



Responsible Offshore Development Alliance

October 31, 2023

Mr. Doug Boren, Director
Pacific Regional Director
Bureau of Ocean Energy Management
760 Paseo Camarillo, Suite 102
Camarillo, CA 93010

Re: Bureau of Ocean Energy Management's Draft Wind Energy Areas; Request for Comments: Commercial Leasing for Wind Energy Development on the Oregon Outer Continental Shelf Offshore; Docket No. BOEM-2023-0033

Submitted electronically via Regulations.gov

Dear Mr. Boren,

The Responsible Offshore Development Alliance (RODA) submits the following comments in response to the Request for Comments on the Draft Wind Energy Areas (Draft WEAs) for Commercial Leasing for Wind Power Development on the Oregon Outer Continental Shelf.¹ RODA is an association of fishery-dependent companies, associations, and community members committed to improving the compatibility of new offshore development with their businesses. Members of our coalition operate in federal and state waters of the Mid Atlantic, New England, and Pacific coasts.

We thank BOEM for heeding the requests of numerous stakeholders and extending the public comment deadline until October 31. RODA commends BOEM's aim to increase the opportunities for public input in the siting of potential offshore wind (OSW) energy areas (WEAs) off the Oregon coast. RODA also appreciates the utilization of the spatial suitability model (NCCOS Model) incorporating data collected by NOAA's National Centers for Coastal and Ocean Science (NCCOS) and presented as the Draft NCCOS Report - A Wind Energy Area Siting Analysis for the Oregon Call Areas (Draft Report).² Below, we describe some opportunities for improvement of the model in hopes that subsequent runs of the model will further one of BOEM's stated goals

¹ Available at <https://www.regulations.gov/document/BOEM-2023-0033-0001>; not published in Federal Register.

² Available at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Oregon_WEA_Draft_Report_NCCOS.pdf

of coexistence of OSW developments and fisheries. Previously, siting has truly taken place outside of the public's view with little information available to impacted stakeholders on how possible areas for development have been identified or modified. By including additional opportunities for public comment during the draft WEAs stage and having the benefit of reviewing the Draft Report, the public may be able to provide more nuanced input to inform potential areas of development.

As BOEM considers next steps for potential development of OSW off the Oregon coast, it **must** consider and address the informed and diligent comments on the Oregon Call Areas provided by RODA,³ and numerous others,⁴ as well comments submitted on the Draft WEAs. It was unfortunate that many comments submitted during the Call Area comment period seem to have been largely ignored. Across the nation, the fishing industry has provided hundreds, if not thousands, of public comments and well-thought thorough input to inform potential OSW energy development, much of which still awaits response or action. This must not be another check the box exercise with no tangible outcomes that avoid, minimize, and mitigate for prospective impacts.

Based on the below, **RODA recommends BOEM cancel the Draft WEAs, rescind the Call Areas, and restart the planning process utilizing the NCCOS spatial suitability model covering all areas off the Oregon coast greater than 12 miles offshore, including areas deeper than 1,300 meters, excluding from further consideration all offshore banks and seamounts and requiring an adequate buffer zone surrounding them.**⁵ In the alternative, **RODA supports the recommendation of the Pacific Fishery Management Council (PFMC)⁶ that BOEM not take any further actions on OSW energy planning off Oregon until the many concerns identified by stakeholders, fishery managers, and BOEM's sister agencies, are addressed and included in the process.** In effect, a continuation of the pause requested by the Governor of Oregon in her June 9, 2023 letter to the Honorable Elizabeth Klein.⁷

³ Available at <https://www.regulations.gov/comment/BOEM-2022-0009-0205>.

⁴ Particularly those submitted by the National Marine Fisheries Service (<https://www.regulations.gov/comment/BOEM-2022-0009-0178>) and the many fishing industry participants, organizations, and fishery managers who offered comments.

⁵ This, in large part, mirrors the recommendation submitted by the Pacific Fishery Management Council (PFMC) in April of this year. See - <https://www.pcouncil.org/documents/2023/04/april-2023-boem-offshore-wind-gov-kotek.pdf/>

⁶ See - <https://www.pcouncil.org/documents/2023/10/c-3-supplemental-attachment-3-draft-pacific-council-comment-letter-re-bureau-of-ocean-energy-management-request-for-comments-draft-wind-energy-areas-commercial-leasing-for-wind-power-develo.pdf/>. We acknowledge the document is still in DRAFT form; but we assume the document submitted will closely mirror the linked document. We base our support on the document uploaded to the PFMC Briefing Book for the November meeting.

⁷ See - <https://www.pcouncil.org/documents/2023/06/c-3-supplemental-attachment-1-letter-to-boem-from-the-honorable-governor-tina-kotek-et-al-re-oregons-coastal-communities-about-the-boems-ongoing-process-for-identifying-wi.pdf/>

RODA is appreciative of the Administration’s goals relative to OSW developments. Given the significant questions that remain surrounding (1) the economic viability of these projects; (2) the degree and severity of impacts to the marine environment and ecosystems, and (3) a planning process that does not seem to prioritize co-existence with current ocean users; slowing down the process to better understand the answers to these (and other) foundational questions seems prudent. We, as a nation, should not sacrifice making informed decisions in order to meet arbitrary timelines. The pace of development is preventing the application of lessons learned from early projects. Given supply chain delays, transmission limitations, and the current unavailability of Jones Act-qualified vessels and skilled U.S. workforce, any new WEAs off the West Coast are not likely to result in construction for years or even a decade. This is especially true for WEAs that would be developed utilizing floating turbines, as that technology is still nascent. There is simply no need to lock in areas for development this early; delaying leasing would allow further research and opportunities to deconflict area identification without impacting overall development timelines. In December of 2022, five leases were auctioned off the California coast. Allowing those leases to be developed and operational for 2 - 4 years, while placing a moratorium on other lease sales off the West Coast, would allow important information to be gathered about the efficacy of floating OSW facilities and environmental, ecological, and human impacts.

BOEM, like most OSW developers, is taking a completely unpredictable approach to fisheries, choosing what specific topics to address regarding fishing without discernible rhyme or reason. BOEM’s responses to information received through public comment periods have been inconsistent or absent, despite a clear record of common collective requests throughout all stages of the planning process. This approach creates confusion, makes authentic engagement impossible, and exacerbates a growing divide between the select few who will financially benefit from OSW development and the large number of coastal citizens who will suffer direct negative environmental and economic impacts.

RODA has consistently, for years, offered dozens of specific requests to BOEM to improve communication, safety, transmission planning, research, cumulative effects analyses, seafood business longevity, and environmental impacts (Appendix I). BOEM should clarify what it considers as its specific fisheries goals, but there is reason to believe many of these goals are mutual.

After offering introductory comments about the importance of the fishing industry, we transition to a discussion of the NCCOS Model and offer some recommendations, including on specific data layers. The Request for Comments identified nine specific “features, activities, mitigations, or concerns within or around the Draft WEAs”⁸ that BOEM seeks comments on. We address those

⁸ See Request for Comments, pages 17 & 18. https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Request_to_Comment_BOEM-2023-0033-0001.pdf

which are of most concern to the fishing industry.

I. The Importance of the fishing industry, generally, and to Oregon, specifically

A. Generally

The Outer Continental Shelf Lands Act (OCSLA) requires that any lease, easement, or right-of-way in support of renewable energy, be carried out in a way that provides for the, “prevention of interference with reasonable uses (as determined by the Secretary) of the exclusive economic zone, the high seas, and the territorial seas.”⁹ At the very least, such leases have to co-exist with reasonable uses; and those carrying out those uses. Fishing for example.

Each year, NOAA Fisheries publishes a Report entitled *Fisheries Economics of the United States* (NOAA Report).¹⁰ This report takes a detailed look at the economic performance of commercial and recreational fisheries and other marine-related sectors on a state, regional, and national basis. It also describes how U.S. commercial and recreational fishing affects the economy, in terms of employment, sales, and value-added impacts.

The most recent NOAA Report was published in February of 2023; and reported on impacts realized in 2020. “For 2020, U.S. commercial and recreational saltwater fishing generated \$253 billion in sales impacts, contributed \$117 billion to gross domestic product, and supported 1.7 million jobs in the U.S. marine fishing sector and across the broader economy. This information highlights the importance of our commercial and recreational fisheries to our national economy.” As a reminder, COVID-19 had significant impacts to our national economy in 2020, which affected the fishing industry as well.

NOAA’s National Seafood Strategy

In August of this year, NOAA published its *National Seafood Strategy* (Seafood Strategy).¹¹ The Seafood Strategy highlights the importance of seafood in meeting global needs while also finding:

- **Seafood is Good for People.** “Seafood is one of the best sources of nutrients essential for human health and well-being.”

⁹ 43 U.S.C. §1337(p)(4)(i)

¹⁰ See - <https://www.fisheries.noaa.gov/national/sustainable-fisheries/fisheries-economics-united-states>

¹¹ See - <https://www.fisheries.noaa.gov/s3/2023-08/2023-07-NOAAFisheries-Natl-Seafood-Strategy-final.pdf>

In September of last year, the Administration announced it was convening the first White House Conference on Hunger, Nutrition, and Health in over 50 years¹² in furtherance of the Administration’s goal of ending hunger and increasing healthy eating and physical activity in the U.S. by 2030. It is beyond dispute that wild capture seafood is a healthy dietary component. The United States Food and Drug Administration (US FDA) has repeatedly touted the health benefits of including seafood in one’s diet. Positively Groundfish recently published a nutrition and health benefits fact sheet outlining seafood species-specific nutrient information.¹³

- **Seafood Is Good for the Economy.** “The U.S. harvests about 10 billion pounds of seafood annually with a dockside value of \$6.3 billion. Domestic seafood is also an economic engine that supports 1.2 million jobs and generates \$165 billion in sales across the broader economy.”
- **Seafood Is Good for the Planet.** “Harvested and grown responsibly, as it is in the United States, seafood is also an environmentally friendly way to produce a nutritious food given its relatively low carbon footprint and efficient use of resources, and is increasingly a critical part of food systems designed to reduce and mitigate the effects of climate change.”

America’s seafood consumers are rightly concerned about where their seafood comes from. When choosing to purchase domestically sourced, wild capture seafood, those consumers can rest assured the product was harvested under strict management frameworks implemented in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSA). In addition to being sustainably sourced by gear types that minimize impacts to protected and bycatch species, our wild capture harvesters provide this protein source with less of an impact on climate than imported seafood and most domestic terrestrial-based protein sources. In 2018, Dr. Ray Hilborn co-authored a study entitled *The environmental cost of animal source foods*. This study found that a diet that included seafood, in particular wild-capture seafood, would result in less environmental costs compared to diets rich in other animal source foods. Similarly, a 2021 study quantified the climate forcing (potential impacts on climate drivers) per unit of fish protein associated with several U.S. tuna fishing fleets, among the most important capture fisheries by both volume and value. That study found that skipjack tuna caught by purse seine, results in lower climate forcing than all other sources of proteins examined with the exception of plants.¹⁴ Given the above, we must promote, protect, and expand U.S. domestic wild capture seafood production for its nutritional benefits and

¹² See - <https://www.whitehouse.gov/wp-content/uploads/2022/09/White-House-National-Strategy-on-Hunger-Nutrition-and-Health-FINAL.pdf>

¹³ See - <https://www.positivelygroundfish.org/nutrition>

¹⁴ McKuin, B, Watson, JT, Stohs, S, Campbell, JE. 2021. Rethinking sustainability in seafood: Synergies and trade-offs between fisheries and climate change. *Elementa: Science of the Anthropocene* 9(1). DOI: <https://online.ucpress.edu/elementa/article/9/1/00081/116726/Rethinking-sustainability-in-seafoodSynergies-and>

low climate impact when compared to imported seafood and most domestic sources of protein.

NOAA also identifies four goals of the Seafood Strategy:

- GOAL 1: Maintain or increase sustainable U.S. wild capture production;
- GOAL 2: Increase sustainable U.S. aquaculture production
- GOAL 3: Foster access to domestic and global markets for the U.S. seafood industry
- GOAL 4: Strengthen the entire U.S. seafood sector

As NOAA considers the best approach for implementing the Seafood Strategy, in particular in achieving its goals, it will be imperative that BOEM's process include an acknowledgement of the Seafood Strategy and the goals contained therein. BOEM should also describe how its efforts on the outer continental shelf will help support attaining those goals.

Our commercial fishermen and women, as they have for countless years, stand ready to supply ALL Americans with a healthy, renewable and sustainable source of protein in furtherance of the Administration's goal of ending hunger and increasing healthy eating. We cannot help accomplish this goal if we are forced out of historic and productive fishing areas.

It is critical to remember that for most Americans, the only access they have to the nation's living marine resources is through the activities of our commercial fishermen and women and processors.

B. To Oregon

The NOAA Report¹⁵ states the Oregon seafood industry supports 17,839 jobs, accounted for \$1.656 Billion in sales¹⁶, generating \$543 Million in income¹⁷ and \$778 Million in Value Added.¹⁸ The recreational fishing industry supported an additional 704 jobs while accounting for \$73.7 Million in sales, generating \$27.9 Million in income and \$45.1 Million in Value Added.

Letters to BOEM from the Governor of Oregon, members of the Oregon Congressional delegation,

¹⁵ Data for the Oregon seafood industry and recreational fishing expenditures can be found in the data visualization page - <https://www.fisheries.noaa.gov/data-tools/fisheries-economics-united-states-data-and-visualizations>

¹⁶ Sales impacts refer to the gross value of all sales by regional businesses affected by an activity (see NOAA Report Glossary).

¹⁷ Income impacts includes personal income (wages and salaries) and proprietors' income (income from self-employment) (see NOAA Report Glossary).

¹⁸ Value-Added impacts refer to the contribution made to the gross domestic product in a region related to an activity (see NOAA Report Glossary).

and the resolutions adopted by a significant number of Oregon’s coastal communities all speak to the importance of meaningful engagement with Oregon’s fishing community. Clearly, the importance of the fishing industry to the state is revealed in those letters and resolutions.

C. Conclusion

RODA has consistently called for a holistic approach of OSW energy developments that avoids impacts to our domestic fishing industry. The above shows the importance of the fishing industry to the nation in terms of jobs, economics and food security. It also shows how the Oregon fishing industry, and dependent community, is an important economic driver for Oregon’s coastal communities as well as being ingrained in the culture, heritage, and identity of those communities.

II. Incorporation by Reference

Except where our recommendations differ, **RODA incorporates by reference comments submitted by the Pacific Fishery Management Council (PFMC), National Marine Fisheries Service (NMFS)¹⁹, and comments submitted by RODA members.** RODA will not be suggesting specific aliquots for removal from the Draft WEAs; but defer to the expertise of our members where they chose to identify areas for removal.

III. The Spatial Suitability Model

The Draft Report “provides background, methods, results, and next steps for the ecosystem-wide spatial suitability model developed to inform selection of Draft Wind Energy Areas”. Because the NCCOS model was only applied within the boundaries of the previously identified Call Areas, it cannot be truly called an “ecosystem-wide spatial suitability model”. Had the NCCOS model been utilized across California, Oregon, and Washington, covering the U.S. portion of the California Current Large Marine Ecosystem (CCLME), then that may be a true statement.

The Draft Report indicates that while NCCOS acquired “over 400 data layers”²⁰ during data inventory, only forty of those were utilized in the spatial planning analysis that resulted in identifying Draft WEAs off the Oregon coast.²¹ These data layers were organized into categories representing the major ocean sectors including: National Security, Natural Resources, Commercial and Recreational Fisheries, Wind Logistics, and Industry, Navigation and Transportation. While it is logical to assume some overlap within the acquired data layers, it is illogical to assume that there was overlap with 90% of the data layers. Without knowing what data layers were not utilized,

¹⁹The NMFS letter has not yet been uploaded to the docket; but is dated October 27, 2023

²⁰ Draft Report, Section 2.3.2, page 18

²¹ Draft Report, Appendix A

and why, it is difficult for stakeholders to have confidence in the results of the NCCOS model. For example, were certain data layers not included because they would have shown too high a proportion of the Call Areas as being unsuitable for OSW development? For sake of transparency, and at a minimum, the data layers which were not included should be identified along with the reasoning for not including them.

RODA and our members look forward to working with BOEM and NCCOS to further refine the model and are hopeful for robust opportunities to do so. While the Request for Comments does not specifically seek feedback on the model, some reflections are provided herein insofar as they relate to the Draft Report. Clarifying certain points in the Draft Report is of utmost importance given that BOEM uses the model in the identification of the Draft WEAs.

A. BOEM's Use of the Model Generally

The NCCOS model is being used to evaluate suitable areas for OSW facilities within the boundaries of areas identified in the April 29, 2022 Call for Information and Nominations.²² NCCOS is supporting BOEM's spatial planning for areas BOEM has already identified as appropriate for OSW development prior to public review. A more effective spatial planning analysis would consider ALL waters in the region before BOEM makes critical early decisions. The sequencing of the model analysis regrettably gives rise to a perception that it is being used to validate BOEM's siting decisions rather than informing those decisions. Other areas within the region, not considered in the NCCOS model, may have fewer impacts to current ocean users or otherwise be more suitable for OSW developments. Prior to identification of Call Areas, BOEM should work with current ocean users to identify areas suitable for OSW development which also avoid and minimize impacts to current ocean users.

As noted above, a holistic approach to planning would have considered the entirety of waters off the Oregon coast. **Canceling the Draft WEAs and rescinding the Call Areas would allow BOEM and NCCOS to provide stakeholders with additional assurances that the areas deemed most suitable by the NCCOS model are so.**

B. Implementation of the Model

The Draft Report relies heavily on scores of relative compatibility to model areas with greater or lesser suitability for OSW developments. However, it does not fully describe how these scores were derived. To the extent that they may be the product of qualitative considerations rather than quantitative analyses, **BOEM must show how the scores were determined, what thresholds were used, and if external experts were consulted.** This is fundamentally important to the efficacy of the model.

BOEM should provide the public more clarity and further opportunity for comment on the

²² 87 Fed. Reg. 25529 (April 29, 2022).

Draft Report prior to WEA identification. It is difficult to interpret some of the information provided. For example, the term “Z Membership Function” is used no less than six times in the Draft Report, primarily in Appendices where scores are reported. Yet the Draft Report provides no description of what this means, how it is interpreted, and how it impacts the scores. Below, RODA offers comments on items contained in the Draft Report which would benefit from additional clarity.

Full understanding of an area’s suitability requires analysis during and throughout an expected lease term. Many of the model’s inputs - data layers or weighting measures - are based on historical usage or data sets. Those may inform the suitability of an area today but are of limited use in evaluating the suitability of an area in the future. Fish stocks, marine mammals, and other marine wildlife are shifting in ranges. Given the length of BOEM leases,²³ it is reasonably foreseeable that fisheries and fish stocks that are not currently prosecuted or available in the Draft WEAs will be inhabiting those areas during the lease term. The PFMC’s letter discusses a new gear type, Deep Set Buoy Gear, available to harvest highly migratory species (HMS). Fishermen, based on their knowledge and experience, are predicting waters in the Draft WEAs will be productive waters for swordfish and other underutilized HMS stocks; but with no historic footprint in the Draft WEAs, reasonably foreseeable future reliance on those areas will not be considered.

C. Specific Concerns about the Data Layers

1. Oregon Department of Fish and Wildlife (ODFW) & NMFS Combined Fisheries Data Layer

RODA appreciates the time and effort expended by ODFW and NMFS to provide fishery data for inclusion into the NCCOS Model in such a truncated timeline. As noted above, we defer to our members - the subject matter experts for the fisheries they prosecute or represent - on specific comments on the individual, fishery specific, data layers that were combined into one data layer.

The Draft Report indicates that nine fisheries were included in the combined fisheries data layer: at-sea hake mid-water trawl, shoreside hake mid-water trawl, groundfish bottom trawl, groundfish pot gear, groundfish longline gear, pink shrimp trawl, dungeness crab, commercial troll/hook-and-line albacore, and charter vessel albacore troll/hook-and-line.²⁴ RODA members have expressed concern over the dilutive impact of including fisheries with very little operational footprint with the Call Areas. Inclusion of those fisheries negatively impacts fisheries with a higher percentage of their effort and revenues derived from the Call Areas. Fisheries for groundfish and HMS are far more reliant on the Call Areas, and Draft WEAs, than other fisheries included in the combined

²³ The most recent leases were recently auctioned for the five sites off the California coast and have a 33-year lease operations term (39-years in total) - Available at https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/PACW-1%20California%20Lease%20OCS-P%200561_1.pdf.

²⁴ Draft Report, Table 2.5, page 25

fisheries data layer.

Another concern is the usage of ex-vessel revenues in the combined fisheries data layer. While ex-vessel revenues are appropriate for determining potential vessel level reliance on the areas, it fails to capture the downstream revenues resulting from fishing activities. **The true value of the resources to dependent fishing communities is a data need that should be incorporated into the NCCOS model before identification of final WEAs.** RODA is generally aware of an ongoing effort being led by NMFS to develop a tool allowing consideration of spatial data to inform discussions surrounding socioeconomic impacts. The Pacific Fishing Effort Mapping (PacFEM) Project is intended to consider socioeconomic relationships for all west coast fisheries and ports. It is our understanding this tool is supposed to be available relatively soon. **Given the intended purpose of the PacFEM tool, decisions on final WEAs should be tabled until this data can be incorporated into the NCCOS Model.**

2. Incomplete information hindered development of robust data layers

The inability to provide additional data/information due to time constraints is a common theme in the Draft Report. No fewer than thirteen (13) times, the lack of time was identified as a limiting factor:

- Regarding only including nine fisheries in the combined fisheries data layer - “Other fisheries were considered for inclusion, but *time constraints* and the availability of spatial data prevented inclusion in the model.”²⁵
- Regarding protected species data, time limitations were mentioned three times:
 - “Not all protected species that may occur in the area were included in NMFS recommendations for the model due to data and/or *time limitations*.”²⁶
 - NMFS proceeded only with the first five species in Table 1 for inclusion in the data layers due to data and/or *time limitations*.”²⁷
 - The *compressed timeframe for this effort* precluded any consideration of” future shifts in species distributions. “NOAA’s California Current Integrated Ecosystem Assessment team is currently assessing shifts in species distributions that will provide this type of data in the future.”²⁸

²⁵ Draft Report, Section 2.4.4., page 24

²⁶ Id @ Appendix B, page 122

²⁷ Ibid

²⁸ Id @ Appendix B, page 123 - 124

- Regarding habitat layers:
 - For Rocky Reef Habitat Areas of Particular Concern, “Given the *time constraints*, our interpretations have not gone through adequate peer review, and as such may not reflect the most appropriate interpretation of the CMECS²⁹ substrate attributes.”³⁰
 - “Although we did not include mesoscale eddies data layers largely due to *time constraints*, we note their importance in the area (see *Other Habitat* section of this document).”³¹
 - “It is important to emphasize that the data we provided applied the best available science at the time and does not account for future shifts in species and habitat distributions, which will alter their potential overlap with OSW. The *compressed timeframe* for this effort precluded any consideration of such factors.”³²
 - Regarding mesoscale eddies, “In addition to the shelf break, there are smaller more regional features such as mesoscale eddies that also can be areas of high productivity. These features may be identifiable from regional satellite imagery of ocean color but *due to lack of time* we are not able to provide further descriptions of their occurrence and distribution other than to note their importance.”³³
 - “Other environmental and oceanographic features, including current associations, preferred temperature ranges and water depths, chlorophyll concentrations, or centers of target prey distribution, can also determine important habitat areas for a variety of federally managed species. Although information regarding these features is improving (e.g., due to technological advancements), we were not able to provide it in a format that would be suitable for this modeling exercise, *given the time constraints*. Furthermore, there may be other habitat types, features, etc. that may be adversely affected by OSW energy related activities, but the *compressed timeframe* for this effort precluded an extensive literature review or consultation

²⁹ Coastal and Marine Ecological Classification Standard

³⁰ Draft Report, Appendix C, page 134

³¹ Id @ Appendix C, page 135

³² Ibid

³³ Id @ Appendix C, page 137

with other subject matter experts.”³⁴

- Regarding fisheries considerations provided by NOAA’s NMFS and ODFW:
 - “two fisheries that operate in the Call Areas (salmon and halibut) were not included due to spatial data limitations and *time constraints* that prevented acquisition of spatial data.”³⁵ Regarding pacific halibut, “Future development of spatial data could be based on logbooks from IPHC but could not be achieved on the *short timeline* allocated for this effort.”³⁶
 - “It is important to emphasize that the data we provided, i.e., maps of fishing activity and associated revenue, represent conditions over the past 10-20 years and do not account for future shifts in species distributions and corresponding shifts in fisheries activity, which will alter the potential overlap with OSW energy development. The *compressed timeframe* for this effort precluded any consideration of such factors. NOAA’s California Current Integrated Ecosystem Assessment team is currently assessing shifts in species distributions that will provide this type of data in the future.”³⁷
 - “We note that the NCCOS model suitability scores are of relative suitability, and fishing could still occur in a cell with a “high suitability” score. In such cases, it could be that there was incomplete information (e.g., due to data and/or *time limitations*), and engagement with fisheries stakeholders could fill in any such gaps.”³⁸
- NMFS provided Appendix F - Juvenile and Larval Fish Distribution Data on July 10, 2023.³⁹ This was added “after hearing Tribal Nation’s concerns about the potential impact of OSW development on ecosystem and oceanographic processes, including larval fish distributions, during the May 2023 meeting of the Pacific Fishery Management Council’s Marine Planning Committee.” Appendix F is not mentioned in the body of the Draft Report nor is the information included as a data layer in the model.

³⁴ Id @ Appendix C, pages 137-38

³⁵ Id @ Appendix G, page 154

³⁶ Id @ Appendix G, page 160

³⁷ Id @ Appendix G, page 157

³⁸ Id @ Appendix G, page 166

³⁹ Id @ Appendix F, page 167

Every effort should be made to allow adequate time to collect the information outlined above. Absent acquisition of complete and thorough information, the outputs of the NCCOS Model will be suspect. Once these datasets have been acquired, the NCCOS Model should be run again to determine if the Draft WEAs identified in August are still the most suitable.

3. Protected Resources Data Layer

While we address protected species in more detail below, there is concern that BOEM selected the only scenario proposed by NMFS that did not recommend scores of zero (in effect a constraint) for the critically endangered Leatherback Sea Turtle (LST) and Southern Resident Killer Whale (SRKW).⁴⁰ Section 2.4.1, NMFS Protected Species Data Layer, states the combined data layer contains a subset of highly vulnerable protected species known to occur in the Call Areas. The Draft Report must provide better definitions regarding different levels of vulnerable protected species. Further, the scoring system for NMFS protected resources is not clearly described. The last three rows in the first column of Table 2.1 (page 21) are labeled “MMPA Listed” but that term is not defined. It does not appear to mean marine mammals which are also listed under the Endangered Species Act, as that would be redundant to the first three rows in that table. BOEM should not consider WEAs in important areas for the LST, SRKW or the other three species included in the Protected Species Data Layer.

4. Industry, Navigation and Transportation Data Layer

The approaches followed by BOEM in evaluating maritime safety in light of OSW development to date pose far too great a risk of dangerous outcomes to mariners. The oft-touted “all-of-government approach”, that includes BOEM and the United States Coast Guard (USCG) consultation during project permitting, must be far more holistic and clearly structured.

BOEM and USCG have yet to conduct a measured analyses of the following topics, despite repeated requests from fishermen and RODA:

- Turbine layout patterns
- Radar interference
- Transit lanes or buffer areas
- Funneling analysis
- Search and rescue (SAR) policies
- Cable burial depth requirements
- Fishing spatial operational needs
- Anchorage in sensitive habitats

We urge BOEM to work closely with USCG and the maritime community, including

⁴⁰ Draft Report, Appendix B, Table 3, NMFS protected species recommended data layers and scores; scenarios in order of preference, page 124.

fishermen, to clarify roles and responsibilities and ensure that these topics are scientifically evaluated in advance of any decisions on lease boundaries or locations.

5. Constraints

As with protected species, this will be discussed below. It is our understanding that a constraint is an area deemed completely incompatible with OSW development; and would thus be scored a zero. Only two constraints were identified by BOEM: areas identified by the Department of Defense for exclusion and fairways established by the United States Coast Guard in the recent Pacific Coast Port Access Route Study.

6. Commercial and Recreational Fishing Data

The data representing commercial and recreational fishing were received from cooperating programs across NOAA. NMFS, in Appendix G, suggests BOEM and NOAA should engage with the fishing industry in order to gain an understanding of where they operate within the Draft WEAs and how they operate in case refinements are merited. RODA, and the fishing industry which operates off Oregon, has repeatedly suggested this in prior comment letters and reiterate that request here. RODA remains available to coordinate any such engagements before identification of final WEAs.

As has been noted by other commenters, the lack of recreational fishing information is concerning. Based on our member's knowledge and experience, we recommend not using commercial or charter fishing vessel effort as a proxy for recreational fishing effort. The vessels utilized by recreational fishermen are typically smaller.

7. Levelized Cost of Energy (LCOE)

RODA recommends additional clarity on the Levelized Cost of Energy for 2027 as this is the only information included in the Wind Data Layer. The dollar values utilized, ranging from \$48.7/MWh to \$80.0/MWh, seem to no longer be valid given recent actions on the East Coast where the developers behind Empire Wind 1, Empire Wind 2, and Beacon Wind all submitted requests for substantially increasing the price of power produced at three planned offshore U.S. wind farms, according to a filing made by a New York state regulatory authority.⁴¹

Particularly, RODA requests additional information on the following:

- Define LCOE for purposes of the NCCOS Model and the BOEM decision-making process;
- How are governmental subsidies factored in when determining LCOE?
- How does LCOE relate to the eventual cost to the consumer?
- How does LCOE for OSW in the Draft WEAs compare to other sources of Renewable

⁴¹ <https://www.msn.com/en-us/money/markets/equinor-bp-seek-54-hike-in-us-offshore-wind-power-price-filings-show/ar-AA1g5g8P>

Energy (solar/onshore wind/hydroelectric)?

8. NOAA Surveys

Fisheries management relies on fishery dependent and independent data collection to understand and track populations over time and to set sustainable quotas. Disruptions to survey methodology and data collection, without adequate time and analyses for adjustment, will be detrimental to our understanding of fish stocks and ultimately may lead to reduced quotas for the fishing industry. RODA does acknowledge that BOEM and NMFS have recently published the final federal survey mitigation strategy but are concerned that efforts to address survey mitigation needs will require additional resources not fully determined by the federal strategy.

While it is beneficial that fisheries surveys were considered in the NCCOS model, there still appears to be significant overlap in both Draft WEAs with NMFS surveys. A number of important sample collection points are included within the boundaries of the Draft WEAs. The Groundfish Bottom Trawl Survey collects samples in both Draft WEAs; the southern portion of Draft WEA B (Brookings), includes NMFS Sampling Stations for the Pre-recruit Survey, West Coast Pelagic Fish Survey, Northern California Current Ecosystem Survey, and Integrated Ecosystem and Pacific Hake Survey.

The Pacific Hake Survey is instrumental in informing international management for hake under the Agreement Between the Government of Canada and the Government of the United States of America on Pacific Hake/Whiting. This Agreement established new ways to strengthen cooperation between Canada and the U.S. by creating a process under which the Total Allowable Catch (TAC) is decided and the fishery is managed.

IV. Specific Items BOEM seeks comments on

A. Conflicting uses of the Draft WEAs

The primary components of this item are navigation, fisheries, and additional information.

1. Navigation

When considering the navigation needs of commercial and recreational fisheries, BOEM needs to account for safe transit to and from port in prevailing weather conditions, which may differ during different times of the year. The Draft WEAs are located offshore of ports and harbors that serve the fishing industry.

In addition to the general comments made above regarding safety and navigation needs, BOEM must pay special attention to the considerable impact ubiquitous coverage of WEAs will pose in this region. The two Call Areas covered a large area often transited by vessels landing in Oregon and California. The separation of Draft WEA B (Brookings) and the two lease sites off Humboldt,

California may provide some alleviation of traffic and navigational constraints only if the space between these areas is not developed at any future point. To determine where and what size areas will be needed for transit, BOEM should execute coastwide co-production of knowledge with United States Coast Guard and vessel operators in the southern Oregon and northern California region, and conduct explicit modeling that includes fishing vessel movement patterns, funneling, and traffic changes. This strategy should include a plan to identify traffic patterns and transit needs for vessels which are not required to have AIS or VMS.

RODA and others in the fishing industry have repeatedly stated that engagement needs to occur coastwide, for both active fishing and transit needs. BOEM has still not included appropriate regional representatives on neither the Oregon Intergovernmental Task Force nor the California Intergovernmental Task Force, despite the known federal and mobile nature of West Coast fisheries that do not explicitly correlate to the closest-land based state. While there may be some opportunity for fishermen to provide input to states during the federal consistency determination process under the Coastal Zone Management Act, not all states with fishermen who will be impacted will have such review authority and states' approaches to federal consistency vary widely even when they do review a project.

BOEM also has to be cognizant that different fisheries have different spacing requirements to account for safe operation while fishing. There are areas within the Draft WEAs that are very close to important trawl grounds; and those vessels need additional room to safely maneuver while fishing gear is deployed.

2. Fisheries

Above we detail the importance of the fishing industry, in general, and specifically to Oregon. Avoiding impacts to the fishing industry should be a top priority for BOEM as it seeks areas to bring in a new ocean use. One whose impacts remain largely unknown.

Sustainable American fisheries rely on monitoring and data collection activities tailored toward answering key fisheries management questions, under the "best available science" mandate of the MSA. This means available data is typically not well-suited to inform fine-scale OSW planning or test hypotheses related to its environmental impacts. This is particularly true when considering available socioeconomic data for fisheries and OSW.

Because existing federal data gives an incomplete picture of fisheries effort on the individual (or cumulative) project scale, it is necessary for BOEM to work with fisheries experts and the industry to evaluate and augment these data sets. Many fisheries have very limited reporting requirements from which to derive spatial information. To put a finer point on it, the best source of information regarding fishing effort is the fishing industry itself. These experts' local ecological, business, and community knowledge must be included in planning discussions or this information will not be effectively available for informed OSW development. It is imperative that BOEM engages, in a

meaningful fashion, with current ocean users when collecting and analyzing the additional stakeholder information necessary.

In addition to understanding the limitations of existing data to describe the spatial needs of potentially impacted fisheries, new research and monitoring efforts to characterize the specific environmental effects of OSW to fisheries resources must begin immediately. Depending on the interannual variability of a given fishery and other factors, a minimum 3 to 5- year pre-construction data collection time series is necessary to establish baseline normal environmental and economic-driven fluctuations. This time frame is even longer for stocks with low reproduction rates or those highly sensitive to ecosystem conditions. Again, these timelines do not correspond with the projected pace of OSW development off the Oregon Coast.

Understanding and quantifying displacement of fishing effort is extremely important as the subsea cable networks and anchoring systems of floating structures will make OSW areas de facto closure areas to most commercial fishing operations. It is also necessary to analyze effects to shoreside businesses, industries and communities beyond those that occur on the water, which will be impacted by shifting effort or impacts to vessel operators and crew. Efforts to understand and analyze these factors should be planned and undertaken at the same time, or even prior to, identification of final WEAs.

Most concerning is the lack of consideration of any potential for cumulative impacts. This is especially concerning given the close proximity of Draft WEA B (Brookings) to the two leases sites off Humboldt, California. Fishermen and women from Eureka to Brookings, and beyond, are facing the potential loss of two areas in favor of OSW developments. BOEM must consider the cumulative impacts to the fishing communities in those ports and harbors as well as to fishermen and women who are based in ports and harbors outside of the immediate area; but who make use of those areas. BOEM must consider the cumulative impacts of multiple projects off the U.S. west coast, including the additional 20 GW that would be needed to meet the state of California's long-term planning goals. Modeling, environmental review, and leasing decisions should consider cumulative impacts with these projects starting with this phase.

As noted earlier, RODA will not be making any specific recommendations in terms of aliquot removal. We defer to the expertise of our members and the fishing industry, in general, should they recommend specific aliquots for removal. We also defer to those same experts for information related to use of the areas, the types of fishing gear used, seasonal use, and recommendations for reducing use conflicts.

Section 3.1.2.2 of the Draft Report speaks to submarine cables within Draft WEA A (Coos Bay). While we appreciate the inclusion of setbacks; we are concerned the distance (500m - 1,000m) will be insufficient. We defer to representatives from cable companies with submarine cables currently deployed in the Draft WEAs. We seek additional clarity if those setbacks will be from the base of the floating turbine or from any anchoring systems, including anchors, chains, and any

lines affixing the floating turbine to the seafloor.

B. Visual resources and aesthetics

RODA strongly recommends that as BOEM analyzes visual resources and aesthetics it also does so from the perspective of a fisherman who is on the water. For example, what would a full build-out of the Draft WEAs look like to the captain of a vessel from 5, 10, 20 and 30 miles away. Additionally, what can a captain expect to see on his/her radar should they be forced to transit through the area(s) at night, in the fog, or in inclement weather

C. Constraints and advantages of possible electrical cable transmission routes

As noted above, RODA is concerned about the failure to include, as a constraint, areas known to be important to LSTs and SRKWs. Both of these species have been identified by NMFS as Species in the Spotlight⁴² as well as being listed as endangered under the Endangered Species Act (ESA) with small and declining populations. Certain west coast fisheries are managed to avoid/minimize the risks of negatively impacting these two stocks (and others):

- West coast salmon fisheries can be greatly curtailed if it is determined that harvest of salmon would negatively impact the dietary needs of the SRKW;
- Commercial and recreational dungeness crab fisheries can have the seasons delayed, or closed early, due to migratory patterns of LSTs, humpback whales and/or blue whales.
- Certain HMS fisheries are managed to avoid impacts to LSTs by implementation of an annual time and area closure when LSTs have historically been foraging off the west coast.

Regarding possible electrical cable transmission routes, identifying such should be done in collaboration with the fishing industry and in a way that avoids sensitive habitats. Because the NCCOS model didn't look outside of the Call Areas, it is conceptually difficult to offer informed comments on possible cable routes.

D. Habitats that may require special attention during siting and construction

RODA incorporates and adopts the portion of the PFMC's comment letter focused on Habitat and Ecosystem Concerns and Recommendations, particularly the recommendations contained in that section.

Additionally, RODA members who have fished extensively in both Draft WEAs have identified the presence of bamboo coral in and around Draft WEA A (Coos Bay), in waters between 400 and

⁴² *Species in the Spotlight* are species NMFS identified as most at risk of extinction in the near future. See - <https://www.fisheries.noaa.gov/national/endangered-species-conservation/species-spotlight-action-plan-accomplishments>

500 fathoms in depth (731 - 914 meters). These areas should be avoided and surrounded by 500 meter buffers as the PFMC recommends for the bamboo coral forest in Draft WEA B (Brookings).

E. Protected species and important habitats or areas

1. Protected Species

Although protected species are included in the NCCOS model, there remains concern about the impacts arising from activities in support of OSW, including surveys, construction, operations, and decommissioning. RODA has submitted comments regarding the process for authorization of marine mammal takes in OSW activities, particularly: (1) in contrast to the strict regulations for marine mammal harassment and takes applied to the fishing industry; and (2) authorizations that are segmented throughout OSW project phases without a cumulative, holistic analytical approach. Fisheries are subject to strict accountability measures by law – up to and including cessation of all activity – if scientifically-based catch limits are exceeded.⁴³ Again, holding different industries to differing environmental standards is deeply concerning for our members.

RODA appreciates the information contained in Appendix B of the Draft Report - NMFS Protected Species Data. We reiterate the concern expressed above regarding time constraints being a limiting factor in development of a data layer that includes ALL protected species which occur within the two Oregon Call Areas. Table 4 of Appendix B in the Draft Report⁴⁴ lists a total of 22 other ESA-listed, non-avian, marine species that occur within the two OR Call Areas and surrounding area. This does not include species protected under other applicable laws; for example, the Marine Mammal Protection Act and Migratory Bird Treaty Act. Due to time constraints and/or limitations, only five (5) ESA-listed species were included in the suitability model as a single NMFS protected species layer: LST, Humpback whales (Central America Distinct Population Segment (DPS) and Mexico DPS), Blue Whales, and the SRKW. During the September 21, 2023 BOEM Informational Fishing Webinar⁴⁵ many questions were asked about the protected species data layer, particularly about the failure to treat LSTs and SRKWs as constraints in the NCCOS model. One of the answers implied that if areas had been removed from consideration due to those two species, BOEM would be unable to meet the state of Oregon's target of 3GW. While that may be true for the original Call Areas, there are undoubtedly areas offshore Oregon which pose less of a risk to two critically endangered marine animals while meeting the state's target.

⁴³ Or if there is a risk of interaction with LSTs, blue whales or humpback whales, all listed under the Endangered Species Act. As noted above, west coast dungeness crab fisheries face season delays or early closures based on such a risk.

⁴⁴ Draft Report, Appendix B, pages 125 - 126

⁴⁵ See - <https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/BOEM-DWEA-Fisheries-informational-Meeting-Agenda.pdf>

Noticeably absent from Appendix B is the short-tailed albatross and other sea birds known to occur in the Oregon Call Areas protected under the Migratory Bird Treaty Act. The short-tailed albatross is listed as endangered under the ESA and, as of 2018, is considered vulnerable to extinction by the International Union for Conservation of Nature and Natural Resources (IUCN).⁴⁶ Most of the 312 species of sea birds are protected by the Migratory Bird Treaty Act, including a number that occur off the Oregon coast.⁴⁷

RODA recommends that NMFS be given adequate time and resources to include ALL protected species which occur offshore Oregon in a Protected Species Data Layer. We understand this may add significant amounts of time to an already rushed process; but being thorough and making fully informed decisions should not be sacrificed in order to be expeditious.

2. Critical Habitat

It appears that both Draft WEAs include critical habitat for LSTs and Humpback whales (Mexico DPS); and shoreward of the Draft WEAs contains critical habitat for green sturgeon and various salmon species. Questions remain about how critical habitat will be addressed in the various stages of BOEM permitting. For example, access to prey is a component of critical habitat. Sea nettles, the favored prey of LSTs, are prevalent in the Draft WEAs.

3. Essential Fish Habitat

In addition to the discussion on EFH contained in the PFMC's comment letter, the Coastal Pelagic Fisheries Management Plan (CPS FMP) defines essential fish habitat for all species of krill as extending "the length of the West Coast from the shoreline to the 1,000 fm isobath and to a depth of 400 meters."⁴⁸ Krill is a prohibited harvest species in the CPS FMP, meaning no directed take is allowed, because of the important role krill plays as forage for marine life off the west coast

4. Areas that are environmentally sensitive/crucial to marine productivity

Areas covered by both Draft WEAs are important for upwelling, marine productivity and other important ecosystem functions and processes. That upwelling was only mentioned three times in the Draft Report - twice by NMFS in the Appendices and once in a footnote - is concerning. As pointed out by both NMFS and the PFMC the shelf break is an important oceanographic feature and is generally an area of high productivity. The NMFS recommendation of a 10-km buffer on

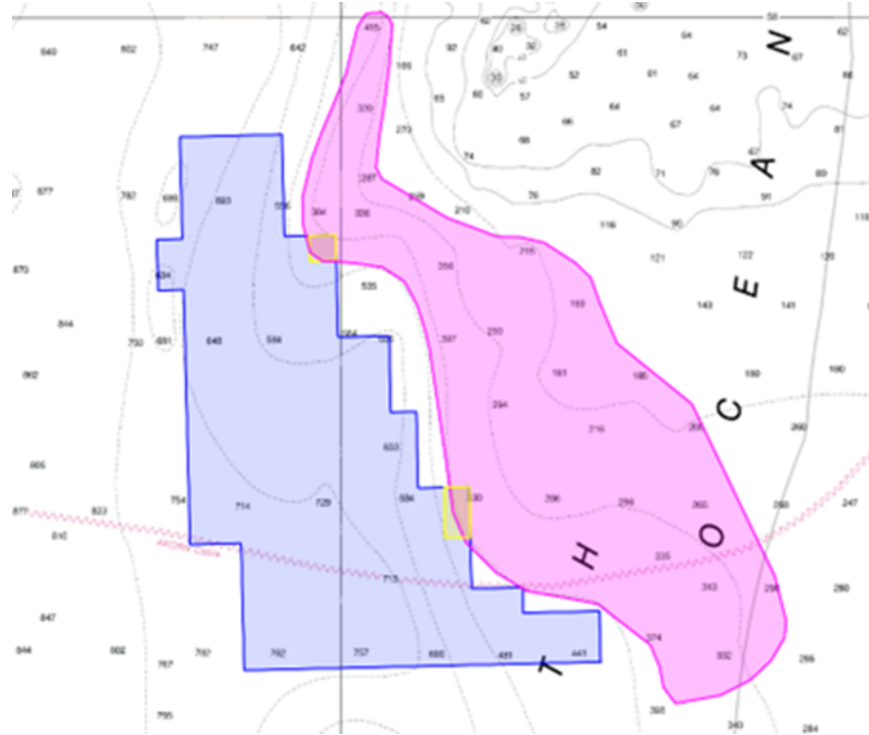
⁴⁶ See - <https://www.iucnredlist.org/species/22698335/132642113>

⁴⁷ See - <https://www.fisheries.noaa.gov/national/science-data/seabirds>

⁴⁸ CPS FMP, page 20. See - <https://www.pcouncil.org/documents/2019/06/cps-fmp-as-amended-through-amendment-17.pdf/>

either side of line delineating shelf break is prudent.

The figure below represents important dover sole and petrale sole spawning grounds within and adjacent to Draft WEA A (Coos Bay) based on traditional fishermen's knowledge.



Further analysis needs to be conducted to understand the hydrodynamic effects of buildout along the shelf, to the naturally occurring cold and warm core rings, and consequential impacts to productivity and larval dispersal from OSW project presence and operation. Many fisheries or fish stocks rely on these naturally occurring events to bring species over the shelf and disruption may cause significant impacts to the population.

Recently, a new study found that OSW farms in the North Sea are strongly influencing flow and stratification of the water column and primary production.⁴⁹ As the base of the food chain, changes in primary production will affect phyto- and zooplankton availability and ultimately impact fish species particularly during their early life stages. The potential for inducing significant shifts to ecosystem function demands application of the precautionary principle. Food web risks must be further investigated to ensure avoidance of potential irreparable changes to our highly productive marine environments.

RODA members also point to concerns about seismic fault lines and activity known to occur

⁴⁹ Ute Daewel et al, Offshore wind farms are projected to impact primary production and bottom water deoxygenation in the North Sea, *Communications Earth & Environment* (2022). DOI: 10.1038/s43247-022-00625-0.

within, or near, the Draft WEAs. For example, the Cascadia Fold and Fault Belt, the Cascadia Megathrust, the Thompson Ridge Fault, and the Coos Basin Fault systems.⁵⁰ Each of these represent significant fault lines that are capable of producing significant seismic activity. The possibility of tsunami activity following a major earthquake is also extreme.

F. Other relevant socioeconomic, cultural, biological, and environmental data and information

Above, information was provided on the economic and job contributions the seafood industry provides the State of Oregon. We reiterate our recommendation to look beyond ex-vessel revenues to get a better understanding of the potential economic impacts to the Oregon fishing community⁵¹ from development within the Draft WEAs. The PacFEM project mentioned above is intended to help address the socioeconomic relationships for all west coast fisheries and ports and should be incorporated into subsequent runs of the NCCOS spatial suitability model to inform decisions on final WEAs.

In 2021, tourism in Oregon resulted in \$10.9 Billion in visitor spending, 100,000 jobs and \$1.2 Billion in State and Local Tax Revenue.⁵² For 2022, coastal tourism resulted in roughly \$2.4 Billion in visitor spending.⁵³ **Acknowledging there will be negative impacts to the tourism economy along the Oregon coast, BOEM should attempt to estimate those impacts before identification of final WEAs.**

RODA also supports recommendations and suggestions submitted by Tribal interests along the southern Oregon coast and Pacific Northwest Tribes.

V. Conclusion

Based on the above, **RODA recommends BOEM cancel the Draft WEAs, rescind the Call Areas, and restart the planning process utilizing the NCCOS spatial suitability model covering all areas greater than 12 miles offshore, including areas deeper than 1,300 meters, excluding from further consideration all offshore banks and seamounts and requiring an adequate buffer zone surrounding them. In the alternative, RODA supports the**

⁵⁰ See - <https://www.cccarto.com/faults/orfaults/#9/43.7532/-124.8788>

⁵¹ “Fishing community” is defined in the MSA, “The term “fishing community” means a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.” See 16 U.S.C. §1802(17)

⁵² See - Travel Oregon, the value of tourism. <https://industry.traveloregon.com/resources/tourism-in-oregon/the-value-of-tourism/>

⁵³ See - Travel Oregon, Annual Economic Impacts. <https://www.travelstats.com/impacts/oregon>

recommendation of the Pacific Fishery Management Council (PFMC) that BOEM not take any further actions on OSW energy planning off Oregon until the many concerns identified by stakeholders, fishery managers, BOEM's sister agencies, and tribal governments are addressed and included in the process. This would allow for the collection of additional data, particularly those datasets which were identified as incomplete due to time constraints or time limitations.

RODA's west coast members have also expressed a desire to move forward with the five lease sites off California and to allow those to operate for a period of time no shorter than two years and no longer than five years, in order to obtain observational information on impacts. This would provide ample time for the collection of data, information and science to be used in addressing the many questions that remain about the potential impacts of large scale, industrial, OSW facilities on the marine environment, marine ecosystem, marine life, and fisheries and dependent communities. RODA supports this suggestion as being responsible, measured and prudent.

Thank you for your consideration of these comments. RODA and its members look forward to working with BOEM to establish, and participate in, a transparent and predictable public participation process. In the meantime, our members' clear, consistent, and reasonable suggestions for improvements to OSW planning and permitting, and requests for specific mitigation measures, are well documented through hundreds of previous submissions and sign-on letters. Please do not hesitate to reach out if we can provide additional information or clarification.

Sincerely,



Mike Conroy, West Coast Director



Lane Johnston, Programs Manager

Responsible Offshore Development Alliance

Appendix I:

MITIGATION MEASURES FROM OFFSHORE WIND DEVELOPMENT RECOMMENDED BY THE COMMERCIAL FISHING INDUSTRY

Improving Environmental Review and Decision Making

- Define thresholds above which environmental impacts would be deemed unacceptable and how adaptive management will be implemented;
- Require permits for geological and geophysical surveys, conduct NEPA analysis on a regional/cumulative scale for such permits, and evaluate and address environmental impacts already incurred;
- Conduct transparent energy, economic, cost, employment, and greenhouse gas emissions analyses for regions and specific projects;
- Include project decommissioning as part of NEPA reviews and provide public information on decommissioning practices, environmental effects, calculations for decommissioning bonds, and considerations for removal, disposal, or abandonment of materials;
- Require materials to be removed at the end of a project's life, including bonding sufficient to cover all decommissioning costs and assignment if a lease is transferred;
- Improve use of fisheries data in analyses (including navigational safety analyses), including overreliance on Automated Information Systems (AIS) given their extremely limited use by fishing vessels;
- Improve the development and use of fishing industry's local ecological, business, and community knowledge in analyses;
- Consider impacts to fisheries that operate coastwide and whether regional build-out of OSW will severely compromise a stock and/or viability of the sector;
- Develop criteria for identifying sensitive habitats including spawning areas and high-value fishing grounds (in terms of the overall economy, local dependence, and ecological importance) and prohibit OSW-related structures in areas that exceed criteria thresholds;
- Analyze impacts to unique regional oceanographic processes and related changes in primary productivity leading to commercial fishing losses, and modify turbine quantities or locations to mitigate effects if necessary;
- Establish and enforce time of year restrictions during construction, operations, and decommissioning for migration of protected species, spawning events and other naturally occurring marine processes;
- Consider no-build migratory routing measures for protected species already under threat such as the North Atlantic Right Whale; and
- Implement the precautionary principle for sensitive habitats including setbacks from important spawning areas, fishery rotational and access management areas, and other critical habitat.

Remove Barriers to Participation in Planning and Permitting Processes

- Create a standing federal fisheries working group that employs principles of participatory governance to co-produce and co-manage mitigation frameworks;
- Encourage states to employ consistent fisheries mitigation as part of any power purchase agreement or federal consistency determinations;
- Provide transparent information and clarify what information is deemed confidential,

rather than issuing blanket redactions and withholding key project details from the public;

- Partner with the commercial fishing industry to provide shoreside and on-the-water project information through a centralized information repository in formats accessible to fishermen, which currently does not exist;
- Improve BOEM’s fisheries communications guidelines using culturally appropriate methods, documented by third parties, support for fisheries representatives selected by the commercial fishing industry, and enforce developers implement effective communication plans; and
- Implement clear procedures for the fishing industry to correct misinformation in BOEM and project records.

Ensure Navigational Safety

- Perform science-based cumulative effects reviews of potential safe transit areas through lease areas, including by incorporating fishermen’s local ecological knowledge as to minimum distances;
- Analyze alternative spacing patterns between turbines and other surface-occupying infrastructure, such as 2 nm in areas where surfclam fishing is expected to be maintained, or consider closely clustering turbines to preserve more structure-free areas;
- Conduct a fishing navigation and operations study with NMFS and USCG to better understand potential transit and operations of multiple gear types within an OSW project;
- Work closely with USCG and maritime experts to improve procedures for evaluating and regulating safety at sea, including through adjustments to the Port Access Route Study process as outlined in previous RODA comments to these agencies;
- With USCG, develop a study to recommend safety mitigation measures beyond the limited scope provided by the PARS to only determine the need for formal TSSs;
- Evaluate mitigation measures for radar interference from turbines to marine radar and require all possible measures to minimize it, including those that may change OSW project designs;
- Adhere to the recommendations for mitigation to marine radar interference from the National Academy of Science, “Wind Turbine Generator Impacts to Marine Vessel Radar (2022)”;⁵⁴
- Analyze the impacts to HF radar, including the impact to search and rescue capabilities;
- Require deicing technology and practices; and
- Include fishermen in developing effective navigational aids such as lighting and markings.

Develop Solutions for Responsible Transmission

- For fixed OSW technology, mandate sufficient interarray and export cable burial depths in order for fisheries to operate after construction;
- Require real-time cable monitoring technology to ensure rapid alerts if a hazard develops;
- Perform “micrositing” of turbines and cables with fishermen who know the ecosystem; and
- Coordinate transmission, such as through community cabling, to minimize and optimize infrastructure placed in the water and seabed.

⁵⁴ “Wind Turbine Generator Impacts to Marine Vessel Radar (2022), National Academies Press, available at <https://nap.nationalacademies.org/catalog/26430/wind-turbine-generator-impacts-to-marine-vessel-radar>

Environmental and Fisheries Monitoring

- Support the development of transparent, unbiased environmental monitoring plans with federal, state, and industry partners;
- Monitor fisheries impacts for the life of projects from pre-construction through decommissioning;
- Thoroughly assess cumulative impacts of OSW to whales and other protected resources, including all project phases and components and impacts to migration and food availability;
- Conduct species-specific studies to those fish stocks which may experience unique impacts (e.g. horseshoe crab, conch, etc.);
- Provide independent protected species observers for all OSW related activities from site assessment to decommissioning stages with full whistleblower protections;
- Analyze impacts of impingement and entrainment, increased water temperature, and larval and juvenile fish mortality if a HVDC Converter offshore substation platform may be used in any of the regional projects;
- Increase cooperative research funding and develop study programs based on fishermen's research priorities;
- Require OSW environmental monitoring data to be made publicly available;
- Develop studies and monitor socioeconomic impacts in partnership with the impacted communities.
- Expand NMFS involvement in project monitoring plans and Essential Fish Habitat consultations, and afford greater deference to its expertise on those topics;
- Require baseline data collection and monitoring plans compatible with the timeline and scale of anticipated development - depending on the interannual variability of a given fishery and other factors, this would require a minimum 3 to 5-year pre-construction data collection time series to establish baseline normal environmental and economic-driven fluctuations, with a longer time frame for stocks with low reproduction rates or those highly sensitive to ecosystem conditions; and
- Require developers to partner with the fishing industry and credible independent scientists to co-develop cooperative monitoring and research plans that are well coordinated between projects.

Support Seafood Business and Community Longevity

- Assess the effects of the proposed action on fishing jobs, operations and community, include socio-economic impacts, increased transit time, market effects, traffic interactions and port access, and cumulative impacts from multi-project build outs;
- Allocate funding to fisheries research and resource enhancement;
- Analyze port or community specific impacts from region-wide build out and develop mitigation measures to offset impacts to supporting shoreside infrastructure;
- Support gear modification development plans for operational constraints posed by OSW build-out for fisheries that request this;
- Develop a standardized process for gear loss claims with distinctive consideration for the costs and magnitude of OSW development, co-designed by fisheries experts;
- Develop a full, transparent, equitable, and science-based compensation program in close partnership with fisheries scientists, economists and the industry;
- Conduct regional assessments with NMFS to determine lost fishing income from reasonably foreseeable OSW development based on the precautionary principle, and update such assessments to include additive and cumulative impacts prior to future leasing;

- Use the best available science to determine sufficient economic multipliers for shoreside fisheries impacts and support new analyses for fisheries without robust economic data;
- Analyze at-sea and shoreside costs from development on a fishery-by-fishery basis;
- Impacts analyses should include consideration for indirect losses, including losses to capital investments, certification programs (compliance and investment) and sacrifices to allow for stock rebuilding that is undermined by new development;
- Require compensatory mitigation for the life of the OSW project, from pre-construction activities to decommissioning, and establish adequate reserve funds for compensation based on the determination of impacts as such;
- Provide a compensation program paid into by lessees, but ensure downstream allocation of funding and eligibility follows a framework determined by a fisheries working group or board consisting of fisheries experts (fishing industry representatives, fisheries scientists, experts, and economists); and
- Honor compensation claims for up to 3 years after income loss to be consistent with fisheries data collection timelines, with reasonable extensions if data delays occur. Claims appeals should be reviewed by a working group of fisheries experts.