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Pacific OCS Region
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Memorandum

To: Director

From: Douglas P. Boren
Regional Director, Pacific Regional Office

DOUGLAS BOREN
Digitally signed by DOUGLAS BOREN
Date: 2024.02.07 12:39:12 -08'00'

Subject: Oregon Area Identification Pursuant to 30 C.F.R. § 585.211(b)0.5

I. Purpose

The purpose of this memorandum is to document the analysis and rationale used to develop recommendations for two Final Wind Energy Areas (WEAs) offshore the State of Oregon. The Bureau of Ocean Energy Management (BOEM) Pacific Region is requesting concurrence from the BOEM Director on the recommended Final WEAs.

II. Development of the Recommended Final WEAs

On August 15, 2023, BOEM published a Request for Comment (RFC) for Draft Wind Energy Areas – Commercial Leasing for Wind Power Development on the Oregon Outer Continental Shelf (OCS) on Regulations.gov[1] for a 60-day public comment period, later extended for 15 days for a total of a 75-day comment period. The RFC provided an analysis and the rationale for the Oregon Draft WEAs. To inform development of the Draft WEAs, BOEM partnered with the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Ocean Coastal Science (NCCOS) to develop an ecosystem-wide spatial suitability model. BOEM published a draft report of the background, methods, results, and next steps for the spatial suitability model on the BOEM website concurrently with the RFC.[2] During the Draft WEA comment period, BOEM held a BOEM Oregon Intergovernmental Renewable Energy Task Force meeting, a fisheries-specific webinar, and three in-person public meetings to provide information on the Draft WEAs and gather feedback from Tribes, Federal, state, and local governments, non-governmental organizations, fishery and maritime industries, offshore wind developers, and the public. The comment period closed on October 31, 2023, and BOEM received approximately 1,150 comments on the Draft WEAs. BOEM evaluated the comments to inform the Final WEA recommendations. A summary of the major comments received on the Draft WEAs is located in Appendix A.

The final report for the ecosystem-wide spatial suitability model developed to inform selection of Wind Energy Areas is included as Appendix B, "A Wind Energy Area Siting Analysis for the Oregon Call Areas." The recommended WEAs avoid areas that the Department of Defense (DOD) has identified as not compatible with offshore wind energy due to national security

[1] https://www.regulations.gov/document/BOEM-2023-0033-0001
[2] www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/Oregon_WEA_Draft_Report_NCCOS.pdf

concerns, and that the U.S. Coast Guard (USCG) has identified as potential routing measures for navigational safety. BOEM took into account comments and concerns about impacts to the commercial fishing industry and avoided 98% of the areas that the National Marine Fisheries Service (NMFS) and the Oregon Department of Fish and Wildlife (ODFW) recommended for exclusion due to conflicts with commercial fishing. Additional factors, including the levelized cost of energy, scientific surveys, marine mammals, habitat, and other environmental concerns, were also considered in the suitability analysis.

A. Major Differences Between Draft and Final WEAs

BOEM recommends changes to the size of the Draft WEAs to address issues that resulted from public engagement and analysis on the Draft WEAs, including accommodation of scientific surveys. Scientific surveys are conducted along the West Coast by universities, governmental, and non-governmental agencies (Figure 1). NOAA conducts many scientific surveys and studies offshore Oregon within survey corridors that intersect portions of the Draft WEAs. These surveys inform its fisheries and protected species management decisions and monitor living marine resources, their habitats, and the California Current Ecosystem. Included among the outcomes of these surveys are forecasts enabling timely decisions about harvest and Pacific salmon recovery. NMFS, the Pacific Fishery Management Council (PFMC), several Tribes, including the Makah Tribe, and ODFW are concerned that offshore wind development could impact these surveys, which in turn could affect stock assessments and other data, including climate and ocean change.

In response to the Call and Draft WEAs, NMFS provided data layers to support the suitability modeling process and provided information in its written comments, which further explained the importance of scientific surveys, and requested 4 nm east-west sampling corridors centered at 10 nm intervals. Implementation of the 4 nm wide corridors would make offshore wind development untenable in both WEAs because it results in discontinuous areas too small to support commercial scale projects and reduces the total area available by 40%. However, NMFS also explicitly identified a southern portion of the Brookings Draft WEA as an area warranting consideration for removal from the WEA because it includes both an east-west long-term survey corridor and discreet sampling stations (Figure 1). NMFS uses the information from these surveys to monitor ocean health and the status of the California Current, inform management of protected species, and provide information on Tribal, recreational, and commercial fisheries, including salmon stocks. See Section 8 below for additional details on scientific surveys.

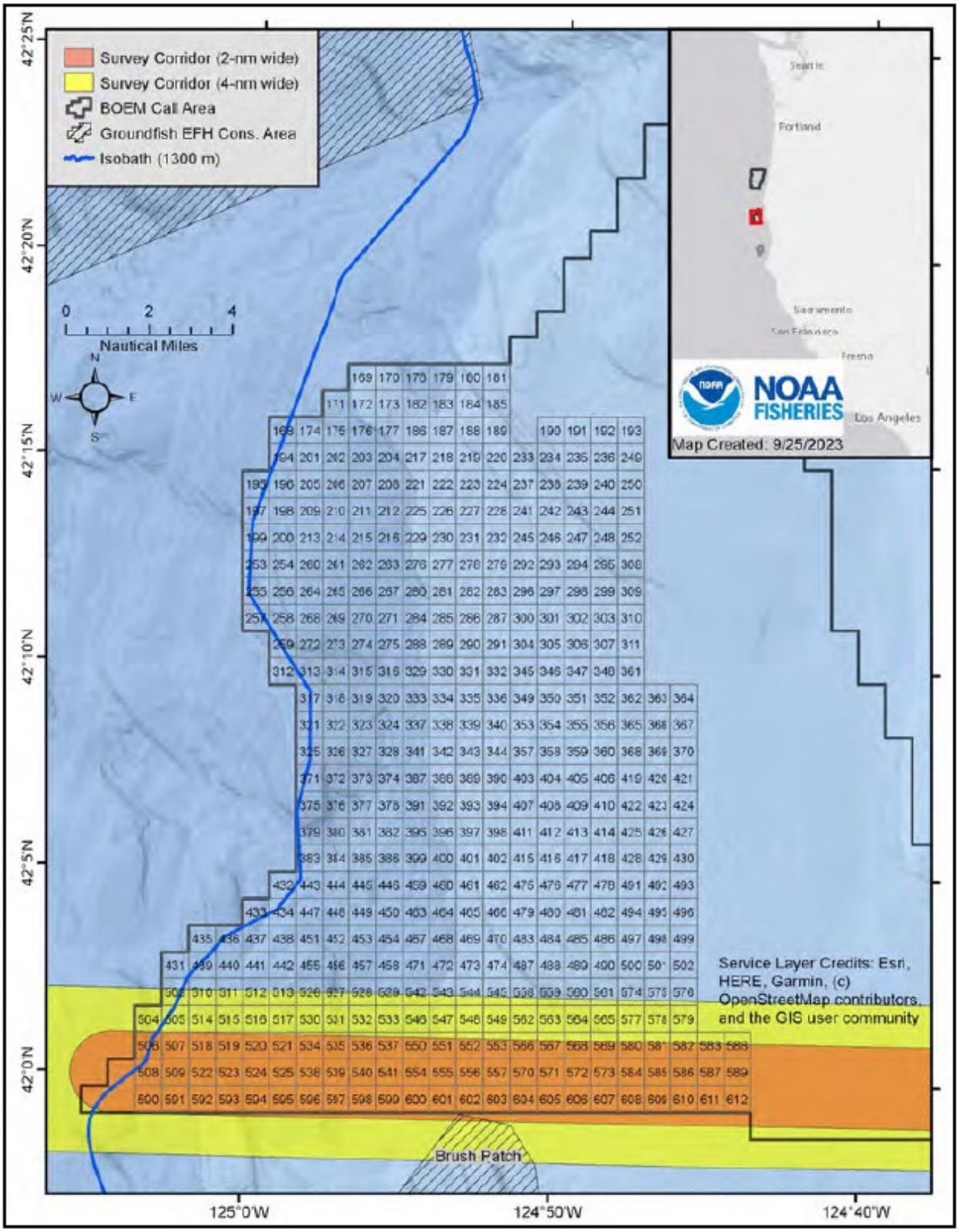

Figure 1: Areas requested by NOAA for removal from the Brooking Draft WEA due to scientific surveys.

Source: NOAA comment letter (BOEM-2023-0033-0508)

Additionally, comments from NMFS, PFMC, and ODFW indicated that there is the potential for important seafloor habitats to be dispersed throughout the WEAs, including in the southern portion of the Brookings Draft WEA. NMFS identified one specific cluster of coral habitat near the southern boundary of the Brookings Draft WEA as the Brush Patch. Although the extent of this habitat feature, including that portion identified as an Essential Fish Habitat Conservation Area, is predominantly outside of the WEA, removing the most southern aliquots of the Brookings Draft WEA to maintain a scientific survey corridor would provide some separation between a potential lease area and this seafloor habitat.

For the Final WEAs, two options are presented. With Option 1, Draft WEA-A Coos Bay and Draft WEA-B Brookings are not modified and thus are identified as the Final WEAs. (Figure 2a). With Option 2, the Draft WEA-A Coos Bay is retained while the southern boundary of the Brookings WEA is modified with removal of the bottom three rows of aliquots of the Draft WEA (Figure 2b). BOEM recommends Option 2. This option allows NMFS to continue to conduct the fixed, long-term sampling stations and surveys, and would be protective of sensitive seafloor habitat.

Table 1 provides the acreage and key statistics for the Coos Bay WEA and the Brookings WEA under Option 1 and 2.

Table 1: Oregon Wind Energy Areas Option Statistics

Wind Energy Area (WEA)	*Acres*	*Installation Capacity (MW)*[3]	*Homes Powered*[4]	*Power Production (MWh/year): 40% Capacity Factor*[5]	*Power Production (MWh/year): 60% Capacity Factor*[6]	*Max Depth (meters)*	*Min Depth (meters)*
Coos Bay WEA	61,204	743	260,050	2,603,472	3,905,208	1,414	635
Brookings WEA Option 1	158,364	1,922	672,700	6,734,688	10,102,032	1,531	567
Brookings WEA Option 2	133,808	1,625	568,750	5,694,000	8,541,000	1,531	567

[3] Megawatts (MW) based upon 3 MW/sq km
[4] Based upon 350 homes per MW
[5] Megawatt hours per year (MWh/yr) Formula = Capacity (MW) * 8760 (hrs/yr) * 0.4 (capacity factor)
[6] Megawatt hours per year (MWh/yr) Formula = Capacity (MW) * 8760 (hrs/yr) * 0.6 (capacity factor)

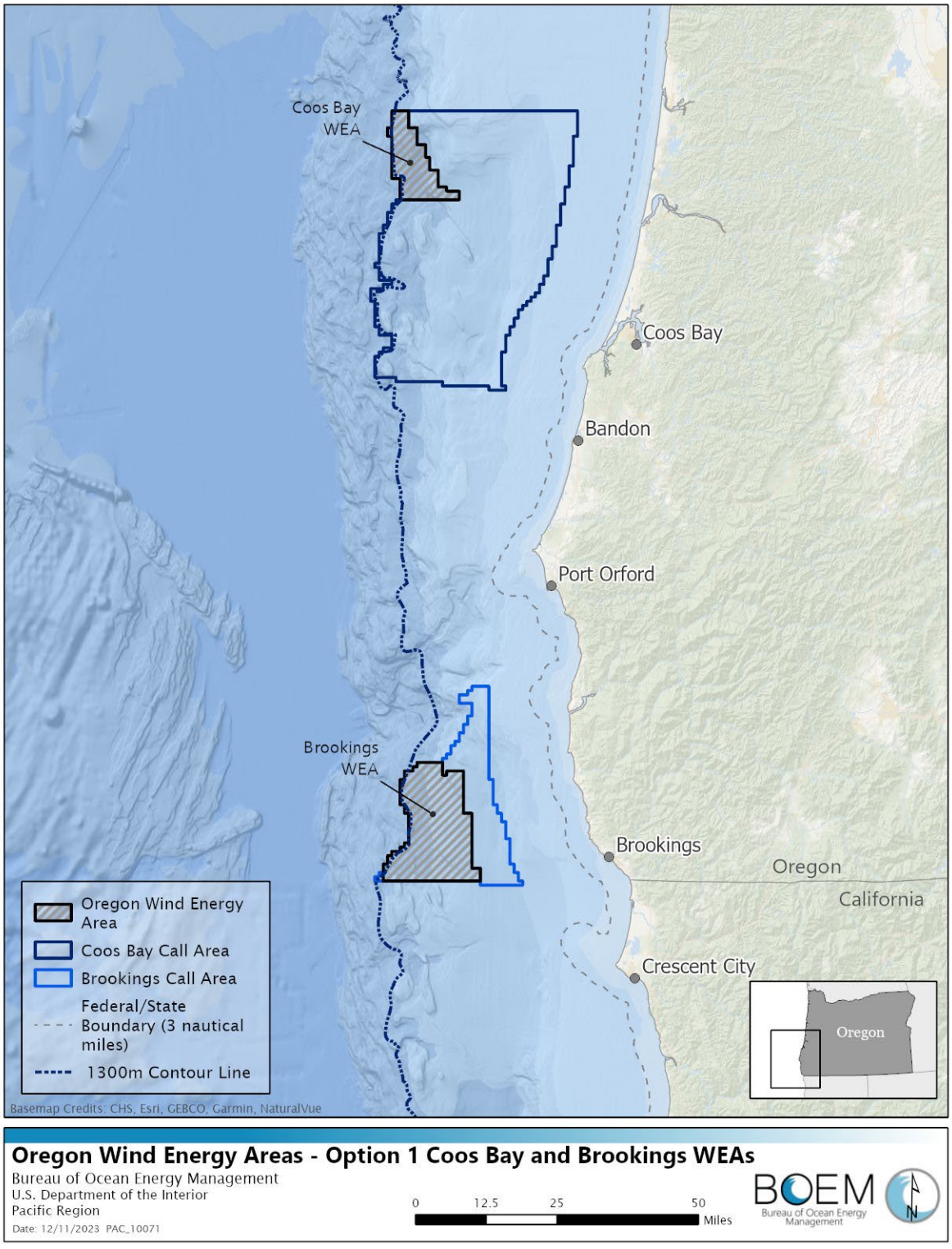

Figure 2a: Option 1 – Coos Bay and Brookings Final Wind Energy Areas Offshore Oregon

Source: BOEM

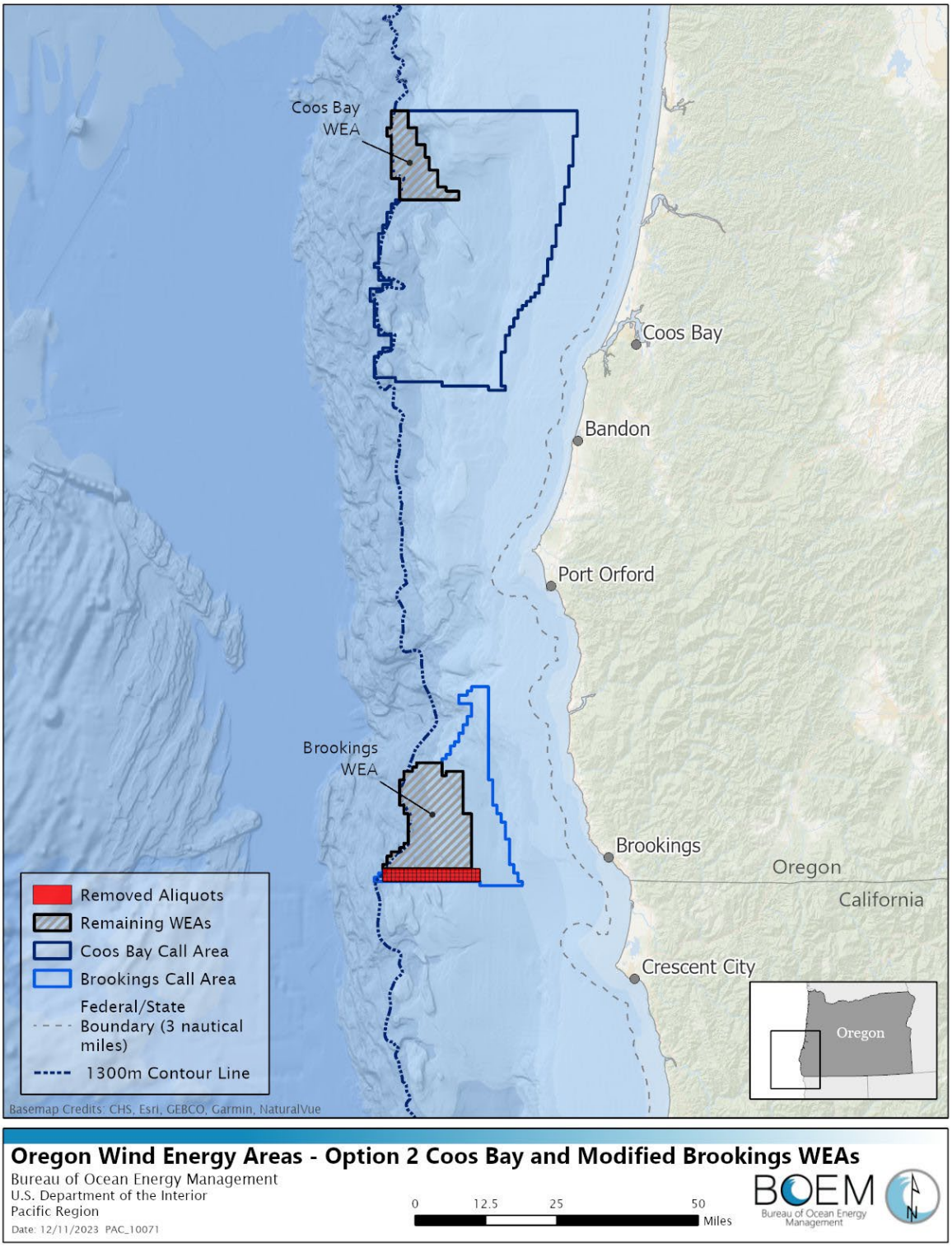

Figure 2b: Option 2 – Coos Bay and Modified Brookings Final Wind Energy Areas with Bottom Three Rows of Aliquots Removed

Source: BOEM

III. Description of the BOEM Process

A. Planning and Analysis

At the request of former Oregon Governor Kulongoski, BOEM established an Intergovernmental Renewable Energy Task Force (Task Force) with Oregon in 2011 to facilitate coordination of offshore wind planning efforts in Oregon among relevant Federal agencies and affected federally recognized Tribal, state, and local governments. Beginning in 2019, the Task Force meetings focused on the identification of potential areas for leasing offshore Oregon. These meetings were held on September 27, 2019; June 4, 2020; October 21, 2021; February 25, 2022; and September 18, 2023.

In partnership with the Oregon Department of Land, Conservation and Development (DLCD), BOEM and the State of Oregon developed an outreach and engagement plan for the OCS within the 1,300-meter water depth along the entire coast to support offshore wind planning and analysis in Oregon in 2019. BOEM and DLCD shared a Draft Outreach and Engagement Plan (Plan) with the Task Force for review and input. Following adoption of the final Plan[7] with input from the Task Force, BOEM and DLCD engaged in a collaborative, data-based offshore wind energy planning outreach process to foster coordinated and informed decisions about Oregon's shared ocean resources and the many users who depend on them.

This outreach, from June 2020 through December 2021, consisted of 75 meetings, webinars, and briefings with coastal communities, fishing communities, federally recognized Tribes, state and Federal agencies, academia and scientists, environmental non-governmental organizations (NGOs), and the offshore renewable energy industry. A summary of the key findings from this outreach is contained in the *Data Gathering and Engagement Summary Report – Oregon Offshore Wind Energy Planning*,[8] published in January 2022. BOEM reviewed data and incorporated feedback from this outreach, as well as discussions with the State of Oregon, Federal partners, and Tribal Nations to delineate three proposed Call Areas offshore Oregon. Based on feedback from Task Force members and the public at the February 16, 2022, Task Force meeting, one of the three proposed Call Areas was removed from future planning after BOEM considered input on potential commercial fishing conflicts and sensitive habitats within the Call Area. The results of BOEM's outreach and discussions were used by BOEM to inform the Call for Information and Nominations published on April 29, 2022.

B. Call for Information and Nominations

BOEM's renewable energy competitive lease issuance process starts with the publication of a Call for Information and Nominations (Call) in the Federal Register, which requests comments from the public about areas of the OCS that BOEM believes should receive special consideration and analysis for the potential development of renewable energy (30 C.F.R. § 585.211(a)). BOEM identified the Call Areas after discussion with numerous parties and consideration of relevant

[7] https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/BOEM-OR-OSW-Engagement-Plan.pdf#:~:text=The%20Data%20Gathering%20and%20Engagement,wind%20energy%20leasing%20decisions%20offshore

[8] https://www.boem.gov/sites/default/files/documents//Data%20Gathering%20and%20Engagement%20Report%20OR%20OSW%20Energy%20Planning%20January%202022.pdf

information sources, including the State of Oregon, Tribal governments, the Task Force, coastal communities, and the fishing community. The two Call Areas are shown in Figure 3 below.

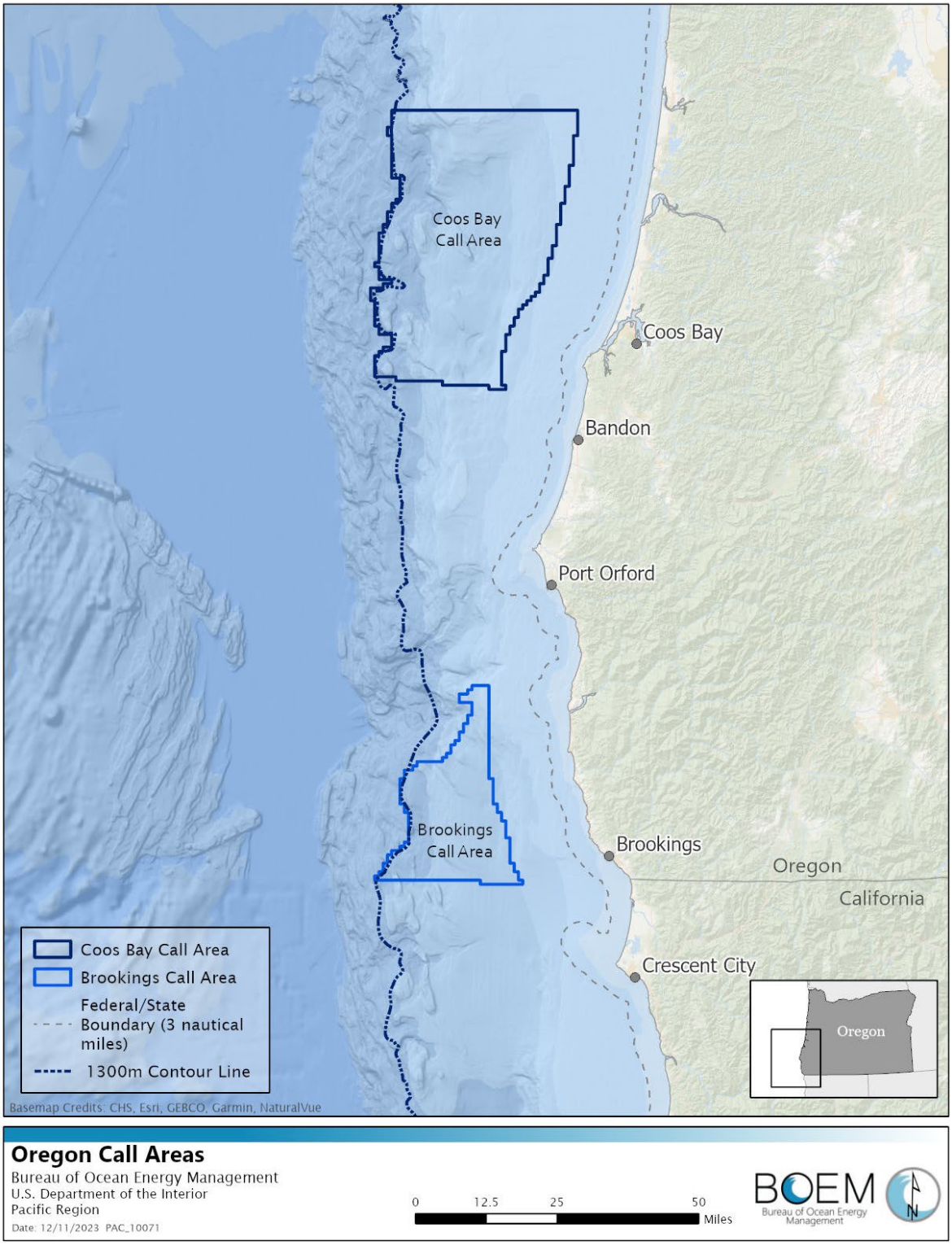

Figure 3: Oregon Call Areas

Source: BOEM

On April 27, 2022, BOEM provided notice that the public comment period would begin on April 29 and invited government-to-government consultation with all federally recognized Tribes in Oregon, as well as Tribes along the northern California coast and Tribes along the Washington coast. On April 29, 2022, BOEM published the Call for Commercial Leasing for Wind Energy Development on the OCS Offshore Oregon (Call) in the Federal Register for a 60-day public comment period. BOEM received 278 unique comments and 4 nominations in response. Comments received on the Call are available for viewing online at regulations.gov.[9]

During the public comment period for the Call, several commenters provided feedback requesting BOEM to increase transparency in the Area Identification process and consider leveraging an existing ocean planning model previously used in the NOAA's Aquaculture Opportunity Area Atlases and by BOEM in the development of WEAs in the Gulf of Mexico and Central Atlantic. BOEM consulted separately with the Coquille Indian Tribe and the Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians (CTCLUSI) in May 2022 during the Call comment period. Among the issues discussed, both Tribes expressed concerns over the renewable energy leasing process described in 30 C.F.R. part 585, as well as potential impacts to commercial fisheries, submerged precontact sites offshore, and viewsheds from locations along the coast of spiritual, ceremonial, and cultural importance.

In response to public comments for the Call, BOEM modified its Renewable Energy Authorization Process in Oregon to include the identification of Draft WEAs with analysis from an ocean planning model as described in a Notice to Stakeholders issued September 16, 2022.[10] This new step in the Area Identification process, shown in orange in Figure 4 below, increases transparency in BOEM's process and provides for additional public input.

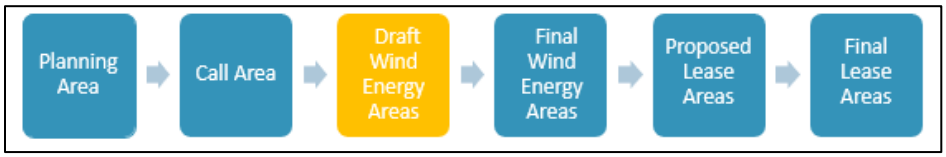

Figure 4: Introduction of Draft Wind Energy Areas into the BOEM Renewable Energy Authorization Process, highlighted in orange.

In addition, BOEM, with support from NOAA's National Centers for Coastal Ocean Science (NCCOS), conducted spatial analyses using the NCCOS Spatial Suitability Modeling tool recommended in the public comments described above.

C. Area Identification

Area ID is the second major step in the competitive wind leasing process and results in BOEM designating WEA(s) on which it will conduct an environmental review under NEPA for potential lease issuance. *See* 30 C.F.R. § 585.211(b). The identification of WEAs for environmental analysis does not constitute a final leasing decision, and BOEM reserves the right under its

[9] https://www.regulations.gov/document/BOEM-2022-0009-0001
[10] https://www.boem.gov/newsroom/notes-stakeholders/boem-enhances-its-processes-identify-future-offshore-wind-energy-areas

regulations to issue leases in smaller areas, fewer areas, different areas, some combination of these, or to issue no leases. BOEM analyzes potential impacts of a specific proposed renewable energy facility in the identified areas during review of a proposed Construction and Operations Plan (COP), when project-specific information is available.

1. Draft Wind Energy Areas

For Area ID, BOEM partnered with NOAA's NCCOS to develop an Oregon suitability model by analyzing existing geospatial data sets and identifying those most useful in informing and delineating WEAs. BOEM reviewed and evaluated a total of 435 region-wide data sets and ultimately identified 30 geospatial data layers developed by various government agencies, NGOs, and academic institutions (see Appendix B – Subset Appendix I). These curated 30 data sets best represented ocean uses and ecosystem-wide analysis for offshore wind development specifically within the Oregon Call Areas. Data were organized into categories (submodels) representing the major ocean sectors, including national security, natural resources, wind, fishing, and industry and operations. All data layers were assigned scores of relative compatibility, allowing the calculation of an overall suitability score for each 10-acre grid cell of the study area. The NCCOS model included information provided by NMFS and ODFW for nine fisheries in Oregon: at-sea hake mid-water trawl, groundfish bottom trawl, shoreside hake mid-water trawl, groundfish fixed gear-pot, pink shrimp trawl, groundfish fixed gear-longline, Dungeness crab, albacore commercial, and albacore charter. Ultimately, the NCCOS model used cluster analysis to identify groups of cells with the highest relative suitability to identify two Wind Energy Areas (WEAs) for potential offshore wind development within the Call Areas.

In support of BOEM's commitment to share information on Oregon planning early with Tribal Nations, BOEM hosted a virtual inter-Tribal meeting on April 25, 2023. At this meeting, BOEM shared the results of the draft Oregon suitability model, Draft WEAs, and results of a viewshed analysis for the Draft WEAs. BOEM invited sixteen Tribes to attend this meeting, including all federally recognized Tribes in Oregon, as well as two Tribes along the northern California coast and five Tribes along the Washington coast. BOEM also invited government-to-government consultation on the Draft WEAs at that time.

On June 9, 2023, two Oregon U.S. Senators, two Congressional Representatives, and Oregon Governor Tina Kotek requested the BOEM Director pause the offshore wind planning process in Oregon to further consult with Tribal Nations and stakeholders, such as coastal communities, to better identify and address local concerns. On August 08, 2023, two Senators and two Congressional Representatives also requested the BOEM Director hold a 60-day comment period for the draft Oregon WEAs. BOEM honored these requests by hosting 4 additional public meetings, 3 in-person public meetings in the coastal communities of Brookings, Gold Beach, Coos Bay, and an online fishing webinar, and extended the comment period an additional 15 days for a 75-day total comment period for the Draft WEAs.

During the Area ID process, BOEM considered the following non-exhaustive list of information sources:

- Draft NCCOS Report: A Wind Energy Siting Analysis for the Oregon Call Areas[11]
- Comments received in response to the 2022 Call for Information and Nominations
- Comments received in response to the 2023 Request for Comment on the Draft WEAs
- BOEM Oregon Intergovernmental Renewable Energy Task Force meetings, including public comment at end of the meetings
- Oregon Offshore Wind Energy Planning Outreach Summary Report
- Input from Federal and state agencies
- Comments received at consultation meetings and written comments from federally recognized Tribes
- State renewable energy goals
- Domestic and global offshore wind market and technological trends
- OROWindMap data and information

On August 15, 2023, BOEM published a Notice of Draft Wind Energy Areas available for review and comment on www.regulations.gov[12] (Figure 5). BOEM also notified over eighty federally recognized Tribes of the Draft WEAs and invited government-to-government consultation. Draft methods and results of the spatial suitability analyses summarized in a *Draft Report: A Wind Energy Siting Analysis for the Oregon Call Areas* were also published online in August 2023.[13]

[11] boem.gov/sites/default/files/documents/renewable-energy/state-activities/Oregon_WEA_Draft_Report_NCCOS.pdf
[12] https://www.regulations.gov/document/BOEM-2023-0033-0001
[13] A Wind Energy Area Siting Analysis for the Oregon Call Areas NCCOS Report August 2023 (boem.gov)

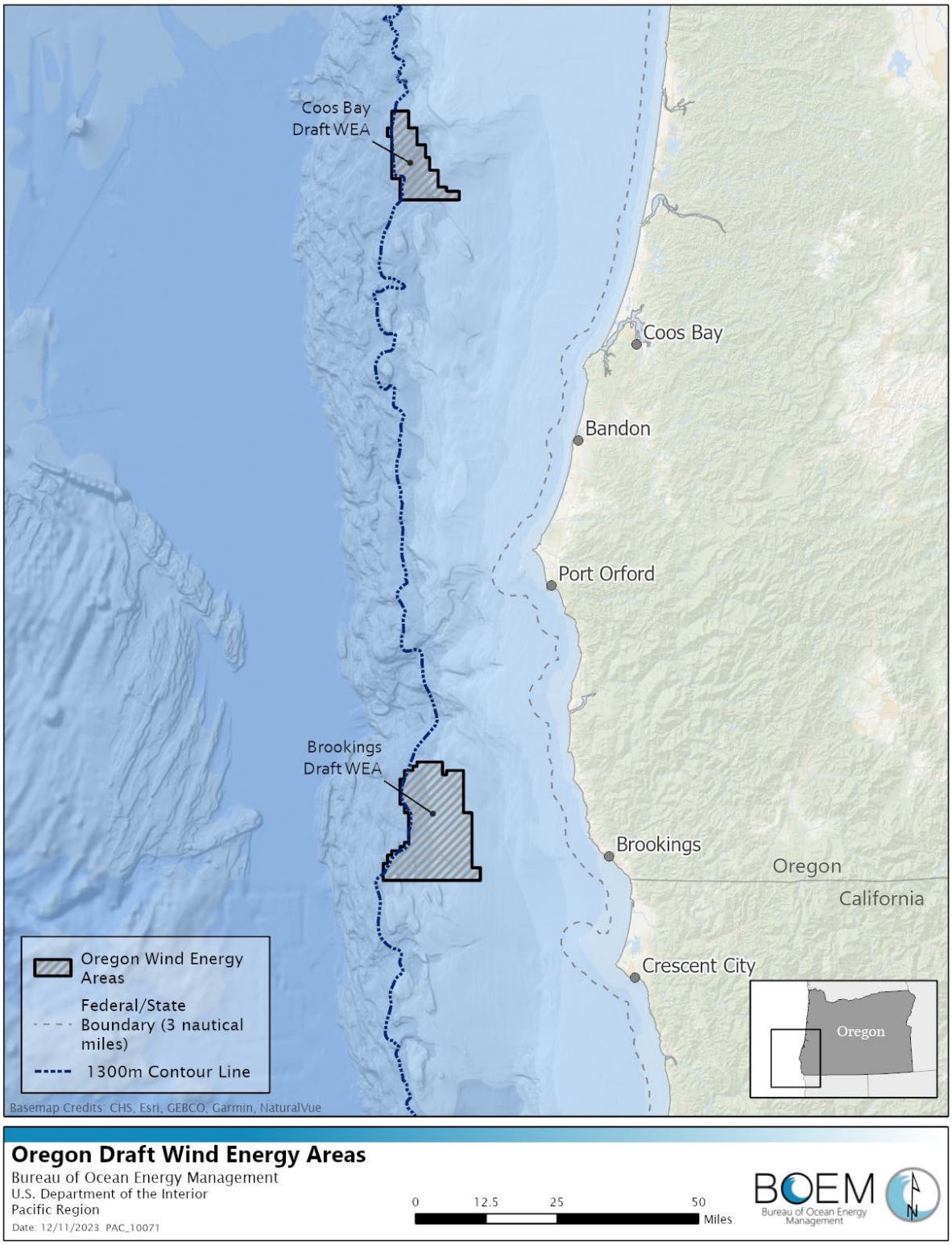

Figure 5: Oregon Draft Wind Energy Areas

Source: BOEM

BOEM received approximately 1,150 comments in response, including submissions from Tribal governments; private citizens; Federal, state, and local government agencies; environmental and other advocacy groups; industry groups; and wind developers. A *Summary of Comments* received in response to the RFC is in Appendix A.

D. BOEM's Environmental Review and Potential Next Steps

Prior to any lease sale, BOEM will perform an environmental review and appropriate consultations of pre-construction activities expected to take place on the WEAs, typically in the form of an Environmental Assessment (EA). This review will consider the potential impacts from site characterization and site assessment activities. BOEM will publicly announce the start of this environmental review and solicit public input.

During public engagement at the Call and Draft WEA stage of this Oregon process, many commenters, including several Tribes, stated that BOEM should consider the cumulative impacts for not only the pre-construction activities that would be authorized with lease execution but the subsequent construction, operations, and decommissioning activities that would be described and analyzed as part of the COP review. Several Tribes specifically expressed the importance of cumulative analysis on potential impacts to highly migratory species of importance, impacts to commercial and treaty fisheries, impacts to submerged landforms that may contain significant cultural and archaeological sites, economic and ecosystem impacts, and visual impacts to sites and areas of importance. PFMC recommended BOEM complete a coastwide, long-term evaluation of the potential impacts from offshore wind development on the coastal and marine environment that includes a comparison of alternatives earlier in BOEM's process. PFMC recognized in its comment that BOEM's process includes additional NEPA analysis prior to any construction and operations but stated it should occur before Area Identification determinations are made, include a comparison of alternatives, and address cumulative impacts from existing BOEM wind leases in northern California.

BOEM's regulations follow the Council on Environmental Quality's NEPA regulations to analyze impacts related to the Federal actions. NEPA review occurs twice in the leasing process; potential impacts from leasing are analyzed prior to BOEM's decision to hold a lease sale and potential impacts from the construction, operation, and decommissioning of an offshore wind project are analyzed prior to a decision on a COP. This process ensures details specific to potential impacts are available for analysis and evaluates impacts resulting from a proposed project to existing and reasonably foreseeable future uses of the coastal and ocean environment. Both reviews include a cumulative effects evaluation of the natural and human environment including consideration, when appropriate, on issues such as fishing; oil and gas exploration and development; military activities; marine mineral extraction; and commercial, recreational, and military vessel traffic.

If BOEM decides to move forward with the leasing process, BOEM would publish the proposed area(s) for lease, associated lease terms and conditions, and a proposed format of the competitive auction in a Proposed Sale Notice (PSN) issued pursuant to 30 C.F.R. § 585.216. A formal public comment period follows issuance of the PSN. BOEM will review any comments received to help develop the final lease sale terms and conditions published in the Final Sale Notice (FSN). BOEM may use information from its environmental analysis, as well as information

gathered in response to the PSN, to, in the FSN, further refine lease areas and develop lease terms and conditions.

If a lease is issued and a lessee submits a COP on that lease, BOEM would invite consultation with the appropriate Tribal, Federal, state, and local governments, solicit input from the public and Task Force members and conduct a project-specific environmental analysis under NEPA. Additional opportunities for public involvement will be available during this project-specific COP analysis. BOEM uses this information to evaluate the potential environmental impacts and related socioeconomic considerations associated with the proposed project, which would inform its decision to approve, approve with modification, or disapprove a lessee's COP pursuant to 30 C.F.R. § 585.628.

IV. Background on the Call Area

A. Oregon's Renewable Energy Goals

The State of Oregon is home to an estimated 4.2 million people. In recent years, Oregon and surrounding states have adopted aggressive decarbonization and clean electricity policies. The State of Oregon established a Renewables Portfolio Standard (RPS) in 2007, and updated it in 2016 with Senate Bill 1547, increasing Oregon's RPS requirement for large investor-owned utilities to sell electricity consisting of 50% renewables by 2040. Oregon Executive Order 20-04 (2020) established the Climate Protection Program (CPP) run by the Oregon Department of Environmental Quality. The CPP is a regulatory program designed to reduce GHG emissions through an emissions cap on fossil fuels used in the state, with an interim target of 50% reduction by 2035 and a 90% reduction by 2050. Oregon House Bill (HB) 2021 created a 100 percent clean electricity standard, requiring Oregon's retail electricity providers to eliminate GHG emissions associated with electricity serving Oregon consumers by 2040, with an 80% reduction from baseline levels by 2030 and a 90% reduction by 2035.

Other Western States, including California and Washington, have similar mid-century RPS goals. Offshore wind modeling by the National Renewable Energy Laboratory (NREL) shows the potential to develop dozens of gigawatts of offshore wind on the West Coast of the United States, which could play a critical role in helping Oregon and the region achieve its mid-century clean energy and decarbonization goals. Under HB 3375, Oregon required the Oregon Department of Energy (ODOE) to study the benefits and challenges of 3 GW of offshore wind. Results of this study,[14] published in September 2022, conclude the State's greenhouse gas (GHG) reduction goals and clean electricity policies are the most significant drivers for when offshore wind energy could serve Oregon customers. The report further states that while solar resources are cost effective, there are practical challenges to delivering energy in overnight hours and during winter months. As a result, a diverse portfolio of clean energy resources that complement solar, such as offshore wind, could be cost effective to achieve state and regional clean energy and climate policy objectives.[15]

[14] https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Floating-Offshore-Wind-Report.pdf
[15] Pg. 8, https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Floating-Offshore-Wind-Report.pdf

B. Technical Criteria: A Buildable Environment

Oregon meets key technical criteria used to determine the feasibility of floating offshore wind development. These include sustainable wind speeds, suitable water depths, and access to existing transmission interconnections. Specifically, annual wind speeds of 7 to 10.5 meters per second are found in the Oregon WEAs, as depicted in Figure 6. Winds off Oregon's coast are some of the strongest and most consistent in the world. NREL estimates that Oregon has the technical potential for 62 GW of offshore wind electricity generation capacity.[16] The abundance of this high-quality wind resource provides an opportunity for gigawatt-scales of floating offshore wind to contribute toward meeting the decarbonization and clean energy goals of Oregon and other Western States.[17] The water depths of the WEAs, which range between 567–1,531 meters, is a reasonable limit for near-term development of floating offshore wind energy facilities based on West Coast offshore wind cost modeling studies conducted by NREL.[18] These water depths make pile-driven foundations (e.g., monopile or jacket) into the OCS offshore Oregon infeasible based on current technology.

The WEAs are roughly located on the relatively flatter areas of the OCS and upper slope offshore Oregon, beyond which the slope and water depths increase quickly. As water depths increase, project costs and complexity increase due to increasingly longer mooring lines, potentially longer array cables, and more difficult logistics in anchor installation. While future planning could include deeper waters, BOEM finds the most feasible floating offshore wind projects would be located in waters shallower than 1,300 meters to remain competitive with other renewable energy resources.

In 2020, BOEM and the Department of Energy's Pacific Northwest National Laboratory completed a study called "Exploring the Grid Value Potential of Offshore Wind Energy in Oregon" where model conclusions did not find significant transmission limitations on the larger Oregon transmission system, especially for a 2 GW scenario of offshore wind generation. The study found energy load percentages that existing transmission lines and systems around several southern Oregon areas can accommodate without the need for additional infrastructure for 2 GW of offshore wind generation as follows: Port Orford (98%), Reedsport (92.8%), and Newport (99.8%). However, transmission system capacity efficiency lessens under a 3 GW offshore wind scenario, without significant development to the transmission system, for Port Orford (79.5%), Reedsport (71.9%), and Newport (89.7%).[19]

ODOE stated significant investments to upgrade the onshore electric transmission grid are likely needed to accommodate large-scale floating offshore wind projects. Referencing studies from NREL and Pacific Northwest National Laboratories, ODOE notes the threshold for significant transmission infrastructure development is necessary around 2.6 GW of offshore wind capacity. Per ODOE, no single interconnection point on Oregon's coastal grid can accommodate 2 GW and the Bonneville Power Administration notes that southern Oregon existing transmission system, with upgrades, can only accommodate 1 GW before transmission infrastructure

[16] Pg. 5, https://www.nrel.gov/docs/fy20osti/74597.pdf
[17] Pg. 24, https://www.oregon.gov/energy/energy-oregon/Pages/fosw.aspx
[18] Arent, Douglas et al. *Improved Offshore Wind Resource Assessment in Global Stabilization Scenarios.* NREL/TP-6A20-55049. https://www.nrel.gov/docs/fy13osti/55049.pdf
[19] https://www.boem.gov/BOEM-2020-026

expansion is needed.[20] The NREL study notes that northern transmission centers, such as Wendson and Fairview substations, can receive up to 1.5 GWs from both WEAs.[21]

Any transmission infrastructure expansion in Oregon may come with benefits. ODOE notes in their "Floating Offshore Wind: Benefits & Challenges for Oregon" 2022 report that floating offshore wind can encourage alternative benefits such as replacing the development of tens of thousands of onshore acres for renewable energy to meet state goals, or the development of a nearby renewable hydrogen production facility. The 2020 BOEM PNNL study indicates annual generation cost savings due to replacement of fossil fuel plants totaling near $86 million for 3 GW of offshore wind deployment. This savings is associated with significant emissions reductions.[22] In addition, ODOE notes that floating offshore wind can increase the grid reliability and power quality for local coastal communities that are more vulnerable to power disruptions from natural disasters or inclement weather. Finally, developing transmission infrastructure for offshore wind can assist Oregon in reducing the reliance on existing east-west transmission pathways (Figure 7) and providing for alternative north-south interregional lines, thereby increasing the state's overall power resilience.[23]

[20] https://www.oregon.gov/energy/Data-and-Reports/Documents/2022-Floating-Offshore-Wind-Report.pdf
[21] https://www.nrel.gov/docs/fy22osti/81244.pdf
[22] Pg. 44, https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/environmental-science/BOEM-2020-026.pdf
[23] https://www.oregon.gov/energy/energy-oregon/Pages/fosw.aspx

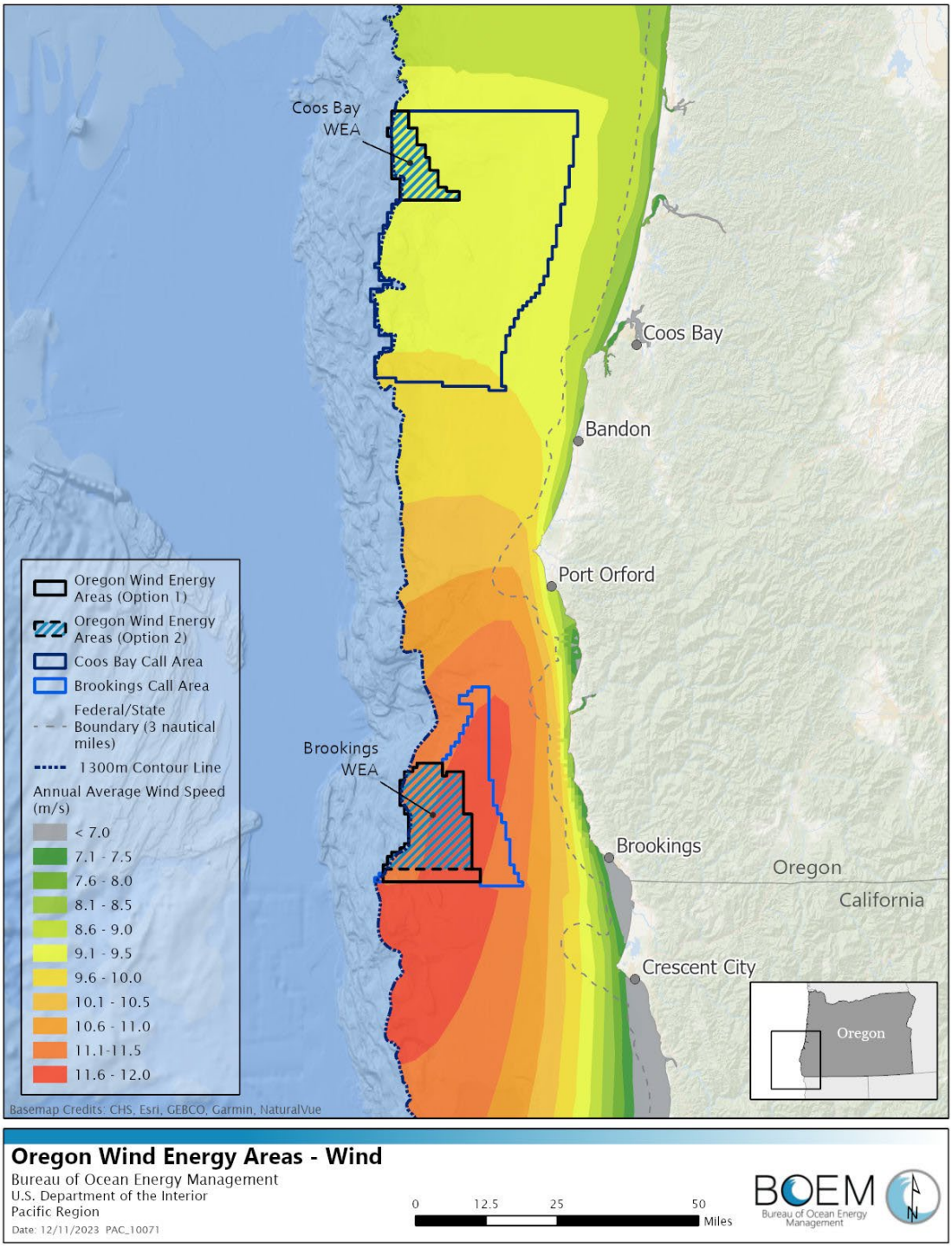

Figure 6: Offshore Wind Speeds for Oregon

Source: National Renewable Energy Laboratory[24]

[24] Draxl, Caroline, Walt Musial, George Scott, and Caleb Phillips. 2017. "WIND Toolkit Offshore Summary Dataset." NREL Data Catalog. Golden, CO: National Renewable Energy Laboratory. Last updated: September 16, 2022. DOI: 10.7799/1375460

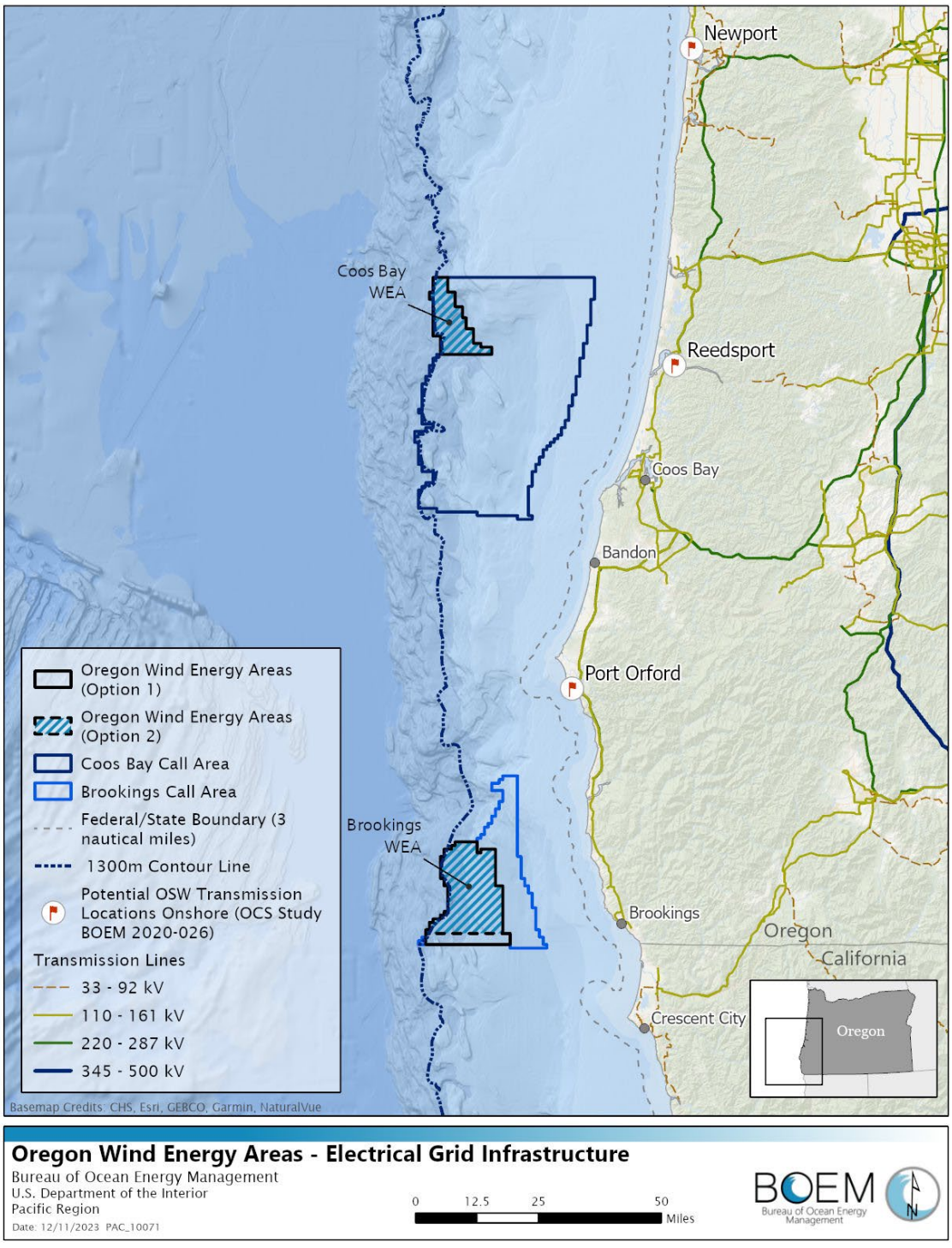

Figure 7: Oregon Transmission Distribution and Connectivity

Source: Homeland Infrastructure Foundation-Level *Data*[25]

[25] https://hifld-geoplatform.opendata.arcgis.com/datasets/geoplatform::transmission-lines/explore?location=43.326051%2C-123.318132%2C7.90

C. Nominations

In response to the 2022 Call, BOEM received nominations from four qualified entities proposing to develop offshore wind in Oregon. Nominations and locations for the Coos Bay and Brookings Call Areas are listed below and in Figure 8.

1. Avangrid Renewables LLC
2. BlueFloat Energy Oregon LLC
3. OW North America Ventures LLC
4. U.S. Mainstream Renewable Power Inc

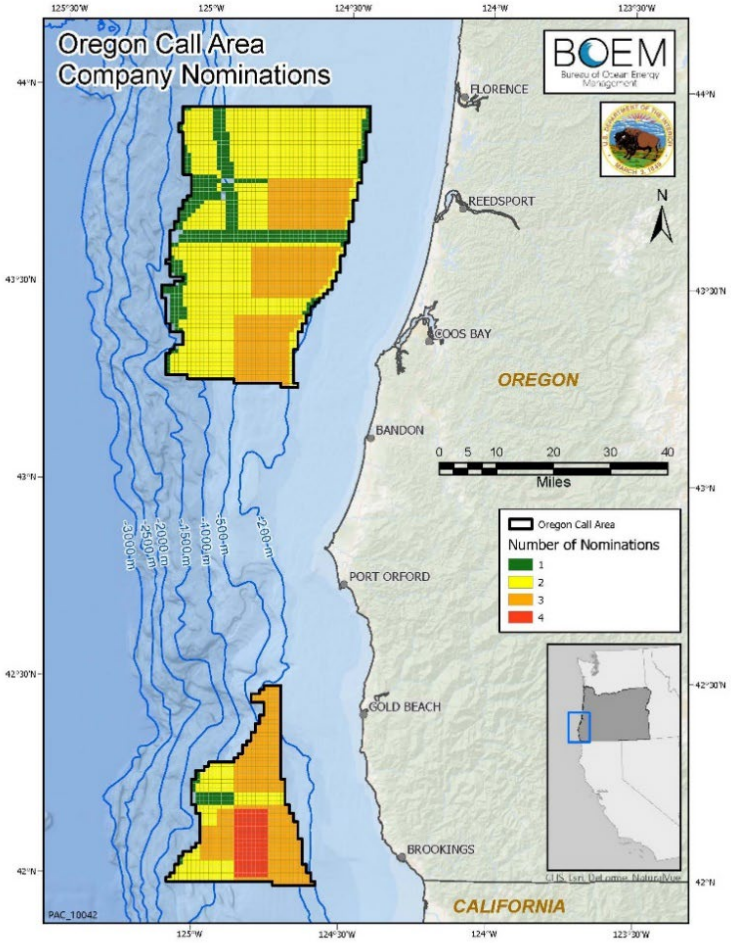

Figure 8: Oregon Call Areas Nominations of Interest

Additional information about nominations received by BOEM, including maps, nomination rationale and OCS block tables are available online at: https://www.boem.gov/renewable-energy/state-activities/Oregon#tabs-8741.

V. Considerations for Area ID

BOEM considered multiple existing uses of the Oregon coast in developing the Draft and Final WEAs and used NCCOS spatial modeling to identify the most suitable areas for offshore wind

development within the Call Areas. Based on the Final NCCOS Report (see Appendix B), the Final WEAs have less conflict than other areas within the Call Areas in Oregon. BOEM will continue to assess potential environmental impacts throughout its renewable energy authorization process to determine if potential impacts could be avoided, reduced, or mitigated prior to leasing or project construction. Offshore wind industry comments noted that WEAs need to be large enough (i.e., preferably 1 GW minimally) to reach economies of scale for a viable industry and that WEAs should be more regularly shaped to encourage more optimal wind turbine layout.

The topics of concern raised most about potential offshore wind development in and around the WEAs include: (1) places and resources of importance to Tribal governments, (2) commercial and recreational fishing, (3) vessel traffic, (4) Department of Defense, (5) seafloor habitat, (6) marine mammals and sea turtles, (7) avian species and (8) NOAA scientific surveys. Highlights of BOEM's analysis are included in the sections below in addition to discussions related to other concerns raised, such as (a) visual impacts, (b) coastal upwelling, and (c) general public sentiment toward wind energy development offshore Oregon.

1. Places and Resources of Importance to Tribal Governments

BOEM received comments and responses on the Draft WEAs from the following Tribes: CTCLUSI, the Confederated Tribes of Warm Springs, Coquille Indian Tribe, Cow Creek Band of Umpqua Tribe of Indians, Elk Valley Rancheria, Karuk Tribe, Makah Tribe, and Santa Ynez Band of Chumash Indians; comments were also received from the Affiliated Tribes of Northwest Indians (ATNI). During consultation meetings, staff-level meetings, joint Tribal outreach meetings, and in written comments, Tribes conveyed the cultural and spiritual importance of the ocean and coastal ecosystems and raised concerns about potential impacts to sacred sites, places, and resources of importance. Concerns were expressed over the implications potential offshore wind projects may have on sustainable ecosystems and how potential projects might impact the local economy, fisheries, and treaty rights and resources. Details on these comments and concerns are discussed further in the topical sections below. The recommended Final WEAs avoid potential submerged landform features, which Coquille Indian Tribe, CTCLUSI, and other Tribes previously expressed as an area of concern.

Many comments from Tribal Nations focused on potential impacts from a project build out. To ensure potential impacts from potential projects are available for analysis and supported by site-specific data, BOEM's offshore wind regulations require the submission of information about the construction, operation, and decommissioning of a lessee's proposed offshore wind facility, including transmission facilities, with the submission of a COP.

BOEM is committed to upholding Tribal trust responsibilities and fostering working relationships based on meaningful consultation. BOEM is always and will continue to engage and invite consultation throughout the offshore wind authorization process.

2. Commercial and Recreational Fishing

Fishing is an important activity along the Oregon coast. Floating wind facilities are likely to be incompatible with certain gear and fishing methods used in the deeper waters offshore Oregon (e.g., trawl, pot/trap, longline, nets). Fishing information, including maps and spatially

represented data, gathered during the offshore wind energy planning process is available online at: https://databasin.org/galleries/ae21ddeb4fd642f1a382f96adc898dbe.

Fishing activities were considered throughout the WEA development process, including with the Call and during Area ID, to ensure that major conflicts are identified and minimized to the extent practicable. This effort included collaboration with NOAA NCCOS, NMFS, Oregon State agencies, and outreach to fishing individuals and groups, including the PFMC to identify the areas of least conflict. Figure 9 illustrates the suitability of fisheries activity in the Coos Bay and Brookings WEAs displayed as relative values determined by NMFS and ODFW. The WEAs avoid 98% of the areas NMFS and ODFW recommended for exclusion. Further outreach and consideration of fishing issues will continue throughout BOEM's offshore wind authorization process.

The waters offshore Oregon support numerous types of fishing, and many ocean users and Tribal Nations place high cultural and economic significance on these activities. Species of commercial interest in Oregon include groundfish, coastal pelagic species, crab, highly migratory species, salmon, shellfish, and shrimp. Complete spatial data are not available for all species. For instance, salmon near the Draft WEAs were best described by vessel monitoring system (VMS) report data (Figure 10).

Revenue data are also used to more fully describe fisheries. In 2021, commercial fishery landings and revenue, respectively, were 51,948 metric tons and 74.6 million dollars for the Port of Newport, 10,073 metric tons and 43.2 million dollars for the Port of Coos Bay, and 5,472 metric tons and 18.7 million dollars for the Port of Brookings, respectively (Pacific Fisheries Information Network (PacFIN) 2022b).[26] Many commenters, including ODFW, stated that there are few areas off the Oregon coast that are not actively used by fisheries, making marine spatial planning for offshore wind a challenge. Given the ubiquity of fishing activity along the Pacific Coast, no single exclusion area would resolve all potential commercial fishing conflicts. However, as discussed below, fisheries economic productivity declines with depth and distance from shore and the WEAs intentionally exclude 98% of the areas recommended for exclusion by NMFS and ODFW.

NOAA provided data in their comment letter that shows proportions of ex-vessel revenue for seven species (Dungeness crab, at-sea and shoreside hake, market squid, pink shrimp, albacore tuna, Chinook salmon, and sablefish) relative to totals across entire West Coast (Table 2 and Figure 11). These seven species account for about 80% of all commercial fisheries revenue on the West Coast. For instance, NMFS highlighted that 0.4799% and 0.2040% of total West Coast at-sea hake ex-vessel revenue were harvested in the Brookings and Coos Bay WEAs respectively. Their statement matches the available spatial data showing this fishery to largely occur nearshore of the WEAs (Figure 12). NMFS comments note that smaller scale assessments are necessary to fully understand socioeconomic impacts. The PFMC recommended that BOEM integrate socioeconomic values of fisheries and ports from the forthcoming Pacific Fishing Effort Mapping (PacFEM) project before finalizing WEAs. Further assessment of socioeconomic impacts will continue to occur in subsequent stages of the BOEM leasing process and will incorporate PacFEM project outputs when available.

[26] PacFIN. 2022b. Report ALL005 WOC All Species by Port Group. Reports Dashboard. [accessed 2022 Oct 22]. https://reports.psmfc.org/pacfin/f?p=501:1000

Table 2: Proportion of fisheries ex-vessel revenue from 2011–2020 captured within the original Brookings and Coos Bay Call Areas and within the Draft WEAs for the seven on the West Coast species listed. These seven species account for about 80% of all commercial fisheries revenue landed on the West Coast.

Source: NOAA comment letter BOEM-2023-0033-0508

Offshore Wind Site	*Dunge-ness*	*At-sea Hake*	*Shore-side Hake*	*Market Squid*	*Pink Shrimp*	*Albacore*	*Chinook*	*Sable-fish*	*Total*
Brookings Call Area	0.0003%	3.0423%	0.1689%	0.0000%	0.0072%	0.0170%	0.0474%	1.0844%	0.3127%
Brookings WEA	0.0000%	0.4799%	0.0158%	0.0000%	0.0046%	0.0138%	0.0000%	0.4320%	0.0662%
Coos Bay Call Area	0.1198%	11.7100%	3.8140%	0.0000%	5.3487%	1.3493%	0.8260%	5.3607%	2.1061%
Coos Bay WEA	0.0000%	0.2040%	0.0013%	0.0000%	0.0000%	0.1147%	0.0000%	0.3057%	0.0444%

Tribes, including CTCLUSI, Coquille Indian Tribe, the Confederated Tribes of Warm Springs, Elk Valley Rancheria, Makah Tribe, Karuk Tribe, Cow Creek Band of Umpqua Tribe of Indians, and ATNI provided comments on concerns about the potential impact of offshore wind energy to fisheries and access to fishing areas, including the potential impact to native fish and wildlife that are culturally significant species and first foods for some Tribes. Many Tribes provided comments regarding their concerns of potential impacts to salmon, lamprey, and other anadromous species, which are often used as a staple food source. The Karuk Tribe provided comments regarding concerns of electromagnetic impacts on lamprey, a traditional food source, as well as the potential to deter species from entering spawning, rearing, holding, or refugial areas hosted by the Klamath River and other freshwater tributaries leading to the Pacific Ocean. Many Tribes recommended further analysis on the impacts to fish and wildlife, including CTCLUSI who requested a more comprehensive siting analysis to include data of additional protected species. BOEM notes that many of these topics have been submitted as proposals for consideration in BOEM's annual studies planning process. These proposals will be vetted by subject matter experts and considered for funding for further scientific research. See https://www.boem.gov/environment/environmental-studies/environmental-studies-planning.

BOEM will continue to balance concerns and input from diverse ocean users, including those from Tribal Nations and fishing interests, using the spatial suitability modeling tool to help do so. The model is useful in understanding ocean ecosystems and the interactions of human uses and natural resources by using a mathematical calculation with minimal bias to support siting decisions. In the suitability model, BOEM chose to include a conservative fishing dataset with very low suitability for offshore wind to reflect the comments and concerns from the fishing industry about the incompatibility between offshore wind and the fishing industry, and the

importance of maintaining access to existing fishing grounds. BOEM finds that the Final WEAs avoid the majority of fishing grounds and, according to the NOAA comment letter, only 0.11% of the 7 fisheries that make up 80% of all commercial fisheries landed along the West Coast (Dungeness crab, at-sea and shoreside hake, market squid, pink shrimp, albacore tuna, Chinook salmon, and sablefish) is harvested within the WEAs (Figure 11). BOEM will continue to fund environmental studies to close knowledge gaps and is currently working on a study to determine how offshore wind may shift the distribution of fishing effort in relation to treaty-reserved fishing areas. BOEM also plans to fund a study to evaluate potential effects from offshore wind on salmon and lamprey and will continue to incorporate consideration of data needs identified by these commenters throughout the offshore wind authorization process and as new data acquisition initiatives and environmental studies advance.

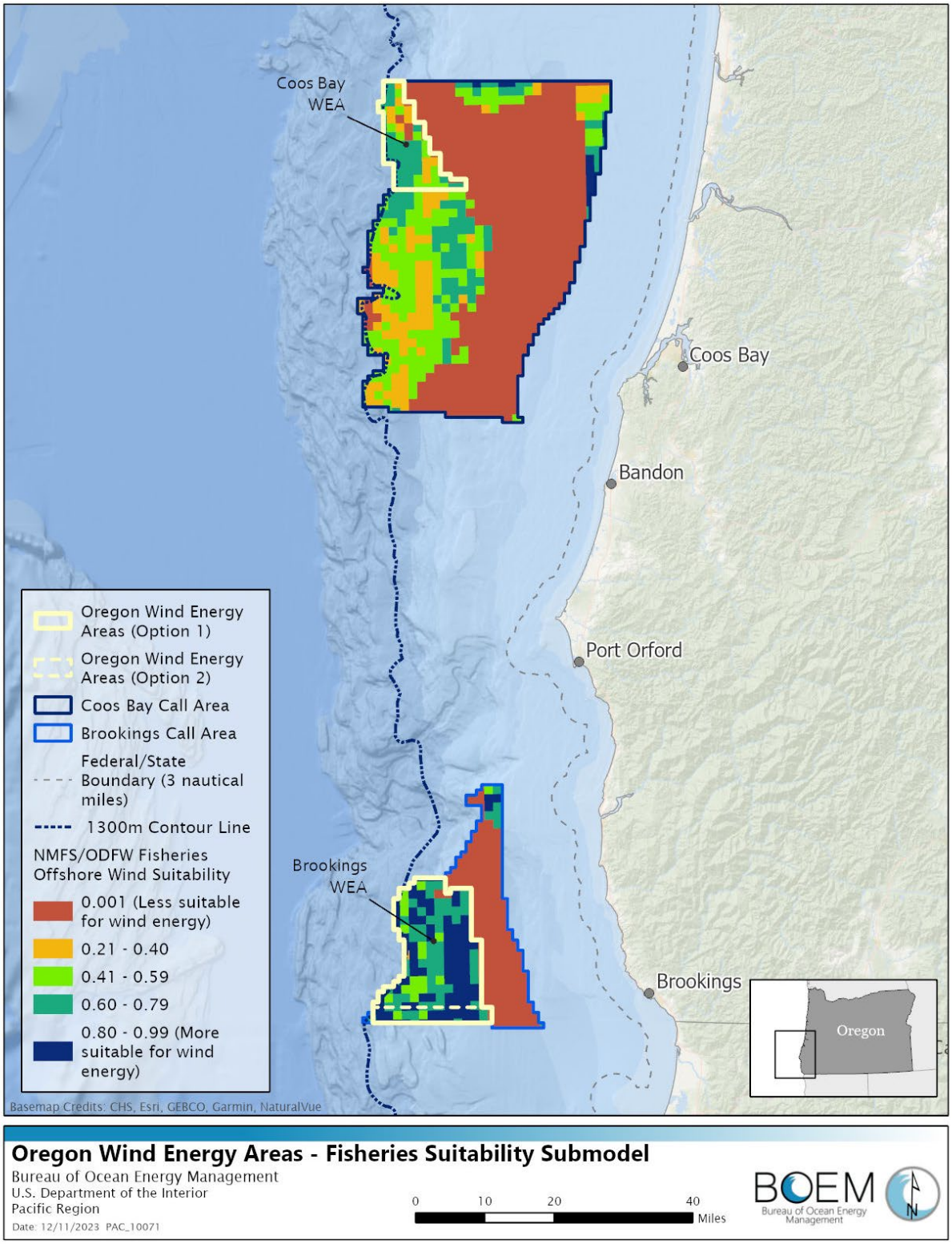

Figure 9: Map of suitability of fisheries activity ranked to the Coos Bay WEA and Brookings WEA Options displayed as relative values determined by NFMS and ODFW

Source: BOEM, NCCOS

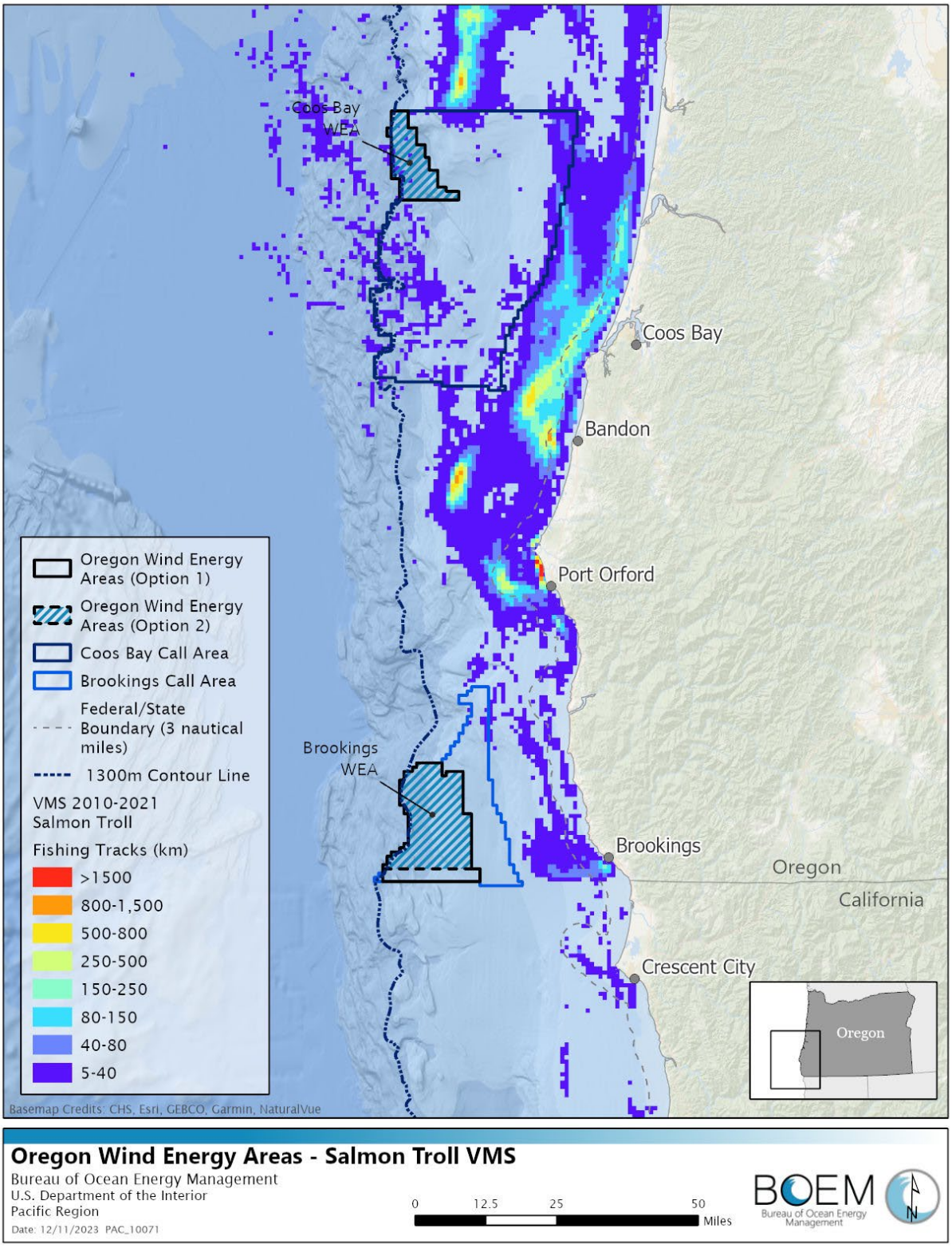

Figure 10: Map of Coos Bay and Brookings WEA Options overlayed with Pacific salmon troll data

Source: NOAA Office of Law Enforcement, California State Polytechnic University, BOEM

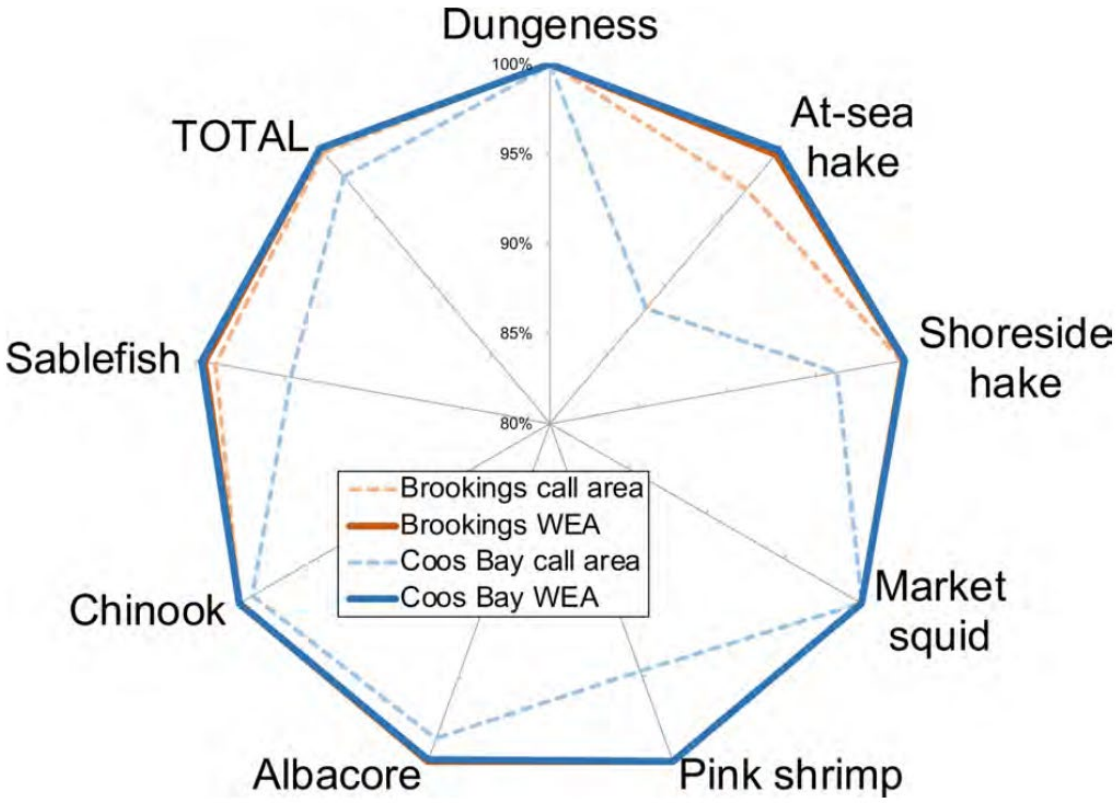

*Figure 11: Radar plot of the proportion of revenue from 2011-2020 captured **outside** of the original Brookings and Coos Bay Call Areas and **outside** the Draft WEAs for the seven West Coast fisheries species listed. Note, this plot is the inverse of the values shown in Table 2.*

Source: NOAA comment letter BOEM-2023-0033-0508

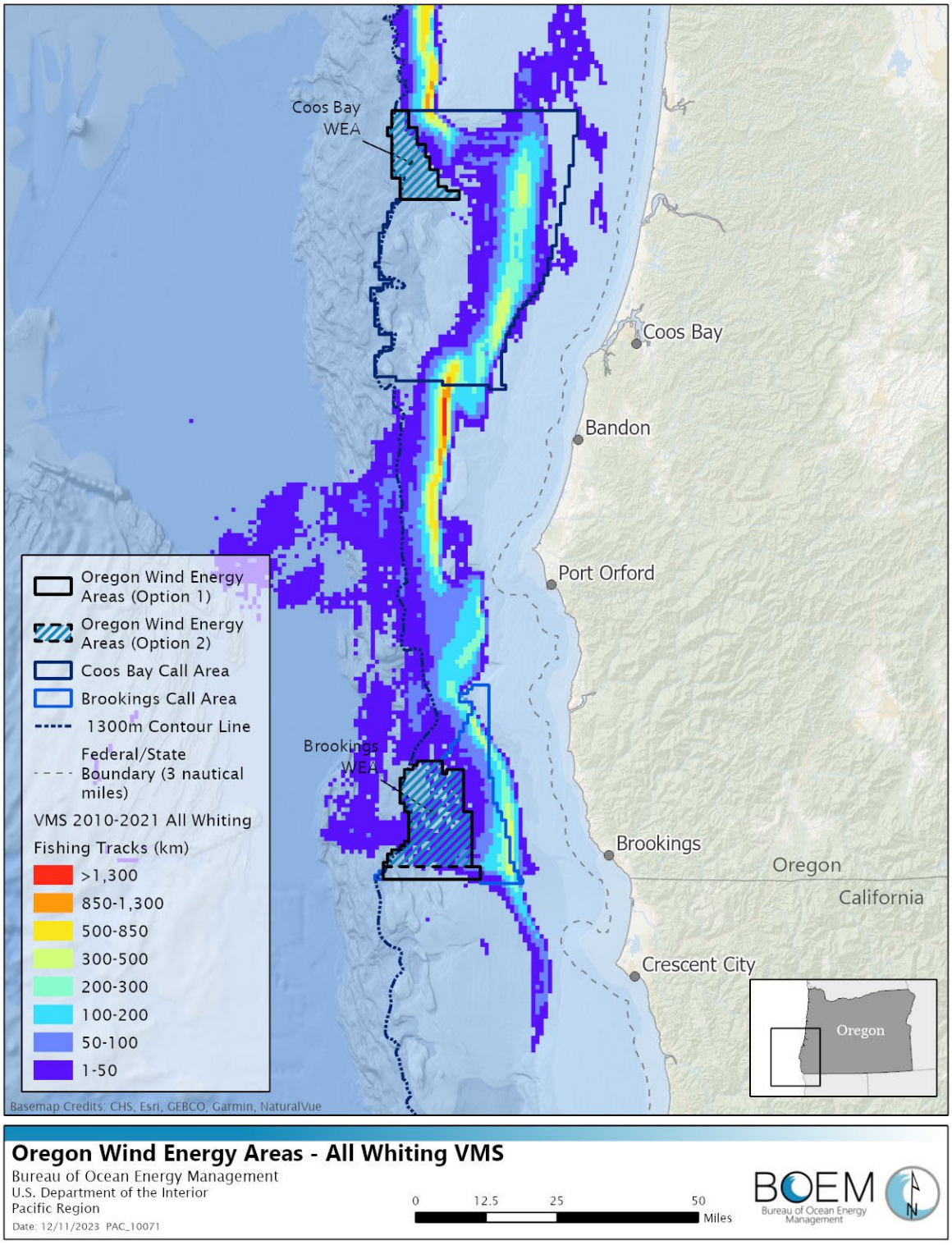

Figure 12: Map of Coos Bay and Brookings WEA Options overlayed with Pacific whiting (hake) track data

Source: NOAA Office of Law Enforcement, California State Polytechnic University, BOEM

3. Vessel Traffic

Ocean transportation for shipping, commercial, and recreational purposes occurs continuously offshore Oregon. Transit between ports and areas of north-south transit lanes, north-south coastal traffic, and the fishing efforts described above all occur offshore Oregon (Figure 13). USCG's future traffic planning and the 2019 offshore traffic patterns, based on AIS data, are shown in Figure 13 along with the Call Areas, Draft WEAs, and recommended WEAs.

Multiple commenters, including many fishing individuals and groups, such as the American Albacore Fishing Association, Western Fishboat Association, Responsible Offshore Development Alliance (RODA), and West Coast Seafood Processors Association, recommended access plans due to concerns that the WEAs may create navigational difficulties for the fishing industry.

As shown in Figure 13, both the Draft WEAs and the recommended WEAs avoid the final PACPARS port access routes proposed by the USCG.[27] BOEM will continue to work with the USCG to ensure safe navigation in and around any potential future offshore wind facilities.

[27] https://www.federalregister.gov/documents/2023/06/05/2023-11878/port-access-route-study-the-pacific-coast-from-washington-to-california

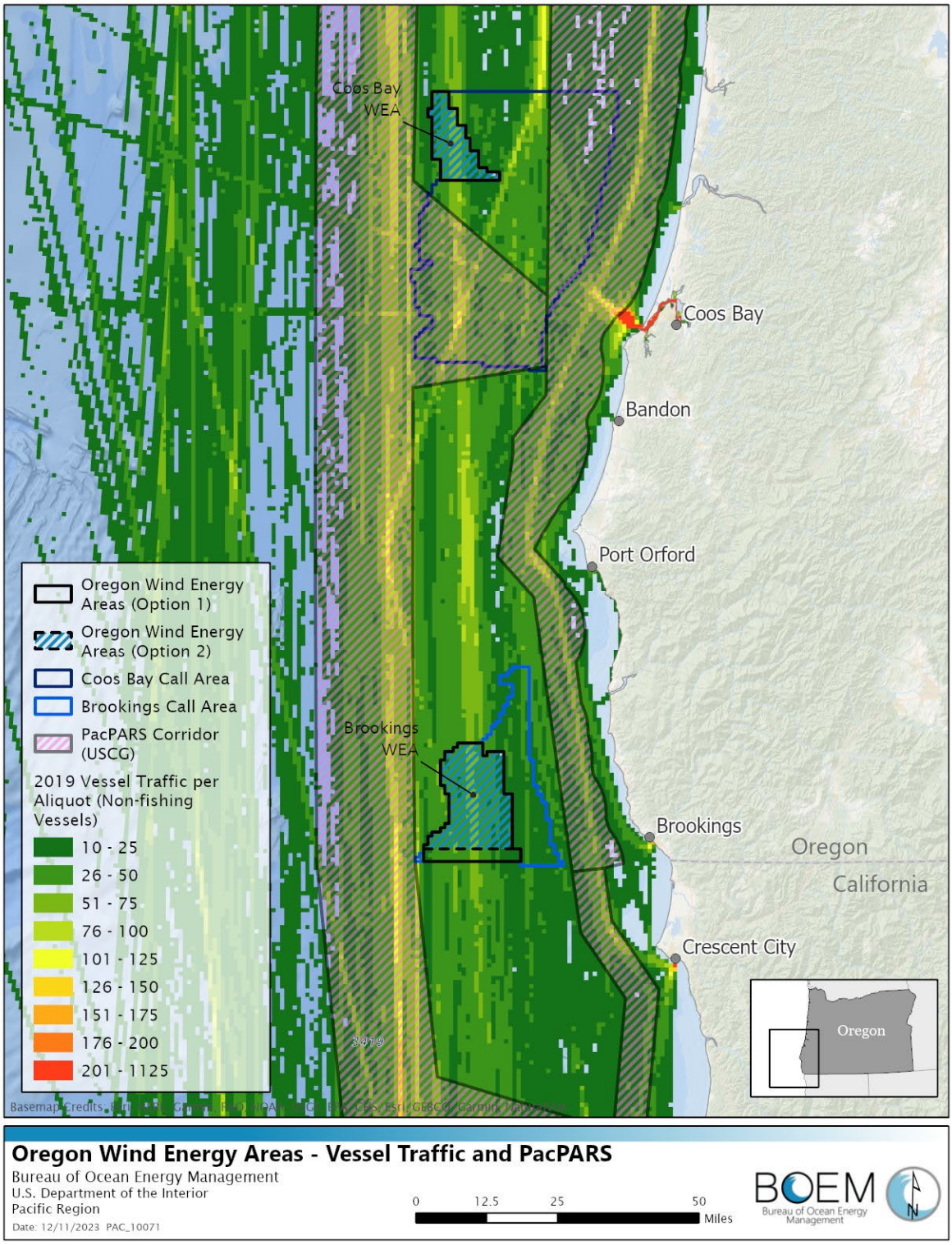

Figure 13: Map of Coos Bay and Brookings WEA Options overlayed with Automatic Identification System (AIS) data for all ship traffic traveling through an aliquot (1.2 x 1.2 kms) in 2019 and USCG PACPARS Routing Map

AIS Source: U.S. Coast Guard Navigation Center, NOAA Office for Coastal Management, BOEM. PACPARS Source: U.S. Coast Guard.

4. Department of Defense (DOD)

On May 17, 2022, the DOD submitted comments and a map to BOEM outlining areas of national security concern that should be considered for removal from future offshore wind development (see Appendix B: Appendix H – National Security Data). The DOD identified 570,053 acres in the Coos Bay Call Area that conflict with national security. These areas identified by the DOD reduced the Coos Bay Call Area by 65.3% and did not include any reductions to the Brookings Call Area.

BOEM used the areas identified by DOD as a constraint in the NCCOS spatial suitability model. As shown in Figure 14, the WEAs avoid the areas identified by the DOD. BOEM will continue to work with the DOD to ensure our nation's national security concerns are incorporated into BOEM's offshore wind planning process.

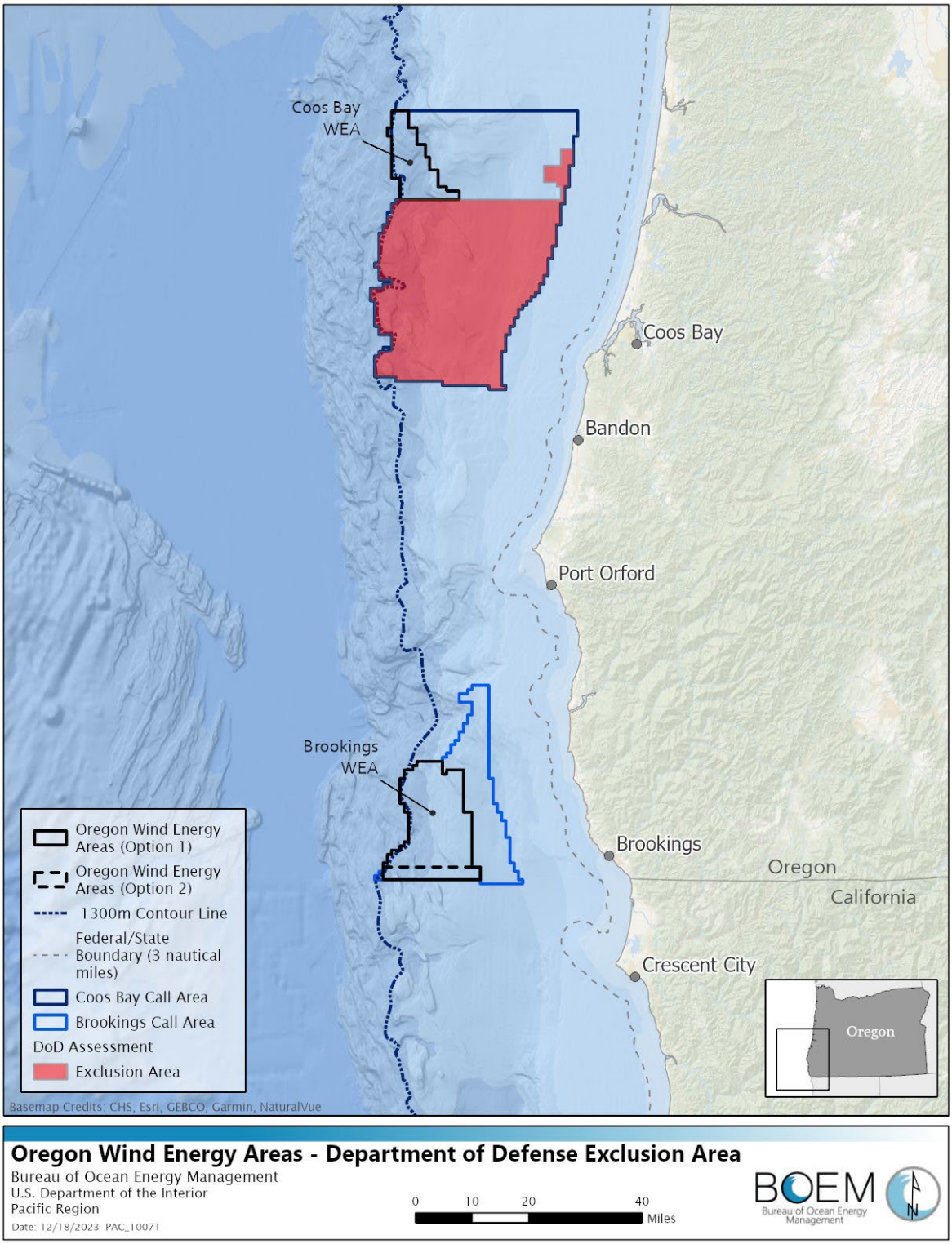

Figure 14: Map of Coos Bay and Brookings WEA Options overlayed with DOD Assessment Map of the Oregon Call Areas

Sources: BOEM, Military Aviation and Installation Assurance Siting Clearinghouse (DOD)

5. Seafloor Habitat

The seafloor off the Oregon coast includes numerous types of habitats that have distinct geological features, are biologically important for marine life, and support commercial and recreational fisheries. Floating wind facilities would anchor and have structures and cables that disturb and could permanently alter the seafloor. These recommended WEAs avoid prominent features, including underwater canyon systems and banks. For instance, a prominent geologic feature offshore southern Oregon is Heceta Bank where rocky margins and seasonal currents provide vital nutrients that support biodiversity and high fish abundance. BOEM does not recommend any changes from the Draft WEAs based on seafloor habitat. Our rationale is explained further below, with a focus on information from the ODFW, NOAA, and PFMC letters.

In the recommended WEAs, there are no areas designated as Essential Fish Habitat Conservation Areas (EFHCAs) or Habitats of Particular Concern (HAPCs) (Figure 15). These are areas identified by the PFMC, as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA), to conserve and enhance essential fish habitat for PFMC managed species. In response to the Call, PFMC requested that the northern regions of both Coos Bay and Brookings Call Areas be excluded due to potential concerns with rock habitat, coral and sponge density, and concentrations of methane bubbles. PFMC noted the importance of Rogue Canyon in the Brookings Call Area to the EFHCA. The recommended WEAs avoid the prominent geological features, including underwater canyon floors and walls; larger seafloor features including Heceta Bank and the Brush Patch; and currently designated essential fish habitats (Figure 15).

BOEM recognizes the importance of seafloor habitats to the regional ecosystems, as well as commercial and recreational fisheries they support. Seafloor habitats of interest include deep sea corals, methane seeps, carbonate deposits, and hard substrate areas such as rocky reefs. Hard substrate areas, for instance, provide a foundation for long-lived sessile organisms, shelter for invertebrates, and support many species contained within the Pacific Groundfish Fishery. BOEM started contributing to a regional seafloor mapping effort in the vicinity of the WEAs in 2010, when BOEM funded Oregon State University to collect data for use in a PFMC Groundfish Fishery Management Plan review. Through the establishment of a multi-year, multi-institutional combined research campaign known as Expanding Pacific Research and Exploration of Submerged Systems (EXPRESS)[28] in 2017, BOEM now works with multiple partners to collaboratively prioritize and fund new mapping and sampling initiatives on the West Coast. A map of the current status of mapped and unmapped areas near the Call Areas and WEAs is shown in Figure 16. In April 2024, EXPRESS plans to map potential cable routing areas along the 200 m depth contour, which was outlined as a priority data gap for PFMC and ODFW.

Seafloor data sets used in the NCCOS Report are largely interpreted using available data and, when combined with limited visual surveys, indicate more surveys are needed. The Oregon Conservation Coalition (OCC) noted that sponge habitats were not included in the NCCOS analysis since sponge data is not available. Commenters, such as ODFW and PFMC, noted new

[28] https://www.usgs.gov/centers/pcmsc/science/express-expanding-pacific-research-and-exploration-submerged-systems

high-resolution data exists for sensitive habitats that should be incorporated into models. BOEM will continue to use the best available data, including any new or recently obtained data, with future site-specific benthic characterization surveys within potential lease and cable corridors areas to identify sensitive habitat areas.

ODFW, PFMC, and others recommended BOEM conduct an analysis of the potential impacts on larval recruitment and community structure from offshore wind development, as well as better understand spawning ground locations. Several Tribes, including the Makah Tribe, expressed concerns about the potential impacts to larval nurseries. BOEM will continue to analyze potential impacts to commercial and recreational fisheries throughout the offshore wind authorization process, a process that will include NEPA analysis of leasing activities prior to holding a lease sale and NEPA analysis of the construction, operation, and decommissioning of a proposed facility with the submission of a COP.

Several commenters, such as PFMC, ODFW, and NMFS, were concerned that offshore wind activities could damage unique sea floor habitats and recommended BOEM analyze cable routes and remove particular seafloor features at the 1,200-meter (i.e., aliquot) scale from further consideration. Seafloor features at this scale, such as rocky reefs and carbonate deposits, are emphasized as sensitive habitats because they correlate with the presence of rare and/or fragile deep-water coral and sponge species along with higher densities of commercially fished species (Figure 17).

Should a lease sale proceed, BOEM will require extensive, high-resolution habitat mapping and data collection as described in the 30 C.F.R. part 585, BOEM's guidance, and potential future lease stipulations. Avoidance or mitigation strategies will be developed and reviewed with the submission of a COP, prior to BOEM's decision to approve, approve with modification, or not approve. Additionally, if areas are leased, lease holders will be required to avoid sensitive seafloor habitats.

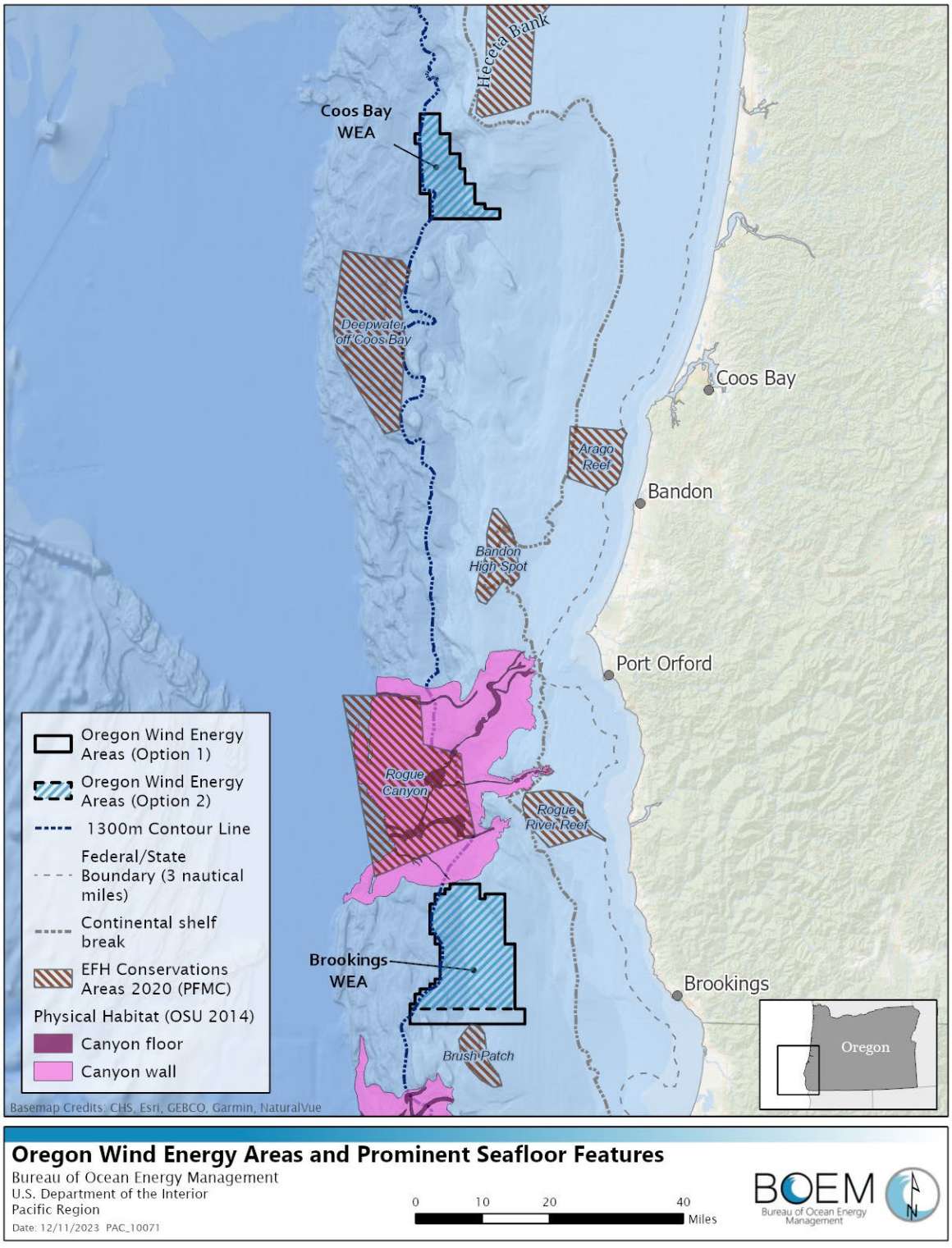

Figure 15: Map of prominent sea floor features and designated areas in relation to Coos Bay and Brookings Option 1 WEAs. PFMC areas include Essential Fish Conservation Areas and Habitats of Particular Concern as described in the PFMC's Amendment 28 document downloaded from OROWindMap and their comment letter. Canyon features and the shelf break depth contour come from Oregon State University data set and report also cited as Goldfinger et. al. 2014 by commenters.

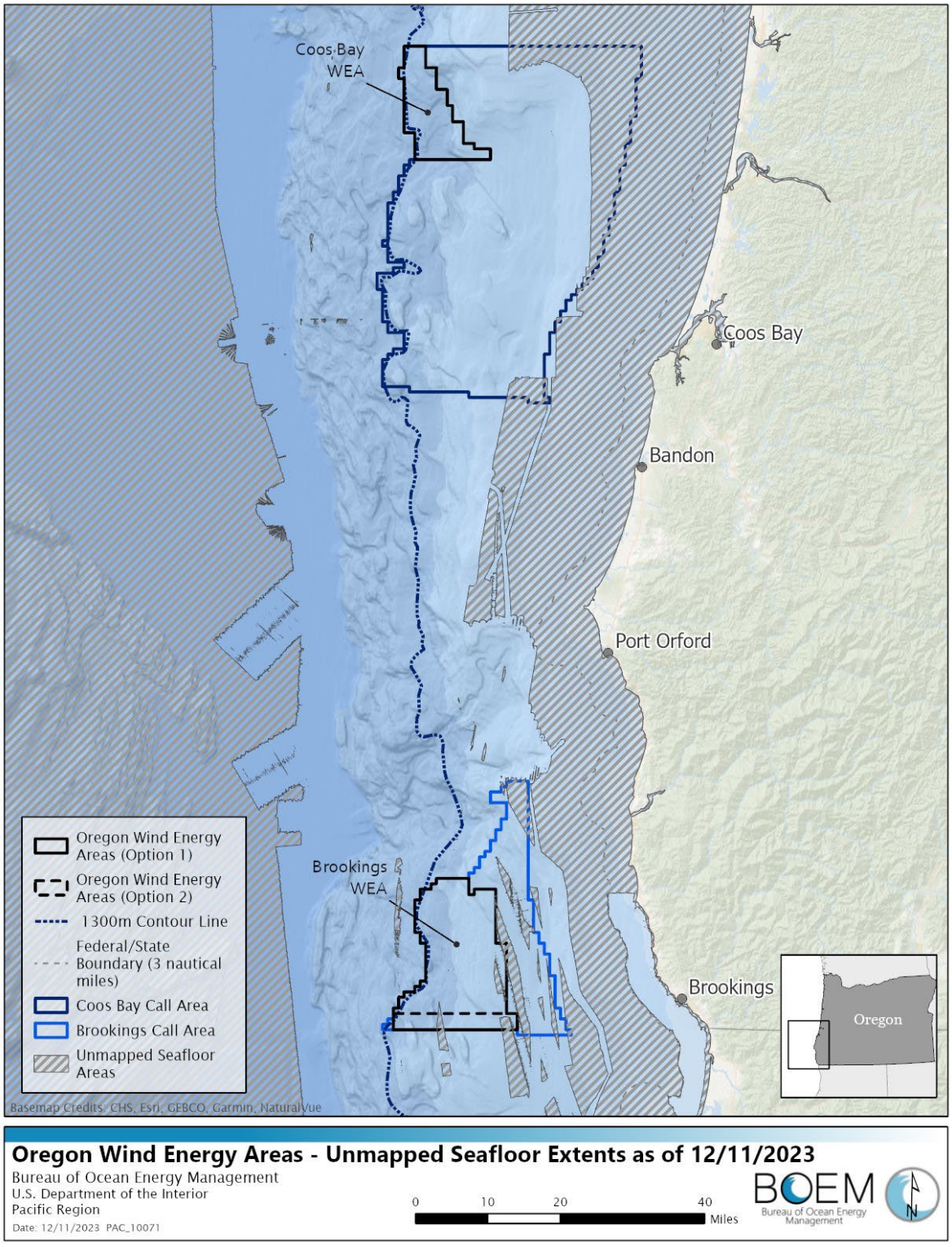

Figure 16: Map of areas surveyed in relation to Coos Bay and Brookings Option 1 and 2 WEAs. Surveys are a compilation of many sources mostly from multibeam echosounder systems. This is a type of sonar that can indicate changes in depth typically at a 10- to 60-meter resolution.

Source: USGS

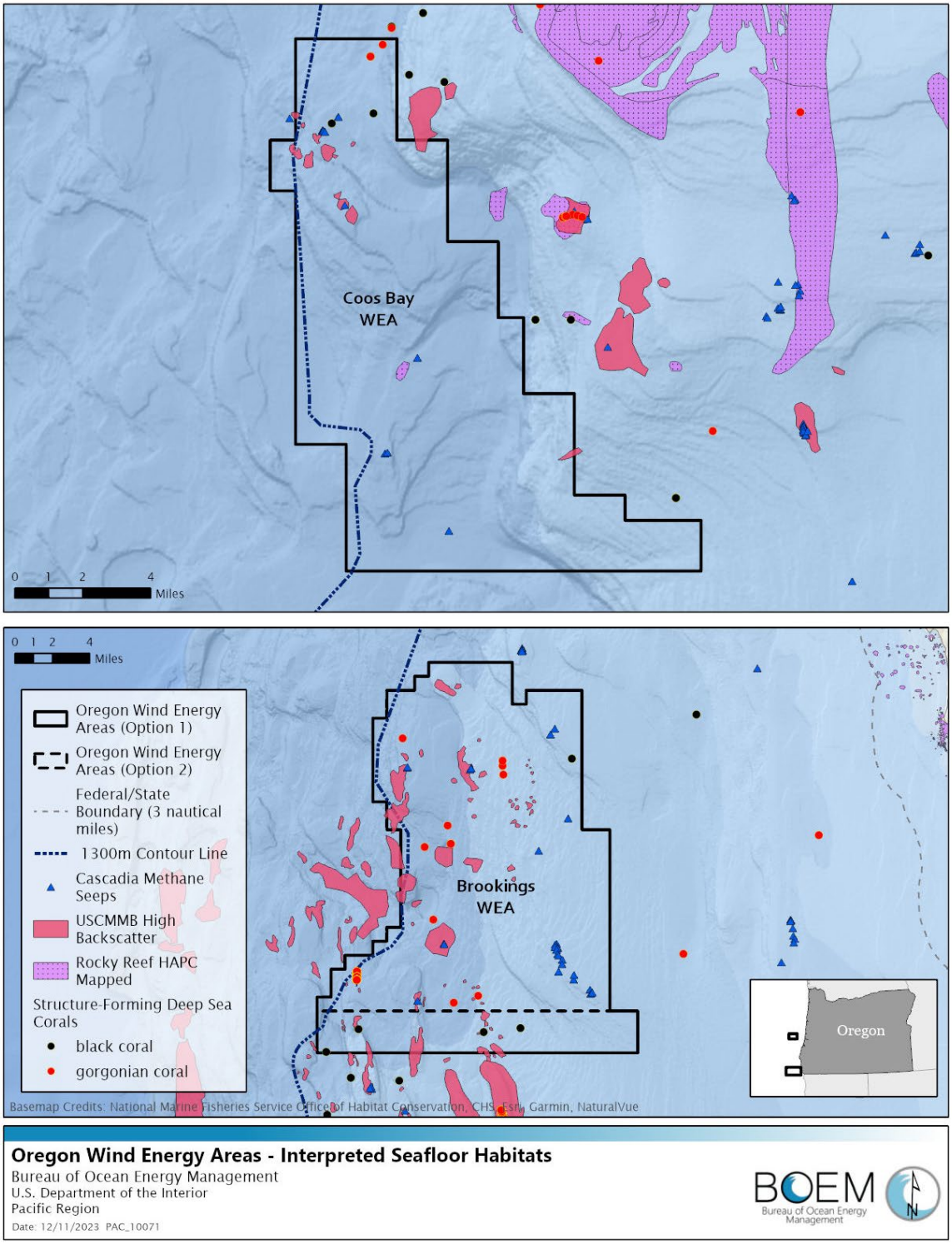

Figure 17: Maps of Coos Bay and Brookings Option 1 and 2 WEAs overlayed with available seafloor data sets largely interpreted from high-resolution physical data sources.

Seeps source: Johnson et al. 2015, Merle et al. 2021, NOAA Office of Coast Survey, Riedel et al. 2018, Rudebusch et.al 2023. Hardbottom source: U.S. Cascadia Margin MultiBeam (USCMMB). HAPC source: Oregon State University, Active Tectonics & Seafloor Mapping Lab (AT&SML), NOAA Fisheries Northwest Fisheries Science Center, BOEM. Corals source: NOAA

6. Marine Mammals and Sea Turtles

Leatherback sea turtles and multiple species of marine mammals occur off the Oregon Coast. The state of the best available scientific knowledge regarding Endangered Species Act (ESA) listed marine mammal and leatherback sea turtle distribution and critical habitat and the geographic overlap with the WEAs is described below. BOEM also considered biologically important areas (BIAs) for all marine mammal species in relation to the Final WEAs. No changes are recommended to the WEAs due to considerations related to marine mammals and sea turtles.

As is standard BOEM policy, avoidance of critical habitat and biologically important or sensitive areas is a priority wherever possible. In accordance with BOEM's regulations, issuance of a lease does not convey development rights to the lessee, and all plans will undergo additional environmental review and BOEM will comply with regulatory consultation responsibilities under Section 7 of the ESA. During these assessments, the best available scientific information will be used to assess the potential impact from the proposed actions, including vessels transiting to and from the Proposed Action Area that would likely intersect with critical habitat and BIAs; proposed cable routes; and potential impacts to oceanographic processes and prey species. The potential impacts from the proposed actions will be evaluated and mitigated, as appropriate, to minimize any potential impacts to protected species. Typically, BOEM, through consultation with NOAA Fisheries, develops 'Project Design Criteria' and 'Best Management Practices' to minimize impacts to protected species related to lease issuance and site characterization and site assessment activities, and expects to continue this process if COPs are received.

Comments received from Federal and state agencies, researchers, Tribes, and members of the public were concerned largely with potential impacts to cetaceans, pinnipeds, and leatherback sea turtles from offshore wind development and operations. These concerns included potential entanglement, vessel strikes, and impacts to migratory routes and food sources, such as salmon populations for southern resident killer whales, as well as the effects of electromagnetic fields produced by turbines and cables and cable locations on foraging activities of gray whales and leatherback sea turtles. CTCLUSI and ATNI requested expansion of data analysis to include all marine mammal use in the project areas and assess potential impacts to migration, feeding, and residential use, and CTCLUSI specifically expressed concerns regarding collisions with wildlife, impacts to abundance and distribution, entanglement, and displacement due to noise and vessel traffic. BOEM finds these concerns are associated with the construction and operation of an offshore wind facility and thus will continue to analyze these issues and work with partners and stakeholders as required in the regulations before a decision is made to authorize development in any area leased.

Many commenters were concerned with whale mortality events on the East Coast, and some attributed this to offshore wind activity while others noted there is no statistical uptick in whale casualty events since the start of offshore wind activities on the Atlantic. One commenter remarked that wind turbines should not be built in the WEAs until it is understood what is killing whales in the East Coast and a mitigation plan is implemented. To date, no whale mortality has been attributed to offshore wind activities. According to NOAA, at this time, there is no scientific evidence that noise resulting from offshore wind site characterization surveys could

potentially cause mortality of whales.[29] There are no known links between recent large whale mortalities and ongoing offshore wind surveys.

The Coos County Commission Board Chair was concerned that offshore wind development would reduce wind turbulence and impact plankton distribution resulting in potential impacts to, or the elimination of, food resources for plankton feeders such as certain whale species. A recent study report evaluating potential hydrodynamic impacts from offshore wind energy on Nantucket Shoals regional ecology, including impacts to zooplankton prey for North Atlantic right whales, states that knowledge of the effects of offshore wind turbine structures on hydrodynamics is limited and primarily based on modeling studies in the North Sea that have not been validated by observations.[30] The report explains that offshore wind structures could result in increasing or decreasing zooplankton densities, or turbines may have no appreciable impact on right whale foraging dynamics. In line with recommendations from this report, BOEM is currently funding studies to expand scientific understanding of these potential hydrodynamic effects from offshore floating wind in the Pacific which will be used to inform future decision-making.

Several comments suggested removing portions of the WEAs from further consideration due to overlap with BIAs that are considered high use or important areas for many marine mammal species. For instance, NMFS requested during public comments for the Call that BOEM should avoid areas south of 42°10' N latitude and areas shallower than 250 m isobath to protect marine mammals such as blue and humpback whales. Others requested BOEM use the latest BIA data, not information from 10 years ago. This new, as yet unpublished, BIA data was provided to BOEM after the Draft WEAs were published for comment and includes updated and new parent and core BIAs.[31] NMFS recommends removing areas that overlap with newly identified core BIAs. This consists of the southeastern corner of the Brookings WEA that overlaps with a portion of the core BIA for humpback whales and the western portion of the Coos Bay WEA due to overlap with a newly defined fin whale core BIA.

There were also concerns about offshore wind development and operations overlapping with leatherback sea turtle critical habitat, particularly near Heceta Bank (Figure 18). RODA noted sea nettles, a favorite prey for leatherback sea turtles, are prevalent in the WEAs. Some commenters said leatherback sea turtles were not fully considered in drafting the WEAs. Many organizations, including NMFS and individual commenters, recommended removing the northwest portion of the Coos Bay WEA to protect leatherback sea turtles.

After publishing the Call, BOEM and the State of Oregon worked extensively to gain access to all existing data sources relevant to marine mammal and sea turtle species likely to occur in the Call Areas and made those data available through OROWindMap. These data were analyzed in the spatial suitability modeling process and specifically consider areas of biological importance (including migratory corridors) and critical habitat. In comments on the Draft WEAs, NOAA

[29] https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/frequent-questions-offshore-wind-and-whales#:~:text=At%20this%20point%2C%20there%20is,and%20ongoing%20offshore%20wind%20surveys
[30] National Academies of Sciences, Engineering, and Medicine. 2023. Potential Hydrodynamic Impacts of Offshore Wind Energy on Nantucket Shoals Regional Ecology: An Evaluation from Wind to Whales. Washington, DC: The National Academies Press. https://doi.org/10.17226/27154
[31] Calambodikis J, Kratofil MA, Palacios DM, Lagerquist B, Schorr GS, Hanson MB, Baird RW, Forney KA, Becker EA, Rockwood RC, Hazen EL. In review. Frontiers in Marine Science.

provided unpublished BIA data updates, and BOEM considered these data as described below.

North Pacific right whales (listed as Endangered under the ESA) remain in the southeastern Bering Sea from May through December with peak call detection in September.[32] No North Pacific right whale calls were detected from January to April in the southeastern Bering Sea, which supports the theory that North Pacific right whales migrate out of the Bering Sea during winter months.[33] Outside of the Bering Sea and Gulf of Alaska, from 1950 to present, there have been at least four sightings of North Pacific right whales from the eastern population. Most recently, a right whale was sighted off Vancouver Island in May 2020. One North Pacific right whale was seen off La Jolla, California in April 2017, and a different animal was sighted off the Channel Islands in May 2017. Sightings have occurred in Mexican waters and thus there is some evidence that North Pacific right whales travel through Oregon waters to reach southern California or Mexico in the summer months, though by what route and in what number species utilize this unconfirmed migratory route is unknown.[34] There is no North Pacific right whale critical habitat in Oregon waters.[35] Low numbers of sightings of individuals from a very small population makes any kind of demographic analysis challenging. Since the 1950s, there have been no sightings offshore Oregon, the small population size (approximately 31 individuals) indicates that North Pacific right whales are unlikely to be present in the Oregon WEAs, and there is no overlap with critical habitat.

There are fewer than 75 animals left in the endangered Southern resident killer whale (SRKW) (listed and Endangered under the ESA) distinct population segment (DPS), and the population has been steadily declining over the last decade. Disturbance from vessels and their associated sound has been identified as one of three primary threats to SRKWs, since it can impact their behavior and feeding, increase their energy expenditure, and possibly reduce their ability to successfully find and capture prey.

Critical habitat for SRKWs was revised on August 2, 2021[36] and includes "passage conditions to allow for migration, resting, and foraging" as a habitat feature essential to the conservation of the DPS. Within the geographical area occupied by SRKWs, six coastal areas were identified as critical habitat and incorporate all three essential features; these areas are located in U.S. waters from Cape Flattery, Washington, south to Point Sur, California, between the 6.1-m and 200-m depth contours.

Two of three pods of SRKWs have been reported using central and southern Oregon waters in the winter months (primarily January through March). Critical habitat Area 3 is an important

[32] Muto MM, Helker VT, Delean B, Young N, Freed J, Angliss R, Friday N, Boveng P, Breiwick J, Brost B. 2021. Alaska marine mammal stock assessments, 2020. U.S. Department of Commerce, NOAA. 398 p. Report No.: NMFSAFSC-421.
[33] Wright, D. L. 2017. Passive acoustic monitoring of the critically endangered Eastern North Pacific right whale (*Eubalaena japonica*). Final Report to Marine Mammal Commission, Bethesda, MD. 58 p.
[34] Muto MM, Helker VT, Delean B, Young N, Freed J, Angliss R, Friday N, Boveng P, Breiwick J, Brost B. 2021. Alaska marine mammal stock assessments, 2020. U.S. Department of Commerce, NOAA. 398 p. Report No.: NMFSAFSC-421.
[35] NMFS. 2008. Endangered and threatened species; designation of critical habitat for North Pacific Right Whale. Federal Register. 73(19000):19001-19014.
[36] NMFS. 2021. Endangered and threatened wildlife and plants; revision of critical habitat for the Southern Resident Killer Whale distinct population segment. Federal Register. 86(41668):41668-41698.

migratory corridor between the northern and southern areas, which are primary feeding areas.[37,38] Within critical habitat, SRKWs may be impacted by vessels through ship strikes,[39] disturbance and noise, and chemical pollutants/contaminants. The Oregon WEAs do not overlap with SRKW critical habitat nor with updated, but yet unpublished, BIAs (Figure 18 and Figure 19).

Two populations of blue whales (listed as Endangered under the ESA) exist in the eastern and western North Pacific, respectively, with some geographic overlap.[40,41,42,43] According to the NOAA Fisheries Stock Assessment Reports, two stocks are currently recognized in the North Pacific: 1) the Eastern North Pacific Stock, and 2) the Central North Pacific Stock, with an unknown population trend.[44] Although Eastern North Pacific stock feeding occurs further to the north and south of the U.S. West Coast, the U.S. West Coast remains an important feeding area for blue whales in the summer and fall. Updated, but yet unpublished, BIAs identify a large parent BIA that overlaps with the Brookings WEA but the child/core feeding areas are to the east and south of the Oregon WEAs and do not overlap with the Oregon WEAs (Figure 19). There is no critical habitat currently designated for blue whales.

Fin whales (listed as Endangered under the ESA) are distributed throughout the world's oceans and occur in both pelagic and coastal waters, where they feed primarily on krill and fish. The NOAA Fisheries Stock Assessment Reports recognize two stocks, the Northeast Pacific stock (Alaska) and the California, Oregon, and Washington stock.[45] Fin whales occur from the tropical Pacific up to Arctic waters, and are seasonal visitors offshore California, Oregon, and Washington.[46] The number of fin whales off the U.S. West Coast has been increasing since the 1990s.[47] Current research suggests that only some fin whales undergo long-distance migrations, with some individuals remaining resident in warmer waters of the Southern California Bight.

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[37] NMFS. 2021. Endangered and threatened wildlife and plants; revision of critical habitat for the Southern Resident Killer Whale distinct population segment. Federal Register. 86(41668):41668-41698.
[38] NMFS. 2021. Revision of the critical habitat designation for Southern Resident Killer Whales final biological report (to accompany the final rule). 112 pp + Appendices.
[39] Raverty S, St Leger J, Noren DP, Burek Huntington K, Rotstein DS, Gulland FMD, Ford JKB, Hanson MB, Lambourn DM, Huggins J, et al. 2020. Pathology findings and correlation with body condition index in stranded killer whales (*Orcinus orca*) in the northeastern Pacific and Hawaii from 2004 to 2013. PLOS ONE. 15(12):e0242505.
[40] Stafford KM, Nieukirk SL, Fox CG. 2001. Geographic and seasonal variation of blue whale calls in the North Pacific. Journal Cetacean Research and Management. 3:65-76.
[41] Stafford KM. 2003. Two types of blue whale calls recorded in the Gulf of Alaska. Marine Mammal Science 19(4):682-693.
[42] McDonald MA, Hildebrand JA, Mesnick SL. 2006. Biogeographic characterization of blue whale song worldwide: using song to identify populations. Journal of Cetacean Research and Management 8:55–65.
[43] Monnahan, CC, Branch TA, Stafford KM, Ivashchenko YV, Oleson EM. 2014. Estimating historical eastern North Pacific blue whale catches using spatial calling patterns. PLOS ONE, 9(6), e98974.
[44] Carretta JV, Oleson EM, Forney KA, et al. 2023. U.S. Pacific marine mammal stock assessments: 2022. La Jolla, CA: US Department of Commerce. Report No.: NMFS-SWFSC-684.
[45] Carretta JV, Oleson EM, Forney KA, Weller DW, Lang AR, Baker J, Orr AJ, Hanson B, Barlow J, Moore JE, et al. 2023. U.S. Pacific marine mammal stock assessments: 2022. La Jolla, CA: US Department of Commerce. Report No.: NMFS-SWFSC-684.
[46] Mizroch SA, Rice D, Zwiefelhofer D, Waite J, Perryman W. 2009. Distribution and movements of fin whales in the North Pacific Ocean. Mammal Rev. 39(3):193-227.
[47] Moore JE, Barlow J. 2011. Bayesian state-space model of fin whale abundance trends from a 1991-2008 time series of line-transect surveys in the California Current. Journal of Applied Ecology 48:1195-1205.

Satellite-tracked fin whales seemed to favor nearshore habitats along the mainland coast, the northern Catalina basin in autumn and winter, and then disperse to the outer waters of the Southern California Bight, offshore and further north in spring and summer. Across the tag data sample years, fin whale use of the Northwest Training and Testing Study Area occurred primarily in late summer and fall.[48,49] Habitat-based density models built with these data indicate that fin whales are more likely to be present seaward of the continental shelf in offshore waters of Oregon, consistent with sightings from systematic ship surveys out to 300 nm off the U.S. West Coast and satellite tag data (Becker et al. 2020). Survey and acoustic data indicate that fin whale distributions shift both seasonally as well as annually.[50,51] Updated, but unpublished, BIAs indicate the parent fin whale BIA overlapping both Oregon WEAs, while only the northwestern side of the Coos Bay WEA overlaps with the fin whale child/core feeding BIA (Figure 19). As yet, there is no designated critical habitat for fin whales.

NMFS identified 14 DPSs of humpback whales (listed as Endangered under the ESA) worldwide under the Endangered Species Act (ESA),[52] based on genetics and movement data.[53,54] In the North Pacific, four DPSs are recognized: Western North Pacific, Hawai'i, Mexico, and Central America. Humpback whales undertake two migrations per year between mostly polar, cold water feeding grounds in the summer months, and subtropical mating and calving grounds in the winter months. During these migrations in the Pacific, concentrations of humpback whales increase with proximity to shore. Seasonal shifts in humpback distribution offshore Oregon occur both up and down the coast, as well as inshore and offshore.[55] Abundance of humpback whales off California/Oregon has increased since the late 1980s.[56]

Humpback whale critical habitat was designated for the Central America and Mexico DPSs in

[48] Mate B, Palacios D, Baker C, Lagerquist B, Irvine L, Follett T, Steel D, Hayslip C, Winsor M. 2018. Baleen whale tagging in support of marine mammal monitoring across multiple navy training areas covering the years 2014, 2015, 2016, and 2017. (Prepared for Commander, US Pacific Fleet. Submitted to Naval Facilities Engineering Command Southwest under Contract No. N62470-15-8006-17F4016 issued to HDR, Inc., San Diego, California).
[49] U.S. Department of the Navy (U.S. Navy). 2017. Criteria and thresholds for U.S. Navy acoustic and explosive effects analysis (Phase III). Technical Report. 183 p.
[50] Calambokidis J, Steiger GH, Curtice C, Harrison J, Ferguson MC, Becker E, DeAngelis M, Van Parijs SM. 2015. Biologically Important Areas for selected cetaceans within U.S. waters – West Coast region. Aquatic Mammals. 41(1):39-53. doi:10.1578/am.41.1.2015.39.
[51] Burnham RED, Duffus DA, Mouy X. 2019. The presence of large whale species in Clayoquot Sound and its offshore waters. Continental Shelf Research, 177, 15–23.
[52] NMFS. 2016. Endangered and threatened species; identification of 14 distinct population segments of the humpback whale (*Megaptera novaeangliae*) and revision of species-wide listing. Federal Register. 81(62259):62260-62320.
[53] Calambokidis J, Falcone EA, Quinn TJ, Burdin AM, Clapham PJ, Ford JKB, Gabriele CM, LeDuc R, Mattila D, RojasBracho L, et al. 2008. SPLASH: Structure of Populations, Levels of Abundance and Status of Humpback Whales in the North Pacific. Olympia, WA: Cascadia Research.
[54] Bettridge S, Baker CS, Barlow J, Clapham PJ, Ford M, Gouveia D, Mattila DK, Pace III RM, Rosel PE, Silber GK, et al. 2015. Status Review of the Humpback Whale (*Megaptera novaeangliae*) under the Endangered Species Act (NOAA Technical Memorandum NMFS-SWFSC-540). La Jolla, CA: Southwest Fisheries Science Center.
[55] Derville S, Barlow D, Hayslip C, Torres L. 2022. Seasonal, annual, and decadal distribution of three rorqual whale species relative to dynamic ocean conditions off Oregon, USA. Frontiers in Marine Science. 9:868566.
[56] Calambokidis J, Barlow J. 2020. Updated abundance estimates for blue and humpback whales along the U.S. West Coast using data through 2018. NOAA Technical Memorandum NMFS-SWFSC-634.

April 2021,[57] encompassing much of the West Coast of the U.S. Both the endangered Central America DPS and threatened Mexico DPS forage in relatively high densities off Oregon from May through November, and their critical habitat overlaps with the Coos Bay and Brookings WEAs (Figure 18). However, feeding areas for humpbacks are generally broadly distributed and range widely in terms of latitude, and the whales are usually over the continental shelf in shallow (~10 m) to moderate depths (~50–200 m) and cooler waters. The WEAs occur in water depths between 567 and 1,531 meters and do not overlap with the humpback whale core feeding areas. Updated, but yet unpublished, BIAs show that the parent humpback whale BIA overlaps with both Oregon WEAs, while the child/core BIA overlaps only with the southeastern side of the Brookings WEA (Figure 19).

Gray whales are commonly found in the North Pacific, migrating south to calve in Baja California in the winter, and then migrating north to Alaska to feed in the summer. Genetic studies indicate there are distinct Eastern North Pacific (ENP) and Western North Pacific (WNP) population stocks.[58] The ENP stock has recovered from whaling exploitation and was delisted under the ESA in 1994.[59] The WNP stock is listed under the ESA as endangered and there has been no critical habitat designated for this stock.[60] Recent data has indicated that a small group of gray whales, known as the Pacific Coast Feeding Group (PCFG) generally winter in the lagoons of Baja California and spend the summer and fall foraging along the northwest Pacific Coast of the United States and Canada, extending primarily between northern California and northern British Columbia (41°–52° N, excluding the Puget Sound region). The migratory and feeding BIAs occur in coastal waters of the Oregon coast[61] and do not overlap with the Oregon WEAs (Figure 19).

Steller sea lions are present year-round, hauling out on offshore islands and along the coast in southern Oregon and foraging in the coastal and shelf habitats nearby.[62] The Eastern DPS of Steller sea lions was delisted in 2013 but is still being monitored to ensure its continued recovery. Pyramid Rock at Rogue Reef and Long Brown Rock and Seal Rock at Orford Reef are designated critical habitat for this population (50 C.F.R. 226.202) and includes an aquatic zone extending 3,000 feet (0.9 km) seaward from the baseline of the rookery. Increased ocean noise, ship traffic, and possible disruption to prey resources may result in prolonged disruption to Steller sea lion critical life history activities. These major rookeries occur between the WEAs, but the WEAs do not overlap with critical habitat (Figure 18).

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[57] NMFS. 2021. Endangered and threatened wildlife and plants: designating critical habitat for the Central America, Mexico, and Western North Pacific distinct population segments of humpback whales. Federal Register. 86(21082):21082-21157.

[58] Muto MM, Helker VT, Delean B, Young N, Freed J, Angliss R, Friday N, Boveng P, Breiwick J, Brost B. 2021. Alaska marine mammal stock assessments, 2020. U.S. Department of Commerce, NOAA. 398 p. Report No.: NMFSAFSC-421.

[59] Swartz SL, Taylor BL, Rugh DJ. 2006. Gray whale, *Eschrichtius robustus*, population and stock identity. Mammal Review, 36(1), 66–84.

[60] Muto MM, Helker VT, Delean B, Young N, Freed J, Angliss R, Friday N, Boveng P, Breiwick J, Brost B. 2021. Alaska marine mammal stock assessments, 2020. U.S. Department of Commerce, NOAA. 398 p. Report No.: NMFSAFSC-421.

[61] Calambokidis J, Steiger GH, Curtice C, Harrison J, Ferguson MC, Becker E, DeAngelis M, Van Parijs SM. 2015. Biologically Important Areas for selected cetaceans within U.S. waters – West Coast region. Aquatic Mammals. 41(1):39-53. doi:10.1578/am.41.1.2015.39.

[62] https://geo.maps.arcgis.com/home/item.html?id=b6799b1342db4ca68466d3b213420ede

When the ESA was enacted in 1973, the leatherback sea turtle was listed as endangered, wherever found (50 C.F.R. 17.11). Leatherback sea turtles have the most extensive range of any living reptile and have been reported globally throughout the oceans of the world. There are two distinct populations in the Pacific; the West Pacific population of leatherbacks has declined more than 80% and the East Pacific population of leatherbacks by more than 97%.[63] They face significant threats from bycatch in fisheries (entanglement and/or hooking), direct harvest of both eggs and turtles, coastal development, and the effects of climate change (habitat loss due to sea level rise, alteration of hatchling sex ratios, and decreased nest success). Additional threats include vessel strikes, ingestion of plastics, and entanglement in marine debris, including lost or discarded fishing gear.[64]

Migratory routes of leatherbacks are not entirely known. However, turtles tagged after nesting in July at Jamursba-Medi, Indonesia, arrived in waters off California and Oregon during July–August coincident with the development of seasonal aggregations of jellyfish. Other studies similarly have documented leatherback sightings along the Pacific Coast of North America during the summer and fall months, when large aggregations of jellyfish form. NMFS published a final rule designating critical habitat for leatherback sea turtles in 2012.[65] This critical habitat contains the observed and likely suitable feeding habitat for leatherback sea turtles and stretches along the California coast from Point Arena to Point Arguello east of the 3,000-meter depth contour; and 25,004 mi^2 (64,760 km^2) stretching from Cape Flattery, Washington to Cape Blanco, Oregon east of the 2,000-m depth contour. The Oregon Coos Bay WEA overlaps with a small portion of critical habitat (feeding) for leatherback sea turtles, however, this area has few recorded sightings of leatherback sea turtle occurrence.[66]

BOEM is collaborating with researchers to conduct studies to inform current and future assessments and mitigations, if a COP is received, including a) the development of a 3-D simulator to assess entanglement risk to whales, dolphins, and leatherback sea turtles, b) collecting passive acoustic soundscape and biological baseline data, c) digital aerial surveys to identify species distribution, d) vessel-based line transect surveys to collect acoustic and visual data on marine mammal and avian species, e) collation of existing movement data derived from telemetry tagging for whale species, and f) aerial surveys for marine wildlife, with a focus on leatherback sea turtle detection and vessel-based satellite tagging. In addition, to accurately evaluate and validate the potential impacts on these above-mentioned populations, it will be essential to continue to monitor these populations and oceanographic processes if the development of offshore wind in the WEAs progresses. BOEM will continue to fund monitoring studies via the Environmental Studies Program and monitoring is expected to be required and/or supported by lessees, as a condition of plan approval, to accurately evaluate the impacts on these populations and inform future decision-making.

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[63] NMFS, USFWS. 2020. Endangered Species Act status review of the leatherback turtle (*Dermochelys coriacea*). Silver Springs, MD: Department of Commerce. 396 p.
[64] Benson SR, Fahy C, Lauritsen AM, Possardt E, Seminoff J, Tiwari M, Dutton P, Kelly IK, Martin S, Schroeder B, et al. 2021. Species in the spotlight, priority actions 2021-2025, Pacific leatherback turtle. National Marine Fisheries Service. Silver Spring. https://media.fisheries.noaa.gov/2021-04/SIS-Action-Plan-2021-leatherback-FINAL-508.pdf
[65] NMFS. 2012. Endangered and threatened wildlife and plants: final rule to revise the critical habitat designation for the endangered leatherback sea turtle. Federal Register. 77(4170):4170-4201.
[66] NMFS, USFWS. 2020. Endangered Species Act status review of the leatherback turtle (*Dermochelys coriacea*). Silver Springs, MD: Department of Commerce. 396 p.

BOEM acknowledges the potential for marine mammal and sea turtle impacts during project construction and operation including the risk of vessel strike, entanglement, noise disturbance, and displacement. However, BOEM believes that through the Area ID process, significant efforts have been made to avoid as much overlap with critical habitat and BIAs as possible. The resultant Coos Bay and Brookings WEAs warrant further consideration while BOEM is conducting studies and processing data, which will provide a deeper understanding of marine mammal and leatherback sea turtle habitat use within and outside of the Oregon WEAs. Based on this information, and the information we have evaluated from public comments, BOEM has determined that impacts to marine mammals and leatherback sea turtles from the construction and operation of potential offshore wind facilities will be more accurately addressed, and appropriate mitigations identified, when, as required in 30 C.F.R. 585, project details and site-specific data and information are available at the COP review stage. This period of analysis will also include consultation with NMFS on any potential impacts to marine mammal and sea turtle species that are listed as threatened or endangered under the ESA.

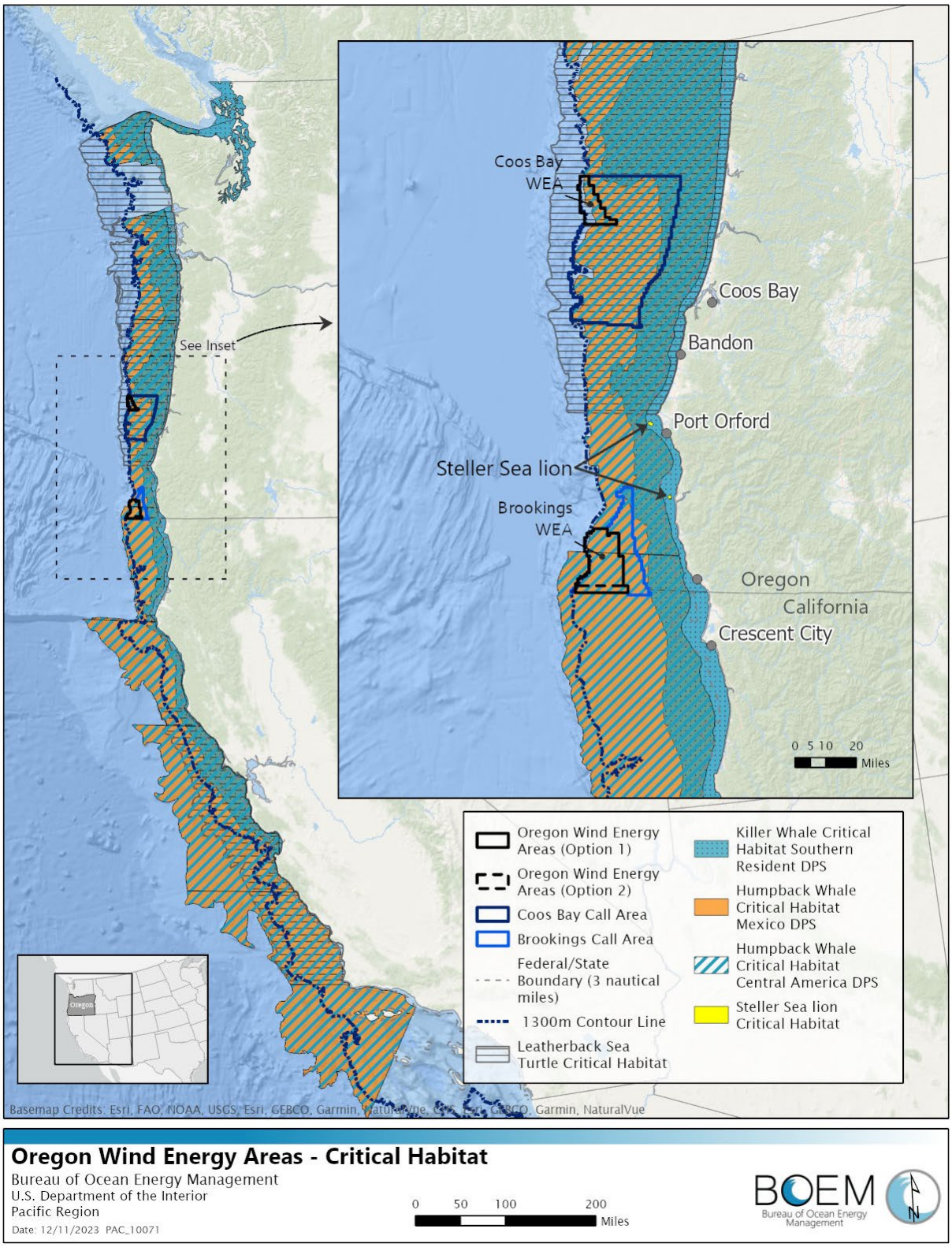

Figure 18: Coos Bay and Brookings WEA Options Overlayed with Critical Habitat for Leatherback Sea Turtle, Steller Sea Lion, Humpback Whale, and South Resident Killer Whale

Source: NOAA

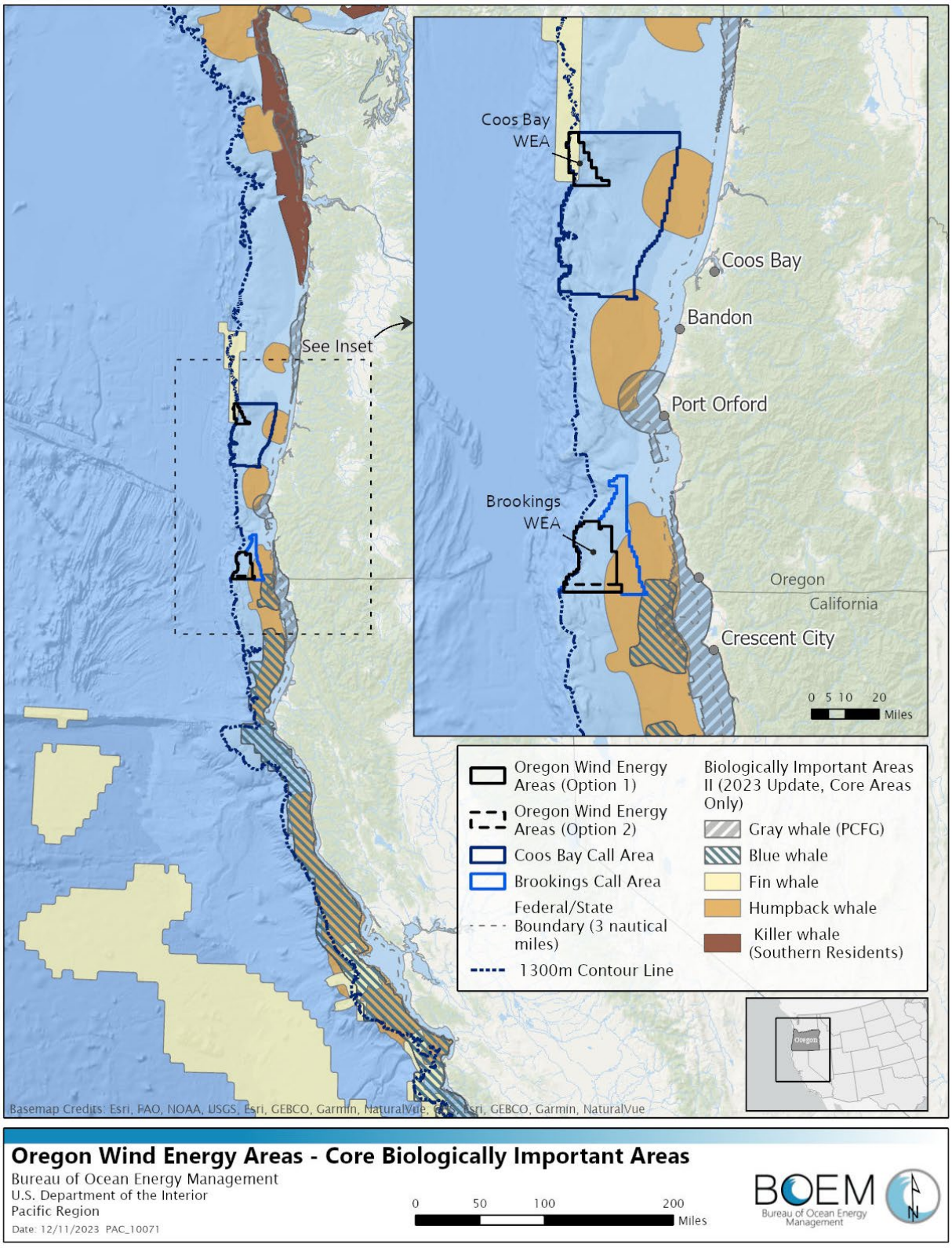

Figure 19: Coos Bay and Brookings WEA Options Overlayed with Marine Mammal Core Biologically Important Areas (BIAs)

Source: NOAA

7. Avian Species

BOEM understands that seabirds and avian species in and around the WEAs are an important component of a healthy ecosystem and environment. BOEM acknowledges the potential for avian impacts during project construction and operation, including the risk of collision, displacement, and attraction from lights and structures. However, the purpose of the Area ID stage is to identify the most suitable areas for further consideration of offshore wind, not to authorize construction at these areas. Approximately 34 species occur in moderate to high relative densities inshore of the Coos Bay and Brookings WEAs, and these areas of relatively high density were largely avoided by designating the Draft and Final WEAs further offshore (Figure 20). BOEM believes that the Coos Bay and Brookings WEAs warrant further consideration while BOEM is conducting studies and processing data that would be valuable to gain a deeper understanding of birds and bats within the vicinity.

BOEM conducted analysis on our data synthesis and modeling efforts to date, and other sources of information, on seabird distribution in the area and found at least 60 seabird species are regularly present offshore southern Oregon. At least 17 species occur in the WEAs at relatively moderate to high densities (primarily phalaropes, jaegers, gulls, albatrosses, storm-petrels, and shearwaters). In contrast, approximately 34 species occur in relatively moderate to high densities inshore of the WEAs (primarily scoters, grebes, alcids, gulls, terns, loons, cormorants, pelicans), and approximately 17 species occur in relatively moderate to high densities farther offshore of the WEAs (primarily skuas, terns, albatrosses, storm-petrels, petrels). Several of the inshore and offshore species are likely to occur in lower relative densities within the Coos Bay and Brookings WEAs.

Some of these species that are rare in the vicinity of the WEAs are listed as endangered or threatened under the ESA, including the Short-tailed Albatross (*Phoebastria albatrus*), Hawaiian Petrel (*Pterodroma sandwichensis*), and Marbled Murrelet (*Brachyramphus marmoratus*). In addition, the federally threatened Western Snowy Plover (*Charadrius nivosus nivosus*) occurs on beaches along the southern Oregon coast but is not likely to occur in the WEAs.

The Short-tailed Albatross is federally listed as endangered and also listed as endangered by the State of Oregon. As of 2020, 84% of the known breeding population uses a single colony, Tsubamezaki, on Torishima Island off Japan. The remaining population nests on other islands surrounding Japan, primarily the Senkaku Islands, and a single pair nested on Midway Atoll from 2008 to 2015. During the non-breeding season, the Short-tailed Albatross regularly ranges along the Pacific Rim from southern Japan to the Gulf of Alaska, primarily along continental shelf margins. The Short-tailed Albatross occurs rare to casual but is increasing offshore from British Columbia to southern California. Most findings of individuals off Oregon in recent years have been during the fall and early winter with a few recorded in late winter, early spring, and summer.[67] The global population of Short-tailed Albatross is currently estimated to be 7,365 birds.[68] There have been 20 recorded instances of the species off Oregon since 1961 with 16

[67] Oregon Bird Records Committee. 2023. The Records of the Oregon Bird Records Committee, September 2023. https://oregonbirding.org/wp-content/uploads/2023/09/recordssept2023a.pdf.
[68] USFWS. 2020. Short-tailed Albatross 5-year review: summary and evaluation. Anchorage, AK: Anchorage Fish and Wildlife Field Office. https://ecos.fws.gov/docs/tess/species_nonpublish/3003.pdf.

records since 2000; 8 of these are off the Douglas, Coos, and Curry Counties coast.[69] Based on satellite tracking of 99 individuals between 2002 and 2012, juveniles generally range in shallower, nearer-to-shore waters than adults (e.g., less than 200 m (656 ft) depth) and are more likely than adults to occur off the West Coast of the U.S. and Canada.[70,71,72,73,74,75] The rarity of this species off the Oregon coast indicates that the Short-tailed Albatross is highly unlikely to be in the WEAs; its presence is anticipated to be limited to occasional occurrences even as the population continues to grow.

The Hawaiian Petrel is federally listed as endangered. The species breeds on larger islands in the Hawaiian chain where they nest in burrows on vegetated cliffs, volcanic slopes, and lava flows. The global population is comprised of approximately 52,186 individuals.[76,77] The species has been recorded off Oregon from April to August with most records occurring during July[78]. The first of Oregon's 14 accepted records occurred in July 2013. Records of Hawaiian Petrels have increased such that they are no longer a review species for the Oregon Bird Records Committee. This species is typically encountered offshore in deep water, but occasionally individuals are observed over the continental shelf break. With the rarity of the Hawaiian Petrel off the Oregon coast, the presence of this species in the WEAs would likely be limited to rare occurrences.

The Marbled Murrelet is federally listed as threatened within the states of Washington, Oregon, and California and it is also listed as endangered by the State of Oregon. The Marbled Murrelet is a small seabird that spends most of its life in the nearshore marine environment, but nests and roosts inland in low-elevation old-growth forests, or other forests with remnant large trees. Critical habitat for the species was designated in 1996[79] and was later revised in a final rule published in 2011.[80] No marine areas were designated as critical habitat. The population of Marbled Murrelets in the vicinity of the WEAs (from Shelter Cove, California, north to Coos

[69] Oregon Birds Records Committee. 2023. https://oregonbirding.org/oregon-bird-records-committee/.
[70] Suryan RM, Sato F, Balogh GR, Hyrenbach KD, Sievert PR, Ozaki K. 2006. Foraging destinations and marine habitat use of short-tailed albatrosses: a multi-scale approach using first-passage time analysis. Deep Sea Research Part II: Topical Studies in Oceanography. 53(3-4):370-386.
[71] Suryan RM, Dietrich KS, Melvin EF, Balogh GR, Sato F, Ozaki K. 2007. Migratory routes of short-tailed albatrosses: Use of exclusive economic zones of North Pacific Rim countries and spatial overlap with commercial fisheries in Alaska. Biological Conservation. 137(3):450-460.
[72] Suryan RM, Anderson DJ, Shaffer SA, et al. 2008. Wind, waves, and wing loading: morphological specialization may limit range expansion of endangered albatrosses. PLoS One. 3(12):e4016.
[73] Suryan RM, Fischer KN. 2010. Stable isotope analysis and satellite tracking reveal interspecific resource partitioning of nonbreeding albatrosses off Alaska. Canadian Journal of Zoology. 88(3):299-305.
[74] Deguchi T, Jacobs J, Harada T, et al. 2012. Translocation and hand-rearing techniques for establishing a colony of threatened albatross. Bird Conservation International. 22(1):66-81.
[75] USFWS. 2014. Short-tailed Albatross 5-year Review: Summary and Evaluation. Anchorage, AK: Anchorage Fish and Wildlife Field Office. http://ecos.fws.gov/docs/five_year_review/doc4445.pdf.
[76] Joyce TJ. 2013. Abundance estimates of the Hawaiian Petrel (*Pterodroma sandwichensis*) and Newell's Shearwater (*Puffinus newelli*) based on data collected at sea, 1998-2011.
[77] USFWS. 2017. Hawaiian Petrel 5-year Review. Honolulu, HI.
[78] Oregon Bird Records Committee. 2023. The Records of the Oregon Bird Records Committee, September 2023. https://oregonbirding.org/wp-content/uploads/2023/09/recordssept2023a.pdf.
[79] USFWS. 1996. Endangered and threatened wildlife and plants; final designation of critical habitat for the Marbled Murrelet. Federal Register. 61(26256):26256-26320.
[80] USFWS. 2011. Endangered and threatened wildlife and plants; revised critical habitat for the Marbled Murrelet. Federal Register. 76(61599):61599-61621.

Bay, Oregon) was approximately 8,574 in 2017.[81]

At-sea abundance of Marbled Murrelets has been strongly correlated with proximity to inland areas containing contiguous old-growth forest with suitable nesting habitat. Peak densities of Marbled Murrelets in northern California and southern Oregon occur within 1 mile of shore, and they are rare but consistently present beyond 2.5 miles from shore.[82,83] After the breeding season, some birds disperse and are less concentrated in nearshore coastal waters. There is some evidence that they occur farther offshore over the continental shelf during the non-breeding season,[84] thus, it is possible that they are more likely to occur in the WEAs from fall through spring.

The Pacific Coast population of the Western Snowy Plover is federally listed as threatened and is also listed as threatened by the State of Oregon. The Pacific Coast population of the Western Snowy Plover breeds on the Pacific Coast from southern Washington to southern Baja California, Mexico. The bird is found on beaches, open mudflats, salt pans and alkaline flats, and sandy margins of rivers, lakes, and ponds. The breeding season extends from early March to late September, with birds at more southerly locations beginning to nest earlier in the season than birds at more northerly locations.[85] There are nine designated critical habitat units for the Western Snowy Plover in Oregon; four of which occur in Coos and Curry Counties.[86] There were an estimated 162 resident adult Western Snowy Plovers in Oregon at eight breeding sites along the coast from Florence south in 2006.[87]

In winter, the Western Snowy Plover is found on many of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats. The winter range is somewhat broader and may extend to Central America.[88] The majority of birds along the Pacific Coast winter south of Bodega Bay, California;[89] however, 2–3% of the population winters in Oregon.[90] This bird may be found wintering at any beach with suitable

[81] McIver W, Baldwin J, Lance M, Pearson S, Strong C, Johnson N, Lynch D, Raphael M, Young R, Lorenz T. 2019. Marbled Murrelet effectiveness monitoring, Northwest Forest Plan: 2018 summary report.
[82] Hébert PN, Golightly RT. 2008. At-sea distribution and movements of nesting and non-nesting marbled murrelets *Brachyramphus marmoratus* in northern California. Marine Ornithology. 36:99-105.
[83] Falxa GA, Raphael MG, Strong C, Baldwin J, Lance M, Lynch D, Pearson SF, Young RD. 2016. Status and trend of marbled murrelet populations in the northwest forest plan area. Pages 1–36 in G. A. Falxa and M. G. Raphael, technical coordinators, Northwest Forest Plan—The First 20 Years (1994–2013): Status and Trend of Marbled Murrelet Populations and Nesting Habitat. General Technical Report PNW-GTR-933. USDA, Forest Service, Pacific Northwest Research Station, Portland, Oregon.
[84] Hébert PN, Golightly RT. 2008. At-sea distribution and movements of nesting and non-nesting marbled murrelets *Brachyramphus marmoratus* in northern California. Marine Ornithology. 36:99-105.
[85] USFWS. 1999. Endangered and threatened wildlife and plants; designation of critical habitat for the Pacific Coast population of the Western Snowy Plover. Federal Register. 64(68508):68508-68544.
[86] USFWS. 2012. Endangered and threatened wildlife and plants; revised designation of critical habitat for the Pacific coast population of the Western Snowy Plover. Federal Register. 77(36728):36728-36869.
[87] Lauten DJ, Castelein KA, Weston S, Eucken K, Gaines EP. 2006. The distribution and reproductive success of the Western Snowy Plover along the Oregon coast-2006. Unpublished report for the Oregon Department of Fish and Wildlife – Nongame Program, Portland, the Coos Bay District Bureau of Land Management, Coos Bay, and the Dunes Recreational Area, Reedsport.
[88] Page G, Warriner J, Warriner J, Paton P. 1995. Snowy Plover. The Birds of North America. (154):1-23.
[89] Page G, Bidstrup F, Ramer R, Stenzel L. 1986. Distribution of wintering Snowy Plovers in California and adjacent states. Western Birds. 17(4):145-170.
[90] USFWS, unpublished data.

habitat along the Oregon coast, including several locations in the vicinity of the WEAs. Western Snowy Plovers were reported during winter surveys of beaches in Coos and Curry Counties between 1991–2009.[91]

Additional species of concern that BOEM received comments about include the Tufted Puffin (*Fratercula cirrhata*) and Leach's Storm-Petrel (*Hydrobates leucorhous*). The Tufted Puffin is a bird of conservation concern and an Oregon sensitive species. Tufted Puffins nest along the Oregon coast where soil-covered islands are present. All Tufted Puffins in Oregon nest within the Oregon Coast National Wildlife Refuge (NWR) complex, which includes Three Arches and Oregon Islands NWRs. A survey for Tufted Puffins at Three Arch Rocks in July 2019 documented 220 birds (compared to only 16 birds during a 2008 survey), while monitoring for Tufted Puffins at Haystack Rock at Cannon Beach for the past 10 years estimates the population there at 120 birds.[92] No nesting habitat is available from Coos Bay to north of Florence.[93] During the non-breeding season, Tufted Puffins disperse offshore where they often forage far past the continental slope, and a portion of the Oregon population may move south as numbers in California increase in the winter.[94]

Leach's Storm-Petrels are the smallest and most pelagic of Oregon's breeding seabirds and they fly the farthest offshore of any of Oregon's breeding seabirds to feed.[95] They spend the non-breeding season in the subtropical and equatorial Pacific. They are rarely seen from land or close to shore and come into their nesting burrows at night. This species nests on approximately 15 offshore islands within the Oregon Islands NWRs. Seven Islands in Curry County account for the bulk of the population. They feed in warmer waters of the continental shelf edge and slope, so they fly greater than 50 miles offshore each day. During the time they are present offshore Oregon, they are more common in waters more than 2,000 meters deep, but during the breeding season they forage in shallower waters closer to shore.

Avian species-related comments received from the Call focused primarily on concerns related to potential impacts to avian species from the construction and operation of a wind energy project within the WEAs and on a cumulative scale. Several Tribes, the National Wildlife Federation, National Audubon Society, and Mass Audubon expressed concerns about bird mortality via turbine collision or habitat destruction or displacement. They noted further studies on pelagic tubenose birds and collision vulnerability should occur. Surfrider warned avian impacts could reduce tourism and harm local economies. These types of impacts will be evaluated during environmental review of COPs, and BOEM is also considering further scientific initiatives, as described below, to enhance understanding of potential avian impacts from project construction and operation.

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[91] USFWS. 2009. Unpublished data from winter and breeding window Snowy Plover surveys. Available: USFWS. Newport, OR.

[92] Stephensen SW. 2019. Personal communication between S. Stephensen (USFWS) and C. Yeargan (USFWS) on August 19, 2019, regarding Tufted Puffin abundance in Oregon.

[93] Marshall DB, Hunter MG, Contreras AL. 2006. Birds of Oregon: A General Reference. Oregon State University Press, Corvallis, OR. 768 pp.

[94] Briggs KT, Varoujean DH, Williams WW, Ford RG, Bonnell M, Casey J. 1992. Seabirds of the Oregon and Washington OCS, 1989-1990. Chapter III. Oregon and Washington Marine Mammal and Seabird Surveys Final Report to the Pacific OCS Region, Minerals Management Service, US Dept of the Interior, Los Angeles, CA.

[95] Marshall DB, Hunter MG, Contreras AL. 2006. Birds of Oregon: A General Reference. Oregon State University Press, Corvallis, OR. 768 pp.

BOEM also received comments concerning bird species such as Short-tailed Albatross, Leach's Storm-Petrel, Marbled Murrelets, and Tufted Puffins foraging on the continental shelf and in the WEAs. It was especially noted there are potential impacts from artificial light on Leach's Storm-Petrels foraging in the Brookings WEA. For Leach's Storm-Petrel, some Oregon conservation groups recommend BOEM establish a satellite tagging study to determine movement within the Brookings WEA. Commenters, such as the Audubon Society, ODFW, and the U.S. Fish and Wildlife Service (USFWS) also recommend tagging studies for Short-tailed Albatross and including this data in spatial suitability models due to potential clusters of foraging birds in both WEAs. The Pacific Seabird Group recommends that BOEM plan for standardized before-after control impact or before-after gradient studies to detect changes in seabird distribution and abundance at the WEAs.

There were also comments recommending that BOEM give full consideration to ESA-listed species and other species of concern that may be at risk to collisions with turbines and/or onshore cable routing, such as Short-tailed Albatross, Western Snowy Plovers, and Marbled Murrelets. For Marbled Murrelets, it was also noted by Oregon conservation groups that these birds are vulnerable to ship disturbance, which may increase due to offshore wind activity, and so studies on fall and winter distribution should be completed in the WEAs. It was also recommended that BOEM evaluate the potential impacts on trans-Pacific migratory birds as part of offshore wind energy planning. Several commenters were concerned that baseline data on seabird populations in the WEAs was not at sufficient resolution to design efficient and effective development and mitigation plans to minimize negative impacts on seabirds. Commenters, such as ODFW, suggested completing further studies of bird distribution at-shore and onshore to inform delineation of WEAs.

BOEM is collaborating with a variety of partners on several seabird and bat studies including: 1) synthesizing telemetry data on a number of seabird species in the California Current System, including shearwaters; 2) conducting a systematic study of offshore acoustic bat activity along and offshore the Pacific Coast to determine the temporal and spatial distribution of bats, which will help BOEM evaluate the effects of proposed offshore wind energy development on them; 3) tracking southbound Black Brant migration from their breeding grounds in Alaska and northbound migration from wintering areas in California to determine if their migratory movements overlap with Call Areas off the Pacific Coast; 4) Conducting multi-species and multi-scale quantifications of at-sea habitat utilization and ranging behaviors for breeding and non-breeding seabirds off the Oregon coast; 5) processing, archiving, and analyzing USFWS's long-term seabird colony dataset for Oregon and Washington to establish population trends and distributions of nesting seabirds; and 6) establishing a Motus network in the Southern California Bight to develop offshore tracking methodologies for bats and small vulnerable seabirds. If the latter effort is successful, networked Very High Frequency tracking could be scaled up to include other areas along the Pacific Coast including the Oregon coast.

In addition, a potential lessee would conduct site-specific avian surveys to describe the key species and habitat that may be affected by the proposed construction and operations prior to approval of any construction. BOEM will consult with the USFWS on potential effects to ESA-listed species through Section 7 of the ESA and will also coordinate with them and other agencies and avian stakeholders on potential effects to other species of concern. Further, it is worth noting that many avian and bat mitigation measures and best management practices have

been successfully employed across the offshore wind industry and incorporated into plan approvals.

BOEM acknowledges the potential for avian impacts during project construction and operation including the risk of collision, displacement, and attraction from lights and structures. However, BOEM believes that the Coos Bay and Brookings WEAs warrant further consideration while BOEM is conducting studies and processing data that would be valuable to a deeper understanding of birds and bats within the vicinity. Based on this information, and the information we have evaluated from public comments, BOEM has determined that impacts to seabirds and bats could be addressed on a site-specific basis at the COP review stage as BOEM continues to study bird populations and behaviors in southern Oregon.

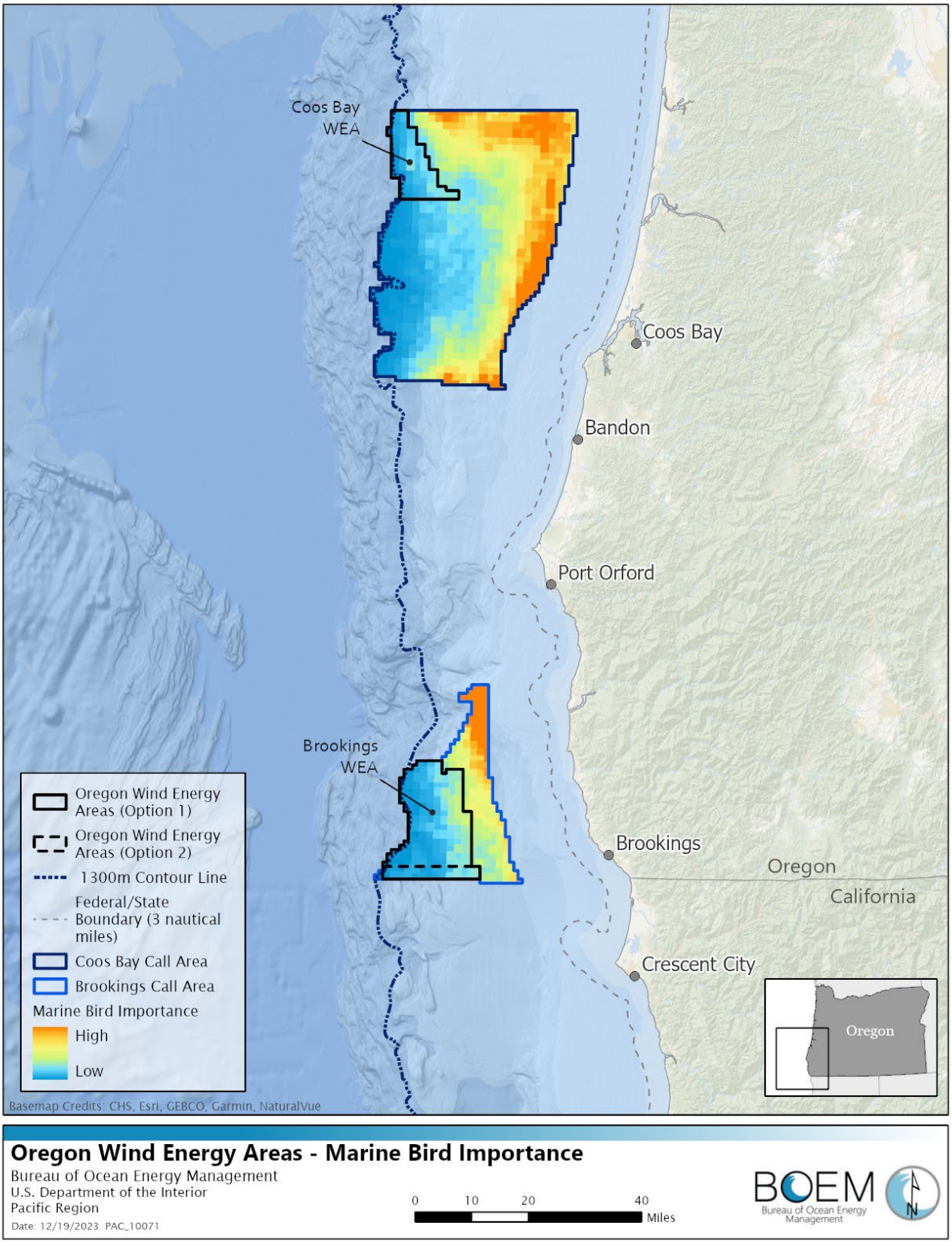

Figure 20: Map depicting marine bird importance relative to the Oregon Call and WEA Options

Source: NCCOS, BOEM, USGS (2022)

8. Scientific Surveys

Scientific surveys are conducted along the West Coast by universities, governmental, and non-governmental agencies. NOAA conducts many long-term scientific surveys and studies offshore Oregon, some of which are in collaboration with the Canadian government. NMFS provided data layers to support the suitability modeling process and provided information in its written comments to BOEM in response to the Call and Draft WEAs, which further explained the location and importance of scientific surveys (Figure 1). NMFS indicated that it performs 8–12 large-scale scientific surveys annually in areas that include both WEAs to monitor and assess the populations of fishery and marine mammal stocks, threatened and endangered species, and their habitats in the California Current Large Marine Ecosystem. NMFS, PFMC, the Makah Tribe, and ODFW are concerned that offshore wind development could impact these surveys, which in turn could affect stock assessments and other data including climate and ocean change. PFMC notes if NOAA surveys are negatively impacted, data uncertainty could increase, thereby reducing management effectiveness and confidence. This could result in a more conservative approach to fisheries management, which could lead to reduced harvest potential and potential economic impacts.

NMFS offered to establish a West Coast Regional Federal Survey Mitigation Program to provide certainty to offshore wind developers, NMFS, and public stakeholders who rely on these surveys. NMFS has suggested two strategies to avoid or minimize impacts to surveys in the Draft WEAs. These two strategies include (1) establishing a 4 nm wide east-west sampling corridor spaced every 10 nm of latitude and (2) in-situ monitoring. In response to the Call, NMFS requested these two sampling corridors be located at 43°20’ N, 43°30’ N, 43°40’ N, and 43°50’ N in the Coos Bay Call Area, and 42°00’ N and 42°10’ N in the Brookings Call Area. The corridors would allow the continued operation of West Coast Groundfish Bottom Trawl and the Joint U.S.-Canada Acoustic Survey for Pacific Hake surveys specifically. NMFS explicitly identified the southern portion of the Brookings Draft WEA as an area warranting additional consideration for removal from the WEA because it includes both an east-west long-term survey corridor and discreet sampling stations (Figure 21). NMFS uses the information from these surveys to monitor ocean health and the status of the California Current, inform management of protected species, and provide information on Tribal, recreational, and commercial fisheries, including salmon stocks. This input from NMFS, as well as concerns expressed by the Makah Tribe, were major factors influencing BOEM’s recommendation to modify the southern boundary of the Brookings WEA with removal of the bottom three aliquot rows of the Draft WEA (Figure 1).

BOEM considered feasibility of the NMFS-requested 4 nm east-west sampling corridors centered at 10 nm intervals. Implementation of the corridors would make offshore wind development untenable in both WEAs because it results in discontinuous areas too small to support commercial scale projects and reduces the total area available by 40%. In addition to the recommendation to remove the southern area of the Brooking Draft WEA, BOEM is committed to continuing discussions with NMFS and partners to identify ways to minimize impacts to NMFS scientific surveys, or other mitigation strategies.

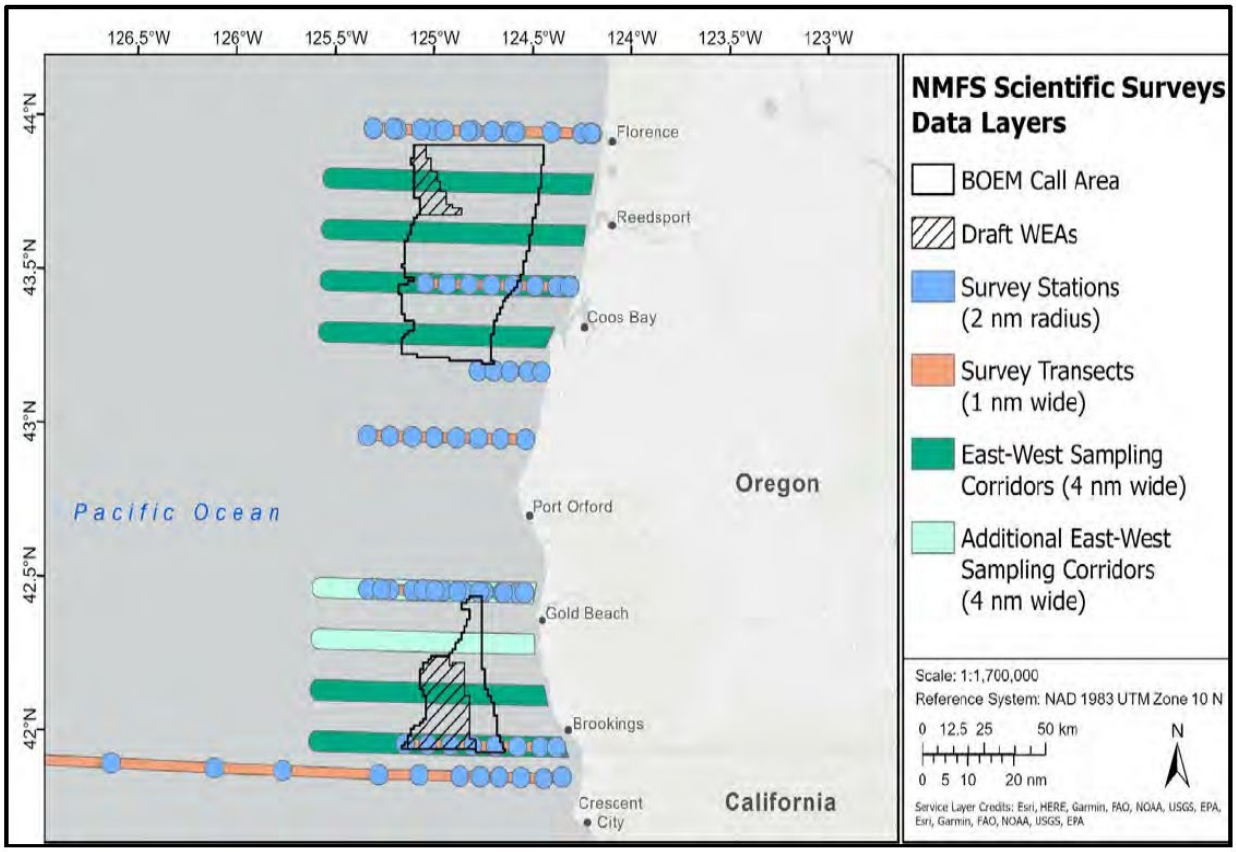

Figure 21: Map of scientific survey sampling corridors identified in the NOAA comment letter

Source: NOAA comment letter (BOEM-2023-0033-0508)

Additional Considerations

Other potential factors reviewed during the Area ID process are briefly described below.

a. Visual Impacts

Scenic enjoyment is one of the primary recreational activities that visitors engage in at Oregon's coastal beaches.[96] Tribal Nations whose ancestral lands encompass the viewshed near the proposed WEAs have expressed concerns that offshore wind development may adversely impact cultural and spiritual practices. They emphasized how coastal viewsheds are integral to their cultural practices and traditional way of life.

In response to several comments received for the 2022 Call and requests from the Coquille Indian Tribe, CTCLUSI, the Oregon Parks and Recreation Department (OPRD), and the DLCD, BOEM funded visual simulations of hypothetical offshore wind turbines located within the Draft WEAs from six key observation points (KOPs) on the Oregon coast.[97] Selections of the locations of the six KOPs were based on input from Oregon Tribes, Oregon Department of State Lands

[96] Bergerson, T. 2018. 2017 Oregon Resident Outdoor Recreation Survey. 2018-2022 Oregon Statewide Comprehensive Outdoor Recreation Plan Supporting Documentation. Oregon Parks and Recreation Department.
[97] Oregon Offshore Wind Visual Simulation | Bureau of Ocean Energy Management (boem.gov)

(DSL), Oregon's DLCD, and the OPRD. Results of the visual simulations were shared with the Coquille Indian Tribe and CTCLUSI in August 2023. CTCLUSI commented on the Key Observation Point study stating that it demonstrates significant impacts to the viewshed from areas that hold cultural and ceremonial value to the Tribe. CTCLUSI requested that these areas be excluded from the WEAs, and that BOEM include a data layer in the Oregon suitability model to address potential visual impacts when determining suitability of its finalized WEAs or indicate to the Tribe in writing that visual impacts will be fully addressed in the finalization of any project.[98]

Potential visual impacts and potential mitigation measures, such as paint colors and aircraft detection lighting systems, would be fully analyzed in coordination with Oregon Tribes and agency partners if a lease(s) is issued and a COP(s) is submitted. The nearest points of the Draft and Final WEAs are 3.3–18.4 miles farther offshore than the original Call Areas, further mitigating potential viewshed impacts. Visual impacts from offshore wind depend on project specifics, such as wind turbine number, size, spacing, and configuration.

b. Coastal Upwelling

The California Current Ecosystem (CCE) is characterized by high primary productivity due to coastal winds that drive the upwelling of deep, cold, nutrient-rich waters to the surface. The productive upwelling areas off the coast of southern Oregon provide food for fish, marine mammals, and bird species, while also benefiting fishing communities.

The strong winds that generate this vertical mixing are also an ideal resource for renewable energy generation. BOEM recognizes the proximity of the two WEAs to the CCE off the Oregon coast. In this region, upwelling behavior changes seasonally, interannually (every few years), and decennial due to natural changes in wind strength and direction that occur on these timescales (e.g., El Niño and La Niña events, Pacific Decadal Oscillation). The WEAs were sited to avoid the more productive waters that drive the higher nearshore densities of birds, marine mammals, and fisheries (Figures 9, 10, 12, 14, 17, and 18).

BOEM received several comments from Tribes, industry, and government agencies that raised concerns about the impacts of offshore wind development on coastal upwelling, and specifically how potential changes in upwelling behavior could impact productivity and fisheries. The majority of comments that BOEM received encouraged further studies and analysis on how offshore wind development could affect upwelling before BOEM proceeds with the WEA planning process. Commenters expressed the need for modeling efforts tailored to Oregon's unique coastal oceanographic regime (comment from ODFW) that would evaluate impacts of offshore wind development on the timing, duration, strength, and location of upwelling processes (comment from the Makah Tribe) and would address impacts on productivity mainly focused on Heceta Bank (comment from PFMC), the hotspot region between 41-42°N (comment from NOAA NMFS), and areas adjacent to the WEAs that are used for operations related to hake/whiting fisheries (comment from PFMC).

To address existing information gaps, in 2023, BOEM funded NOAA to build a more informed

[98] https://ctclusi.org/category/public-notices/.

ocean model configuration to simulate the impacts of offshore wind infrastructure on oceanographic conditions and build in biogeochemical processes (i.e., primary production) in the CCE. Analyses have started and are expected to be available prior to receiving potential plans. In addition, as described above, the Draft and recommended WEAs avoid Heceta Bank and the area used for operations related to hake/whiting fisheries, but additional review and information is required as part of plan approval and prior to the construction and operation of an offshore wind energy facility. BOEM understands the importance of the CCE to the region and will continue to consider additional studies and possible impacts to upwelling in our offshore wind authorization process.

c. General Public Sentiment and Other Comments

BOEM received comments in response to the 2022 Call and the recent RFC from individual members of the public expressing opposition to wind energy development offshore the Oregon coast. Many commenters self-identified as residents of Brookings, Gold Beach, Bandon, Coos Bay, and Curry County, Oregon. These and other individual commenters expressed concern that offshore wind development may negatively impact the scenery of the southwest coast of Oregon, harm wildlife, including marine life and birds and further pollute the ocean. Other commenters indicated that the addition of the offshore wind turbines would impact tourism and recreation economies due to the views being obstructed. Four County Board of Supervisors passed motions opposing offshore wind development in their counties, including Douglas, Clatsop, Coos, and Curry County. These counties represent approximately 35% of coastal Oregon residents and four of the seven coastal counties in Oregon.[99]

Other commenters expressed opposition based on expected costs of development and maintenance of projects on electricity ratepayers once built. Further, commenters in opposition to offshore wind development discussed concerns related to the proposed locations for the wind development being close to the Southwestern Oregon Cascadian Fault lines and potential for earthquakes and tsunamis. Some commenters welcomed the opportunity to comment but stated that the comment period was not adequate when it comes to addressing local concerns and urged BOEM to continue outreach efforts with the local communities.

BOEM received some comments that would be better addressed later in BOEM's process, such as after leases are issued. For example, commenters recommended the need for a Programmatic Environmental Impact Statement (PEIS) or a cumulative analysis of the whole Region/Pacific coast. BOEM recognizes the benefits of a PEIS relative to its process. For example, BOEM has announced that it will analyze potential impacts of Federal offshore wind energy development activities on the five offshore wind lease areas off California's central and north coast. That PEIS will propose programmatic mitigation measures and analyze the potential impacts or reductions in impacts to the human and natural environment that could result from adopting those measures. The PEIS will allow for tiering to future potential project-specific environmental analyses for the COPs submitted for the five leases and will provide predictability and consistency to cooperating agencies, partners, and developers. BOEM's process to evaluate potential impacts in two stages - prior to publication of the Final Sale Notice for leasing and at COP submittal - ensures details

[99] Oregon Blue Book Almanac and Fact Book, Oregon Secretary of State, 2022. https://sos.oregon.gov/blue-book/Pages/local/county-population.aspx

specific to proposed actions are available for analysis of potential impacts. Both reviews include a cumulative effects evaluation of the natural and human environment including consideration, when appropriate, of issues such as fishing; oil and gas exploration and development; military activities; marine mineral extraction; and commercial, recreational, and military vessel traffic.

Some commenters asserted that there are certain areas with insufficient information, for example potential effects from electromagnetic frequencies (EMF), or on currents/upwellings, and Pacific fauna, and that it is better to wait for results of studies. Others questioned the efficacy and completeness of the suitability model used. The use of the relative suitability model plays an important role in BOEM's extensive process of engagement, information gathering and analysis to find the most suitable areas for leasing. The model is meant to show relative suitability - i.e., whether one area of the Outer Continental Shelf (OCS) is more or less suitable for potential leasing consideration compared to other areas in the vicinity based on available data. However, this is not the only way that BOEM considers information about habitats, protected species, and other natural resources. For example, during its review of a COP, BOEM will evaluate potential impacts of a proposed project on habitats or protected species and will consider appropriate mitigation measures. BOEM acknowledges that further consideration, and more analysis in the next steps of BOEM's process are necessary to determine if any potential impacts to resources in these areas may occur and if so, whether they could be avoided, minimized, or mitigated using data from BOEM-funded studies and additional information required to be submitted in future COPs. Throughout the leasing and plan approval process, BOEM will continue to amass information and refine its analyses.

There were also comments that ask BOEM to stop the process and start over. BOEM does not believe such a significant step is necessary. BOEM uses the best available science, and engagement with Tribal Nations, state and federal agencies, and stakeholder communities in identifying potential areas for leasing. BOEM identifies the areas that appear to be most suitable for wind energy development and working with Tribal governments, agencies, stakeholders, and ocean users, gathers data and conducts extensive engagement to ensure leasing of these potential areas pose the least environmental or other user conflict. As BOEM moves through the leasing process, areas are eliminated when available information or spatial data represent known or potential environmental and ocean space use conflicts that could constrain the siting of offshore wind facilities on the OCS. In the next steps of the BOEM process, BOEM will continue to analyze potential impacts to resources in the WEAs and consider appropriate avoidance, minimization, or mitigation measures.

BOEM appreciates the continued involvement of Tribal Nations. With regard to communications with Tribes, BOEM takes its Tribal trust responsibilities seriously and remains committed to collaborating and fostering working relationships with Tribes based on mutual respect and meaningful consultation. BOEM continues refining our engagement activities to ensure a comprehensive and transparent renewable energy leasing and planning process. For example, in response to several comments received on the 2022 Call and requests from the Coquille Indian Tribe, CTCLUSI, the Oregon Parks and Recreation Department (OPRD), and the DLCD, BOEM funded visual simulations of hypothetical offshore wind turbines located within the Draft WEAs from six key observation points (KOPs) on the Oregon coast. Also, BOEM is working with the Udall Foundation and interested Tribal Nations in developing Tribal cultural landscape

assessments to better understand areas and resources of importance. Additionally, BOEM is working to provide more opportunities for Tribes to engage in environmental reviews, inform our studies program, work with industry, and develop partnerships.

BOEM takes all concerns seriously and will continue to coordinate closely with the State of Oregon to meet its renewable energy planning goals and RPS standards in an inclusive, collaborative way that considers public concerns and viewpoints. It should be noted that some organizations, such as offshore wind companies, climate change groups, and labor unions generally support renewable energy development offshore Oregon. These organizations all strongly recommend further considering and minimizing impacts to other offshore resources as well as encourage deep engagement with stakeholders throughout BOEM's renewable energy authorization process. In addition, risks associated with the proximity to fault lines and probability of geohazards presence and/or activity such as earthquakes and tsunamis will continue to be evaluated thought the authorization process.

VI. Final WEA Recommendations

BOEM's Final WEA recommendations are a result of balancing key existing interests, primarily those of military mission compatibility, the U.S. Coast Guard's PACPARS, coastal resources in Oregon, state renewable energy goals, and anticipated future uses based on the best available information. Areas offered for lease will be identified in a PSN, as discussed in Section III(D)). BOEM will consider, in its final leasing decision, the results of the NEPA analysis and associated consultations, as well as comments on the PSN, prior to issuance of an FSN. Additionally, BOEM maintains its flexibility to offer none or only a portion of the Final WEAs for lease.

BOEM acknowledges that, while conflicts may exist with other uses of the area, the Final WEAs appear to have less conflict than other potential areas that could support offshore wind energy development in Oregon. The recommended Final WEA options were delineated by balancing the several factors previously described in Section VI.

For the Final WEAs in Oregon, BOEM recommends Option 2 below which is to include the Coos Bay WEA with no modifications, and to adjust the boundary of the Brookings WEA by removing the most southerly three rows of aliquots. This adjustment to the Brookings WEA avoids the majority of a NMFS scientific survey corridor that includes fixed, long-term sampling stations and the Joint U.S.-Canada Integrated Ecosystem and Pacific Hake Acoustic Trawl Survey, which NMFS identifies as critical for state, Federal, and Tribal fisheries managers, and the PFMC to make forecasts enabling timely decisions on important management objectives including harvest and Pacific salmon recovery; avoids some potential sensitive seafloor habitat including an area of bamboo coral called the Brush Patch; and excludes a number of aliquots identified by NMFS and ODFW as likely to have the potential to be sensitive seafloor habitat. Alternatively, Option 1 would finalize the Draft WEAs with no modifications.

Option 1 - Inclusion of the Coos Bay WEA and Brookings WEA without modifications.

Option 2 - Inclusion of the Coos Bay WEA and Brookings WEA with modification. The modification is removal of the three southernmost rows of aliquots in the Brookings WEA

due to conflicts with NOAA scientific survey and sampling activities, and presence of sensitive seafloor habitat.

VII. Recommendation

As a result of the comments received and as discussed above, BOEM has revised the Draft WEAs. BOEM's Camarillo Office recommends moving forward with Option 2 as the Final Wind Energy Areas for Oregon.

The Final WEAs total 195,012 acres and would support approximately 2.4 GW of energy production if fully developed. The Final WEAs represent approximately 17% of the 1,159,298-acre Call Areas.

While not all potential conflicts would be avoided in the Final WEAs, if the areas were to move forward in the leasing process, additional public comment through a proposed sale notice will help to inform final lease area boundaries and possible lease stipulations to further mitigate potential impacts from wind energy development.

VIII. Director Concurrence

☐ Option 1

Comments:

☑ Option 2

Comments:

☐ Returned for further review

ELIZABETH KLEIN

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Date: 2024.02.07 15:54:35 -05'00'

Elizabeth Klein
Director, Bureau of Ocean Energy Management

Date