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California. The Notice of Intent started the public scoping process for identifying AOAs in this region, in accordance with the National Environmental Policy Act, or "NEPA." The environmental review process under NEPA provides an opportunity for stakeholders and the public to get involved in a Federal agency's decision-making process.

The goal of this meeting is to hear from you! This is reserved time for you to help the agency identify issues that should be considered and to provide recommendations. The purpose of public scoping is to assist us in defining the topics that should be addressed in the analyses in the PEIS.

We've tried to incorporate answers to some of the questions we've been hearing into our presentation; but in order to maximize the time we have to gather your

input, we will not be responding directly to comments today or having a question and answer session.

Today's meeting is the first opportunity for public and stakeholder feedback on topics that relate to offshore aquaculture, specifically in the area we will describe in Southern California. We will spend about 30 minutes getting familiar with the information, and then we will open the phone lines for public comment.

We look forward to your input and unique perspectives during this AOA planning process.

Now I will hand it over to our Regional Aquaculture Coordinator and Project Lead for the Southern California AOA, Diane Windham. Thank you.

Diane Windham: Thank you, Jeff. Hello everyone, I'm Diane Windham, the NOAA Fisheries West Coast Regional Aquaculture Coordinator for California, based in our Long Beach, California office. I am also the Regional Lead for the process to identify Aquaculture Opportunity Areas in Southern California.

As a reminder to everyone, this meeting is being recorded, and will be part of the administrative record for the AOA programmatic environmental impact statement, or "PEIS." If you have any objections to being recorded, you may disconnect at this time. This call will be listen-only until we open the queue for comments after the presentation.

Transcripts and recordings of this meeting will be available on the Southern California AOA website. You can scan the QR code on the screen with any smartphone camera to go to the website. The URL is also provided below the QR code.

Today we will spend a few minutes going over background information on aquaculture, in case the industry or the idea of an AOA is new to you.

After the background information, we will go over the details related to NEPA that were provided in the Notice of Intent on May 23rd.

The purpose of our meeting today is public scoping; to provide you with some of the specific information needs that NOAA Fisheries is seeking to help inform the NEPA environmental review -- review for AOAs in Southern California.

At the end of the presentation, we will remind you of the dates, times, and ways to provide public comments during the public scoping period. You will then be given instructions for getting into the queue to provide oral comments today. There will be a three minute limit for oral comments.

If offshore marine aquaculture is new to you, there are a few definitions to know:

Offshore marine aquaculture is one of many types of aquaculture. It is considered as the cultivation of marine organisms in open ocean waters. In this AOA identification process, it is focused in Federal Waters of the United States exclusive economic zone, or the EEZ, offshore of Southern California. When we say aquaculture, we mean: the breeding, growing, and harvesting of aquatic species in a controlled or selected environment. Aquatic species include fish, shellfish, and plants that live in any water environment like ponds, rivers, lakes, or (in this case) the marine environment - the ocean.

Any aquaculture operation needs to obtain permits from agencies who are responsible for various authorities that apply to aquaculture and the marine environment.

The demand for seafood is growing in the world and in the United States, as the population grows. Seafood is a safe, nutritious source of protein for consumers, but wild-caught fisheries alone may not meet the demand. The global level of wild-caught fisheries has been relatively stable for – or, steady – for the last 20 years. It is currently estimated that the United States imports 70 to 85 percent of the seafood we eat, and about half of that seafood comes from aquaculture in other countries.

Currently, aquaculture facilities in the U.S. are located on land (such as fish hatcheries) and in coastal or nearshore, state waters (such as oyster or abalone farms). There are also some offshore – offshore aquaculture facilities located offshore that are research-focused, and just one commercial shellfish farm is permitted in U.S. federal waters off of San Pedro, California. Growing the industry of offshore marine aquaculture could be another way for the U.S. to source its seafood, in addition to wild-caught seafood or existing near-shore aquaculture.

To give you some background on the Executive Order, on May 7, 2020, the White House issued an Executive Order on Promoting American Seafood Competitiveness and Economic Growth.

Section 7 of the Executive Order, entitled, “Aquaculture Opportunity Areas,” requires the Secretary of Commerce to identify geographic areas that contain locations potentially suitable for commercial aquaculture, and to complete a NEPA Programmatic Environmental Impact Statement for each area. The PEIS will assess the potential impacts of siting aquaculture facilities in an AOA.

NOAA selected federal waters in Southern California as one of the first two regions for potential AOAs and NEPA review.

What is an AOA? An AOA is considered to be a defined geographic area that has been evaluated to determine its potential suitability for commercial aquaculture.

An AOA is a planning initiative only and does not propose any aquaculture facilities or permits.

AOAs identified through this process would be considered potentially suitable for finfish, shellfish, macroalgae, or multi-species aquaculture.

NOAA Fisheries will use a combination of scientific analysis and public engagement to identify AOAs. As a reminder, an AOA is NOT an AOA until the PEIS is written and the NEPA analysis is complete!

The goal of identifying AOAs is to promote American seafood competitiveness and economic growth, while balancing economic opportunity with environmental responsibility; to plan aquaculture in a way that minimizes impacts and reduces user conflicts; to increase safe and secure access to sustainable and nutritious protein; and to support the facilitation of the development of domestic aquaculture – commercial aquaculture, consistent with sustaining and conserving marine resources under applicable laws, regulations, and policies.

So what has happened since the Executive Order was published in May of 2020?

Multiple offices within NOAA have been working on the directives from the Executive Order over the last two years. As stated on the previous slide, NOAA selected Southern California as one of the first two regions to be analyzed for potential AOAs. The other region, which is going under this process at the same time as Southern California, is the Gulf of Mexico.

A request for information was published in October of 2020 to seek more information from the public for the first two regions, as well as possible regions in the U.S. that could potentially be selected in the future.

At the same time, the National Center for Coastal Ocean Science, or “NCCOS,” worked with the regional offices in Southern California and in the Gulf of Mexico to collect data for a spatial modeling analysis for each region. The spatial analysis process was meant to assist agency decision makers in identifying areas that may be suitable for locating AOAs, as mandated by the Executive Order. The work by NCCOS resulted in a peer-reviewed technical memorandum published in 2021, entitled, “An Aquaculture Opportunity Area Atlas for the Southern California Bight.” A link to the Atlas is available on the Southern California AOA website.

The Atlas is one source of information to assist NOAA Fisheries in identifying AOAs. Through 2021, and Winter and Spring of 2022, NOAA Fisheries used the results in the Atlas, along with the public input gathered through the request for information and stakeholder engagement to develop the Notice of Intent for the PEIS.

With the publication of the Notice of Intent, NOAA Fisheries initiated the NEPA process for AOAs in Southern California. The NEPA scoping and public comment period on the notice of intent continues through July 22.

NEPA was signed into law on January 1, 1970. It is a procedural statute intended to ensure Federal agencies consider the environmental impacts of their actions in the decision-making process.

Using the NEPA process, federal agencies consider both the beneficial, or good, and adverse, or bad, potential impacts to the ecological and socioeconomic environment; to natural, cultural, and historic resources; as well as impacts to public health and safety, climate change, environmental justice communities, and cumulative impacts.

Agencies are required to invite participation for public review and provide opportunities for public comment on impact evaluations. The first opportunity for public review and comment is during Public Scoping. Scoping is defined in NEPA as an early and open process involving interested and affected parties to determine the scope of issues for analysis.

Scope is defined in NEPA as the range of actions, alternatives, and impacts to be considered in an environmental impact statement.

A PEIS is a broad, or high level, NEPA document that assesses the impacts of a proposed action.

A PEIS is often used when an agency plans new policies or programs that may include actions occurring in the same region; common subject matter and methods of implementation; or if a plan encompasses potential future NEPA assessments that would all have similar impacts but with a narrower scope, such as a project-specific, or site-specific, assessment.

The programmatic analysis may be used to inform NEPA processes for individual projects proposed later in time. And, a PEIS can help eliminate repetitive discussions of the same issues.

Just like a regular environmental impact statement, a PEIS considers a range of alternatives for the proposed action, including a No Action alternative. It undergoes the same public review process, and is shaped by public and stakeholder input.

The federal action proposed in the PEIS that NOAA Fisheries West Coast Region would identify one or more locations that may be suitable for multiple off – future offshore aquaculture projects in Federal waters of the Southern California Bight, and to evaluate the impacts of siting aquaculture in those locations.

Shown on the map, the Southern California Bight is considered as the marine space within the U.S. EEZ associated with the coastline between Point Conception and the U.S./Mexico border, and encompassing the Channel Islands.

The PEIS will assess geographically discrete areas only within Federal waters (so outside of State waters) within the U.S. EEZ that would be suitable to site future aquaculture development.

AOAs identified through this process would be considered potentially suitable for finfish, shellfish, macroalgae, or multi-species aquaculture.

The proposed action is a long-term planning effort. It is not a regulatory or permitting action. The analysis may be used to inform such processes for individual projects proposed later in time.

The purpose of the proposed action is to apply a science-based approach to identify AOAs in Federal waters.

The proposed action is needed to meet the directions of Executive Order 13921 to address the increasing demand for seafood, facilitate long-term planning for marine aquaculture development, and address interests and concerns regarding offshore marine aquaculture siting.

The dots shown on the map represent options for where AOA – or excuse me where NOAA may identify AOAs off the coast of Southern California. This figure is from the NCCOS Aquaculture Atlas. While the marine spatial planning – marine spatial modeling process in the Atlas included Federal waters in the entire Southern California Bight ecoregion, the AOA PEIS will focus on Federal waters in the northern and central part of the Bight, near the Santa Barbara Channel and Santa Monica Bay.

This narrowed-down area of interest is thought to have the most potential to be suitable for all types of aquaculture development, including the cultivation of finfish, macroalgae, shellfish, or a combination of species.

You can scan the QR code in the upper righthand corner of your screen, labeled, “NCCOS SoCal Atlas Website,” to download the Atlas. The QR code on the bottom right corner of your screen, labeled, “NOAA Fisheries SoCal AOA Website” will take you to our regional AOA landing page, where a link to the Atlas is also provided.

While these options and the preliminary area of interest are based on NOAA’s stakeholder engagement and the science-based, uh geo-planning information in the Atlas, it does not reflect a decision by the agency – or any agency to identify specific AOAs. AOAs would be identified only through the NEPA process.

The PEIS will consider the following range of alternatives within the area of interest.

Alternative 1 is the No Action Alternative, in which no AOA would be identified in Federal waters offshore of Southern California, even after the PEIS was written.

In Alternative 2, NOAA Fisheries would identify one or more AOAs from selected site options in Federal waters in the Santa Barbara Channel.

Alternative 3: NOAA Fisheries would identify one or more AOAs from selected site options in Federal waters in Santa Monica Bay; and in Alternative 4, NOAA Fisheries would identify one or more AOAs in either or both Santa Monica Bay and the Santa Barbara Channel.

For Alternative 2, the Santa Barbara Channel, there are eight selected site options, shown as boxes within the boundaries of the preliminary area of interest in the Santa Barbara Channel.

In Alternative 2, NOAA Fisheries would identify at least one and up to eight AOAs within the boundaries of selected site options. The sites are located between 10.02 and 19.72 kilometers (the equivalent of 5.41 and 10.65 nautical miles) offshore of Santa Barbara and Ventura Counties.

Alternative 3 for Santa Monica Bay: there are two selected site options in Alternative 3, shown as boxes within the boundaries of the preliminary area of interest in Santa Monica Bay.

In Alternative 3, NOAA Fisheries would identify at least one and up to two AOAs from within the boundaries of selected site options. The sites are located between 8.06 and 8.82 kilometers (or the equivalent to 4.35 and 4.76 nautical miles) offshore of Los Angeles County.

Again, these alternative descriptions are preliminary and do not reflect any agency decision. Based on the input received during public scoping, we may analyze more or fewer alternatives in the Draft PEIS.

Consistent with Executive Order 13921, NOAA is designated as the lead agency for the proposed action. The West Coast Region invited the EPA Region 9, the U.S. Coast Guard District Eleven, and the U.S. Army Corps of Engineers Los Angeles District to act as cooperating agencies for the purposes of the PEIS. EPA, U.S. Coast Guard, and U.S. Army Corps of Engineers have agreed to act as cooperating agencies. We thank these agencies and our other federal partners for their coordination in this planning effort.

For the timeline, we will spend this summer in the public scoping period of NEPA. All public comments, written and oral, will be reviewed to develop the PEIS through the rest of 2022. We expect the draft PEIS to be available to the public on or around Fall of 2023.

Important Dates: the public scoping period continues through July 22. You will have two opportunities to submit oral public comment, either at this meeting today, or at the next meeting on July 11. The meeting on July 11 will happen from 5 to 7 p.m., Pacific Standard Time.

You may also submit written public comments on Regulations.gov. The QR code and the URL address for Regulations.gov is provided on the screen.

As a reminder, Regulations.gov is maintained on the east coast time. Midnight on the east coast is 9 p.m. on the west coast. That means ALL comments need to be submitted before 8:59 p.m., Pacific Standard Time.

If you have questions on how to comment or access information about AOAs, you can email socalaoa.west coast -- .wcr@noaa.gov. We are maintaining this email address to help with the NEPA process; it is not meant to answer questions specific to the contents of the environmental process.

Regarding informational needs, public participation will help shape the AOA planning process. The PEIS will analyze potential impacts to the environment and – that may occur should projects be proposed in one or more of the AOAs, if identified. Through public scoping, we will identify which topics we should focus on in the environmental analysis of the Draft PEIS.

We are seeking your local insight related to the proposed planning action, specifically related to the preliminary alternatives.

Potential impacts associated with pre-construction siting surveys, construction, operations and maintenance, and decommissioning for all types of commercial aquaculture will be consid – will be considered. Positive and negative impacts will be considered.

If you have information on ways to mitigate, or decrease, negative impacts, we want to know about that too. Ways to mitigate impacts include setting standards for design, construction, or maintenance; monitoring systems and methods; any best management practices that could be applied to offshore commercial aquaculture.

Please refer to the notice of intent for a full list of prompts that were provided to help stimulate feedback related to local resources.

Some of the ecological, historic, or cultural resources we are considering focusing on in the PEIS include: wild fish stocks and Highly Migratory Species; protected species and sensitive habitats; wild-caught commercial and recreational fishing; tourism, shipping, navigation, and other offshore ocean uses; and the relationship of these resources to Climate Change.

Some of the socioeconomic connections we are seeking more information about include: communities that may be affected by offshore aquaculture development. For example, who makes up the working waterfronts in the region? What are the social, cultural, environmental justice, and public health topics that connect those communities to the offshore preliminary alternative areas? For example, what opportunities or demands may arise? How would access to resources change?

We are interested in identifying local community connections to the preliminary alternative areas related social values, traditions, identities, experiences.

We also want to know about consumer perceptions and local percept – perspectives related to aquaculture products and seafood.

If you have any questions about the NEPA process, how to access these presentation files, or how to submit comments, please email:

socalaoa.wcr@noaa.gov. You may also refer to the region – regional AOA website for more information.

To maximize the time we have to gather your comments, we will not be responding to comments tonight. This meeting is not a question and answer session. We will be accepting comments on the proposed Federal action, preliminary alternatives, potential impacts to resources, and other topics specific to identifying AOAs in Southern California. We will not be accepting comments on individual permit applications, or the potential for AOAs in other regions outside of Southern California.

I will now hand it over to the operator to begin our public comment session.

Operator: Thank you. At this time if you would like to make a public comment, please ensure that your phone is unmuted, press star one, and record your name clearly when prompted. If you need to withdraw your comment, press star two. Again to make a public comment, please press star one. One moment to see if we have any comments. And there are no comments at this time – oh I'm sorry, we did just have a comment come in. One moment please. And our first comment is from Amy Kraitchman. You may go ahead. Amy, your line is open.

Amy Kraitchman: OK, hi, can you hear me? Um, good afternoon

Operator: Yes –

Amy Kraitchman: OK. Good afternoon, my name is Amy Kraitchman. I'm a law clerk at Center for Food Safety. CFS has a long had aquaculture program dedicated to addressing the adverse environmental and public health impacts of industrial aquaculture and improving aquaculture oversight. Thank you for the opportunity today.

First, I want to address that NMFS does not have legal authority to designate this Aquaculture Opportunity Area, as NMFS is aware in 2018, CFS along with other contributions and fishing groups successfully challenged NMFS authority to regulate aquaculture under the Magnuson-Stevens Act. In August 2020, the Fifth Circuit affirmed a lower court's decision to vacate the nation's first commercial aquaculture permitting scheme in the Gulf of Mexico. Included as the Magnuson-Stevens Act, unambiguously precluded the agency from creating an aquaculture regime.

Furthermore, the 2020 Executive Order 13921 cannot give NMFS the authority to designate aquaculture when no statutory authority exists. The Executive Order did not specify a statute under which NMFS authority – NMFS has authority.

Even if NMFS has authority to designate Aquaculture Opportunity Areas, industrial offshore aquaculture results in a breadth of economic, environmental impacts which NMFS must address in the programmatic EIS.

Other countries with marine finfish aquaculture have suffered extensive environmental, socioeconomic, and public health problems associated with the

industry. For example, as of August 2019, Denmark has placed a prohibition on offshore aquaculture development for entire country out of concern for the industry's impacts on the environment.

In the U.S., Washington State has phased out marine finfish aquaculture for non-native species, pulling a massive Atlantic salmon spill in August 2017.

Marine finfish aquaculture routinely results in massive number of farmed fish escapes – escapes that adversely affect wild fish stocks. Escaped fish increase competition with wild stocks for food, habitat, and spawning areas.

Moreover, we have significant concern over the pervasive use of antibiotics, herbicides, pesticides, and other veterinary drugs for prevention and treatment of outbreaks in marine finfish aquaculture facilities and how they affect native species and public health.

Lastly, we have concerns about the Atlas's impact on endangered and threatened species in the area including species such as humpback whales, blue whales, sea turtles, and California sea lions.

ESA regulations state that any request for formal consultation may encompass a number of similar individual actions within a given geographic area or a segment of a non – of a comprehensive plan. This does not relieve the Federal agency of the requirements for considering the effects of an action as a whole. NMFS needs to do a programmatic ESA consultation prior to finalizing this AOA designation. That's all thank you.

Operator: Thank you. Next we have Barack Kamelgard. You may go ahead.

Barack Kamelgard: Hi, can you hear me?

Operator: Yes we can.

Barack Kamelgard: Alright. Great. Um, I'm going to keep my comments brief. Uh, there are su – Los Angeles Water Keeper, uh, protects the LA County coastline and waters off the coastline and we have concerns with the identification for two of the locations in Santa Monica Bay.

Uh, as you should be aware, there has been a lot of focus on the DDT that was found at the bottom of Santa Monica Bay, that is currently being dealt with and would have impacts on any fish, shellfish, or other aquaculture in Santa Monica Bay, as well as the ecosystem which I want to make sure is clear is not limited only to aquatic animals but also coastal and marine birds in the area. As a study recently found, that coastal California condors exhibit a high level of DDT.

Additionally there have been, along the Southern California Bight, several major sewage and oil spills in the last several years that would affect any operations in the

area and those are not adequately controlled and could be by any remediation measures.

Additionally, there are several Marine Protected Areas recognized within the area that would be affected by any operations in these locations.

And finally, to the extent that any operations – aquaculture operations were approved in the area, they should not solely be for finfish. If anything, there should be no finfish at all. But at a minimum, if there are certain finfish there need to be uses of innovative treatment options in addition to normal ones such as using shellfish being farmed as bioremediation along with adequate controls on those as well.

Um, and otherwise I'll have my comments reflected in my written comments. Thank you.

Operator: Thank you. There are no further questions at this time, but as a reminder, please press star followed by one if you'd like to make a public comment. One moment to see if there's any further comments. And one moment please. Next, we have Kim Selkoe. You may go ahead.

Kim Selkoe: Hi this is Kim Selkoe from Commercial Fisherman of Santa Barbara, a 501(c)(3) uh, port association representing all commercial fisheries in our port and I will make a more extensive written comment, but I just wanted to um, register today that our organization is adamantly against any finfish aquaculture in Federal waters off of California.

Our waters are some of the most productive and biodiverse for finfish wild-capture fisheries for the nation, and we see any finfish aquaculture as severely putting that um, sustainable and thriving industry at risk.

Um, and we hope that um, there will be a chance to engage further to um, back that up with more um, evidence and uh, debate about how to keep finfish aquaculture out of our waters. Thank you.

Operator: Thank you, at this time there are no further comments.

Diane Windham: And just a reminder for folks, uh, if you do wish to comment, please press star one on your phone and that will get you in the queue.

Operator: And one moment to see if there's any further comments. One moment please.

And next we have Kim Thompson. You may go ahead.

Kim Thompson: Hi thank you. Um, my name is Kim Thompson. I'm the Director of Seafood for the Future at the Aquarium of the Pacific, um, and I just want to um, comment in terms of context and how all of these important issues are going to be addressed.

It's very important to understand those local impacts, and those stakeholders who are going to be directly impacted, but it's also important to understand that larger context and the other systems in which these um, the farms will operate, which is our food production systems.

So to the extent practicable, it would be really helpful um, for this uh, environmental impact review to factor in the role that these farms would play in local, state, and also global food production, and California's role in that food production.

Um, and that's going to be really important for us to be able to make those uh, trade-off and value judgements, not just again with those local impacts, and those important impacts that it might have to those um, those local stakeholders, but also to society and the environment at large. Thank you.

Operator: Thank you. Next we have Chris Voss. You may go ahead.

Chris Voss: Yea hi my name is Chris Voss and I'm the president of Commercial Fisherman of Santa Barbara. Are you able to hear me?

Diane Windham: Yes, we can hear you.

Chris Voss: OK. Thank you. Um, my comment just has to do with uh, the uh, the impacts to commercial fisheries from a variety of offshore leasing and uh, the initiative – the 30 30 initiative that's being proposed. We're uh, um, expecting to lose um, considerable area over time moving forward due to offshore wind and open ocean aquaculture, as well as increased conservation efforts that are anticipated to take additional space away, so what that does is it concentrates our activities into a smaller and smaller area, as well as confounding the efforts that uh, marine resource managers like the Pacific Fisheries Management Council and the Department of Fish and Wildlife um, pursue in their efforts to sustainably manage the resources that are wildly harvested from the marine environment.

So, the challenges associated with the AOA and all of the other spatial impacts, the industrialization of the um, the Federal waters uh, is just uh, something that um, the commercial fishing community opposes and uh, we'll struggle desperately with um, in relationship to our efforts to uh, continue to be successful in our ports. Thank you very much.

Operator: Thank you. And just as a reminder that is star followed by one, if you'd like to make a comment. Next we Tyler Buckingham. You may go ahead.

Tyler Buckingham: Yes hi. Well uh, I will also be submitting uh, some written comments, but I just have to start off by saying thank you for all the work that is being done to advance uh, this AOA process to here, and I'm excited to see what the process yields. Um, my day job right now, I'm a journalist and I cover the American shoreline and I talk about aquaculture all the time with people. And I – it's just incredible how excited

uh, people are like, you know even older people, are really excited at the idea of sustainability. Uh, particularly in Ventura County, where uh, sustainability is on peoples' minds every day. With the water issue, uh, with the increasing heat and temperature, uh fire threat, uh, people are increasingly thinking about their footprint and where their food comes from.

And uh, in the process of learning about all of this, I thought you know, I – I could – I would want nothing more than to participate in this business. So I'm trying to start a little mussel – kelp and mussel company, and I've been following along in this process. And all I would say is my official comment is, I'm trying to do a small, 200-acre thing out of Ventura Harbor, and I would hope that other people like me can do this too. And that we can be a new working waterfront and create jobs and uh, protect that kind of cultural integrity, and protect the environment, and do it all. I think that's possible and we can be sustainable and produce excellent food and excellent energy. Um, thank you very much, and that's my comment.

Operator: Thank you. At this time there are no further public comments. As a reminder, if you'd like to make a comment, please press start followed by one. One moment to see if we have any further comments.

And there are no further comments at this time.

Diane Windham: If you're just tuning in and you wish to provide public comment, please press star one to get in the queue.

Operator: And there are still no additional public comments. Again that is star followed by one, if you'd like to make a comment. And there are still no pub – no further public comments at this time.

And again that is star, followed by one, if you'd like to make a comment.

Diane Windham: Just a reminder if you're just tuning in, please press star one to join the queue for public comment.

Operator: And there are no uh, further comments at this time. Again that is star, followed by one to join the – to ask a comment.

Diane Windham: If you're just joining us, uh, we just finished up with the slide presentation and we are still accepting public comment. You can press star one on your phone to join the commenting queue.

Operator: And again, as a reminder, if you'd like to make a comment please press star followed by one. And one moment please. And next we have Amalia Almada, you may go ahead.

Amalia Almada: Hi this is Amalia. I'm from the University of Southern California SeaGrant Program. I was just trying to scroll through the Aquaculture Atlas quickly, but my thought was whether it would be helpful on these listening sessions or elsewhere on the, um,

NOI site, to kind of have maps that are collocating some of these issues that have come up around where commercial fisheries are now, kind of in the Santa Barbara basin, where they're kind of thought to be restricted at this point, and even for um, you know the Santa Monica Bay area too, kind of where those outfalls are from Hyperion and elsewhere that's relevant, as well as some of the DDT uh, collocated sites. Just so we have a visual, we're all on the same page about kind of where these locations are, um, and how it relates to AOAs. I think as a visual person that would be helpful, for me at the very least too, and potentially for others. But thank you for the opportunity to comment.

Operator: Thank you. And currently there are no further comments. Again please press star one if you'd like to join the queue to comment.

Diane Windham: If you're just tuning in, uh, we've already completed the visual presentation but we are accepting public comment. If you wish to make a comment please press star one on your phone to get in the queue.

Operator: And again if you'd like to make a comment please press star followed by one. And just as a reminder, if you'd like to ask uh, or – make a comment please press star followed by one.

Diane Windham: If you're just tuning in, please press star one if you'd like to make a comment and that will get you in the queue to comment. Thank you.

Operator: And as a reminder, if you'd like to make a – a comment, please press star followed by one.

Diane Windham: Just a reminder if you're just joining us, we are still here, and if you're interested in providing a comment, please press star one to get in the queue.

Operator: And as a reminder, if you'd like to make a public comment please press star followed by one.

Diane Windham: If you're just tuning in, we did already complete the power point presentation, but you're welcome to submit a public comment orally, and if you wish to do, please press star one on your phone to get in the queue.

Operator: And as a reminder, if you'd like to make a public comment, please press star followed by one.

Diane Windham: If you're just tuning in, we have completed the power point presentation portion of this scoping meeting, and if you would like to leave a public comment, please press star one on your phone to get in the queue. Thank you.

Operator: And just a reminder, if you'd like to make a public comment, please press star followed by one. And just a reminder, if you'd like to make a public comment, please press star followed by one.

Diane Windham: If you're just tuning in, we are still accepting public comment on the Southern California Aquaculture Opportunity Areas. If you are interested in submitting a comment, we will be accepting those comments for another half hour, until 2 p.m. Pacific, and to leave a comment, please press star and then one on your phone, and that will get you in the queue to provide comment. Thank you.

Operator: As a reminder, if you would like to make a public comment, please press star one.

Diane Windham: If you're just tuning in, we are still here and receiving public comment. If you wish to leave a public comment, please press star, then one, and that will get you in the queue. Thank you.

If you wish to leave a comment, please press star one on your phone to get in the queue.

Operator: As a reminder, to make a public comment, please press star one on your phone, and to make a public comment please press star one on your phone.

Diane Windham: So folks, we have a little over five minutes remaining in this public scoping session. If you're interested in providing an oral comment, please press star and then one on your phone to get in the queue.

Alright everyone, well we are fast approaching the top of the hour in our allotted time for this public working session. Thank you for your time and participation.

This concludes our first public scoping meeting for the Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of one or more Aquaculture Opportunity Area(s) in Southern California. There will be another public scoping meeting on July 11th from 5 to 7 p.m. The same information that you saw today will pre – be presented on July 11th, and we will hold another oral public comment session at that time. Log-in information is available on the AOA website, and, we just want to thank you all for your time and participation today, and, um, we have about two minutes until – one minute until uh, the end of the time, so I'll hand it back over to the operator. And, thank you all once again.

Operator: Thank you for your participation in today's conference. You may disconnect at this time. Speakers.