Volume II

Appendices

Appendix A
Additional Survey Technical Specifications and Examples

A-1. Overview

This appendix summarizes technical information for autonomous underwater vehicles (AUV) used to perform high-resolution geophysical (HRG) surveys. Examples of representative, available technology are provided. Related technologies are also summarized, such as underwater transponder positionings (UTPs), which are equivalent to ultra-short baseline positioning systems, with very narrow beam widths, operating at low power, producing very short pings only when interrogated.

A-2. Autonomous Underwater Vehicles

Kongsberg's Hugin AUV was developed in the late 1990s to perform deepwater surveys where traditional methods were no longer feasible (Figure A-1). The Hugin AUV has now become the industry standard AUV used for hydrographic and geophysical surveys within the petroleum and renewable industries. The early systems used an aluminum hydrogen peroxide "fuel cell" battery and quickly changed to lithium-ion battery. Over the past decades, the battery and sensor technology has improved considerably along with computer and software advancements that resulted in major developments in the AUV capabilities, increasing the survey endurance (e.g., longer missions underwater) and higher resolution and more precisely georeferenced data. Other advances in technology allow the AUV's to operate independently of direct support from a vessel and allow a single vessel to support multiple AUV systems simultaneously. Table A-1 describes representative payloads that an AUV can carry.

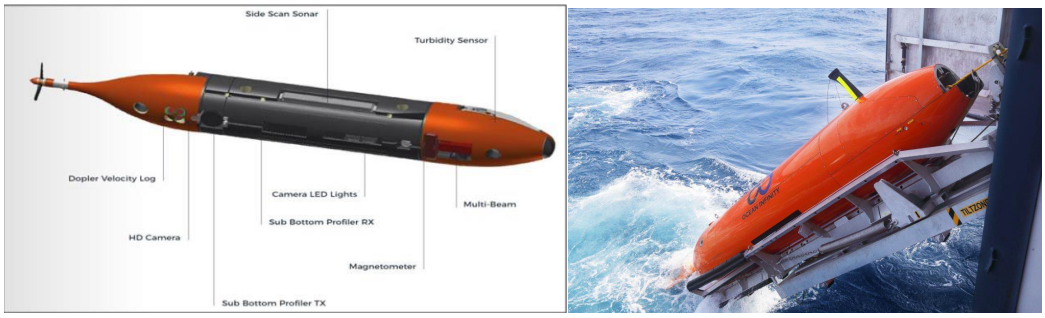

Figure A-1: A representative HUGIN 6000 AUV (left) and HUGIN AUV being deployed (right)

Table A-1: Representative AUV - Kongsberg Hugin 6000, Summary of Specifications

AUV	Characteristic
Physical Dimensions	19.7 ft (6 m) long, 2.5 ft (0.75 m) diameter
Weight	3,307 pounds (1,500 kilograms) (in air), neutrally buoyant (in water)
Endurance	60–80 hours Rechargeable Lithium-Ion Polymer Batteries
Speed range	2–6 knots (operational speed ~ 3.5 knots)
Depth rating	19,685 ft (6,000 m)

Table A-2: Representative AUV Payload including Navigation Equipment

AUV Payload / Equipment	Make/ Model	Acoustic Information (if acoustic)	Intent / Coverage	Lateral Distance (m) to Level B threshold[1]
Multi-Beam EchoSounder (MBES)	Kongsberg EM2040	Frequency: 200–400 kHz Operational Power: 150W Source Level: 218 dB re 1 µPa Beam Width: 0.4° x 0.7° (400kHz)[2]	Bathymetric mapping	N/A
Side-scan Sonar	Edgetech 2205	Frequency 230/410 kHz Operational Power: 200 W Source Level 226 dB re 1 µPa Beam Width: 0.2° x 0.2[2]	Target identification, seabed sediment delineation	N/A
Sub-bottom Profiler	Edgetech DW216	Frequency: 2-16 kHz Operational Power: 200 W Source Level: 176 to 180 dB	Seabed structure imaging	8.7
Magnetometer	Ocean Floor Geophysics, Inc. Self Compensating Magnetometer	See Note 3.	Detect ferrous materials	N/A

AUV Payload / Equipment	Make/ Model	Acoustic Information (if acoustic)	Intent / Coverage	Lateral Distance (m) to Level B threshold[1]
Forward-looking Sonar	Imagenex 837A Delta T – 120°V x 10°H	Frequency: 260 kHz[2] Operational Power: 22 to 32 Volts DC at less than 5 W Source Level: See Note 4. Beam Width: 3°, 1.5°, 0.75°	Obstacle avoidance multibeam sonar	N/A
Conductivity, Temperature, and Density Profiler	SAIV AS CTD Profiler 208	See Note 3.	Critical for MBES data quality and improves subsea positioning	N/A
Doppler Velocity Log	Nortek DVL	Frequency: 500 kHz[2] Operational Power: 4 W average Source Level: See Note 4. Beam Width: 4°	Bottom tracking, provides information on currents experienced by AUV for navigation.	N/A
Depth Sensor	Paroscientific Digiquartz D50	See Note 3.	Provides accurate depth values for navigation.	N/A
Digital Altimeter	Kongsberg Mesotech, Ltd.	Frequency: 200 kHz or 675 kHz[2] Operational Power: 22 to 28 Volts DC external power source Source Level: See Note 4. Beam Width: 2.7° (675 kHz), 10° (200 kHz)	Provides accurate altitudes above seabed to assist in maintaining required AUV flight altitude.	N/A
Inertial Motion Unit	Honeywell HG9900	See Note 3.	Provides motion information for navigation.	N/A
AUV Novatel Global Navigation Satellite System	NovAtel	See Note 3.	For surface navigation. State-of-the-art system with sub-meter accuracy, uncertainty conforming to IHO special order.	N/A

AUV Payload / Equipment	Make/ Model	Acoustic Information (if acoustic)	Intent / Coverage	Lateral Distance (m) to Level B threshold[1]
HD Camera + lights (Optional)	CathX Ocean M12 A1000 UHD stills camera	See Note 3.	Stills camera: supplemental AUV system (not required for planned survey activities but could be used for data collection).	N/A
Turbidity, Fluorescence, dissolved oxygen	FLNU (RT)D	See Note 3.	Water quality sensors: supplemental AUV system (not required for planned survey activities but could be used for data collection).	N/A
cNODE Ultra-Short Baseline (USBL) Beacon	Kongsberg TDR30V or TD40V USBL Transponder 206dB TX x 85dB Rx	Frequency: 21–31 kHz Operational Power: Battery-powered (charger is 110 or 120 W) Source level: 206 dB Beamwidth: 30° horizontal and vertical Ping Rate: between 1 and 10 seconds	Underwater positioning to communicate with the surface system deployed from the surface support vessel.	45–48
cNODE Modem Explorer	Kongsberg Modem Explorer 34 with TDR40V Transponder	Frequency 21–31 kHz Operational Power: 100 W Beamwidth: +/- 20° Vertical Duty cycle: 50%	Acoustic modem between survey vessel and AUV. Transmits vehicle health and decimated HRG data. Receives navigation updates and survey commands.	45–48
Underwater Transponder Positioning (UTP) Array on seabed	Kongsberg cNODE Maxi	Further details in Table 2.	Further details in Table 2.	45–48

AUV Payload / Equipment	Make/ Model	Acoustic Information (if acoustic)	Intent / Coverage	Lateral Distance (m) to Level B threshold[1]
Survey Support Ship USBL System	Kongsberg HiPAP 502	Frequency: 21–31 kHz Operational Power: 15 W Source Level: See Note 4. Beam Width: The system dynamically alters the beam using electronic beam control Ping Rate: 1–10 Hz[3, 4]	Mounted on the survey support vessel. Provides accurate subsea positioning of cNODE UTP and cNODE USBL beacons, enabling accurate subsea navigation. The USBL will be used to directly position the AUV during operations in the export cable siting corridors and could also assist in AUV positioning in the lease area.	31.20

Key: AUV = autonomous underwater vehicle; dB = decibel; DC = direct current; kHz = kilohertz; MBES = multibeam echosounder; re 1 µPA = underwater sound pressure referenced as 1 micro-Pascal; USBL = ultra-short baseline; UTP = underwater transponder positioning; W = watts.

Notes:

1. Level B harassment for nonmilitary readiness activities means any act of pursuit, torment, or annoyance with the potential to disturb a marine mammal or marine mammal stock in the wild by disrupting behavioral patterns, including, but not limited to, migration, breathing, nursing, feeding, or sheltering. Changes in behavior that disrupt biologically significant behaviors or activities for the affected animal are indicative of take by Level B harassment under the Marine Mammal Protection Act.
2. Operating frequencies are above all relevant marine mammal hearing thresholds and therefore are not possible sources of disturbance to marine mammals.
3. Proposed equipment is non-acoustic or otherwise not a possible source of disturbance to marine mammals.
4. Information not specified by the manufacturer.

A-3. Underwater Transponder Positioning

Acoustic energy travels farther in water then other forms of energy such as light. As a result of this characteristic, underwater sound has been used to support the positioning of vessels and systems under the water for decades in the form of Ultra short or long baseline positioning systems. The use of AUVs required improved accuracy. As such, researchers at Kongsberg Marine developed UTP to be used in tandem with the HUGIN AUV[1]. Weighted transponders (with or without a floatation collar) are placed on the seafloor (Figure F-2) and transmit a location signal only when interrogated by the AUV. Table A-3 describes representative specifications and acoustic characteristics of typical UTPs.

Figure A-2: Example of Underwater Positioning Transponder with Floatation Collar attached to a Weight

Table A-3: UTP Support Equipment Details for AUV

UTP	Characteristic
Physical Dimensions	**Weighted Deployment (est. up to 27 deployments)** The UTP transponder will comprise a 132-pound (60-kilogram) steel clump weight, 16- to 33- ft (5-10 m) rope, and the UTP transponder. The UTP transponder will be in a flotation collar suspended 19- to 36- ft (5- to 11- m) above the seabed. The footprint of each UTP transponder weight is less than 15 ft^2 (1.4 m^2). **Frame Deployment (est. up to 13 deployments)** Alternatively, to the weight, line, and floatation collar, a steel frame 8.2 ft (2.5 m) tall, weighing up to 300 pounds (136 kilograms) may be used. The footprint of each steel frame is approximately 21.5 ft^2 (2 m^2). The total area of seabed impacted is conservatively (highest reasonable case) estimated at 27 x 15 ft^2 (1.4 m^2) plus 13 x 21.5 ft^2 (2m^2), a total area of 684.5 ft^2 (64 m^2).
Acoustic Characteristics	Frequency: 21-31 kHz Operational Power: Battery-powered 10–14.4 volts DC Source level: 206 dB Beamwidth: 30° horizontal and vertical Ping rate: 1 to 10 Hz.

[1] Hegrenas O, Gade K, Hagen OK, Hagen PE. 2009. Underwater transponder positioning and navigation of autonomous underwater vehicles. In: MTS/IEEE Oceans Conference and Exhibition, Biloxi, 2009; 1-7 p.

Appendix B
Responses to Public Comments on the Draft Environmental Assessment

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

Public Comment Summary and Report

for the

Commercial Wind Lease Issuance on the Pacific Outer Continental Shelf, Offshore Oregon

Draft Environmental Assessment

Docket BOEM-2023-0065

July 11, 2024

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

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ACRONYMS AND ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
AIS	Automatic Identification System
AMP	Alternative Monitoring Plan
BIA	biologically important area
BMP	best management practice
BOEM	Bureau of Ocean Energy Management
CFR	Code of Federal Regulations
COP	construction and operations plan
CZMA	Coastal Zone Management Act
DOE	U.S. Department of Energy
DPS	distinct population segment
EA	environmental assessment
EFH	Essential Fish Habitat
EIS	environmental impact statement
E.O.	Executive Order
ESA	Endangered Species Act
HAPC	Habitat Area of Particular Concern
HBS	hydrate-bearing sediment
HRG	high-resolution geotechnical
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
NCCOS	National Centers for Coastal Ocean Science
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	U.S. National Oceanic and Atmospheric Administration
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
ODFW	Oregon Department of Fish and Wildlife
PA	programmatic agreement
PACPARS	Pacific Coast Access Route Study
PEIS	programmatic environmental impact statement
PFMC	Pacific Fishery Management Council
PLA	Project Labor Agreement
PSN	proposed sale notice
SAP	site assessment plan
U.S.C.	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
WEA	wind energy area

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B Public Comment Summary and Report

B-1. Introduction

On May 1, 2024, the Bureau of Ocean Energy Management (BOEM) published a notice of availability in the *Federal Register* announcing a 30-day public comment period on the Draft Environmental Assessment (EA) to consider the potential environmental impacts associated with possible wind energy-related leasing and grant issuance, site assessment, and site characterization activities on the U.S. Pacific Outer Continental Shelf (OCS) offshore Oregon. The public comment period was extended an additional 14 days to June 14, 2024. BOEM held virtual public meetings on the Draft EA on May 21, 2024, and June 5, 2024.

BOEM received a total of 350 public comment submissions. Of the 350 public submissions received, 113 were identified as unique, 230 were part of five form letter campaigns, and 7 were identified as duplicates or not germane. The comments were received from a variety of governments and stakeholders and represent a wide range of views and perspectives. Table 1 shows the comment submissions by commentor name. Table 2 provides the number of submissions that have been identified for each issue area.

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

TABLE 1 Index of Comment Submissions Sorted by Commenter Name

Submission ID	Organization Name	Commenter Type
BOEM-2023-0065-0173	Adrian Joyner	Individual
BOEM-2023-0065-0229	American Clean Power Association	Business/Trade Association
BOEM-2023-0065-DRAFT-0329	Anonymous	Anonymous
BOEM-2023-0065-0220	Anonymous	Anonymous
BOEM-2023-0065-0219	Anonymous	Anonymous
BOEM-2023-0065-0213	Anonymous	Anonymous
BOEM-2023-0065-0176	Anonymous	Anonymous
BOEM-2023-0065-0227	Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana	Advocacy Group
BOEM-2023-0065-0186	BlueGreen Alliance	Advocacy Group
BOEM-2023-0065-0174	Brady Vandenson	Individual
BOEM-2023-0065-0191	Christine Psyk	Individual
BOEM-2023-0065-0129	Christopher Cameron	Individual
BOEM-2023-0065-0225	Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians	Tribal Government
LETTER-0002	Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians	Tribal Government
BOEM-2023-0065-0224	Confederated Tribes of Grand Ronde	Tribal Government
BOEM-2023-0065-0171	Confederated Tribes of Siletz Indians	Tribal Government
BOEM-2023-0065-0234	Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources	Tribal Government
LETTER -0001	Coquille Indian Tribe	Tribal Government
BOEM-2023-0065-0239	CRSOA/ PNWA	Business/Trade Association
LETTER -0003	Elk Valley Rancheria, California	Tribal Government
BOEM-2023-0065-0178	EPA	Federal Agency
BOEM-2023-0065-0182	Florence Prescott	Individual
BOEM-2023-0065-0187	Hans D. Radtke, Ph.D.	Individual
BOEM-2023-0065-DRAFT-0344	Johanna Hobart Crane	Individual
BOEM-2023-0065-0140	Justin Myers	Individual
BOEM-2023-0065-0195	Kalmiopsis Audubon Society	Advocacy Group
BOEM-2023-0065-0212	Karie Silva	Individual
BOEM-2023-0065-0194	Lincoln County Board of Commissioners	Local Government
BOEM-2023-0065-0177	Lloyd Vivola	Individual
BOEM-2023-0065-0147	Lord Maitreya	Individual
BOEM-2023-0065-0168	Luis Aroche	Individual
BOEM-2023-0065-0233	Makah Tribal Council, Makah Indian Tribe	Tribal Government
BOEM-2023-0065-0155	Marney Reed	Individual
BOEM-2023-0065-0203	Maxwell Berth	Advocacy Group
BOEM-2023-0065-0204	Michael Graybill	Individual

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Submission ID	Organization Name	Commenter Type
BOEM-2023-0065-0198	Midwater Trawlers Cooperative	Professional Association
BOEM-2023-0065-0137	Midwater Trawlers Cooperative	Professional Association
BOEM-2023-0065-0154	MJ LaBelle	Individual
BOEM-2023-0065-0238	National Wildlife Federation, et al.	Advocacy Group
BOEM-2023-0065-DRAFT-0252	Nicholas Fritch	Individual
BOEM-2023-0065-0218	NOAA	Federal Agency
BOEM-2023-0065-0196	Oceana	Advocacy Group
BOEM-2023-0065-0184	Oregon Coast Alliance	Advocacy Group
BOEM-2023-0065-0209	Oregon Coast Visitors Association, Inc.	Advocacy Group
BOEM-2023-0065-0217	Oregon Department of Fish and Wildlife	State Government
BOEM-2023-0065-0230	Oregon Department of State Lands	State Government
BOEM-2023-0065-0240	Oregon Trawl Commission	Business/Trade Association
BOEM-2023-0065-0138	Oregon Trawl Commission	Business/Trade Association
BOEM-2023-0065-0214	Pacific Fishery Management Council	Law-appointed Council
BOEM-2023-0065-0236	Pacific Merchant Shipping Association (PMSA)	Business/Trade Association
BOEM-2023-0065-0190	Pacific Whiting Conservation Cooperative	Business/Trade Association
BOEM-2023-0065-0183	Paul Benecki (Personal)	Individual
BOEM-2023-0065-0188	Phyllis Thompson	Individual
BOEM-2023-0065-0231	Protect the Coast PNW	Advocacy Group
BOEM-2023-0065-0156	Richard Emery	Individual
BOEM-2023-0065-0206	Rick Eichstaedt	Tribal Government
BOEM-2023-0065-0223	RODA	Advocacy Group
BOEM-2023-0065-0207	Ron Willing	Individual
BOEM-2023-0065-0134	Ryan Hyke	Individual
BOEM-2023-0065-DRAFT-0457	Santa Ynez Band of Chumash Indians	Tribal Government
BOEM-2023-0065-0208	Scott Winner	Individual
BOEM-2023-0065-0192	Shannon Christopher	Individual
BOEM-2023-0065-0235	South Coast Energy Ventures LLC	Industry
BOEM-2023-0065-DRAFT-0342	Sue Selbie	Individual
BOEM-2023-0065-0226	T. S.	Individual
BOEM-2023-0065-0221	The Nature Conservancy	Advocacy Group
BOEM-2023-0065-USFWS	U.S. Fish and Wildlife Service	Federal Agency
BOEM-2023-0065-0202	Washington Dungeness Crab Fisherman's Association	Business/Trade Association
BOEM-2023-0065-0232	Washington Dungeness Crab Fishermen's Association	Business/Trade Association
BOEM-2023-0065-0241	West Coast Pelagic Conservation Group	Business/Trade Association
BOEM-2023-0065-0205	West Coast Pelagic Conservation Group	Advocacy Group

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Submission ID	Organization Name	Commenter Type
BOEM-2023-0065-0237	West Coast Seafood Processors Association	Business/Trade Association
BOEM-2023-0065-0185	World Shipping Council	Business/Trade Association
BOEM-2023-0065-0130	WS Carpenters	Individual
LETTER -0004*	Columbia River Crab Fisherman's Association	Business/Trade Association
BOEM-2024-0022-0054*	Rogue Climate	Advocacy Group
BOEM-2024-0022-0060*	National Wildlife Federation et al.	Advocacy Group & Tribal Government
LETTER -0005*	Coquille Indian Tribe	Tribal Government
LETTER -0006*	Confederated Tribes of the Umatilla Indian Reservation / Confederated Tribes of Warm Springs	Tribal Government
LETTER-0007*	Confederated Tribes of Siletz Indians	Tribal Government

Note: * Some responses in the docket were received after the comment deadline; although these comments may not be described in this summary, substantive issues raised are reflected within the EA when practicable.

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TABLE 2 Submissions, by Issue

Issue Number	Issue Title	Total Submissions
1	Background	0
1.1	Purpose and need	4
1.2	Statutory authority	5
1.3	Other comments on background	0
2	Proposed Action and Alternatives	0
2.1	Proposed Action	3
2.2	No Action Alternative	3
2.3	Alternatives considered but not analyzed further	4
2.4	Information considered in developing the environmental assessment	13
2.5	Foreseeable activities and assumptions for the Proposed Action	32
2.6	Impact-producing factors	9
2.7	Offshore activities and resources eliminated from further consideration	2
3	Affected Environment and Environmental Impacts	15
3.1	Geology	4
3.2	Air Quality	4
3.3	Marine and Coastal Habitats and Associated Biotic Assemblages	22
3.4	Marine Mammals and Sea Turtles	32
3.5	Coastal and Marine Birds	22
3.6	Socioeconomics	22
3.7	Commercial Fishing	18
3.8	Recreation and Tourism	5
3.9	Environmental Justice	3
3.10	Tribes and Tribal Resources	7
3.11	Historic Properties	3
4	Consultation and Coordination, and Stakeholder Comments	1
4.1	Public Involvement	7
4.2	Consultation	4
4.2.1	Endangered Species Act (ESA) and Marine Mammal Protection Act (MMPA)	3
4.2.2	Essential Fish Habitat (EFH) Consultation	1
4.2.3	Coastal Zone Management Act (CZMA)	0
4.2.4	National Historic Preservation Act (NHPA)	4
4.2.5	Tribal Coordination and Government-to-Government Consultations with Federally Recognized Tribal Nations	13
5	Other Comments	0
5.1	Comments on the Timeline	14
5.2	Comments on the Public Comment Process/Engagement	10
5.3	Request to Extend the Public Comment Period	11
6	General Comments	0
6.1	General Support	13
6.2	General Opposition	12
6.3	Mixed/Other General Topics	9
7	Out-of-Scope Comments	20

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B-2. BACKGROUND

Comments associated with this issue are included in the subsections below.

B-2.1 Purpose of and Need for the Proposed Action

Approximately four commenters discussed this issue.

A commenter expressed general opposition to project construction, while another commenter expressed concern that BOEM failed to articulate a need for the proposal in the Draft EA.[2] Another commenter wrote that neither the purpose nor need were adequately addressed in the Draft EA and intimated that such lack violates the National Environmental Policy Act (NEPA).[3]

In addition to their suggestion that offshore wind is an important part of mitigating climate change, another commenter noted that development of offshore wind under the Draft EA would ensure Federal and Oregon state energy goals are met.[4]

Response:

BOEM appreciates the full participation of the public in this process and the time put forward to make their perspectives known. BOEM collaborated with the Tribes; Federal, state, and local governments; non-governmental organizations (NGOs); fishery and maritime industries; offshore wind developers; and the public to select the final wind energy areas (WEAs) and create the Draft EA. BOEM acknowledges opposition to offshore wind development in the State of Oregon.

The EA complies with the procedural and substantive requirements of NEPA, including a detailed discussion of the purpose of and need for the Proposed Action in **Sections 1** and **2**. As discussed in **Section 2**, the issuance of a lease only grants the lessee the exclusive right to conduct site characterization activities and submit to BOEM a Construction and Operation Plan (COP) for BOEM's review. The issuance of a lease does not constitute an irreversible and irretrievable commitment of resources thereby requiring BOEM to consider the impacts associated with the siting, construction, and operation of any commercial wind power facilities.

BOEM recognizes the important role that offshore wind can play in the effort to decrease greenhouse gas emissions and understands the need for efficient yet thorough vetting of these projects. Both Final WEAs combined would support approximately 3.1 gigawatts of wind energy capacity if fully developed.

B-2.2 Statutory Authority

Approximately five commenters discussed topics related to statutory authority.

A commenter generally discussed its obligation to review BOEM's EA under NEPA.[5] Another commenter wrote that under NEPA, BOEM must limit the EA to 75 pages.[6] Additionally, another

[2] M. Berth; M. Graybill.
[3] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[4] American Clean Power Association.
[5] EPA.
[6] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.

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commenter stated that BOEM has the obligation, under the Outer Continental Shelf Lands Act (OCSLA), to ensure that leases do not interfere with "mixed uses" of the sea.[7]

Another commenter stated that the following points of consideration should guide BOEM in the oversight and development of the offshore wind leases as per the Draft EA, all of which the commenter wrote are consistent with BOEM's responsibilities under OCSLA:

- *Safety*
- *Protection of the environment*
- *Prevention of waste*
- *Conservation of the natural resources of the OCS*
- *Coordination with relevant Federal agencies*
- *Protection of national security interests of the United States*
- *Protection of correlative rights in the OCS*
- *A fair return to the United States*
- *Prevention of interferences with reasonable uses of the exclusive economic zone, the high seas, and the territorial seas*
- *Other considerations.*[8]

One commenter stated that a Federal agency has a duty under NEPA to gather and evaluate new information relevant to the environmental impact of its actions and is required to monitor and enforce implementation of mitigation. The commenter asserted that agencies should create internal processes and implementing procedures to ensure that mitigation actions adopted in relation to a NEPA action are clearly documented and that monitoring and appropriate implementation plans are created to ensure identified mitigation actions are carried out. To ensure measurable performance standards, the commenter stated that the agency should also include the duration of agency action and mitigation measures within the decision document to ensure clarity regarding terms and procedure.[9]

Response:

The issuance of a lease only grants the lessee the exclusive right to conduct site characterization activities and submit to BOEM a COP, it does not constitute an irreversible and irretrievable commitment of resources thereby requiring BOEM to consider the impacts associated with the siting, construction, and operation of any commercial wind power facilities. 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 that details specific to potential impacts are available for analysis and evaluates impacts resulting from a proposed project to existing and reasonably near future uses of the coastal and ocean environment. Activities described in a COP would be evaluated later in a separate NEPA document tied to the level of potential impacts, likely an environmental impact statement (EIS). The NEPA process includes an analysis of the potential impacts and reflects, but is not limited to, required consultations with the appropriate Federal, Tribal, state, and local entities; public involvement including

[7] Pacific Merchant Shipping Association.
[8] BlueGreen Alliance.
[9] Santa Ynez Band of Chumash Indians

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public meetings and comment periods; collaboration with the BOEM Oregon Intergovernmental Renewable Energy Task Force; and preparation of an independent, comprehensive, site- and project-specific impact analysis using the best available information.

BOEM is consistent with BOEM's responsibilities under OCSLA and the related rule making code of Federal regulations. In particular, 30 CFR 585.610(a)(8) and 585.626(b)(15) require that the COP include project-specific information, which includes the proposal of mitigation measures to avoid, minimize, reduce, eliminate, and monitor environmental impacts. If an area is leased within one of the WEAs, mitigation and monitoring measures will be proposed in the lessee's COP as part of the environmental review and incorporated into that lease area's EIS.

B-3. PROPOSED ACTION AND ALTERNATIVES

Comments associated with this issue are included in the subsections below.

B-3.1 Proposed Action

Approximately three commenters discussed topics related to the Proposed Action.

A commenter contended that BOEM's finding that the Proposed Action would have nominal, if any, effects on marine and other resources off Oregon's coast is not necessarily consistent with the findings outlined in the report. Here, the commenter stated that the Draft EA lacks specificity about marine resources and other resources.[10]

Response:

Findings, and level of specificity, inform the decision maker as to the potential impacts of the Proposed Action of issuance of a lease, which grants the lessee the exclusive right to conduct site characterization activities and submit to BOEM a COP. A discussion of impacts to resources from wind development was not included because BOEM is not considering, nor has project-specific information to consider, the impacts associated with the siting, construction, and operation of any commercial wind power facilities. In compliance with the procedural and substantive requirements of NEPA, detailed descriptions of potential impacts from the Proposed Action on marine and other resources are available in Section 3 of the EA.

B-3.2 No Action Alternative

Approximately three commenters discussed topics related to the No Action Alternative.

A commenter stated that while the Draft EA includes an analysis on the impact from climate under the No Action Alternative—which the commenter added is consistent with the Council on Environmental Quality's interim guidance—the commenter suggested that evaluating climate under the Proposed Action should complement the analysis under the No Action Alternative.[11] *Another commenter asserted that the Draft EA lacks adequate scope as it pertains to analyzing negative*

[10] Oregon Department of Fish and Wildlife.
[11] EPA.

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impacts of a proposed location. As a result, the commenter suggested that BOEM does not have sufficient basis to make a No Action Alternative recommendation.[12]

Response:

The Draft EA scope includes analysis of impacts associated with possible wind energy-related leasing and grant issuance, site assessment, and site characterization activities. BOEM's discussion of climate under the No Action Alternative was sufficient because the potential contribution of the Proposed Action was often not measurable when compared with the impact to a resource from climate change.

With regard to issues of scope, issuance of a lease only grants the lessee the exclusive right to conduct site characterization activities and submit a COP to BOEM; it does not constitute an irreversible and irretrievable commitment of resources and thereby requiring BOEM to consider at a later point the impacts associated with the siting, construction, and operation of any commercial wind power facilities. BOEM remains committed to using the best available science and stakeholder input to guide decision-making and ensure offshore wind development is compatible with the protection of marine and other resources.

B-3.3 Alternatives Considered but not Analyzed Further

Approximately four commenters discussed topics related to alternatives considered but not analyzed further.

A commenter urged BOEM to ensure at least one of the alternatives analyzed in the Final EA is consistent with the biological assessment included in the Proposed Action. In particular, the commenter discussed the 10-knots-or-less speed limit on vessels during survey activities.[13]

Another commenter stated that, while NEPA obliges BOEM to consider a wide array of alternatives and identify whether said alternatives would minimize the potential for negative impacts, the agency only considered the proposed and no action alternatives. Here, the commenter expressed skepticism over BOEM's justification, asserting that BOEM did not consider actions proposed in other comment periods.[14]

Likewise, another commenter stated that BOEM's Proposed Action was not considered in juxtaposition to an "Environmentally Preferred Alternative," reasoning that BOEM did not take into account the following considerations, as the commenter believes is required under NEPA:

- *Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations*
- *Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings*
- *Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences*

[12] Washington Dungeness Crab Fishermen's Association.
[13] NOAA.
[14] National Wildlife Federation et al.

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- *Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice*
- *Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities*
- *Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources.*[15]

Response:

BOEM is considering adding a lease stipulation to include a speed limit of 10 knots or less for vessels associated with survey activities within the action area, which would apply to vessels transiting between a port and the survey site. This speed limit arose out of consultations regarding the Endangered Species Act (ESA). The purpose of this speed limit would be to minimize potential impacts on marine mammals and other sensitive marine species during the survey activities. However, lease stipulations will not be finalized until the Final Sale Notice and leases are developed.

As Section 2.3 of the EA states, because the Proposed Action will not result in the approval of a wind energy facility and is expected to result only in site assessment and site characterization activities, BOEM has not identified any additional action alternatives that could result in meaningful differences in impacts to the various resources analyzed in this document. Public comments from the Draft WEAs suggested the exclusion of seafloor areas that could potentially have hard substrate, chemosynthetic communities, or other unique and fragile habitats. The Area Identification Memorandum acknowledges there will likely be multiple seafloor areas where leaseholders will be excluded from placing structures to avoid protected habitats and so is only issuing one lease in the Brookings WEA to account for the protection of this resource. This EA considers a total number of devices that accounts for additional sampling and surveying anticipated to consider seafloor disturbances and multiple cable corridors in and around the WEAs. Alternatives that do not meet the purpose of and need for the Proposed Action are not considered in a NEPA analysis; thus, alternate methods of combating climate change suggested in public comments, such as reducing energy use, implementing other forms of energy development such as nuclear or solar, or including water desalinization plants on wind energy platforms are not evaluated in this EA. Other factors identified by the comments are more relevant considerations of an EIS or required in a State of California environmental impact report process.

B-3.4 Information Considered in Developing the Environmental Assessment

Approximately 13 commenters discussed topics related to information considered in developing the EA.

[15] Oregon Trawl Commission.

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General information

A commenter recommended BOEM include a reference to the Pacific Hake/Whiting Treaty in Appendix B, Section B-2.4.[16]Another commenter wrote that BOEM did not consider the impacts of the proposal on small marinas and ports near Bandon, Winchester Bay, Reedsport, and Florence.[17]

Another commenter wrote that under NEPA, adequate site assessments and robust environmental impact reviews are required for BOEM to move forward with the proposal.[18]

Public comments

Another commenter expressed concern over what the commenter suggested was BOEM's inadequate consideration of comments submitted in response to the agency's Notice of Intent to Prepare an Environmental Assessment. Here, the commenter wrote that the 144 commenters who submitted comments during that stage had furnished BOEM with adequate data and information that was not considered in the Draft EA.[19]Consequently, another commenter wrote that BOEM should have considered comments submitted during the scoping period.[20]

Modeling and survey data

A commenter discussed the general importance of site assessments, adding that the following points should guide any comprehensive assessment related to offshore wind development:

- *Bathymetric surveys*
- *Geophysical surveys*
- *Geotechnical investigations*
- *Metocean data*
- *Environmental surveys*
- *Cultural and archaeological surveys*
- *Infrastructure and resource assessment*
- *Data analysis and reporting*
- *Stakeholder engagement.[21]*

Other information

A commenter urged BOEM to consider minimizing site assessments impacts, discussed structure of service trust resources, and suggested that BOEM limit proliferation of invasive species as part of the agency's analysis under the EA. With respect to invasive species, the commenter expressed skepticism about Section 3.3.2.3 of the EA, where BOEM reported low potential for invasive species to have adverse effects on the areas subject to the EA. Here, the commenter wrote that invasive species may

[16] Pacific Whiting Conservation Cooperative.
[17] K. Silva.
[18] Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
[19] The Nature Conservancy.
[20] National Wildlife Federation et al.
[21] Elk Valley Rancheria, California.

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be unintentionally introduced via the following ways, all of which the commenter urged BOEM to assess more thoroughly:

- *Buoy hulls and anchoring systems*
- *The size and number of vessels and the number of trips thereof BOEM forecasts because of the lease area and the potential for ballast release and hull biofouling*
- *Lost survey equipment*
- *Decontamination and cleaning of buoys, mooring lines, cables, and anchors.*

The commenter also noted that BOEM should require lessees to investigate whether federally protected or listed species are within, or could be impacted by, the lease areas. Lastly, the commenter recommended more thorough consideration and analysis of onshore cable routes and related infrastructure.[22]

Response:

Regarding the comment about the need for site assessments, BOEM's environmental analysis is focused on the effects of site characterization and site assessment activities expected to take place after the issuance of commercial wind energy leases. BOEM reviewed all submissions of additional data and citations and included into the document only when central to the analysis of the resource.

The EA added small marinas and ports near Bandon, Winchester Bay, Reedsport, and Florence into the analysis.

BOEM does briefly consider non-native and invasive species in the EA. BOEM is considering adding lease stipulations to protect against invasive species, which would require lessees to include a species management component in their survey plans describing actions the lessee will take to avoid the spread of these organisms, and to decontaminate equipment and materials used in the marine environment. However, these will not be finalized until the Final Sale Notice and leases are developed.

Regarding concern related to BOEM's consideration of public comments, it must be noted that BOEM received many comments asking for further evaluation of potential impacts related to future offshore wind development itself, which is outside of the scope of this EA.

Stakeholder engagement is a focus of BOEM's renewable energy program, which includes several processes to enhance outreach, coordination, and collaboration. BOEM established Intergovernmental Renewable Energy Task Forces, which consist of federally recognized Tribes, Federal agencies, and states and local governments to maximize coordination with governmental partners. BOEM engages with the public at multiple steps in the lease sale and environmental review processes, holding scoping meetings, public meetings, and most recently the Oregon Proposed Lease Sale Public Auction Seminar and four public meetings on the Draft EA and proposed sale notice (PSN). BOEM outlines numerous opportunities for public engagement on its website and actively seeks public comments and feedback through both its formal notices in the *Federal Register* and also through various outreach efforts. BOEM encourages and welcomes all public participation and supports conservation activities informed by regional experts and stakeholders alike.

[22] U.S. Fish and Wildlife Service.

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BOEM recognizes its' unique legal relationship with Tribal Nations set forth in the Constitution of the United States, treaties, statutes, and court decisions, and therefore, consultation with a Tribal Nation must recognize the government-to-government relationship between the Federal government and Tribal Nations. BOEM acknowledges that Tribal Nations possess special expertise and BOEM will continue to consult with Tribal Nations and, as appropriate, their representatives, including the Tribal Historic Preservation Officer, regarding offshore wind projects on the OCS.

B-3.5 Foreseeable Activities and Assumptions for the Proposed Action

Approximately 32 commenters discussed foreseeable activities and assumptions for the Proposed Action.

BOEM must prepare an EIS or PEIS

Many commenters asserted that BOEM needs to prepare an EIS for wind energy development offshore the Oregon Coast.[23] Several commenters said that BOEM cannot separate the analysis of site characterization activities from the reasonably foreseeable outcome of actual development and construction.[24] A commenter added that BOEM's current process means that there will be no EIS weighing whether the "environmental insults" and cumulative effects of wind leasing in this area are acceptable.[25]

Several commenters encouraged BOEM to conduct a programmatic environmental impact statement (PEIS) to consider cumulative impacts of offshore wind development along the entire West Coast.[26]

Foreseeable activities

A commenter said that it is within the scope of this NEPA analysis to disclose and analyze the future actions that are reasonably foreseeable, including the development of wind energy infrastructure such as cable corridors, power transmission lines to the land, and re-development of the Port of Coos Bay. The commenter also said that indirect and cumulative effects are required by NEPA to be considered as part of the reasonably foreseeable actions stemming from BOEM's leasing and survey actions.[27] Another commenter agreed, saying that the Draft EA fails to fully consider the impacts of site characterization for the siting of subsea cable corridors and contains no discussion of how BOEM intends to coordinate with the State of Oregon for cable corridors extending beyond the

[23] L. Maitreya; Oregon Coast Alliance; RODA; Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana; Washington Dungeness Crab Fishermen's Association; Oregon Trawl Commission; West Coast Pelagic Conservation Group; Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians; National Wildlife Federation et al.; Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
[24] L. Maitreya; M.J. LaBelle; M. Reed; R. Emery [Form Letter Master]; S. Christopher; Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana; Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians; Santa Ynez Band of Chumash Indians; Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
[25] Oregon Coast Alliance.
[26] Oregon Trawl Commission; L. Vivola; M. Reed; R. Emery [Form Letter Master]; RODA; Kalmiopsis Audubon Society; Oceana; Midwater Trawlers Cooperative; Washington Dungeness Crab Fisherman's Association; National Wildlife Federation, et al.; Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana.
[27] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.

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WEAs into state waters. The commenter added that climate change must be included as a reasonably foreseeable planned action and that the reasonably foreseeable planned actions in Appendix D should include quantifiable metrics for evaluating cumulative impacts.[28]

A commenter recommended that any easements for converter stations be placed inside the confines of the WEAs so as not to disrupt fishing activities outside and shoreward of the WEAs.[29]

A commenter expressed concern about ongoing impacts on fishing and the marine environment from survey activities. The commenter said that, while lessees are required to submit geological and geophysical survey information in site assessment plans, these survey activities are not governed by or authorized under any EA. The commenter added that this survey equipment "is known to cause harm to commercially and recreationally important fish stocks."[30] *Another commenter said that site characterization surveys should include invertebrate taxa and that invasive species management should be included in construction and operation plans, among other items.*[31]

A commenter said that BOEM should provide in the Final EA some estimate of the activities that are reasonably foreseeable to assess the impacts of site assessment and site characterization activities more accurately. The commenter requested the opportunity to review and provide input on each lessees' approach to equipment decommissioning so that they can ensure complete removal of all anchors and other equipment. The commenter also requested the opportunity to review and provide input on draft plans for site characterization surveys and site assessment activities so that specific issues regarding species take can be addressed.[32]

A commenter said that the foreseeable activities and assumptions for the Proposed Action may be inaccurate and expressed concern that failing to accurately reflect reasonably foreseeable activities could delay site assessment and site characterization activities. The commenter also expressed concern that the Draft EA is too specific with respect to descriptions of equipment such as buoys and geophysical equipment, recommending that BOEM allow deviations to account for the use of new or different technology.[33]

A commenter recommended that BOEM require developers to use the full five years of data collection time so that they are able to capture data from different seasons and ecological regimes to understand the full range of conditions and assess levels of uncertainty. The commenter also addressed monitoring activities, commenting that site assessments should measure and monitor ocean currents and upwelling phenomena, additional species beyond protected species should be monitored, and monitoring protocols should be specified in the Final EA, among other issues.[34]

[28] National Wildlife Federation, et al.
[29] West Coast Seafood Processors Association.
[30] RODA.
[31] U.S. Fish and Wildlife Service.
[32] Oregon Department of Fish and Wildlife.
[33] American Clean Power Association.
[34] The Nature Conservancy.

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A commenter said that there is no estimated community economic impact information specific to the fishing and related industries in the Draft EA [35]

Regulatory authority and permitting of foreseeable activities

A commenter said that there is confusion regarding which entities will regulate subsequent activities, given that BOEM's regulatory authority is limited to the OCS, site characterization activities will take place in both Federal waters and state waters shoreward of these Federal waters, and lessees will need to obtain state permits related to the siting of cable routes, landing sites, and related onshore facilities. The commenter recommended that the mechanisms and entities authorizing activities shoreward of the Federal waters be identified in the Final EA. [36]

Response:

BOEM's regulations follow the Council on Environmental Quality's (CEQ) 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. An EA was selected for the Oregon leasing action and is consistent with BOEM's prior leasing actions offshore other states, because EAs are typically conducted when a proposed action is expected to have less than significant environmental impact. BOEM currently issues EIS's as a part of each COP received because EISs are done for projects with potentially significant environmental consequences. This process ensures details specific to potential impacts are available for analysis.

The Oregon EA evaluated impacts resulting from Proposed Action to existing and reasonably near future uses of the coastal and ocean environment using Appendix D as a description of those uses. Potential Port of Humboldt or Port of Long Beach offshore wind related construction were not considered because they are not approved activities and have only just initiated NEPA and other environmental permitting processes. Cumulative effects evaluation of the natural and human environment, with the uses outlined in Appendix D and including climate impacts, are considered in Section 3.12.

The Proposed Action considers the surveys and sampling necessary to collect data prior to multiple potential cable corridors, for example geotechnical coring or seafloor sample collections of ocean currents or biology. The EA does not authorize or approve specific cable corridors or easements at this stage. The approval of the final cable corridor(s) will be part of a COP submission and part of a future NEPA analysis and subject to Coastal Zone Management Act approvals, and consultations with Tribes and Federal Agencies. The Final EA added language to clarify cable corridors in the Proposed Action.

BOEM has the authority to evaluate the environmental effects of offshore energy development activities that occur on OCS under OCSLA. However, the activities that occur within state waters fall under state jurisdiction, and thus are the responsibility of the state authority. Details of BOEM's processes and timelines were added into the Oregon EA. Other agencies and entities that had a related role in the Proposed Action are described in Section 4.

The analysis of specific equipment is intended to provide a scenario that lends itself to meaningful analysis, prior to knowing which types of equipment will actually be used. However, to the extent

[35] H. Radtke.
[36] Oregon Department of Fish and Wildlife.

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possible, BOEM uses conservative estimates of potential impacts to account for a range of potential outcomes. The amount of data gathering that takes place after a lease is issued depends on a number of factors and is ultimately intended to ensure that there is sufficient data available to make an informed decision on a COP. BOEM provides guidance at BOEM.gov to further explain the regulatory requirements of data collection for COPs. Gathering sufficient data may not take the entire five years in every case.

BOEM mentions non-native species briefly in the EA and is considering adding lease stipulations to protect against invasive species, which would require lessees to include a species management component in their survey plans describing actions the lessee will take to avoid the spread of these organisms, and to decontaminate equipment and materials used in the marine environment. However, these will not be finalized until the Final Sale Notice and leases are developed.

Economic impacts are considered in Section 3.6 through 3.8.

Fishing activities were considered throughout the WEA development process, including with the Call for Information and Nominations and during BOEM's area identification process, to ensure that major conflicts are identified and minimized to the extent practicable. This effort includes collaboration with National Oceanic and Atmospheric Administration's (NOAA) National Centers for Coastal Ocean Science (NCCOS), the National Marine Fisheries Service (NMFS), Oregon State agencies, and outreach to fishing individuals and groups, including the Pacific Fishery Management Council (PFMC), to identify the areas of least conflict. Section 3.7 and Appendix F illustrates the suitability of fisheries activity in the Coos Bay and Brookings WEAs displayed as relative values determined by NMFS and the Oregon Department of Fish and Wildlife (ODFW). The WEAs avoided 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.

BOEM notes that several Tribal Nations, stakeholders, and the Ad Hoc Marine Planning Committee (Committee) of the PFMC recommend a U.S. West Coast-wide programmatic EIS and focus on a cumulative effects analysis of all wind energy proposed areas. Fishing focused groups advocate taking into consideration all areas closed to fishing on all commercial and recreational fisheries, fishing communities, and impacts on domestic seafood production (including port-based, fishery-specific facilities and related services). NEPA requires that BOEM consider actions that it has jurisdiction for and actions that are ripe for analysis and review. The Oregon EA considers the Federal action and information relevant to that action. BOEM initiated a programmatic EIS of the five wind leases offshore California in December 2024 and recommends that this process be considered if Oregon leases are issued and aa a topic for further coordination and discussion.

B-3.6 Impact-Producing Factors

Approximately nine commenters discussed topics related to impact-producing factors.

Several commenters expressed concern over the level of analysis and weight given to the impacts of covered activities in the EA and what threats they pose to important habitats and environmental

resources.[37] One commenter specifically wrote that the Draft EA's determinations of "minor" or "negligible" might not be representative of accurate, recent, and scientifically sound data.[38]

A commenter noted the particular importance for BOEM to address the concerns raised in the lawsuit filed by the Morro Bay and Port San Luis Fishermen against the California State Land Commission in February 2024.[39]

A commenter contended that BOEM's previous Request for Information asking for potential mitigation from offshore wind is an acknowledgement that the WEAs will produce foreseeable and significant negative and unmitigable impacts.[40]

A commenter said that BOEM's specific assertion of minimal threats to marine mammals and sea turtles is not backed by sufficient evidence, and the assertion that species would recover completely after the completion of covered activities is not certain.[41]

A few commenters raised concerns over collisions and allisions involving vessels associated with survey work, moored objects (such as buoys), and marine mammals, which could all lead to damage or loss of materials, spillage of petroleum, and harm to marine creatures. Commenters said that these situations could create harm to habitats, increase marine debris, and create dangerous circumstances for crews aboard vessels.[42]

Some commenters requested adequate mitigation measures or impact minimization measures.[43] A commenter representing a form letter campaign recommended a series of requirements to limit some of the impacts related to activities covered by the EA, including the following:

- *Imposing speed restrictions on vessels to reduce risk of collisions*
- *Limiting underwater noise to the fullest extent practicable*
- *Operating autonomous underwater vehicles for surveys in water deeper than 100 meters to prevent damage to the seafloor.[44]*

One commenter wrote in support of the impact assessment and scope of the Draft EA and stated that any impacts related to activities beyond site characterization and assessment would be inappropriate at this stage of the project. Furthermore, the commenter cited a court case from 2021 (Fisheries Survival Fund v. Haaland) that upheld that granting leases still allows for BOEM to disapprove

[37] Santa Ynez Band of Chumash Indians; West Coast Seafood Processors Association; Washington Dungeness Crab Fishermen's Association; R. Eichstaedt; R. Emery [Form Letter Master], M.J. LaBelle; L. Maitreya.
[38] West Coast Seafood Processors Association.
[39] R. Eichstaedt.
[40] Washington Dungeness Crab Fishermen's Association.
[41] L. Maitreya.
[42] L. Maitreya; M.J. LaBelle; R. Emery [Form Letter Master].
[43] Washington Dungeness Crab Fishermen's Association; R. Eichstaedt; R. Emery [Form Letter Master], M.J. LaBelle.
[44] R. Emery [Form Letter Master].

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offshore wind development, and therefore does not constitute an "irreversible and irretrievable commitment of resources," which would require a more comprehensive NEPA review.[45]

Response:

This EA is a preliminary analysis used to determine whether the proposed Federal action is likely to have significant environmental impacts. Determinations of negligible, minor, and moderate are not a focus of the document but meant to further describe the intensity and duration of impacts across different resources. These terms are more clearly explained in the Finding of No Significant Impact document.

Appendix E of the EA, *Best Management Practices for Operations on the Pacific Outer Continental Shelf*, describes protection measures that are considered part of the Proposed Action and is generally consistent with BOEM's Biological Assessment (BA) and Essential Fish Habitat Assessment documents. A Letter of Concurrence from NMFS to BOEM, dated July 12, 2024, contains for more information on potential impacts to listed species, and measures employed to minimize and avoid these impacts in compliance with Section 7 of the ESA.

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 WEA development process, substantial efforts have been made to avoid as much overlap with critical habitat and biologically important areas (BIAs) as possible. BOEM's current understanding of marine mammal use of Oregon coastal waters includes the following: a) gray whale migratory routes are most dense within 6.9 miles from shore; b) Southern Resident killer whale habitat occurs within 11.5 miles from shore along the Oregon coastline to 656 feet (200 meters) water depths; c) humpback whales are generally concentrated in water depths up to 328 feet (100 meters), with highest densities occurring near the Farallones, offshore central California and in Monterey Bay. A map of the gray whale migration corridor and the Southern Resident killer whale critical habitat is available on OroWindMap. Other ESA-protected species include sperm, blue, fin, and sei whales, which will be further considered during the planning and leasing process. The Oregon EA, Section 2.3.4.1 "Allisions and Collisions," discusses potential impacts on transiting vessels with offshore wind site assessment activities and infrastructure such as meteorological buoys. In addition, it discusses U.S. Coast Guard (USCG)-required marking and lighting for navigational safety purposes.

Design and location of wind turbines will be proposed by potential lessees at the construction and operations phase after lease issuance and site assessments are carried out. A future environmental review will be conducted at the construction and operations phase, which will present the analysis of potential impacts of wind turbines on vessel safety and navigation.

BOEM generally will not comment on lawsuits between state governments and stakeholders.

B-3.7 Offshore Activities and Resources Eliminated from Further Consideration

Approximately two commenters discussed topics related to offshore activities and resources eliminated from further consideration.

[45] American Clean Power Association.

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One commenter noted a concern that impacts on bats were deemed negligible and being eliminated from consideration within the Draft EA. The commenter said that BOEM has listed the bats as being part of the surveying process, and previous acoustic surveys have found 15 different species of bats off the coast of California. The commenter noted that while the migration season in which bats will overlap with the WEAs is short, Hoary bats have been observed within the Humboldt lease area. The commenter stated that bats are facing sharp declines in the western United States, which warrant extra caution around any activities that could further put their population levels at risk and recommended imposing anti-roost measures (similar to those for birds) and lighting restrictions on any metrological buoys or relevant vessels used for surveying.[46]

Response:

Bats are impacted by onshore wind facilities and BOEM is funding several tracking studies to investigate the presence of bat species offshore, prior to offshore construction. Bats are not expected to be impacted by the Proposed Action so, primarily due to page limits, information regarding bats was moved to Appendix C. BOEM is considering adding an Avian and Bat Monitoring Plan as a lease stipulation. However, lease stipulations will not be finalized until the Final Sale Notice and leases are developed. Even when bats are encountered during surveys or other Proposed Action activities, the potential for any negative impacts on bats is extremely limited because the proposed activities are mainly in the marine and underwater environment. Environmental analyses under NEPA are meant to concentrate on the issues that are truly relevant to the action in question, rather than amassing unnecessary detail (40 CFR 1500.1(b)). BOEM made no adjustments to the EA itself, nor to remedial measures targeted towards bats, but continues to include consideration of bats in its analyses of any future Federal authorizations related to offshore wind development on the Oregon OCS.

B-4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

Approximately 15 commenters discussed topics related to the affected environment and environmental impacts.

General comments

A commenter stated that BOEM has failed to take a "hard look" at the environmental consequences of the Proposed Action as required by NEPA. The commenter said that the Draft EA's general statements about possible effects that are not supported by more thorough analysis do not satisfy the hard look requirement. The commenter also took issue with BOEM's treatment of BMPs and mitigation measures, commenting that the Draft EA contradicts itself as to whether BMPs are required for lessees and does not adequately evaluate the effectiveness of proposed mitigation measures.[47] *Another commenter agreed that BOEM needs to take a "hard look" and incorporate all foreseeable direct and indirect impacts.*[48]

[46] Oregon Department of Fish and Wildlife.
[47] National Wildlife Federation, et al.
[48] Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana.

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A commenter generally supported the Draft EA, saying that it provides a robust analysis of the potential impacts from size assessment and characterization work associated with lease development.[49]

Cumulative effects

A commenter said that the characterization of cumulative impacts as "moderate" rather than "negligible" is improper as it does not address the fact that the moderate impacts are a result of background impacts. The commenter wrote that BOEM should state that the cumulative impacts are not substantively changed by the increment of impacts associated with the Proposed Action.[50]

Scope of the EA

A few commenters said that the geographic scope of the EA needs to be expanded beyond the boundaries currently identified. One commenter encouraged BOEM to expand the scope to the shoreline and generally to areas adjacent to developed sites,[51] *while another commenter encouraged BOEM to expand the scope to include the entire West Coast, but at a minimum to extend from the northern boundary of the Coos Bay WEA to the southern boundary of Humboldt, and also to the shoreline.*[52]

Navigation

A commenter wrote that the Draft EA is inadequate because it does not address impacts on navigation and said that an analysis for vessel traffic is required to be included in the EA to fully represent the impacts on all ocean users. The commenter also said that BOEM should align with the schedule for the U.S. Coast Guard's Pacific Coast Access Route Study (PACPARS), which is expected to take several more years to complete. According to the commenter, only at that point can BOEM be certain that the WEAs will not overlap with final fairways.[53] *Another commenter agreed that any overlap with the proposed PACPARS fairways presents a risk to vessel navigation and environmental safety and urged the creation of buffer zones around these areas.*[54]

Other comments

A commenter urged BOEM to require developers to identify comparison or control areas during site characterization and assessment activities to allow for follow-up monitoring to detect changes in monitored parameters and compare them against similar parameters in the comparison areas. The commenter said that this methodology could allow BOEM to determine the cause of any detected changes within the development area.[55]

[49] South Coast Energy Ventures LLC.
[50] American Clean Power Association.
[51] The Nature Conservancy.
[52] National Wildlife Federation, et al.
[53] Pacific Merchant Shipping Association.
[54] World Shipping Council.
[55] The Nature Conservancy.

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A commenter said that BOEM needs to provide guidance regarding the definitions of the impact determinations (i.e., negligible, minor, moderate, major) to provide a clear framework for understanding the severity of impacts.[56]

A commenter expressed concern about the impacts of wind turbines on upwelling and marine currents.[57]

Response:

Environmental analyses under NEPA concentrate on issues that are relevant to the action in question, rather than amassing unnecessary detail (40 CFR 1500.1(b)). BOEM has prepared the EA in a concise and proportionate manner, focusing on the analyses that are critical for the Proposed Action's decision-making process. More substantial impacts on the environment have been given considerable attention, while impacts that are unlikely or negligible have been discussed briefly and proportionally.

To minimize interactions and avoid injury or disturbance to marine mammal and sea turtle species, lessees are required to follow BOEM's BMPs, as described in the Final EA, as well as in the Section 7(a) consultation under the ESA. BOEM derived these BMPs based on relevant experience on the Pacific OCS, as well as through analysis of the best available data (Crocker & Fratantonio, 2016) and in coordination with NMFS Greater Atlantic Regional Office on SAPs submitted to BOEM for the Atlantic OCS. BOEM will implement BMPs through issuance of leases and review of proposed plans through standard operating conditions. These BMPs include the use of Protected Species Observers and clearance and shutdown zones, as well as ramping up of electromechanical survey equipment when technically feasible.

BOEM will review all survey plans, including the list of proposed electromechanical survey equipment, to ensure that the equipment will be able to acquire the necessary information required in a COP, and comply with appropriate lease requirements, BMPs, and relevant consultations. BOEM's BMPs require that survey plans describe how the lessee will comply with these practices, and other relevant requirements BOEM's regional subject matter experts work with BOEM's acoustics experts at the Center for Marine Acoustics to review these BMPs, and, together with NOAA Fisheries, ensure that BMPs will be effective in minimizing impacts on marine mammals and sea turtles.

In addition, a potential lessee would conduct site-specific avian surveys to describe the key species and habitat that could be affected by the proposed construction and operations prior to approval of any construction. BOEM will consult with the U.S. Fish and Wildlife Service (USFWS) on potential effects to ESA-listed species 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 BMPs have been successfully employed across the offshore wind industry and incorporated into plan approvals.

The Oregon Final EA, Section 2.3.4.1, "Allisions and Collisions" discusses potential impacts on transiting vessels with offshore wind site assessment activities and infrastructure such as meteorological buoys. In addition, it discusses how these impacts can be minimized via fairways, traffic separation schemes, and that BOEM located WEAs outside heavy vessel traffic areas to reduce impacts. Also, Appendix D, Section 2.3, "Marine Transportation" discusses USCG's PACPARS, marine transportation and vessel activities anticipated from the Proposed Action, and how the Coos Bay and Brookings WEAs avoid the proposed

[56] National Wildlife Federation, et al.
[57] Protect the Coast PNW.

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fairways. Due to the avoidance of PACPARS fairways and high-vessel traffic areas, BOEM believes negative impacts on the commercial maritime industry are minimal.

During the WEA development process, BOEM and NCCOS evaluated navigational constraints such as vessel traffic in a suitability model and included shipping fairways and Automatic Identification System (AIS) data from 2017, 2019, and 2020. The USCG provided a shipping safety fairway data layer to be included in the suitability analysis from the PACPARS study (USCG 2023), along the western seaboard to determine if routing measures to shipping fairways should be established and/or modified. The PACPARS data layer was assigned a score of 0 for complete avoidance and so there is no overlap with the Final Oregon WEAs and the proposed PACPARS fairways.

The EA uses four levels of impact: negligible, minor, moderate, and major. Major impacts were not found as a result of the analysis and are not discussed further. These terms were further clarified in the Finding of No Significant Impact document. Negligible impact is defined as having little to no effect or resulting in no measurable impacts on the resource. A minor impact means that the impact would not disrupt the normal or routine functions of the affected resource. If impacts do occur, the affected resource would recover completely once the impacting agent is eliminated, without requiring any remedial action. A moderate impact means that the affected biological, physical, or socioeconomic resource would have to adjust in some measurable way to account for disruptions due to the Proposed Action. Once the impacting agent is eliminated, the affected resource, activity, or community would return to a condition with no measurable effects, but only if remedial action(s) were taken.

BOEM published a fact sheet containing the definitions of negligible, minor, moderate, and major impacts in association with the South Fork Wind Farm Draft EA, which is available on the BOEM Renewable Energy Webpage.

BOEM considers the geographic scope of the EA for the issuance of commercial wind energy leases and associated site characterization activities to be appropriate and commensurate with the complexity and environmental importance of the Proposed Action. The EA focuses on projects in similar stages of development, and the analysis is limited to areas under BOEM's jurisdictional authority.

B-4.1 Geology

Approximately four commenters discussed topics related to geology.

A few commenters stated that the Draft EA does not have an adequate discussion of geologic concerns in relation to the project.[58] A couple commenters wrote the discussion of "negligible" cumulative geologic hazards is a result of inaccurate or misguided data.[59]

Some commenters expressed concern that the Draft EA does not mention the impending threat of the major earthquake and tsunami that are anticipated in the next 50 years along the Cascadia Subduction Zone. The commenters said that there are maps showing the various Quaternary faults throughout the proposed sale areas but point out that there is not a significant discussion in the Draft

[58] C. Cameron; B. Vandenson; Oregon Department of Fish and Wildlife; Santa Ynez Band of Chumash Indians.
[59] C. Cameron; B. Vandenson.

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EA of the risks that these fault lines pose to the floating platforms, mooring systems, or the transmission lines to shore.[60]

A commenter focused on the Draft EA's lack of mention of the Heceta Slide in the Coos Bay WEA, which is a region of extensive slope failure and potential long-term instability. The commenter recommended that BOEM and developers carefully consider whether the eastern portion of the Coos Bay WEA near the Heceta Slide is a viable option for offshore wind development.[61]

A commenter said that the bamboo coral forest research site and the deep-sea coral habitat in the Brookings WEA are missing from the map of known benthic habitats (Figure 3-1) in the Draft EA. The commenter stated that it is important to provide the developers with mapping and information about these sensitive areas, so they know of potential spatial conflicts before the surveys yield high-resolution mapping images.[62]

Response:

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. BOEM finds that these risks are more relevant to evaluation of a COP and has no substantial bearing on the Proposed Action of the EA.

Hydrate-bearing sediment (HBS) exists throughout the two WEAs. BOEM believes that geotechnical sampling of the HBS will not cause a destabilization of the hydrates. Experience in the Gulf of Mexico, along with scientific coring and sampling of the HBS offshore Oregon, does not support a conclusion that geotechnical sampling could cause destabilization of the hydrates. The use of anchors in hydrates is a topic of study and needs more research. A computer simulation of anchors in areas of hydrates supports the conclusion that hydrates could become more stable with the added weight of anchors.

Heceta Slide information was added to the Final EA.

Areas of sensitive benthic habitat (corals, hardgrounds, methane seeps) will not be sampled. These areas will be in avoidance zones and will not be disturbed by future construction, therefore no benthic survey and sampling is needed. These areas would be delineated during the high-resolution geotechnical (HRG) survey with sonar. BOEM is considering adding lease stipulations to require avoidance of sensitive habitats, but lease stipulations will not be finalized until the Final Sale Notice and leases are developed.

B-4.2 Air Quality

Approximately four commenters discussed topics related to air quality.

A few commenters wrote that the sections in the Draft EA discussing air quality require clarification and further context regarding emissions estimates provided for during the assessment, construction, operation, and transportation phases, which all were excluded from mention within the analysis. The commenters said they wanted to see the increased level of emissions in comparison to baseline levels

[60] C. Cameron; B. Vandenson.
[61] Oregon Department of Fish and Wildlife.
[62] Oregon Department of Fish and Wildlife.

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in the four categories.[63] A commenter stated that because of wind patterns on the Oregon Coast that will carry pollutant emissions from the Coos Bay WEA to onshore communities, the need for transparency and detail in emissions data is crucial, and legally required under the Cleaner Air Oregon regulation.[64]

A commenter questioned why offshore projects in North Carolina were chosen as an example for emissions calculations in Oregon, and requested more context and information on how this example could differ from the reality in Oregon, especially regarding the bigger turbines that are planned to be used in Oregon.[65]

Response:

BOEM provided emissions estimates for site characterization and site assessment. It is difficult to make more detailed emissions estimates for construction, operation, and transportation activities without knowing how many leases will be granted and before a COP. After leases have been granted, and once COPs have been submitted, more information about project siting (e.g., export cable landfall, offshore and onshore cable routing, location of substation and switching stations), wind development area, wind turbine layout, floating substructure type, project components, technology used, and details about construction and installation, operations and maintenance, and decommissioning, as well as the associated manufacturing and transportation components, will help inform more accurate emissions estimates.

Cleaner Air Oregon (OAR-340-245) states that its applicability and jurisdiction excludes sources located on Federal lands. BOEM included text that mentions OAR-340-245 jurisdiction over Oregon state waters and lands. It is possible that, depending on the combination of lease tract orientation and wind development area determined, part of the Brookings WEA could be required to comply with Oregon Department of Environmental Quality and Cleaner Air Oregon regulation according to Outer Continental Shelf Air Regulations (40 CFR Part 55) due to its proximity to the corresponding onshore area. The Coos Bay WEA is far enough from the state's seaward boundary that it will not be required to comply with state regulations. This was also included in the EA text.

The North Carolina example is used because these site characterization and assessment emissions estimates were the best available examples at the time of writing. The North Carolina estimates are based on three WEAs spanning an area of approximately 300,000 acres, whereas the two Oregon WEAs span an area of almost 200,000 acres. Despite the Oregon WEAs' smaller overall area, emissions could be comparable to the North Carolina example because the Oregon WEAs are at a farther distance from shore, which would result in greater vessel emissions. Water depth is also greater offshore Oregon than North Carolina, which could increase the duration of the site characterization surveys and site assessment activities, potentially resulting in greater emissions.

[63] Confederates Tribes of Coos, Lower Umpqua & Siuslaw Indians; Oregon Department of State Lands; Santa Ynez Band of Chumash Indians.
[64] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[65] Oregon Department of State Lands.

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B-4.3 Marine And Coastal Habitats and Associated Biotic Assemblages

Approximately 22 commenters discussed topics related to marine and coastal habitats and associated biotic assemblages.

Cumulative effects

A commenter expressed disappointment that BOEM has declined to conduct a cumulative effects analysis for birds, fish, and other wildlife that transit the whole West Coast.[66]

A commenter said that BOEM should analyze the cumulative effects of multiple survey activities on sensitive habitats in the Final EA.[67]

Benthic habitats

A couple commenters said that aliquots with sensitive benthic resources should be omitted from the lease sales, or leases should be required to have buffers around those areas for site assessment and characterization activities.[68] *One of the commenters made additional suggestions for the Final EA, including the following:*

- *Analyzing other approaches for protecting sensitive habitats*
- *Describing and quantifying the anticipated impacts on sensitive benthic habitats—which are not found in abundance in the WEAs—from seafloor sampling and describe specific measures that can be applied to avoid such impacts*
- *Analyzing and quantifying the physical effects of meteorological buoy anchor placement.*[69]

A couple of commenters, including those in a form letter campaign, said that buoy anchoring systems should be required to be sited to avoid sensitive seafloor habitat areas.[70] *A commenter expressed concern about the impact of anchor chains on the ocean floor.*[71] *A commenter suggested requiring, as part of site assessment and characterization activities, detailed surveys of potentially sensitive benthic habitat, bottom water characterization, and box core samples prior to deployment of anchored meteorological buoys.*[72]

A commenter stated that all submerged structures have the potential to be vectors for the introduction of non-native marine invasive species to benthic habitats.[73]

Critical and sensitive habitats

[66] Kalmiopsis Audubon Society.
[67] Pacific Fishery Management Council.
[68] Pacific Fishery Management Council; Oregon Department of Fish and Wildlife; National Wildlife Federation et al.
[69] Oregon Department of Fish and Wildlife.
[70] M.J. LaBelle; R. Emery [Form Letter Master].
[71] Protect the Coast PNW.
[72] National Wildlife Federation, et al.
[73] Santa Ynez Band of Chumash Indians.

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A commenter said that the WEAs overlap EFHs for managed fish populations, as well as rocky reef habitats that are designated as Habitat Areas of Particular Concern (HAPCs) because of their high ecological importance, rarity, and sensitivity to disturbance, and deep-sea corals and sponges. The commenter added that the Final EA should provide more information on the known and modeled locations of deep-sea coral and sponge ecosystems.[74]

A commenter urged BOEM to conduct an impact analysis relative to EFH conservation areas and HAPCs to ensure that activities carried out under this EA do not harm those habitats.[75] *The commenter was joined by other commenters in saying that lessees should be required to accomplish the following:*

- *Include buffers around all areas with sensitive habitats in potential cable easements and other bottom-contact activities*[76]
- *Conduct broad- and fine-scale comprehensive biological site characterization surveys to identify sensitive benthic habitats in the lease areas and potential cable easement areas*[77]
- *Conduct seafloor habitat mapping at the highest resolution possible and at a higher sampling rate than described in BOEM's guidance documents*[78]
- *Conduct surveys in spaces and times when sensitive or protected species are less likely to be present*[79]
- *Consult with West Coast habitat scientists on survey design and methodologies prior to resource extraction to reduce impacts.*[80]

A commenter said that offshore wind should be sited to avoid areas within and around important habitat and recommended that BOEM increase the level of detail of the affected environment descriptions and impact assessments for the proposed actions for these habitats in the Final EA. Additionally, the commenter said that meteorological buoys offer an opportunity to collect valuable information on migration patterns of many species in the lease areas prior to development.[81]

A commenter asked BOEM to track and protect all species as their health could reflect broader ecosystem impacts.[82] *A commenter stated that the proposed WEAs overlap with portions of humpback whale critical habitat, and the Coos Bay WEA overlaps with a portion of leatherback sea turtles.*[83]

[74] National Wildlife Federation, et al.
[75] Pacific Fishery Management Council.
[76] Pacific Fishery Management Council; NOAA.
[77] Pacific Fishery Management Council.
[78] Pacific Fishery Management Council; Oregon Department of Fish and Wildlife; NOAA; The Nature Conservancy; National Wildlife Federation, et al.
[79] Oregon Department of Fish and Wildlife.
[80] Pacific Fishery Management Council.
[81] Oregon Department of Fish and Wildlife.
[82] The Nature Conservancy.
[83] L. Maitreya.

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A commenter urged BOEM to ensure that leases and site assessment permits have conditions to avoid impacts on the marine environment, particularly hard substrates, rock outcroppings, and deep-sea coral and sponge habitats, with buffers around those habitats.[84]

Noise, light, and electromagnetic disturbances

A commenter said that the Draft EA fails to properly assess noise impacts from the Proposed Action's site assessment work on fish and other species, commenting that recent research has found that sounds at levels lower than those described in the Draft EA can cause lethal and sublethal impacts on fish species.[85]

A commenter suggested that BOEM expand its consideration of the impacts of light pollution to all taxa, including marine birds, mammals, invertebrates, and fish. The commenter described the impacts of artificial light on marine environments, including on fish and animal behavior, activity and hormone levels, foraging, reproduction, and susceptibility to predation. The commenter recommended that marine lighting follow general best practice recommendations to minimize the use of lighting at night, keep the light below 3,000 Kelvins, and below 2,700 Kelvins in sensitive habitats.[86]

A couple commenters expressed general concerns about the effects of noise, light, and electromagnetic and electrical effects on marine life.[87]

Other comments

A commenter recommended that BOEM expedite the development of fine-scale substrate classification maps using existing seafloor mapping data collected in recent years. The commenter also asked that deep-sea coral habitats be depicted on seafloor map figured in the Final EA.[88]

A commenter said that undersea cables "dramatically" affect both the seafloor and marine wildlife. The commenter stated that the landing places are always in the sensitive zone of initial upland vegetation with sandy soils and permeable water tables. The commenter also said that undersea cables are also the location of accidents that damage marine life and the seafloor.[89]

Response:

BOEM's regulations follow CEQ's NEPA regulations to analyze impacts related to 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 action to existing and reasonably near future uses of the coastal and ocean environment. Both reviews include a cumulative effects evaluation of the natural and human

[84] Oceana.
[85] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[86] National Wildlife Federation, et al.
[87] Santa Ynez Band of Chumash Indians; Elk Valley Rancheria, California.
[88] Pacific Fishery Management Council.
[89] Oregon Coast Alliance.

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environment including consideration, when appropriate, on issues such as marine mammals and commercial fishing.

BOEM included a discussion of cumulative impacts in the EA. Many of the comments received related to cumulative impacts are mis-characterizing the nature of those analyses with respect to this Proposed Action. Specifically, there is no indication that there is a measurable accumulation of impacts of many survey activities on migratory species. In other words, if a migratory species should encounter survey activities in one location, there is no indication that again encountering survey activities in another location is an additive impact because, as discussed throughout the EA, the minor impacts associated with the Proposed Action are short-term and localized, and in most cases are resolved once activities cease.

Most of the seabed within the Brookings and Coos Bay WEAs consists of soft sediments, with sandy habitats more common in shallow depths and mud habitats becoming dominant as depth increases. Rock outcrops occur over a much smaller percentage of the seabed but are often concentrated in offshore banks. Carbonate reefs can form where methane seeps occur. Biodiversity and biological productivity have the highest values in reef habitats and in nearshore environments. Therefore, in addition to Heceta, Stonewall, and Perpetua banks, Siltcoos and Coquille banks were also excluded from consideration for the WEAs due to their biodiversity.

BOEM continues to use the best available science on the definition and locations of sensitive or highly productive habitats when analyzing potential impacts from a COP. BOEM offered only one lease in the Brookings WEA to account for avoidance of these habitats. Should a lease sale proceed, BOEM requires extensive, high-resolution habitat mapping and data collection as described in 30 CFR 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.

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 noted that sponge habitats were not included in the NCCOS analysis since sponge data are not available. However, selected species of coral and sponge habitat suitability datasets were included as a proxy for coral and sponge locations in the model. Ultimately, the high habitat suitability layer was chosen for inclusion in the model because it covered a broader area, thus providing higher conservation for coral habitat. Commenters, such as ODFW and PFMC, noted new 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.

BOEM finds concerns about noise, light, and electromagnetic fields are associated with the construction and operation of an offshore wind facility and thus will continue to analyze these issues at the COP stage. BOEM will work with partners and stakeholders as required in the regulations before a decision is made to authorize development in any leased area.

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. BOEM evaluated and addressed these impacts through the NEPA and consultation processes. BOEM has further

determined that many potential impacts on marine mammals and leatherback sea turtles discussed in comments arise from the construction and operation of potential offshore wind facilities will be accurately addressed, and appropriate mitigations identified, when, as required in 30 CFR 585, project details and site-specific data and information are available at the COP review stage. This analysis period includes consultations with NMFS on potential impacts on marine mammal and sea turtle species that are listed as threatened or endangered under the ESA.

B-4.4 Marine Mammals and Sea Turtles

Approximately 32 commenters discussed topics related to marine mammals and sea turtles.

Several commenters expressed concern about potential impacts on marine mammals (e.g., Harbor Porpoise and Mesoplodont Beaked Whales) or sea turtles from project activities, including noise created from site assessment activities,[90] potential primary or secondary entanglement,[91] and the potential for collision with project-related vessels.[92]

Mitigation measures

Multiple commenters suggested mitigation measures BOEM should implement to reduce impacts on marine mammals or sea turtles from noise created by project activities, including the following:

- *Underwater noise reduction to the fullest extent possible[93]*
- *Mandatory report detection of all large whales and sea turtles[94]*
- *A delay in initiation, or shutdown of construction activities and site assessment and characterization activities, if a marine mammal or sea turtle is detected visually in clearance or exclusion zones[95]*
- *Generous clearance zone and exclusion zone distances prior to activities that could injure or harass large whales[96]*
- *Site assessment and characterization activities should not be initiated within 1.5 hours of civil sunset or in times of low visibility when the visual clearance zones and exclusion zones cannot be visually monitored[97]*
- *An acoustic clearance zone and exclusion zone of at least 500 meters for beaked whales around each sound source[98]*
- *A visual clearance zone and exclusion zone of at least 500 meters in all directions from each sound source during surveys in waters 100 meters deep or shallower for all large whale species[99]*

[90] L. Maitreya; Midwater Trawlers Cooperative; Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians; National Wildlife Federation, et al;, Elk Valley Rancheria, California.
[91] L. Maitreya; Pacific Fishery Management Council; West Coast Seafood Processors Association.
[92] L. Maitreya; West Coast Seafood Processors Association.
[93] L. Vivola; F. Prescott; S. Christopher; National Wildlife Federation, et al.
[94] L. Vivola; National Wildlife Federation, et al.
[95] National Wildlife Federation, et al.
[96] L. Vivola; M. LaBelle; R. Emery [Form Letter Master]; F. Prescott; S. Christopher.
[97] National Wildlife Federation, et al.
[98] National Wildlife Federation, et al.
[99] National Wildlife Federation, et al.

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- *BOEM including a monitoring requirement to record the levels of noise produced by survey equipment to ensure that NOAA noise safety guidelines for the marine mammals are not exceeded during the offshore wind site assessment activities.*[100]

A few commenters suggested mitigation measures BOEM should implement to reduce entanglement risks to marine mammals or sea turtles from project activities, including the following:

- *Designing and maintaining mooring lines and inter-array cables in configurations to minimize the potential for entanglement of marine species by ensuring that lines and cables remain under tension and avoid catenary moorings*[101]
- *Conducting monitoring for entanglement that combines continuous and automated monitoring technologies with regular inspections and surveys of all floating offshore wind infrastructure throughout construction and operations*[102]
- *Requiring monthly inspections to validate continuous monitoring approaches by confirming the location of ensnarement or entanglement events detected by a continuous monitoring system*[103]
- *Requiring reporting and appropriate disposition of recovered fishing gear*[104]
- *Requiring transparent reporting of ensnarement and entanglement data*[105]
- *Avoiding placement of meteorological buoys in aliquots with high importance of pot and trap fisheries*[106]
- *Requiring weak links be supported by sufficient on-the-water testing that demonstrates they will reduce the severity of protected species entanglements or contribute to a higher rate of self-release*[107]
- *Minimize use of knots, splices, loops, or similar potential entanglement points on lines*[108] *and*
- *Adhering to entanglement reporting best practices as recommended by NMFS.*[109]

Multiple commenters recommended mitigation measures BOEM should implement to reduce vessel strikes to marine mammals or sea turtles from project activities, including the following:

- *A 10-knot vessel speed restriction for all vessels*[110]
- *Designated crew lookouts receive training on protected species identification, training on vessel strike minimization procedures, training on how and when to communicate with the vessel captain, and training on reporting requirements.*[111]

[100] Oregon Trawl Commission.
[101] National Wildlife Federation, et al.
[102] National Wildlife Federation, et al.
[103] National Wildlife Federation, et al.
[104] National Wildlife Federation, et al.
[105] National Wildlife Federation, et al.
[106] Pacific Fishery Management Council.
[107] Oregon Department of Fish and Wildlife.
[108] Oregon Department of Fish and Wildlife.
[109] Oregon Department of Fish and Wildlife.
[110] Anonymous; L. Vivola; F. Prescott; S. Christopher; National Wildlife Federation, et al.; Oceana.
[111] National Wildlife Federation, et al.

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Changes to Appendix D (now Appendix E in the Final EA)

A commenter recommended several changes to the regulatory text in Appendix D, such as:

- *Changing the title of Appendix D from "Typical Best Management Practices for Operations on the Pacific Outer Continental Shelf" to "Examples of Best Management Practices", as some Atlantic and Gulf of Mexico practices are included in Appendix D*
- *Removing the moon pool mitigation from the ESA consultation*
- *Removing multibeam echosounders and most chirps in clearance or shutdown requirements*
- *Not pre-empting NMFS by including more mitigation in the EA and BA than has been required for this type of equipment in the Atlantic as this could create inconsistencies with the EA at the MMPA permit stage*
- *Removing the word "shutdown" or change it to "stopping the vessel" from Section C, as BOEM has defined "shutdown" in terms of geophysical equipment shutdown, which is covered in Section B of Appendix D and should not be included in Section C to avoid confusion*
- *Removing Attachment A (Standard Field Codes and Units) as, if BOEM wants to develop a standard spreadsheet and standard codes and units, it should be done in collaboration with NMFS and industry*
- *Incorporating either of the "Marine Mammal Affected Environment" or "Avian Affected Environment" appendices on the BOEM website into the text (likely as subsections associated with ESA-listed and formerly listed species)*
- *Adding "and Sea Turtles" to the appendix titled "Marine Mammal Affected Environment"*
- *Changing the language in the "Marine Mammal Affected Environment" time of the project*
- *Removing Table 3-6, as it is based on outdated guidance and could differ from NMFS' assessment of distances under MMPA at the permitting stage for specific projects.*[112]

Other comments

A commenter expressed concern that in-water structures deployed for site assessment or site characterization could increase entanglement risk through either mooring lines or underwater structures accumulating fishing gear that present a risk of secondary entanglement.[113] *Another commenter said that BOEM must evaluate the potential take of marine mammals under the MMPA.*[114] *A commenter said that BOEM needs to adopt rigorous site assessment requirements to avoid and reduce impacts on migratory and other marine species.*[115]

[112] American Clean Power Association.
[113] Oregon Department of Fish and Wildlife.
[114] National Wildlife Federation, et al.
[115] P. Thompson.

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A commenter stated that BOEM should change impacts from vessel traffic associated with site characterization from negligible to moderate. The commenter said that vessel strikes are a primary source of mortality and injury for large whales and sea turtles.[116]

A commenter said that BOEM should add sea otters to the list of marine mammals for inclusion in Appendix D in the Final EA. The commenter remarked that while no sea otters have been seen in Oregon, that does not mean they do not exist here or would not exist in the future.[117] *Another commenter suggested that BOEM incorporate green sea turtles (Chelonia mydas), northern sea otters (Enhydra lutris kenyoni), and southern sea otters (Enhydra lutris nereis, federally listed) into BOEM's analysis as they occur in the project area.*[118] *A commenter stated that BOEM misidentified impacted marine mammal species off the Oregon Coast. The commenter said that the first two species names listed, starting on page D-20 in Appendix D, are likely from the Atlantic region.*[119]

Response:

BOEM analyzed the potential environmental impacts of the Proposed Action on marine mammals and sea turtles. The EA evaluates the effects of site assessment and site characterization activities, including noise impacts, entanglement risks, and vessel strikes guided by the best available science and stakeholder feedback.

Green sea turtles (*Chelonia Mydas*) are described as "unlikely to be present in the Proposed Action Area," based on existing scientific literature documenting green sea turtle habitat use. BOEM actively reviews scientific literature and will incorporate new information about green sea turtle habitat use into future reviews and analyses as appropriate.

The EA considers various mitigation measures for underwater noise, such as minimizing exposure to sound sources, which potentially could affect marine species, mandatory reporting of detections, and activity delays or shutdowns if protected species are detected in clearance or exclusion zones. Clearance and exclusion zones are based on propagation distance of sound sources and potential impacts on marine mammals, sea turtles, and fishes. The EA outlines alternative monitoring plan requirements for low-visibility conditions and analysis to ensure compliance with NOAA noise safety guidelines.

To address entanglement risks, the EA reviews measures like designing and maintaining mooring lines and cables to minimize entanglement potential. Strategies include reporting recovered fishing gear, transparent data reporting, and avoiding high-risk areas for meteorological buoy placement, as well as adhering to best management practices listed in Appendix E. For vessel strikes, the EA considers implementing a 10-knot vessel speed restriction and training designated crew lookouts on protected species identification and strike minimization procedures.

BOEM reviewed suggested changes to the appendices, including modifying mitigation measures for survey equipment and incorporating marine mammal and sea turtle data. Additional updates reflect the status of sperm whales and distinct population segments of humpback whales. BOEM appreciates the

[116] National Wildlife Federation, et al.
[117] West Coast Seafood Processors Association.
[118] U.S. Fish and Wildlife Service.
[119] Oregon Trawl Commission.

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public's detailed feedback and remains committed to protecting marine mammals and sea turtles through appropriate mitigation measures and monitoring.

BOEM did not analyze northern sea otters (*Enhydra lutris kenyoni*) or southern sea otters (*Enhydra lutris nereis*) because the published ranges of these species do not extend into Oregon. BOEM actively reviews scientific literature and incorporates new information about northern sea otter and southern sea otter habitat use into future reviews and analyses as appropriate.

BOEM appreciates comments that highlighted new publications; new information was reviewed and considered in the analyses for the EA.

B-4.5 Coastal and Marine Birds

Approximately 22 commenters discussed topics related to coastal and marine birds.

Legal issues

A commenter expressed concern with the lack of evidence BOEM provided for its conclusion that "the viability of the resource is not threatened, and affected birds would recover completely when stressors are removed, or remedial actions taken." The commenter said that BOEM's conclusion does not comply with the Administrative Procedure Act. The same commenter stated that, because of numerous complex issues involving compliance with the ESA, the MMPA, and the MBTA, BOEM should prepare a decision document stating that the Oregon WEA leases would affect the quality of the natural and human environment.[120]

Impacts on birds

Multiple commenters expressed concern that lights from project activities (e.g., lights on vessels) would negatively impact birds,[121] *with a couple commenters stating that these lights would attract birds, leading to collisions with light-producing objects (e.g., vessels) and cause bird mortality.*[122]

A commenter said that BOEM should acknowledge impacts on birds to the degree they are known and take a precautionary approach to mitigating these impacts, given the uncertainty in the degree that noise, vessel traffic, lighting and other disturbances could impact avian population vital rates.[123] *Another commenter expressed concern that the prevalence of nearshore and shoreline habitats supporting an abundance of seabird nesting colonies and shorebird nesting areas would make responsible siting of transmission and onshore facilities shoreward of the WEAs difficult. The commenter recommended that to avoid and minimize impacts to seabirds and shorebirds to the maximum extent practicable, site-specific bird surveys should be conducted to inform evaluation of any future COPs.*[124]

[120] L. Maitreya.
[121] L. Maitreya; M. LaBelle; F. Prescott; S. Christopher; Elk Valley Rancheria, California; C. Psyk; U.S. Fish and Wildlife Service.
[122] L. Maitreya; U.S. Fish and Wildlife Service.
[123] National Wildlife Federation et al.
[124] Oregon Department of Fish and Wildlife.

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To reduce impacts on birds from project activities, several commenters urged BOEM to require lessees to abide by the following BMPs:

- *Limit or prohibit site characterization activities during high migration periods of birds*[125]
- *Report all detections of birds of special concern such as short- and black- tailed albatross, tufted puffins, and storm petrels*[126]
- *Ensure that lighting on vessels and buoys is minimized and shielded downward*[127]
- *Collect robust baseline monitoring protocols to characterize distribution, foraging activities, presence, habitat, and migration patterns of migratory birds*[128]
- *Have early coordination with BOEM, and submit quarterly reports on survey progress, data collection, and management*[129]
- *Reduce impacts of noise and disturbance from increased vessel traffic by avoiding high concentrations of marine birds*[130]
- *Work with BOEM to develop protocols to monitor for pre-construction avian impacts using audio recording units, remote cameras, and other sensory devices to be deployed on buoys, vessels and other infrastructure associated with site characterization and assessment activities.*[131]

<u>Other comments</u>

A commenter said that the text of Coastal and Marine Birds in the Underwater Noise and Vessel Attraction (3.5.2.3), which states that, "Site assessment-related surveys typically use a single vessel" and "A single vessel is typically involved in a site assessment-related survey," should be removed. The commenter remarked that although the conclusion that survey vessel activity would not create a significant increase in vessel traffic is still accurate, BOEM should avoid assuming single vessels for surveys to make sure this does not create a limit on simultaneous vessel use.[132]

A commenter remarked that BOEM should consult the most current guidelines that exist at the time and consider implementing conservation measures that minimize risks to birds for proposed projects during siting, construction, and operations prior to issuing authorizations.[133] *Another commenter generally stated that wind turbines could interfere with migrating birds.*[134] *A commenter asked how the project would affect large and slow reproducing species such as pelicans and eagles.*[135]

[125] F. Prescott; S. Christopher; National Wildlife Federation, et al.; M. LaBelle; R. Emery [Form Letter Master]; Anonymous.
[126] F. Prescott; S. Christopher; National Wildlife Federation, et al.; M. LaBelle; R. Emery [Form Letter Master]; Anonymous.
[127] F. Prescott; S. Christopher; M. LaBelle; R. Emery [Form Letter Master]; Anonymous.
[128] S. Christopher; Anonymous; Anonymous.
[129] National Wildlife Federation, et al.
[130] U.S. Fish and Wildlife Service.
[131] National Wildlife Federation, et al.
[132] American Clean Power Association.
[133] U.S. Fish and Wildlife Service.
[134] P. Thompson.
[135] Protect the Coast PNW.

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A commenter stated that location data was not included in the original NCCOS model for short-tailed albatross (Phoebastria albatrus) and marbled murrelet (Brachyramphus marmoratus) in BOEM's analysis. The commenter said to address this concern, additional data is needed for flight height, movement patterns, and distribution for short-tailed albatross and marbled murrelets in and around the WEAs to understand the potential impacts on these species and other seabirds.[136]

A commenter suggested that BOEM and the lessee coordinate studies and other data collection with USFWS, and that studies pertaining to bats should be included in the WEA site plan development. The commenter said that BOEM and lessees should work with the USFW to develop a bat conservation strategy for the COPs. The commenter also stated that that BOEM should provide information (such as scientific studies) and other pertinent references to support its exclusion of biological surveys and met buoy data collection relevant to bats for activities in the Oregon WEAs.[137]

Response:

BOEM analyzed the potential effects of lights, noise, vessel traffic, and other disturbances on bird populations and identified best management practices (BMPs) to minimize these impacts.

To minimize impacts of lighting from project activities, such as lights on vessels, which could attract birds and lead to collisions, BOEM includes measures for lessees such as minimizing and shielding lighting on vessels and buoys downward to reduce the risk of attracting and harming birds. BOEM will take a precautionary approach to minimize potential avian impacts. Site-specific bird surveys will inform future construction and operations plans to avoid and minimize potential impacts on avian species to the maximum extent practicable.

BOEM includes several BMPs in Appendix E (see Section E-5) to reduce impacts on birds from project activities. If leases or grants are issued, BOEM requires compliance with these measures, including that necessary lighting must be hooded downward to reduce upward illumination, and reporting to document dead birds or bats found on vessels and structures. These measures aim to protect coastal and marine birds while developing offshore wind projects responsibly.

BOEM recognizes the importance of location data for species such as short-tailed albatross and marbled murrelet.

B-4.6 Socioeconomics

Approximately 22 commenters discussed topics related to socioeconomics.

A commenter representing a form letter campaign expressed support for offshore wind projects in Oregon stating the projects will have positive impacts on jobs, job security, economic benefits to local businesses, and help keep the environment cleaner. The campaign also discussed the benefits to the communities when local workers are employed. [138]

Impacts on employment

[136] U.S. Fish and Wildlife Service.
[137] U.S. Fish and Wildlife Service.
[138] N. Fritch [Form Letter Master].

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A commenter representing a form letter campaign urged decision-makers to prioritize local hiring, including project labor agreements (PLAs), to ensure fair wages, apprenticeship opportunities, safe working conditions, and opportunities for the current and future skilled workforce.[139] Another commenter representing another form letter campaign stated that these projects create positive long-term jobs for community residents, supporting families and strengthening the local economy.[140]

A commenter supported offshore wind projects for providing jobs, good wages, and benefits for locals. The commenter mentioned that working closer to home means less time commuting, which is better for the environment and the local economy, as well as improving their quality of life.[141]. Similarly, another commenter shared their excitement about these projects, stating that they create jobs, improve the community, and help the environment.[142]

Local impacts from and to infrastructure

A commenter said that the Draft EA does not include important ports such as Winchester Bay/Reedsport and Florence, which have vibrant sport fishing and tourism industries. The commenter urged BOEM to correct these omissions in the Final EA to ensure accurate socioeconomic impact assessments.[143]

A commenter criticized the Draft EA for relying on inaccurate information from the U.S. Army Corps of Engineers. The commenter called for BOEM to correct and update the EA to include accurate data about important ports like Bandon, Umpqua, and Siuslaw, which are crucial for commercial and recreational fleets and seafood processing.[144]

Equitable benefits

A commenter emphasized that BOEM must ensure that the positive impacts of offshore wind projects are maximized and delivered equitably. The commenter recommended that all offshore wind lease contracts and permitting activities should ensure the application of high-road employment practices, community benefits agreements, and BMPs to ensure that projects are developed responsibly and benefits are equitably distributed. The commenter highlighted the importance of using domestic content in offshore wind projects to support national security and environmental goals. The commenter also advocated for investments in training programs that prioritize underrepresented workers and ensure equitable access to employment opportunities and said that PLAs are a proven way to ensure workers in the construction sector have access to the benefits and protections of unions.[145]

Other comments

[139] WS Carpenters [Form Letter Master].
[140] R. Hyke [Form Letter Master]..
[141] L. Aroche.
[142] A. Joyner.
[143] Pacific Fishery Management Council.
[144] West Coast Seafood Processors Association.
[145] BlueGreen Alliance.

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A commenter said that BOEM's description of coastal communities in the Draft EA is inadequate and missing numerous coastal towns and economic activities.[146]

A commenter emphasized the need for a detailed economic analysis related to fisheries exposure and other impacts from the proposed wind energy development. The commenter stressed that state and local governments, as well as industry, need this information to anticipate changes and make informed decisions.[147]

Discussing the lack of an estimated community economic impact on the fishing and related industries, the commenter stated that a future EIS should quantitatively model these impacts and impacts to the economy as a whole.[148]

Response:

Transmission grid development does not fall under BOEM jurisdiction and is outside the scope of this EA.

In response to concerns about the omission of important ports such as Winchester Bay/Reedsport and Florence, BOEM included more detailed descriptions and justifications for the inclusion or exclusion of specific ports in the Final EA.

BOEM is committed to ensuring that the positive impacts of offshore wind projects are maximized and equitably distributed. The Final EA includes more comprehensive data on coastal communities and their economic characteristics to provide a more thorough socioeconomic impact assessment.

B-4.7 Commercial Fishing

Approximately 18 commenters discussed topics related to commercial fishing.

General comments

Multiple commenters expressed concerns over the impacts of offshore wind surveying and development on the commercial fishing industry.[149] *A few commenters reiterated the importance of previous comments and data they had provided to BOEM.*[150] *A commenter reiterated a request from a previous comment letter to remove specific aliquots from the WEAs due to their importance to fisheries, habitat, and marine ecosystems.*[151]

A commenter opined that BOEM does not recognize or prioritize the fishing industry's long-standing environmental stewardship and ecological knowledge as BOEM prioritizes large-scale ocean energy development.[152]

[146] Oregon Trawl Commission.
[147] H. Radtke.
[148] H. Radtke.
[149] Oregon Trawl Commission; Pacific Whiting Conservation Cooperative; Midwater Trawlers Cooperative; Pacific Fishery Management Council; Oregon Department of Fish and Wildlife; NOAA; RODA; Washington Dungeness Crab Fishermen's Association; Makah Tribal Council, Makah Indian Tribe; West Coast Seafood Processors Association.
[150] NOAA; Oregon Trawl Commission; Pacific Fishery Management Council; RODA.
[151] Pacific Fishery Management Council.
[152] RODA.

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Cumulative effects

Several commenters discussed the need for analysis of cumulative effects between environmental impacts, current fisheries regulation, conservation and ecosystem needs, Tribal fisheries, regional socioeconomic status, the fishing industry, and the potential development of offshore wind.[153] One commenter noted the Draft EA does not consider the potential impacts of simultaneous site assessment activities in California and Oregon for fishermen who fish along the entirety of the West Coast, and emphasized how a cumulative impacts analysis would adequately cover these potential compounding impacts.[154]

Geographic scope

A couple commenters encouraged BOEM to be clear about the geographic scope of the EA, including which ports and associated vessels should be considered within the analysis for commercial fisheries.[155] A commenter said the main geographic areas should be updated to reflect accurate trawling and processing areas for the variety of species that are sought after along the Oregon Coast, and account for the availability of ports that also contributes to the use of main geographic areas.[156]

Specific impacts

Several commenters expressed concern with how site assessment activities could alter behaviors or migration patterns of both sought after species for harvest and protected and important marine species and cause more interactions with fishing outside of the WEA. The commenters expressed concern that this greater level of interaction between any protected marine species and fishing vessels could cause additional restrictions on the fishing industry, particularly if "take" of ESA-protected and -listed species occurs.[157] A commenter requested that these potential increased regulatory burdens on other ocean uses be included and accounted for in the EA or in a pre-lease EIS.[158] Another commenter criticized BOEM's assertion that there would be minimal need for avoidance, since the species move over large areas of the ocean to follow their food supply, and interruptions to their normal behavior will result in significant interference.[159]

A few commenters disagreed with the characterization that impacts of offshore wind surveying activities on commercial fishing would be "minor," and said that BOEM does not take into account the full potential impact of the site assessment period. Since the fish pursued are highly mobile and their distribution changes from year to year, requiring the vessels to be agile to avoid excessive bycatch, the commenters suggested that BOEM take note of areas of importance for bycatch

[153] RODA; Washington Dungeness Crab Fishermen's Association; Makah Tribal Council, Makah Indian Tribe; West Coast Seafood Processors Association; Kalmiopsis Audubon Society.
[154] West Coast Seafood Processors Association.
[155] Oregon Department of Fish and Wildlife; Pacific Fishery Management Council; Oregon Trawl Commission.
[156] Oregon Trawl Commission.
[157] Washington Dungeness Crab Fishermen's Association; Oregon Trawl Commission; West Coast Pelagic Conservation Group; Elk Valley Rancheria, California.
[158] Oregon Trawl Commission.
[159] West Coast Pelagic Conservation Group.

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avoidance and incorporate impacts to specific fisheries.[160] Commenters also expressed concern that the 5-year site assessment period will prevent fisheries from performing their surveys and sampling to calculate fish stock assessments, which are necessary tools for effective management of fishery resources. The commenters asked that BOEM release more specific information about what will be in the WEA, including the number of leases they plan to issue in the WEA, the maximum number of data collection buoys that would be in place at a single time, the duration of buoy placement, and the total footprint of installations and associated watch circles including areas of avoidance.[161]

A commenter generally agreed with BOEM's broad conclusion that the potential impacts on commercial fishing are anticipated to be minor and temporary, but recommended that BOEM include more information to support this conclusion. This commenter also said that while effects on commercial fishing may be minor at a broad scale, the impacts could vary based on individual, size of business, sector, or region and analysis should reflect these differences.[162]

One commenter recommended the following additional BMPs to limit interaction between inshore fisheries and vessels used for site characterization:

- *Use vessel traffic corridors when possible and reduce transit speed outside of these areas to limit gear interactions with fisheries*
- *Vet survey plans with relevant stakeholders to reduce conflicts with fishery operations.[163]*

One commenter discussed how surveying activity that limits fishing will cause increased competition and over-fishing in other regions that are already considered at-capacity.[164]

A few commenters stressed the importance of working with state and Federal agencies and the local fishing industry to find suitable locations for meteorological buoys that would not disrupt fishing activities or allow for co-use with fisheries.[165] One commenter recommended placing all meteorological buoys and other oceanographic moorings inside the WEAs to minimize impacts and interactions with fisheries. This commenter also recommended that BOEM create a comprehensive and accurate description of each of Oregon's commercial fisheries present within and inshore of the affected area and complete a detailed and specific analysis of anticipated impacts.[166] A commenter mentioned the nature of changing markets/demand, regulations, and the movement of fish populations govern the behavior of fishery vessels and said the Draft EA should acknowledge all of these factors.[167]

[160] Pacific Fishery Management Council; West Coast Seafood Processors Association; Oregon Trawl Commission.
[161] Pacific Whiting Conservation Cooperative; Pacific Fishery Management Council; Oregon Department of Fish and Wildlife; Oregon Trawl Commission;
[162] Oregon Department of Fish and Wildlife.
[163] Oregon Department of Fish and Wildlife.
[164] Oregon Department of Fish and Wildlife.
[165] Pacific Fishery Management Council; Oregon Department of Fish and Wildlife; Oregon Trawl Commission.
[166] Oregon Department of Fish and Wildlife; Oregon Trawl Commission.
[167] Oregon Trawl Commission.

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Some commenters also expressed concern over interactions between survey equipment and fishing gear, which have the potential to cause entanglement, interfere with fishing operations, release marine debris, or cause other harm/complications.[168] Some commenters encouraged BOEM to make responsible placement and timely removal of meteorological buoys and their associated anchors a condition of the lease, since they can cause damage to fishing gear and to the benthic environment.[169]

Errors, omissions, and data quality issues

Several commenters described errors and omissions within the Draft EA.[170] Commenters said there were inaccuracies and omissions related to active fishing ports and their capacity, seafood receiving/processing plants, revenue estimates and data, support businesses, the description of the affected area, differences between nearshore versus further offshore fisheries, geographic scope of data, and actual commercial fishing vessel activity and landing data along the Oregon Coast.[171] A couple commenters recommended that Tables 3-13, 3-14, and 3-15 be amended to avoid redundancies and provide a clearer understanding of the commercial fisheries, gear types, effort, locations, and characteristics that will be incorporated into the description of the commercial fishing effected environment in the EA.[172]

One commenter said that the maps in Figure C-9 are partially cutoff on the right side making them difficult to read. The commenter stated that the "heat maps" regarding the Oregon Call Area boundaries did not incorporate fishing areas outside of the call areas, so the maps make it look as though these regions are of prime importance, and do not show them in comparison to other high quality fishing areas.[173]

Some commenters said that data provided in the Draft EA was not representative of trends in variability due to summaries taken during COVID-19 pandemic years and should instead rely on more recent data from multiple years to increase accuracy.[174] Two commenters specifically disapproved of BOEM's use of VMS/AIS information to serve as an estimate for fishing effort or as a proxy for recreational fishing effort.[175]

[168] Oregon Department of Fish and Wildlife; Pacific Fishery Management Council, NOAA; Oregon Trawl Commission; Elk Valley Rancheria, California.
[169] Pacific Fishery Management Council; NOAA; Oregon Trawl Commission.
[170] Oregon Trawl Commission; H. Radtke; Pacific Fisheries Management Council; Oregon Department of Fish and Wildlife.
[171] Oregon Trawl Commission; H. Radtke; Pacific Fisheries Management Council; Oregon Department of Fish and Wildlife.
[172] Pacific Fishery Management Council; Oregon Department of Fish and Wildlife.
[173] American Clean Power Association.
[174] Pacific Management Fisheries Council; Oregon Department of Fish and Wildlife; West Coast Seafood Processors Association.
[175] Pacific Management Fisheries Council; West Coast Seafood Processors Association.

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Other comments

Some commenters discussed the importance of prioritizing engagement with people and businesses involved in the fishing industry and those who depend on it as BOEM moves forward with site surveying and lease issuance off the West Coast. [176]

A commenter encouraged the hiring of local willing fishermen where possible to assist in the work involved in site characterization, which has been done successfully before.[177]

A commenter stressed the importance of the reliance on local communities directly and indirectly on the fishing industry through year-round employment and food security. The commenter said that processors and other businesses that rely indirectly on fisheries are dependent on the vessels that travel along the coast to harvest and deliver catches to ports within the radii of their facilities.[178]

Response:

BOEM conducted an evaluation of the potential impacts of offshore wind development on commercial fishing in the EA. BOEM is considering a number of measures for incorporation into the lease, which provide for coordination with and protection of commercial fisheries. However, these measures will not be finalized until the Final Sale Notice and leases are developed.

BOEM acknowledges the importance of commercial fishing to local economies and coastal community culture. The EA includes discussion of fluctuations in vessel traffic and their potential impacts on fishing grounds and in-turn broader economic activities. BOEM used data from various sources, including NOAA Fisheries and the Oregon Department of Fish & Wildlife, to provide a comprehensive assessment of the economic value of the fishing industry.

In response to public comments, BOEM updated the EA to reflect recent information, including addition of more current data. The EA addresses concerns about the economic impact of offshore wind development on commercial fishing and emphasizes the importance of engaging with commercial fishermen and other stakeholders to identify important fishing grounds and mitigate potential conflicts. BOEM is considering a lease stipulation devoted to this coordination through development of a Fisheries Communication Plan. However, lease stipulations will not be finalized until the Final Sale Notice and leases are developed.

Additionally, the EA includes community economic impacts for the commercial fishing industry and incorporated updated data to reflect the modern value of the fishing industry. In Section 3.7.2 of the EA, BOEM outlines that impacts on fisheries depend on factors such as fish species, fishing methods, and the specific locations of fishing activities. This section has been updated to reflect additional data and insights to address concerns about space-use conflicts.

BOEM addressed comments regarding the limitations of the fisheries survey design by adding text that references Carlton et al. for more detailed information on survey methodologies.

[176] Pacific Fishery Management Council; The Nature Conservancy; RODA; Oregon Trawl Commission.
[177] NOAA.
[178] West Coast Seafood Processors Association.

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To provide a more comprehensive analysis, BOEM updated the text to use 10-year averages rather than single-year data, which may not accurately reflect long-term trends or the effects of the COVID-19 pandemic. This change helps to account for variability in environmental conditions and regulatory restrictions over time.

Finally, BOEM notes that several Tribal Nations, stakeholders, and the PFMC Committee recommend a U.S. West Coast-wide cumulative effects analysis of all wind energy proposed areas (taking into consideration all areas closed to fishing) on all commercial and recreational fisheries, fishing communities, and impacts on domestic seafood production (including port-based, fishery-specific facilities and related services). BOEM anticipates, and is planning for, future coordination with the PFMC and continued consultation with Tribal Nations on this and other recommendations.

The EA also provides more detailed descriptions and justifications for the inclusion or exclusion of specific fishing areas, and report data over multiple years to account for variability in environmental conditions and regulatory restrictions.

B-4.8 Recreation and Tourism

Approximately five commenters discussed topics related to recreation and tourism.

A commenter expressed disappointment that the Draft EA did not include estimated community economic impacts for the sport fishing charter industry, an important component of coastal tourism. The commenter also criticized the use of outdated data from 2011 and urged BOEM to use more current data from sources like Travel Oregon and the Oregon Tourism Commission to accurately reflect the modern value of the tourism industry.[179]

A commenter said that recreational ocean fishing contributes significantly to local economies and coastal community culture and recommended including seasonal fluctuations of vessel traffic in the analysis to better understand the potential impacts of offshore wind development on recreational fishing grounds.[180]

One commenter suggested that BOEM direct developers to work collaboratively to minimize conflicts between site characterization work and the ongoing operations of recreational and commercial fishermen as well as consider hiring local fishermen to assist with site characterization work. [181]

Another commenter stressed that the ports included in the analysis of recreational fisheries in the Draft EA are incomplete and do not account for primary ports such as Newport in Lincoln County. The commenter recommended providing detailed descriptions and justifications for the inclusion or exclusion of specific ports and suggested reporting data over a multi-year span to account for variability in environmental conditions and regulatory restrictions[182].

[179] Oregon Coast Visitors Association Inc.
[180] Oregon Department of Fish and Wildlife.
[181] The Nature Conservancy.
[182] Oregon Department of Fish and Wildlife.

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A commenter criticized the Draft EA for not using current and comprehensive data to assess the economic impact of tourism.[183] Another commenter stated the need for more accurate representations of recreational fisheries and the importance of engaging with recreational anglers to identify significant fishing grounds. They also noted that the Draft EA's analysis of recreational fishing is based on inadequate spatial data and does not account for the full scope of fishing activities. The commenter urged BOEM to provide a more detailed and accurate assessment of recreational fishing to better understand the potential impacts of offshore wind development[184].

Response:

The EA examines potential economic impacts on local communities, especially the sport fishing charter industry, which is a substantial component of coastal tourism.

BOEM acknowledges the importance of recreational ocean fishing to local economies and coastal community culture. The EA includes seasonal fluctuations in recreational fishing and gear type to assess potential impacts on recreational fishing grounds. BOEM used data from various sources, including NOAA's Office for Coastal Management and the Oregon Department of Fish & Wildlife, to provide a comprehensive assessment of the tourism industry's modern value.

The EA addresses concerns about the economic impact of tourism and recreational fishing. BOEM is committed to using the most current and comprehensive data available to assess these impacts accurately. Additionally, BOEM will encourage developers to work collaboratively with local communities, including recreational and commercial fishermen, to minimize conflicts.

B-4.9 Environmental Justice

Approximately three commenters discussed topics related to environmental justice.

A commenter said that while the Draft EA provides a good initial framework for analyzing environmental justice impacts, more detailed and community-specific analyses are needed as project planning progresses. This commenter also described the historical commitments made by the Biden Administration to environmental justice, specifically the goal for 40% of Federal investments to flow to disadvantaged communities. The commenter said that offshore wind projects should maximize benefits to these communities and Tribes and called for ongoing community engagement and monitoring to ensure accountability.[185]

A commenter said it was important to develop a mitigation fund and program supported by the operator to enhance cultural heritage programs associated with the coastal and marine region.[186]

One commenter recommended that BOEM analyze the benefits of community consultation related to adverse impacts and methods for continued community engagement around the oversight, monitoring, and structuring of mitigation plans, including adaptive management strategies. The

[183] Oregon Coast Visitors Association Inc.
[184] Oregon Department of Fish and Wildlife.
[185] BlueGreen Alliance.
[186] Santa Ynez Band of Chumash Indians.

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commenter stressed the need for pre-construction, construction, and post-construction monitoring, particularly in areas of known vulnerability.[187]

Another commenter expressed concern for the potential for conflict between site characterization work and the ongoing operations of recreational and commercial fishermen. The commenter suggested that developers should work collaboratively with local communities to minimize conflicts and impacts.[188]

Response:

The EA provides an initial framework for analyzing environmental justice impacts; however, more detailed, and community-specific analyses are needed as project planning progresses. The EA now includes text about the Justice40 initiative, highlighting the goal for 40% of Federal investments to flow to disadvantaged communities. BOEM emphasizes that offshore wind projects should maximize benefits to these communities and Tribes and will prioritize ongoing community engagement and monitoring for accountability.

BOEM recognizes the historical commitments made by the Biden Administration to environmental justice and is committed to reflecting these priorities in the offshore wind development process. The EA now includes information on how community benefit agreements offered by offshore wind developers can include disadvantaged communities. This could include the development of a mitigation fund and program supported by the operator for cultural heritage programs associated with the coastal and marine region.

The EA addresses the need for continued community consultation to analyze the partnership of community engagement related to adverse impacts and methods for structuring mitigation plans. To minimize conflicts between site characterization work and the ongoing operations of recreational and commercial fishermen, BOEM encourages developers to work collaboratively with local communities and proposes to incentivize this through proposed community benefit agreements. This collaborative approach aims to reduce conflicts and ensure that the interests of local stakeholders are considered throughout the project development process. The EA now includes specific references to the Justice40 initiative and acknowledges the various burdens experienced by Curry, Coos, Douglas, Lane, and Lincoln counties, as well as by individual census tracts along the coast in these counties. The assessment emphasizes the importance of prioritizing disadvantaged communities in community benefit agreements offered by offshore wind developers.

B-4.10 Tribes and Tribal Resources

Note that Tribal concerns are addressed throughout this document; this section covers comments made about Tribes.

Approximately eight commenters discussed topics related to Tribes and Tribal resources.

[187] BlueGreen Alliance.
[188] The Nature Conservancy.

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One commenter stated that the cultural resource information in the Draft EA that pertains to ground disturbances is "assumed," given that the Proposed Action has not yet gone into effect and will not take into account how actual activities would impact cultural resources. The commenter noted that BOEM has not taken sufficient mitigation efforts, while ignoring treaties between the United States government and Native American Tribes.[189]

Another commenter expressed concern over the fact that BOEM did not specifically mention their concerns in previous comment intake stages of the proposal, suggesting that such comments are necessary to consider for cumulative impact analyses in the context of Native resources.[190]

A commenter discussed the importance of the Federal government's continued obligation under an 1855 treaty with the Cayuse, Umatilla, and Walla Walla Native American Tribes. In particular, the commenter discussed the importance of the marine and coastal resources of the Pacific Northwest.[191]

Another commenter stated that various Native American Tribes have significant concerns over the impacts from offshore wind on submerged and onshore resources, particularly due to cables. The commenter added that Tribes also express concerns over the impacts of the proposal on imperiled species, which have cultural significance.[192] *Another commenter discussed Executive Order (E.O.) 13175, the* United Nations Declaration on the Rights of Indigenous Peoples*, and other provisions under NEPA. Here, the commenter wrote that the EA must address cultural resources that are important to Native American Tribes in Oregon, including recognizing the Oregon call areas as a traditional cultural landscape. The commenter also urged BOEM to consider mitigation efforts to minimize adverse impacts on such resources. The commenter wrote that under Federal law, the project's scope is too robust for BOEM to defer mitigation considerations under NEPA, particularly in the context of consequences on cultural resources. The commenter also wrote that the EA does not comply with E.O. 13007, which requires Federal agencies to accommodate Native Americans' ceremonial uses of sacred sites that could be within the scope of a proposed project.*[193]

A commenter asked BOEM to separate Elk Valley Rancheria, California from the Tolowa Dee-ni' Nation and discuss separately consistent with other Tribes.[194]

A commenter asked how impacts on submerged Tribal cultural sites will be mitigated.[195]

Response:

BOEM's engagement with West Coast Tribes is discussed in Section 3.10 of this EA and responses to Tribal concerns are also found elsewhere in this appendix. Given the concerns shared by several Tribes over potentials impacts of the Proposed Action, BOEM invited Oregon, California, and Washington State Tribes to participate as Cooperating Tribal Nations. Once the Draft EA was released, invitations for government-to-government consultations were made to more than 80 West Coast Tribes. Impacts on

[189] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[190] Makah Tribal Council, Makah Indian Tribe.
[191] Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
[192] National Wildlife Federation et al.
[193] Santa Ynez Band of Chumash Indians.
[194] Elk Valley Rancheria, California.
[195] Protect the Coast PNW.

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

Tribal cultural resources assessed in the environmental analysis include noise, sea bottom disturbance and entanglement, use conflicts, economics, and altered viewsheds.

Impacts associated with air quality are discussed in Sections 3.2 and 3.9.

Detailed geotechnical surveys and site assessments are necessary to provide comprehensive data related to cultural resources. As described at Section 2.3.2 of the EA, BOEM regulations require that the lessee provide data from surveys with its COP (30 CFR 585.626(b)). These surveys are necessary to provide comprehensive data related to cultural resources and will be reviewed by BOEM as part of the COP review.

Further, the EA includes provisions for ongoing consultation with Tribal governments. This consultation process, rooted in Section 106 of the National Historic Preservation Act (NHPA), is aimed at ensuring that treaties between the United States government and Native American Tribes are honored and that cultural resources are adequately protected.

BOEM recognizes the importance of marine and coastal resources to Tribes, and the importance of the Federal government's treaty obligations. The EA reflects this, in part, by detailing how community benefit agreements offered by offshore wind developers should include Tribes.

The EA includes discussions on E.O. 13175, the *United Nations Declaration on the Rights of Indigenous Peoples*, and other provisions under NEPA. BOEM is committed to working with potentially affected Tribes to understand potential impacts on traditional cultural landscapes and ensuring that mitigation efforts are implemented to minimize adverse impacts on cultural resources. The EA ensures compliance with E.O. 13007, which requires Federal agencies to accommodate Native Americans' ceremonial uses of sacred sites within the project scope. The ongoing NHPA Section 106 consultation process will provide a framework for protection of cultural resources.

BOEM has made changes to the EA to reflect the feedback regarding the separation of specific Tribes, such as Elk Valley Rancheria, from the Tolowa Dee-ni' Nation.

B-4.11 Historic Properties

Approximately three commenters discussed topics related to historic properties.

A commenter said that the assumption that lessees will avoid historic properties if identified during surveys is insufficient and recommended requiring lessees to conduct surveys prior to geotechnical or sediment sampling and to avoid identified historic properties.[196]

Another commenter pointed out that the National Historic Preservation Act (NHPA) requires Federal agencies to consult with any Indian Tribe that attaches religious and cultural significance to historic properties that may be affected by a Federal undertaking. The commenter said that consultation should occur early in the project planning process. The commenter did not concur with any findings of no historic properties affected.[197]

[196] Confederated Tribes of Grand Ronde.
[197] Santa Ynez Band of Chumash Indians.

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A commenter discussed the need to consider the cumulative impacts of offshore wind development on cultural heritage. The commenter said that offshore wind development could have significant cultural and socioeconomic impacts, particularly for Indigenous communities, including potential conflicts over resource use, displacement, and loss of cultural heritage. They also emphasized the need to consider impacts on historical resources both onshore and offshore.[198]

A commenter said BOEM should include detailed information related to the potential impacts on historic properties in its analysis, including the effects of air and water quality impacts, construction activities, and ongoing operations on submerged historic properties. The commenter recommended that BOEM provide comprehensive consultation and mitigation plans to address these concerns.[199]

Another commenter said that historic properties of religious and cultural importance to Native American Tribes should be determined eligible for inclusion on the National Register of Historic Places. The commenter said that BOEM must consult with Tribes to ensure that Tribal interests are considered in all determinations of significance and effect.[200]

Response:

In accordance with 54 U.S.C. § 300308 and 54 U.S.C. § 302706, historic properties are defined as any pre-contact period or historic period district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This can also include properties of traditional religious and cultural importance to a Tribe that meet criteria for inclusion in the National Register of Historic Places.

As described in the EA, Section 3.11.2, site characterization activities include shallow hazards assessments, and geological, geotechnical, archaeological, and biological surveys. While HRG surveys are not capable of impacting cultural resources, geotechnical testing and sediment samples could impact cultural resources. BMPs, listed in Appendix C, are included as part of the Proposed Action to ensure HRG surveys are conducted prior to geotechnical/sediment sampling to avoid impacts on historic properties. Proposed BMPs include, but are not limited to, established archaeological survey guidelines, required avoidance of potential archaeological resources by a minimum of 50 m, and in no case may the lessee's actions impact a potential archaeological resource without BOEM's prior approval. The potential for bottom-disturbing activities to cause damage to cultural resources is very low with these BMPs in place. Similarly, impacts on onshore cultural resources are expected to be negligible and temporary in nature.

BOEM's engagement with West Coast Tribes is discussed in Section 3.10 of this EA. Given the concerns shared by several Tribes over potentials impacts within the California Current Ecosystem, BOEM invited Oregon, California, and Washington State Tribes to participate as Cooperating Tribal Nations. Once the Draft EA was released, invitations for government-to-government consultations were made to more than 80 West Coast Tribes. Impacts on Tribal cultural resources assessed in the environmental analysis include noise, sea bottom disturbance and entanglement, use conflicts, economics, and altered viewsheds. Impacts associated with air quality are discussed in Sections 3.2 and 3.9.

[198] Elk Valley Rancheria, California.
[199] BlueGreen Alliance.
[200] Santa Ynez Band of Chumash Indians.

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B-5. CONSULTATION AND COORDINATION, AND STAKEHOLDER COMMENTS

B-5.1 Public Involvement

Approximately seven commenters discussed topics related to public involvement.

A commenter suggested improving the community engagement process with impacted parties by learning from successful state-level engagement processes to increase accessibility, education, and meaningful consultation with impacted communities.[201] *Another commenter said that BOEM's process is highly compartmentalized, lacks transparency, and does not allow impacted stakeholders an authentic seat at the table. The commenter advocated for Oregon's approach to offshore wind development, which includes a comprehensive and inclusive planning process.*[202]

A commenter expressed disapproval of finalizing the WEAs without adequate public engagement with Oregonians, especially those living on the coast, and said that BOEM has not indicated that it is listening to Oregon's governing bodies.[203]

A commenter asked for meaningful engagement and concrete actions to protect the environment and ensure energy affordability and resilience for all residents. The commenter stressed the importance of compliance with comprehensive local plans and codes, respect for Tribal sovereignty, and genuine consultation with impacted communities.[204]

A commenter recommended that BOEM engage more effectively with Tribes in the development of a programmatic agreement (PA) and ensure that Tribes are invited as signatories.[205] *Another commenter suggested that BOEM should include detailed information related to the potential impacts on local communities in its analysis, including the effects of air and water quality impacts, construction activities, and ongoing operations. The commenter recommended providing comprehensive consultation and mitigation plans to address these concerns.*[206]

A commenter supported the issuance of leases for offshore wind by BOEM in Oregon WEAs only after a satisfactory EA is completed, considering and including plans and requirements to adequately mitigate all the concerns put forth by various stakeholders during the public comment period.[207]

Response:

BOEM's public and stakeholder engagement efforts for Oregon offshore wind energy planning began in 2020. Comments were received in response to the 2022 Call for Information and Nominations as well as the 2023 request for comments on the Draft WEAs. Further opportunities for public and stakeholder engagement included Oregon Intergovernmental Renewable Energy Task Force meetings that were open for public comment at the end of each meeting. Further information about BOEM engagement for

[201] Anonymous.
[202] Oregon Trawl Commission.
[203] Oregon Coast Alliance.
[204] Anonymous.
[205] Confederated Tribes of Grand Ronde.
[206] BlueGreen Alliance.
[207] T.S.

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Oregon offshore wind energy planning is available in the 2020 Engagement Plan and 2022 Summary Report.

Consultation meetings and written comments from federally recognized Tribes were encouraged throughout the process. Given the concerns shared by several Tribes over potential impacts within the California Current Ecosystem, BOEM invited Oregon, California, and Washington State Tribes to participate as Cooperating Tribal Nations in this EA. Once the draft was released, invitations for government-to-government consultations were made to more than 80 West Coast Tribes.

Impacts associated with the Proposed Action are limited to site characterization and site assessment activities and do not include the installation, operation, or decommissioning of an offshore wind facility. Appendix E lists BMPs assumed as a part of any future Proposed Action surveys and activities. Project-level NEPA environmental analysis and site-specific mitigation measures will be identified for each WEA prior to construction or operation of offshore wind infrastructure in these areas.

Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800) require Federal agencies to consider the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. BOEM determined that issuing commercial leases within the Oregon WEAs and granting rights-of-way and rights-of-use and easements within the region constitutes an undertaking subject to Section 106 of the NHPA (16 U.S.C. 470f) and its implementing regulations (36 CFR § 800). BOEM has a Draft PA pursuant to 36 CFR § 800.14(b) to fulfill its obligations under Section 106 of the NHPA for renewable energy activities on the OCS offshore Oregon. At the time of writing this response, the draft PA has been circulated for review with the consulting parties for the fifth time on June 27, 2024. More history is available in Section 4.2.4 of this document.

B-5.2 Consultation

Approximately four commenters discussed topics related to consultation.

A commenter stated that BOEM has not completed consultations and BOEM should acknowledge that consultation outcomes may result in different BMPs than those included in Appendix D. The commenter said that cooperating agencies should be listed in the EA and expressed support for the statement indicating that lessees must comply with consultation outcomes, which may change over time.[208]

A commenter said that while BOEM cannot approve site assessment and characterization activities in state waters or onshore areas, BOEM should include the state requirements in the EA so potential lessees are aware of them and may coordinate on Federal and state easement and special-use authorizations at an early stage of the project.[209]

Another commenter asserted that the maritime industry has been disregarded in Oregon offshore wind outreach efforts thus far and said this lack of engagement is a significant deficiency. The

[208] American Clean Power Association.
[209] Oregon Department of State Lands.

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commenter asked BOEM to formally engage with the commercial maritime industry on offshore Oregon wind activities.[210]

A commenter thanked the PFMC for their comment on the Draft EA and incorporated their comments by reference.[211]

Response:

Pursuant to Section 7(a)(2) of the ESA, BOEM requested consultation under the ESA Section 7 with NMFS on the proposed site characterization and site assessment activities in the Oregon WEAs. Appendix E lists BMPs anticipated under the Proposed Action. These BMPs were developed from oil and gas operations in the Pacific Ocean and prior consultations with the State of Oregon and Federal agencies. The NFMS consultation concluded with a Letter of Concurrence from NMFS dated July 12, 2024.

This environmental analysis assesses impacts associated with site characterization and site assessment activities. As stated in Chapter 2, BOEM's regulatory authority is limited to the OCS, and therefore BOEM cannot approve site assessment or characterization activities in state waters or onshore areas. Project-level NEPA environmental documents will be completed for the WEAs prior to construction or operation. The NEPA process would include an analysis of the potential impacts and reflect, but is not limited to, required consultations with the appropriate Federal, Tribal, state, and local entities; public involvement including public meetings and comment periods; collaboration with the BOEM Oregon Intergovernmental Renewable Energy Task Force; and preparation of an independent, comprehensive, site- and project-specific impact analysis using the best available information.

Oregon WEAs avoid the PACPARS fairways and port access routes proposed by the USCG. BOEM's Final WEA recommendations balanced key existing interests, primarily those of military mission compatibility, the PACPARS, coastal resources in Oregon, state renewable energy goals, and anticipated future uses based on the best available information. BOEM works with the USCG regarding PACPARS and will continue to address potential impacts of lease development on navigation. BOEM also seeks to engage shipping industry representatives as the wind energy authorization process moves forward through the site assessment to the construction and operations stages.

Endangered Species Act and Marine Mammal Protection Act

Approximately three commenters discussed topics related to the ESA and MMPA.

One commenter said that the finding of negligible impacts on birds is arbitrary and may violate the Administrative Procedure Act. The commenter stated that BOEM should prepare a decision document stating that the Oregon WEAs leases significantly affect the quality of the natural and human environment and prepare an EIS. The commenter indicated that five listed species under the ESA are likely to occur within the boundaries of the proposed wind energy sites and take of these species would constitute a significant impact on the human environment. The commenter asserted

[210] Pacific Merchant Shipping Association.
[211] Oregon Trawl Commission.

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that detailed scientifically valid evidence would be required to prove take is incidental to an otherwise lawful activity.[212]

A commenter stated that the Draft EA leaves open the possibility that additional measures could be imposed for site assessment and characterization work notwithstanding their negligible impact on aquatic resources. The commenter stated that inclusion of interested industry members is necessary to fulfill the rights guaranteed to applicants under the ESA and its implementing regulations.[213]

A commenter asserted that the Draft EA findings determining that the Proposed Action could affect fishes and ESA-listed species means that BOEM must engage in consultation. The commenter stated that BOEM must establish a clear plan for consultation, and if BOEM wishes to consult informally, must complete a BA as soon as possible. The commenter added that NOAA Fisheries should issue its concurrence letter prior to the final lease sale notice and subsequent auction, which should be made publicly available as soon as it is completed. [214]

Response:

This EA is a preliminary analysis used to determine whether the proposed Federal action is likely to have significant environmental impacts. The Proposed Action is lease issuance and potential site characterization and assessment activities. A lease does not, by itself, authorize any activity within the leased area.

BOEM encourages commenters to remain engaged in coming years if a COP is submitted to BOEM for renewable energy development. At the COP stage, project-level NEPA environmental analyses will be conducted for each lease area prior to construction or operation of offshore wind infrastructure in these areas, and BOEM requires lessees incorporate BMPs into their COPs to minimize any potential impacts.

Upon receiving COPs, BOEM will prepare a NEPA analysis, which will most likely take the form of an EIS, to address impacts to the environment, including ESA-protected species, from lease development. BOEM may include conditions in its COP approval to try to address these and other impacts. BOEM intends to support the expeditious and orderly development of OCS resources by mitigating direct impacts, specifically to species protected by the ESA.

BOEM consulted with NMFS under the ESA Section 7 on potential impacts to listed species. That consultation concluded with a Letter of Concurrence from NMFS to BOEM, dated July 12, 2024, and this information was updated in the EA.

Essential Fish Habitat Consultation

Approximately one commenter discussed topics related to EFH consultation.

One commenter requested the last sentence in Section 4.2.2 be revised to read "Consultation: BOEM will combine the consultation for fishes and invertebrates listed under the ESA with the EFH

[212] L. Maitreya.
[213] South Coast Energy Ventures, LLC.
[214] National Wildlife Federation, et al.

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consultation and will communicate with the NMFS West Coast Region regarding ESA- listed species."[215]

Response:

BOEM updated the EA with current information regarding simultaneous consultation with NMFS West Coast Region on EFH and ESA-protected species. The ESA and EFH consultation concluded with a Letter of Concurrence from NMFS to BOEM, dated July 12, 2024.

Coastal Zone Management Act

No comments were received on this issue.

National Historic Preservation Act

Approximately four commenters discussed topics related to the NHPA.

A commenter urged BOEM not to take shortcuts in the NEPA and NHPA 106 processes and ensure the generalizations are supported with evidence, saying that. the NHPA requires Federal agencies to consult with any Indian Tribe that attaches religious and cultural significance to historic properties that may be affected by a Federal undertaking. The commenter stated that it did not concur with the finding of no historic properties affected. The commenter also requested that BOEM treat provided cultural resources information as confidential, as applicable, pursuant to Section 304 of NHPA.[216]

A commenter asserted that the assumption indicating lessees would conduct HRG surveys prior to conducting geotechnical/sediment mapping and would avoid potential historic property would not sufficiently ensure avoidance. The commenter recommended rewording the text to read: "Therefore, BOEM requires lessees to conduct HRG surveys prior to conducting geotechnical/sediment sampling, and, when a potential historic property is identified, the lessee will avoid it." Additionally, the commenter asserts the Tribe should be invited to be an invited signatory to the PA, recognizing the responsibility of the Tribe to the protection of historic properties in its ancestral homelands and usual and accustomed areas.[217]

One commenter stated that finalization of the PA must occur prior to any ground disturbance.[218]

Response:

Impacts associated with the Proposed Action are limited to site characterization and site assessment activities and do not include the installation, operation, or decommissioning of an offshore wind facility. As described in Section 3.11.2, site characterization activities include shallow hazards assessments, and geological, geotechnical, archaeological, and biological surveys. While HRG surveys are not capable of impacting cultural resources, geotechnical testing and sediment samples could impact cultural resources. Given this, BMPs have been included as part of the Proposed Action ensure HRG surveys would be conducted prior to geotechnical/sediment sampling to avoid impacts on historic properties. Proposed BMPs include but are not limited to established archaeological survey guidelines, required

[215] NOAA.
[216] Santa Ynez Band of Chumash Indians.
[217] Confederated Tribes of Grand Ronde.
[218] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.

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avoidance of potential archaeological resources by a minimum of 50 m, and in no case may the lessee's actions impact a potential archaeological resource without BOEM's prior approval. These BMPs are discussed in detail in Appendix E.

BOEM's engagement with West Coast Tribes is discussed in Section 3.10 of this EA. Given the concerns shared by several Tribes over potential impacts within the California Current Ecosystem, BOEM invited Oregon, California, and Washington State Tribes to participate as Cooperating Tribal Nations in this EA. Once the draft was released, invitations for government-to-government consultations were made to more than 80 West Coast Tribes. Impacts on Tribal cultural resources assessed in the environmental analysis include noise, sea bottom disturbance and entanglement, use conflicts, economics, and altered viewsheds. Impacts associated with air quality are discussed in Sections 3.2 and 3.9. Overall, impacts on Tribes and Tribal resources from the Proposed Action are expected to be minor and temporary.

Section 106 of the NHPA (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800) require Federal agencies to consider the effects of their undertakings on historic properties and afford the ACHP an opportunity to comment. BOEM determined that issuing commercial leases within the Oregon WEAs and granting rights-of-way and rights-of-use and easements within the region constitutes an undertaking subject to Section 106 of the NHPA (16 U.S.C. 470f) and its implementing regulations (36 CFR § 800). BOEM has a Draft PA pursuant to 36 CFR § 800.14(b) to fulfill its obligations under Section 106 of the NHPA for renewable energy activities on the OCS offshore Oregon. At the time of writing this response, the draft PA has been circulated for review with the consulting parties for the fifth time on June 27, 2024. BOEM initiated consultation on this EA through letters sent electronically on February 15, 2024, with the State Historic Preservation Officer and ACHP. A separate letter was sent to 14 Federally recognized Tribes on February 12, 2024, that provided advanced notice of the Oregon WEAs, EA, and invited them to be Cooperating Tribal Nations on the EA and as a consulting party for Section 106 of the NHPA. Additionally, pursuant to 36 CFR § 800.2(c)(3) and 36 CFR § 800.2(d), BOEM identified and invited 15 individuals representing more than a dozen organizations including Federal and state agencies, local governments, museums, historical societies, and historic preservation organizations.

Tribal Coordination and Government-To-Government Consultations with Federally Recognized Tribal Nations

> *Note that Tribal concerns are addressed throughout this document; this section covers comments made about Tribes.*

Approximately 13 commenters discussed topics related to Tribal coordination and government-to-government consultations with federally recognized Tribal Nations.

A few commenters urged BOEM to commit to engaging in meaningful government-to-government consultation with affected Tribes.[219] *A commenter said that BOEM should analyze the extent of needed Tribal consultation included in lease stipulations with all impacted Tribes.*[220] *A commenter*

[219] R. Eichstaedt; The Nature Conservancy; Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources; National Wildlife Federation, et al.; Santa Ynez Band of Chumash Indians; Elk Valley Rancheria, California.
[220] BlueGreen Alliance.

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encouraged more meaningful engagement with Tribes, local communities, and stakeholders.[221] *A commenter said that the Department of the Interior is an original signatory to the Memorandum of Understanding (MOU) Regarding Interagency Coordination and Collaboration for the Protection of Indian Sacred Sites (2012) and stated that the MOU and action plan should be applied to BOEM.*[222]

A commenter said that it has not been engaged directly by BOEM for consultation on this project.[223] *A commenter said that meetings held to date do not constitute government-to-government consultation as required by E.O. 13175.*[224] *A commenter said that BOEM should delay the sale of leases to allow BOEM and Tribes to engage in meaningful consultation.*[225]

A commenter asked that the Final EA describe the specific opportunities for Tribal review and comment, including on all plans for ground disturbance and methodologies of cultural resource surveys, as well as written responses to the commenter's comments on the Draft EA followed by a consultation prior to finalizing the EA.[226]

A commenter said that meaningful consultation must adequately consider a Tribe's specific recommendations and requests in the EA, including by addressing their comments throughout the EA and not solely in the Tribes and Tribal Resources section. The commenter said that the leasing process has moved forward without reflecting the input they repeatedly provided and expressed doubt about BOEM's ability to adaptively manage renewable energy projects in a manner that upholds the Trust responsibility to Tribal governments when the development is being fast-tracked by Federal policy targets. The commenter requested that BOEM describe how it used its authority to adaptively manage unexpected impacts, such as revoking or adding stipulations to the lease. The commenter urged BOEM to commit to a consent-based process, whereby consent from Tribal governments with treaty-protected fishing rights is a siting condition. Additionally, the commenter said that BOEM should provide long-term capacity funding to support Tribes in engaging with the extensive multi-state BOEM processes. Finally, the commenter asked BOEM to provide a table in the EA outlining the comments received from each Tribal Nation and how BOEM responded to these comments.[227]

A few commenters said that the Draft EA's statement of "minor and temporary" impacts on Tribes and Tribal resources has little justification, requires a transparent demonstration of its Tribal engagement to reach that determination, and raises concerns about the adequacy and accuracy of the impact assessment.[228]

A commenter wrote that the EA lacks a discussion and analysis of the potential effects of lease issuance and associated activities on Tribal treaty rights, resources, and the ocean habitats on which they are based. The commenter said that the Final EA and any future environmental documents for Oregon offshore wind development should incorporate elements of the Columbia River Inter-Tribal

[221] M. LaBelle.
[222] Santa Ynez Band of Chumash Indians.
[223] Confederated Tribes of Grand Ronde.
[224] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[225] National Wildlife Federation, et al.
[226] Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians.
[227] Makah Tribal Council, Makah Indian Tribe
[228] The Nature Conservancy; Makah Tribal Council, Makah Indian Tribe; National Wildlife Federation, et al.

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Fish Commission's Energy Vision and encouraged BOEM to collaborate with Tribes to develop criteria for siting ocean-based projects. The commenter also suggested that BOEM refer to their Columbia Basin Salmon Policy and the document Guidance and Responsibilities for Effective Tribal Consultation Communication and Engagement *for best practices on engaging with Tribes on ocean and coastal issues. The commenter stressed the importance of using existing frameworks and policies to guide effective and respectful consultation processes with Tribal Nations.*[229] *Another commenter said that many documents exist to assist BOEM in understanding it is imperative to engage with Tribes, including the principles of Free, Prior, and Informed Consent recognized in the United Nations Declaration on the Rights of Indigenous Peoples as well as the Biden Administration's Memorandum on Uniform Standards of Tribal Consultation (Nov. 2022).*[230]

Response:

BOEM's engagement with West Coast Tribes is discussed in Section 3.10 of this EA and responses to Tribal concerns are also found elsewhere in this appendix.

In recognition of this special relationship, BOEM extended invitations to Tribal Nations for government-to-government and Tribal Nation coordination meetings and invited those Tribes to participate as Cooperating Tribal Nations (cooperating agencies) in this EA. Given the concerns shared by several Tribes over potentials impacts of the Proposed Action, BOEM invited Oregon, California, and Washington State Tribes to participate as Cooperating Tribal Nations. Once the Draft EA was released, invitations for government-to-government consultations were made to more than 80 West Coast Tribes. As described in Section 4.3.5, BOEM has a Trust responsibility and is required to consult with federally recognized Tribes, if a BOEM action could have substantial direct effect on a federally recognized Tribe. BOEM invited government-to-government consultation and engagement with potentially affected Tribes on multiple occasions since the current planning efforts offshore Oregon began in 2019; Tribes are also invited to participate as members of the BOEM Oregon Intergovernmental Renewable Energy Task Force.

BOEM is grateful for the comments provided by Tribal Nations on the Draft EA and has incorporated many of those comments, as they apply to the current Proposed Action, into the Final EA. Potential impacts on Tribal resources that could occur as a result of site characterization and site assessment include noise, sea bottom disturbance and entanglement, use conflicts, economics, and altered viewsheds. Impacts associated with air quality and lighting are discussed in Sections 3.2 and 3.9, respectively. For those comments that are beyond the scope of the current action, those comments are important for future lessees to consider in any planning efforts for a project build out, and BOEM will continue to invite consultation and engagement with potentially affected Tribes.

B-6. OTHER COMMENTS

Comments associated with this issue are included in the subsections below.

B-6.1 Comments on the Timeline

Approximately 14 commenters provided comments on the timeline.

[229] Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.
[230] The Nature Conservancy.

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A commenter said that leasing should occur much later in the process, after an EIS has been published. [231] Another commenter said that it is inappropriate that BOEM already published a PSN for this year prior to finalizing the EA.[232] A commenter stated that conducting an EA in the site assessment phase and conducting an EIS after a COP, prior to BOEM's final decision is inappropriate.[233] A commenter expressed concern about the accelerated timeline and timeframe for the lease sale and subsequent actions.[234]

A commenter asked BOEM to redo research and resubmit the EA for the public to review the findings again. The commenter also said this is crucial for such a large-scale project.[235]

Multiple commenters stated that BOEM should delay progress toward opening leases for offshore wind energy, for at least six months, for multiple reasons, such as:

- *To allow the State of Oregon to make meaningful progress on its Roadmap for offshore wind energy*
- *To allow informed engagement and regional planning to take place*
- *To analyze fisheries impacts and impacts on seafood customers*
- *To conduct an economic impact study of the coast*
- *To allow BOEM and Tribes to engage in meaningful consultation*
- *To allow the assessment to be developed and conducted in a careful, deliberate, forward thinking manner that includes creating a roadmap that assesses the complexity of the project. [236]*

A commenter reiterated that stakeholders have called for BOEM to extend the lease auction timeline driven by the statutory window in the Inflation Reduction Act, which will close later this year unless another oil lease auction occurs, or to cancel the process and start over.[237]

Response:

BOEM's process spans four phases across several years and includes two environmental reviews under NEPA. The first environmental review is conducted prior to lease issuance and analyzes the potential effects from site assessment and site characterization activities; lease issuance alone does not allow construction of any offshore wind turbines. The second environmental review is completed after a lessee submits a COP, which may occur up to five years after lease issuance and analyzes potential effects from all proposed activities and planned facilities that a lessee intends to construct and use for a project under a commercial lease. No construction may begin within a lease area until after these reviews are completed and avoidance or mitigation has been identified. Input on how to avoid or minimize impacts on these resources that could be included in BOEM decisions and approvals is welcomed and encouraged.

[231] Oregon Coast Alliance.
[232] Pacific Merchant Shipping Association.
[233] West Coast Pelagic Conservation Group
[234] National Wildlife Federation, et al.
[235] Karie Silva
[236] Lincoln County Board of Commissioners; R. Eichstaedt, Oregon Coast Visitors Association, Inc.; Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians; T.S.; Oregon Trawl Commission.
[237] P. Benecki.

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BOEM uses the best available science, knowledge, and meaningful engagement with Tribal Nations, state and Federal agencies, and stakeholder communities to identify potential lease areas that appear to be the most suitable for energy development while presenting the least environmental or other user conflict. Meaningful engagement is reflected in the steps taken, which are described in the Area ID Memo.

Prior to any lease sale, BOEM performs an environmental review and appropriate consultations regarding pre-construction activities expected to occur on the WEAs, typically in the form of an EA. This review considers the potential impacts from site characterization and site assessment activities. BOEM publicly announces the start of this environmental review and solicits public input.

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, including cumulative effects. Additional opportunities for public involvement will be available during this project-specific COP analysis. BOEM will use this information to evaluate the potential environmental impacts and related socioeconomic considerations, including those related to marine ecosystems and fisheries, associated with the proposed project, which would inform its decision to approve, approve with modification, or disapprove a lessee's COP pursuant to 30 CFR § 585.628.

There are no regulations mandating the timing of the publication of a PSN in relation to an EA; these timelines run on separate tracks. Under the OCS Lands Act, BOEM must publish a Final Sale Notice at least 30 days prior to the prospective auction. More information about the wind energy commercial leasing process can be found on the BOEM website.

B-6.2 Comments on the Public Comment Process/Engagement

Approximately 10 commenters addressed the public comment and engagement processes.

A couple of commenters stated that they did not believe their concerns were meaningfully addressed in the public engagement process and requested BOEM conduct robust engagement with the public and coastal communities.[238]

A commenter stated that the project has been fast and expressed concern about the lack of process, and lack of industry and stakeholder outreach and engagement.[239] *A commenter urged BOEM to listen to industry comments.*[240] *A commenter requested that BOEM engage with the commercial maritime industry by establishing a working group to address maritime navigation issues.*[241]

A commenter stated that BOEM has posted numerous public comments without sufficiently addressing the requests received. The commenter expressed that this creates confusion and makes engagement impossible.[242]

[238] Lincoln County Board of Commissioners; National Wildlife Federation, et al.
[239] West Coast Pelagic Conservation Group.
[240] Midwater Trawlers Cooperative.
[241] CRSOA/PNWA.
[242] RODA.

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

Response:

BOEM solicits public comments from a host of interested and affected entities including Tribes, fishing communities, mariners, coastal communities, and other stakeholders. On May 1, 2024, BOEM published the *Notice of Availability of the Draft Environmental Assessment for Commercial Wind Lease Issuance on the Pacific Outer Continental Shelf, Oregon* along with a 30-day comment period to solicit public input. In response to stakeholder request, the comment period is extended two weeks through June 14, 2024.

BOEM hosted two virtual meetings for the public to learn more about the EA, ask questions about the NEPA process, and provide oral testimony. Meeting information, recordings, slides, and attendance are available on the BOEM Renewable Energy Webpage.

After the conclusion of the comment period, BOEM assessed and considered the comments received. Comments were incorporated into the EA to the extent BOEM determined was appropriate. Many comments received are regarding the potential for future offshore wind development, which is outside the scope of the EA.

B-6.3 Request to Extend the Public Comment Period

Approximately 11 commenters discussed the public comment period.

Multiple commenters requested that BOEM extend the public comment period by at least 15 to 30 days to allow for more public review to ensure that impacts are adequately disclosed and assessed.[243]

A commenter requested more time to gather and assess available information to develop their comments.[244]

Response:

On May 1, 2024, BOEM published the *Notice of Availability of the Draft Environmental Assessment for Commercial Wind Lease Issuance on the Pacific Outer Continental Shelf, Oregon* along with a 30-day comment period to solicit public input. In response to stakeholder requests, the comment period was extended two weeks, through June 14, 2024.

BOEM hosted two virtual public meetings during the comment period for the public to learn more about the EA, ask questions about the NEPA process, and provide oral testimony. Meeting information, recordings, slides, and attendance are available on the BOEM Renewable Energy Webpage.

B-7. GENERAL COMMENTS

Comments associated with this issue are included in the subsections below.

[243] Midwater Trawlers Cooperative; Oregon Trawl Commission; Washington Dungeness Crab Fisherman's Association; R. Eichstaedt; K. Silva; Coquille Indian Tribe; Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians.
[244] Confederated Tribes of Coos, Lower Umpqua and Siuslaw Indians.

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B-7.1 General Support (without Substantive Content)

Approximately 13 commenters expressed general support of the EA.

Commenters representing form letter campaigns expressed excitement about the potential for offshore wind energy projects in the state and said that offshore wind energy projects can create jobs, benefiting the economy and helping build a better, diverse, and more sustainable future.[245]

Response:

BOEM appreciates the public's participation during this process and that individual stakeholders took time to express their opinions regarding the Proposed Action and potential future offshore wind development on the Oregon OCS. The majority of comments were informed and either improved the final document or BOEM's planning for improving future engagement.

Approximately 12 commenters expressed opposition to the EA.

A commenter said that deployment of floating offshore wind should not move forward with disregard for the effect on the environment, fishing and tourism industries, and the traditional use of the sea and estuaries by Indigenous communities.[246]

A commenter stated that offshore wind has significant environmental impact from the cables and chains that scrape along the seafloor and go through whale and fish habitat.[247]

A commenter said that the EA contains inaccuracies, and that accurate data would mean fewer adjustments to the Final EA before the public comment period and the auction of the WEAs. The commenter urged BOEM to examine and correct the EA and resubmit for a second review.[248] *Another commenter said that people have not expressed any wishes to see offshore wind move forward without proper environmental examination and addressing data gaps.*[249]

A commenter stated that BOEM has not consulted with the Department of Energy (DOE) on this project, and that the project should be withdrawn until DOE can review. The commenter also said that if offshore wind is implemented without due diligence, then it would forever damage the Oregon Coast.[250]

Response:

BOEM collaborated with the Tribes; Federal, state, and local governments; NGOs; fishery and maritime industries; offshore wind developers; and the public to select the Final WEAs and create the Draft EA and PSN. BOEM acknowledges the comments expressing opposition to offshore wind development in the State of Oregon.

[245] WS Carpenters [Form Letter Master]; R. Hyke [Form Letter Master]; J. Myers [Form Letter Master].
[246] Lincoln County Board of Commissioners.
[247] M. Berth.
[248] K. Silva.
[249] West Coast Pelagic Conservation Group.
[250] Anonymous.

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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, including cumulative effects. Please refer to Section 4 for additional discussion about consultations. Although BOEM does not formally consult with DOE for review of offshore wind projects, BOEM and DOE (directly and indirectly through the Pacific Northwest National Laboratory, National Renewable Energy Laboratory, etc.) work together on research and development, share data and technical information related to offshore energy development and participate in interagency working groups.

B-7.2 Mixed/Other General Topics

Approximately nine commenters discussed mixed or general topics regarding the EA.

A commenter stated that navigation and vessel traffic must be a priority when planning WEAs, including during site characterization and site assessment activities.[251]

A commenter requested BOEM rewrite the EA and resubmit it for public review.[252]

Response:

BOEM acknowledges the importance of evaluating navigation and vessel traffic in all phases of offshore wind development. Please refer to Appendix D for an additional discussion on marine transportation.

B-8. OUT-OF-SCOPE COMMENTS

Approximately 22 commenters discussed matters beyond the scope of the Draft EA, primarily regarding impacts associated with development of an offshore wind project.

A commenter described the problem of necessary grid upgrades in the south coast area to handle more than 1 GW of energy. The commenter said that building new powerline infrastructure through the rugged, largely uninhabited southern Oregon Coast would be massively expensive and time-consuming, as well as environmentally damaging.[253]

A commenter asserted that strengthening the Nation's supply chains by utilizing as much domestic manufacturing as possible can result in environmental benefits.[254]

A commenter discussed how long it takes for the pollution and energy costs incurred during these stages to be offset by the energy generated by the turbines, raising doubts about the net environmental benefits of wind energy projects. The commenter also expressed concerns about the lifespan of wind turbines, saying that high maintenance costs are often incurred after just 10 years of operation. Additionally, the commenter raised questions about the reasons behind the cancellation of wind projects on the East Coast, specifically citing whale deaths and economic factors.[255]

[251] World Shipping Council.
[252] K. Silva.
[253] Oregon Coast Alliance.
[254] BlueGreen Alliance.
[255] R. Willing.

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One commenter expressed disappointment that the Draft EA did not adequately address the risk of oil spills from wind turbines and substations, saying that each turbine could contain up to 300 gallons of petroleum products and recommending that the EA thoroughly assess the risks associated with the construction, operation, and transportation of these oils to prevent potential environmental disasters. The commenter said this issue underscores the necessity for comprehensive risk management plans, stringent safety protocols, and robust emergency response strategies to mitigate the environmental risks associated with offshore wind energy infrastructure. The commenter also criticized the Draft EA for not adequately covering the logistics of transmitting power from offshore wind farms to the main grid.[256]

Another commenter inquired as to how to much anchor cabling and chaining would be needed for this project. The commenter also inquired as to whether lands would be seized under eminent domain for the project, particularly for associated transmissions and substation purposes. The commenter also stated that BOEM has an inherent conflict of interest because it both grants permits and makes it legal to develop offshore wind energy projects.[257]

A commenter stated that BOEM lacks the ability to evaluate other forms of energy that are cost-effective, less environmentally adverse, and that minimize industrialization. The commenter added that BOEM did not adequately assess the environmental impacts resulting from potential loss of equipment from turbine construction.[258]

Another commenter suggested that meteorological and climate change risks should be considered as part of the EA. Here, the commenter wrote that modeling climate is necessary to minimize the impacts on Oregon's coast and sea territories. The commenter added such considerations are necessary for accurate projections of energy outputs that will serve Oregon residencies.[259]

A commenter expressed concern that BOEM did not sufficiently consider the costs of transmission lines, cable distributions, and the appropriateness of displacing private use of waters off Oregon's coast.[260] *Another commenter wrote that the EA lacks discussion on mitigation in OCS leasing and energy development, particularly decommissioning costs of oil structures and platforms.*[261]

A commenter said that BOEM cannot use the lack of knowledge or data for a specific configuration of a project to "skirt" environmental review of the reasonably foreseeable outcomes of floating offshore wind turbines, commenting that it is possible to model impacts based on multiple scenarios.[262]

[256] S. Winner.
[257] Protect the Coast PNW.
[258] Oregon Coast Alliance.
[259] Oregon Department of State Lands.
[260] Washington Dungeness Crab Fishermen's Association.
[261] Santa Ynez Band of Chumash Indians.
[262] Bird Alliance of Oregon, Oregon Shores Conservation Coalition, Kalmiopsis Audubon Society, Surfrider Foundation, Oceana.

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A commenter asked that BOEM require that future leases develop a high-frequency wind turbine interference plan to be reviewed by NOAA's Integrated Ocean Observing Systems Surface Currents Program to mitigate the effects of wind turbine interference.[263]

A few commenters discussed the need for more information on the impacts of offshore wind at the scale planned on the West Coast before developing further to avoid unintended and potentially catastrophic consequences, as with the installation of dams causing a dangerous reduction in salmon populations.[264]

A commenter said it was difficult to believe that offshore wind farms at the scale proposed would have only insignificant impacts on the marine environment.[265] *A couple of commenters expressed concern that offshore wind development could worsen local air quality and alter local climate patterns with the high amount of emissions involved in their construction.*[266] *A commenter expressed a desire to know more about the cumulative air quality impacts of project development – including the mining and smelting of materials for turbines, fabricating the metal pieces, cutting wood, producing lubricants for the turbines, burning fossil fuels in ships, installing the turbines, and using on-land fossil fuel powered transportation.*[267] *This commenter also questioned how BOEM plans to guarantee that these projects will result in fossil fuel emissions being reduced, and whether all of the emissions associated with the full logistics of building offshore wind are consistent with a 1.5 degree Celsius global warming limit.*[268]

A commenter said that tourism is a crucial economic driver along the Oregon Coast, particularly in the thinly populated and ecologically unspoiled south coast. The commenter wrote that the presence of wind turbines and related infrastructure could diminish this beauty, potentially reducing tourism and its associated economic benefits.[269]

A commenter expressed dismay at the continued disregard for the environment and coastal communities by extractive industries and said that offshore wind development must prioritize environmental justice and community well-being.[270]

Another commenter said that the costs of many non-Tribal economic activities have disproportionately impacted Native American Tribes and minority communities and called for equitable access to the benefits provided by offshore wind development.[271]

[263] NOAA.
[264] Midwater Trawlers Cooperative; RODA; Washington Dungeness Crab Fishermen's Association.
[265] West Coast Pelagic Conservation Group.
[266] Elk Valley Rancheria, California; Protect the Coast PNW.
[267] Protect the Coast PNW
[268] Protect the Coast PNW
[269] Oregon Coast Alliance.
[270] Anonymous.
[271] Confederated Tribes of the Umatilla Indian Reservation Department of Natural Resources.

Note: This document is intended to provide clarity to commenters and stakeholders at this stage in the process. This document is not a decision document and does not supersede any resulting decision documents related to the Environmental Assessment.

Appendix C
Resources Eliminated from Detailed Consideration and Assessment of Resources with Negligible Impacts

C Resources Eliminated from Detailed Consideration and Assessment of Resources with Negligible Impacts

C-1. Water Quality

All vessels are required to comply with the discharge requirements under Section 402 of the Clean Water Act (CWA), which serves to limit the potential for impacts on water quality. Additionally, the level of vessel traffic associated with site assessment and site characterization activities does not represent a meaningful incremental increase in overall vessel use in the area and would not result in changes to water quality. Short-term and localized resuspension of seafloor sediment into the water column resulting from core and grab sampling is transient and not expected to result in any lasting impact on water or sediment quality in either the WEAs or along any surveyed projected transmission cable route.

C-2. Bats

Impacts on bats offshore in the Pacific are analyzed in detail within the Commercial Wind Lease and Grant Issuance and Site Assessment Activities on the Pacific Outer Continental Shelf Humboldt Wind Energy Area, California, Final EA (BOEM 2022a) and the Commercial Wind Lease and Grant Issuance and Site Assessment Activities on the Pacific Continental Shelf Morro Bay Wind Energy Area, California, Final EA (BOEM 2022b). Bats are expected to be rare in the Oregon WEAs, and if present during project activities could exhibit either avoidance or attraction responses to vessels and buoys due to noise, lighting, and the possible presence of insects. Bats have been recorded as using offshore ships as opportunistic stopover sites (Pelletier et al. 2013); thus, although it is undocumented, it is possible that vessels could unintentionally transport bats into the offshore environment.

The bat species most likely to occur offshore over Federal waters are the hoary bat (*Lasiurus cinereus*) and western red bat (*Lasiurus blossevillii*) (H.T. Harvey & Associates 2020). Hoary bats are known to migrate south in autumn offshore and along the coast of central California, and western red bats are also known to migrate offshore of central California (Cryan and Brown 2007); it is assumed that these species likely migrate off the coast of southern Oregon.

The Mexican free-tailed bat (*Tadarida brasiliensis*) has been recorded offshore the California coast and could occur off southern Oregon, which is the northern limit of its geographic range. Some species of bats hunt for insects in offshore areas where they normally migrate across open ocean areas, such as the Baltic Sea, and have been found to forage for flying insects around, and rest on, offshore wind turbines (Ahlén et al. 2007).

No other species of bats are expected to occur in the marine portion of the Proposed Action area based on the lack of museum records and literature. However, recent and ongoing BOEM-supported acoustic surveys along the California coast have detected 15 species of bats along the coast and around offshore rocks, so it is possible that other species could occur over Federal waters.

Not all bat species are equally affected by either light or noise, or by the same types of light and noise, and data show some species of bat continuing to forage in both lighted and noisy suburban habitats, while foraging efficiency of other species has been adversely affected (Arnett et al. 2013; Bunkley and Barber 2015; Bunkley et al. 2015; Rydell 1991; Threlfall et al. 2012). No studies specifically address the effect of audible acoustic noise on the bat species expected to be found most often in the offshore environment—western red bat and hoary bat—so it is unknown if these species could be repelled or

unaffected by noise. However, bats do not depend on food or resting opportunities in the WEAs, and because site assessment activities will be largely during daylight hours and of short duration.

There is evidence to suggest that two species of migratory tree bats, none of which are state or federally listed, could migrate through the WEAs in very low abundance, and mostly during the late summer and early fall. Myotis species could potentially occur in the WEA, although occurrence is anticipated to be rare. During periods of high vessel activity, particularly nocturnal activities, there is a small chance that bats might avoid any areas associated with the Proposed Action. The meteorological buoy could serve as a roosting structure for bats and birds. The presence of a predatory bird at the tower or buoys could increase the possibility of predation if bird presence coincides with bat migration or foraging before darkness. The likelihood of collision between bats and boats or the buoy is low. Instances of bat collisions with towers are reported infrequently at terrestrial sites, and distribution and scarcity of bats in the offshore environment further reduce the potential for a collision with a comparatively small and isolated buoy offshore. The BMPs for birds listed in Appendix E, including lighting restrictions and installation of anti-perching devices, may also reduce potential impacts on bats.

Few bats are expected to migrate or forage in the WEAs, and activity, if any, is most likely to occur for a short period during migration in the late summer or early fall. There may be temporary impacts on bats from onshore operational noise and human activity during construction and decommissioning or during survey operations of the offshore export cable route in coastal areas; these operations, however, will not be out of character for the areas existing vessel traffic and operations. Due to the scarcity of bats offshore in the WEAs, the limited amount of added vessel traffic, and based on up to five meteorological buoys per lease, collisions between bats and boats/meteorological buoys are unlikely.

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Appendix D

Current and Reasonably Foreseeable Planned Actions

D Current and Reasonably Foreseeable Planned Actions

D-1. Introduction

This appendix discusses ongoing and reasonably foreseeable planned actions that could occur in the vicinity of the Proposed Action and whether these actions could impact the same resources potentially impacted by the Proposed Action. The Proposed Action is the issuance of: (1) one commercial wind energy lease and associated easements within the Coos Bay WEA and one lease within Brookings WEA; and (2) to grant rights-of-way (ROW)s and rights-of-use and easement (RUEs) in support of wind energy development. The Coos Bay WEA is 61,203 acres with a maximum depth of 1,414 meters and minimum depth of 635 meters. The Brookings WEA is 133,792 acres with a maximum depth of 1,531 meters and a minimum depth of 567 meters. Planned actions could include those occurring in areas between the WEAs and onshore for cable corridors and substation facilities. Those areas on the OCS would later be granted to a lease holder as ROWs and/or RUEs in support of wind energy development.

BOEM considered ongoing and reasonably foreseeable planned actions that would occur offshore Oregon, as well as activities that would take place in state waters (Figure D-1). However, the geographic boundaries for activities that could interact with marine mammals, sea turtles, fishes, fishing, and birds is beyond this area due to the extensive migration patterns of many species. This appendix addresses ongoing and planned actions that overlap with this regional area and could occur between the start of Proposed Action activities in 2024 and the completion of decommissioning of meteorological buoys in 2029, contingent on the timing of lease issuance.

Critical offshore infrastructure in the vicinity of the Oregon WEAs is shown in Figure D-1. Built structures include one existing submarine telecommunication cable in the Coos Bay WEA. Several existing telecommunication cables exist outside of the WEAs and power cables are permitted offshore Newport to the north of the WEAs (not shown).

D-2. Current and Reasonably Foreseeable Planned Actions

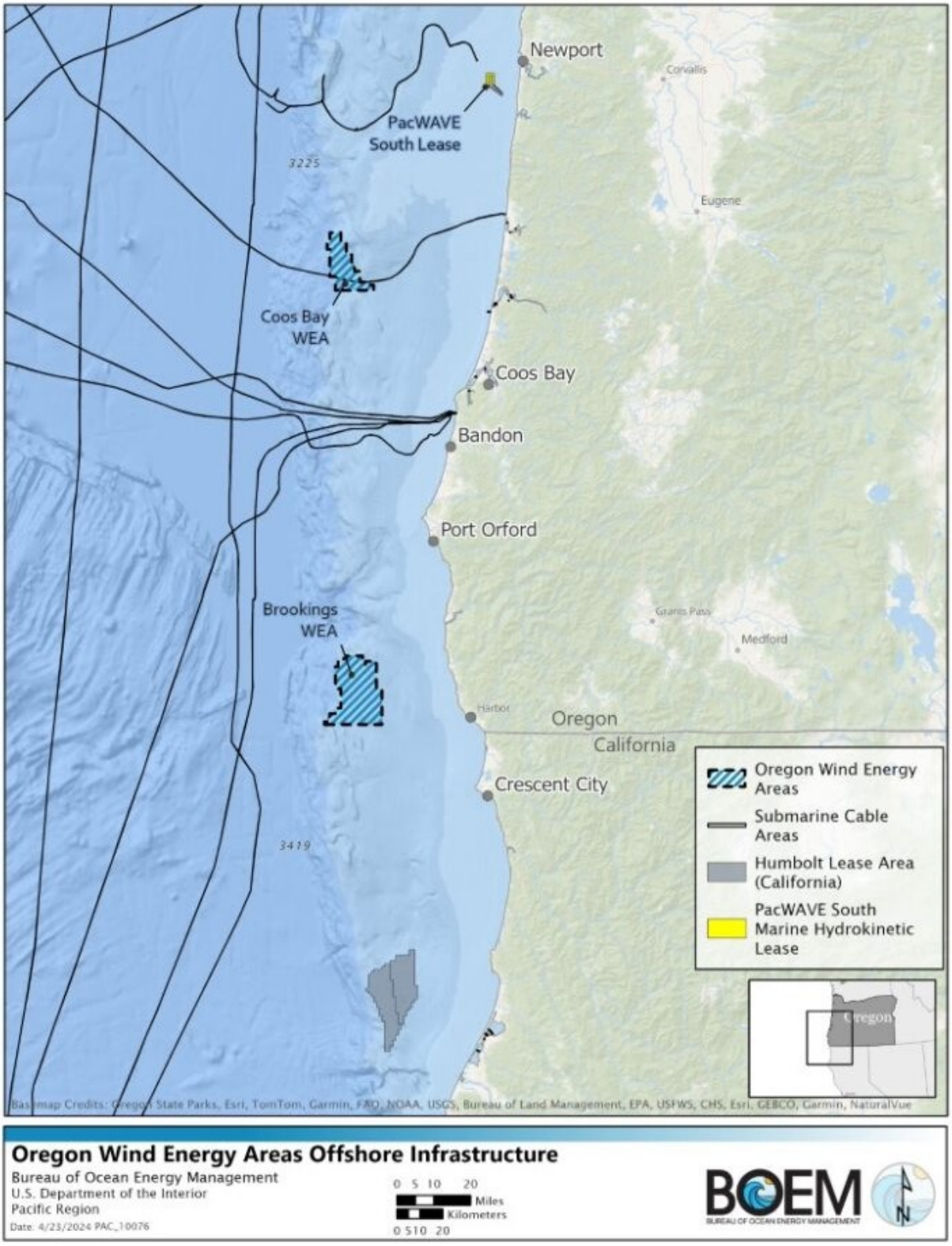
Ongoing and reasonably foreseeable planned actions include: (1) other renewable energy development activities; (2) military use; (3) marine transportation; (4) commercial fishing management; (5) ocean surveys for species management; (6) other scientific activities; and (7) undersea telecommunications cables on the seafloor. There are many other ocean uses and people using the ocean, those topics such as recreational fishing and Tribal interests are described in Chapter 3 of the environmental assessment.

D-2.1 Other Renewable Energy Development Activities

PacWave South is a research lease permitted by BOEM and the Federal Energy Regulatory Commission to host marine hydrokinetic devices offshore the Town of Newport. Up to 20 wave-converter devices could potentially be moored and connected to shore through power cables. Multiple power cables are planned for installation in 2025, which is 56 miles northeast of the Coos Bay WEA.

BOEM is managing Federal oversight authority on five existing wind energy leases in California; two leases are in northern California off Humboldt County, which is 62 miles south of the Brookings WEA. Current activities include site characterization surveys and site assessment activities similar to the Proposed Action. These leases in California are not authorized to construct wind turbines.

Figure D-1: Map of Reasonably Foreseeable Infrastructure (Existing) and Renewable Energy Projects (Permitted) in Relation to the Oregon Wind Energy Area



D-2.2 Military Use

BOEM's Final WEA recommendations are a result of balancing key existing use. A prominent interest is military mission compatibility. The Department of Defense (DoD) uses the air and sea space offshore the Oregon coast to ensure national security and defense. DoD activities offshore the United States typically include land, air, and sea-based uses. The DoD, in a letter to BOEM dated May 17, 2022, provided the results of the DoD Clearinghouse's review of areas offshore Oregon stating that activities would be compatible with offshore wind activities (**Appendix F**). This review identified an area to the south of the Coos Bay WEA that is incompatible with wind energy development because of existing classified infrastructure and national security features. BOEM excluded this area from further consideration and the WEAs in this Proposed Action avoid the area identified by DoD.

While not anticipated, military training and testing activities could be displaced during the execution of site assessment and characterization activities. Modifications to these activities could be necessary to allow for training and readiness requirements. BOEM and lessees will continue coordination with DoD during this period to deconflict activities when practicable.

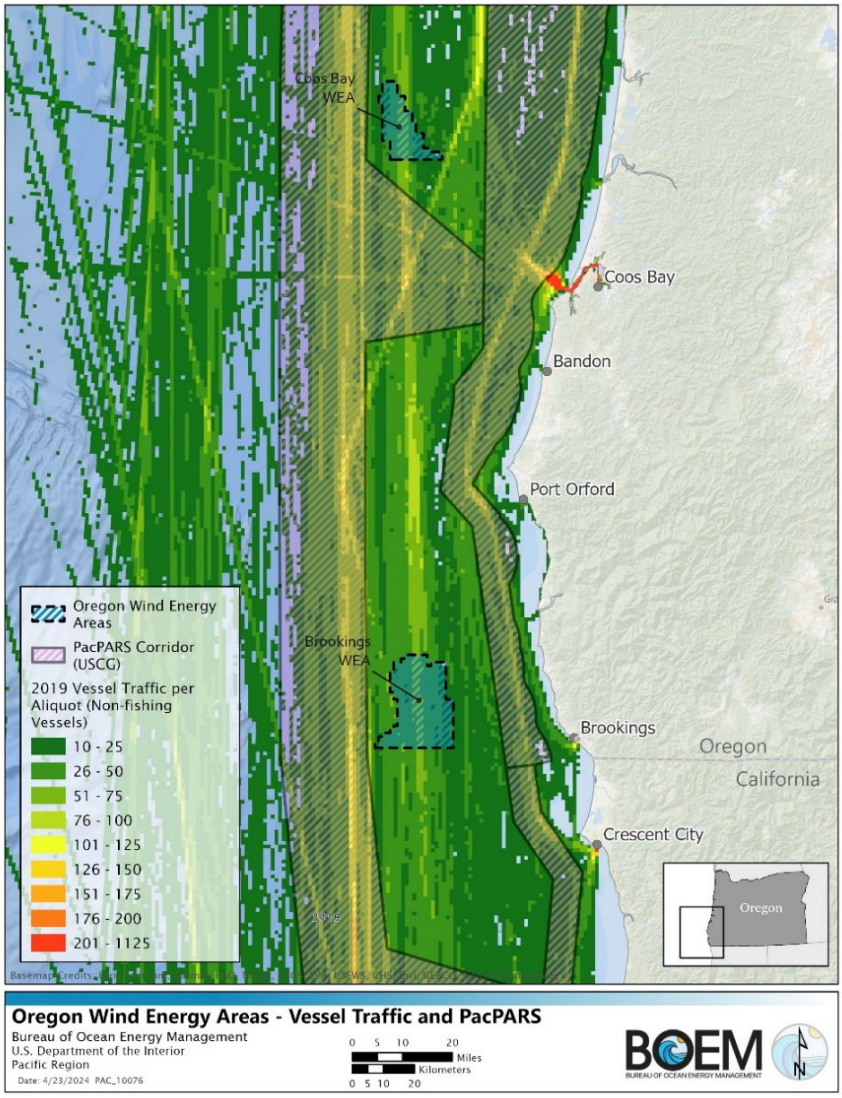
D-2.3 Marine Transportation

For the 5-year timeframe assessed in the Oregon EA, BOEM assumes that shipping and marine transportation activities would increase above the density of use shown in Figure D-2. Automatic Identification System (AIS) is an automated and autonomous tracking system, which is used globally and can track different classes of marine vessels. Vessel traffic from 2019 for Cargo Vessels, Tugs and Tow Vessels, and Tankers is tracked through AIS (Figure D-2) and shows a range of 10 to 100 vessels a year transiting the WEAs. Density of vessel traffic increases offshore and in ports.

BOEM reviewed 2017, 2019, and 2020 AIS vessel information retrieved from Marine Cadastre to determine vessel traffic patterns and identify how they may conflict with offshore wind planning in Oregon (2020 AIS Vessel Traffic by Type, 2019 AIS Vessel Traffic by Type, and 2017 AIS Vessel Traffic by Type). Most commercial vessels that traversed the Oregon WEAs with AIS transmitters are cargo vessels. Vessel traffic patterns moved farther away from shore between 2017 and 2020. More vessels traversed the areas in and around the Coos Bay and Brookings WEAs in 2019 than in 2017 or 2020.

The U.S. Coast Guard conducted a Pacific Coast Port Access Route Study (PACPARS) to evaluate safe access routes for the movement of vessel traffic proceeding to or from ports or places along the western seaboard of the United States and to determine whether a Shipping Safety Fairway and/or routing measures should be established, adjusted, or modified (USCG 2023). The PACPARS evaluated shipping along the coasts of California, Oregon, and Washington. The final report was published in the *Federal Register* on June 5, 2023 (88 FR 36607), with recommended voluntary fairways. Data gathered during this PACPARS could result in the establishment of one or more new vessel routing measures, modification of existing routing measures, or dis-establishment of existing routing measures off the Pacific Coast between Washington and California and overlaps with the project area. This process will take several years. The proposed fairways do not overlap with the Coos Bay or Brookings WEAs.

Figure D-2: Potential Future Routes Proposed by the US Coast Guard (USCG) and Vessel Traffic from 2019 and for Cargo Vessels, Tugs and Tow Vessels, and Tankers Relative to the Oregon Wind Energy Areas



D-2.4 Commercial Fisheries Management

The Pacific Fishery Management Council (PFMC) is responsible for making recommendations for Federal fisheries management measures to the National Oceanic and Atmospheric Administration (NOAA) Fisheries for implementation. NOAA Fisheries also creates and implements some fisheries management measures as part of U.S. obligations under various international fishery agreements. Along the U.S. West Coast, PFMC manages 119 species and four Federal fishery management plans (FMPs): (1) Pacific Salmon, (2) Pacific Groundfish, (3) coastal Pelagic Species (e.g., sardines, anchovies, and mackerel), and (4) Highly Migratory Species (e.g., tunas, sharks, and swordfish) (PFMC 2022a; 2022b; 2023a; 2023b). PFMC works with the International Pacific Halibut Commission to manage Pacific halibut fisheries. PFMC's Fishery Ecosystem Plan helps incorporate ecosystem issues into PFMC's fishery management plans. The fishery management plans of PFMC were established, in part, to manage fisheries to avoid overfishing, which is accomplished through an array of management measures, including annual catch

quotas, minimum size limits, and closed areas. PFMC is required to achieve optimum yield for public trust marine resources and safeguarding these resources, their habitats, and the fishing communities that rely on their harvest. Areas designated to restrict fishing type and/or locations are reviewed periodically.

D-2.5 National Oceanic and Atmospheric Administration Ocean Surveys

NOAA National Marine Fisheries Service (NFMS) conducts ocean surveys to assess threatened and endangered species, fished stock assessments, and habitats in the California Current Large Marine Ecosystem. Other Federal and state agencies, academic institutions, and research organizations rely on data from these surveys to assess the current state of the ecosystem, inform sustainable management of fisheries stocks, develop management actions to conserve protected species, and understand and predict the impacts of climate change on living marine resources. In any one year, NOAA conducts up to 14 Mission-Critical Scientific Surveys in the BOEM Oregon WEAs. NOAA disclosed details of surveys related to Oregon offshore wind planning in prior letters. NFMS surveys were an input into the spatial siting analysis when possible; NFMS ranked the priority of these surveys in relation to the Oregon Draft WEAs (Carlton et al. 2024, Appendix E).

Some of NOAA NFMS' surveys focus on stock assessments of commercially fished species and to monitor the condition of nearly 500 fish stocks. Stock assessments of fish in the West Coast region involve both the Northwest and Southwest Fisheries Science Centers within NMFS from at-sea data collection surveys every year. Fishery managers, primarily through the PFMC, use the results of stock assessments to evaluate the status of fish stocks and set the amounts of fish that commercial and recreational fisheries can sustainably harvest from a stock in one year.

Data results from these surveys are used in Section 3.4, Marine Mammals and Sea Turtles, and Section 3.7, Commercial Fishing. BOEM anticipates continued coordination and cooperation with NOAA to reduce or avoid conflict between site assessment and site characterization activities and scientific surveys.

D-2.6 Scientific Activities

The Regional Cabled Array (RCA) provides a constant stream of real-time data from the seafloor and through the water column across the Juan de Fuca plate. A network of 900 kilometers of electro-optical cables supplies unprecedented power (10 kilovolts, 8 kilowatt), bandwidth (10 Gigabit Ethernet), and two-way communication to scientific sensors on the seafloor and throughout the water column. More than 140 instruments are connected to the RCA. Data are sent through a variety of telecommunications sub-sea cables, which are made from fiber-optics and copper. The cables provide a communication system between RCA's seven nodes and the shore station in Pacific City, Oregon. The closest node is PN1C (Oregon Offshore), offshore Newport, Oregon.

Buoys are currently deployed near the Proposed Action area with historical datasets and current conditions available at NOAA's National Data Buoy Center. There are many buoys and stations near the Oregon WEA, including in Newport, South Beach, Stonewall Bank, Valino Island, and west of Coos Bay.

High-resolution geophysical surveys are done periodically offshore Oregon by research institutions and Federal agencies such as the U.S. Geological Survey. The Expanding Pacific Research and Exploration of Submerged Systems is a partnership that collaborates and publishes many of the larger seafloor surveys done since 2017 in the area. Results from these surveys partially informed the draft WEA and Section

3.1, Geology, in the environmental assessment, in particular. HRG surveys in state waters typically need a state permit.

D-2.7 Undersea Telecommunication Cables

Submarine cables include fiber-optic cables and trans-Pacific cables primarily for telecommunications. One cable exists across the southern end of the Coos Bay WEA.

References

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Appendix E
Best Management Practices for Operations on the Pacific Outer Continental Shelf

E Best Management Practices for Operations on the Pacific OCS

E-1. Introduction

Best Management Practices (BMPs) are schedules of activities, practices, and procedures implemented to prevent or reduce impacts on resources. For the Proposed Action, BMPs are associated with site characterization and site assessment activities and surveys that are reasonably foreseeable to occur as a result of leasing commercial wind areas offshore Oregon. This appendix lists the typical BMPs developed by the Bureau of Ocean Energy Management (BOEM) from oil and gas operations in the Pacific Ocean, relevant Atlantic Ocean operations, and prior consultations with State of Oregon and Federal agencies. The Proposed Action includes these BMPs and is part of the EA analysis; however, the potential Finding of No Significant Impact (FONSI) is not predicated on their implementation.

In line with BOEM's regulatory authorities, the following BMPs apply in Federal waters of the Outer Continental Shelf (OCS). The appropriate state agency has alternative and/or additional permitting conditions that may apply to conducting surveys and sampling in state waters. Many of the listed BMPs below minimize or eliminate potential impacts pertaining to the Endangered Species Act (ESA) and essential fish habitats. BMPs listed in this appendix were used in the analysis of impacts for the relevant EA sections. The wording of these BMPs may be modified, and/or additional measures may be required, in final lease stipulations or documents at the conclusion of BOEM's consultations with agencies and Tribal governments.

E-2. Definitions

a. Clearance Zone: The area around the sound source or area of impact that must be cleared of protected species, cultural, or sensitive resources before the activity begins.
b. ESA-Listed Species: Any threatened or endangered species (i.e., marine mammal, sea turtle, bird, fish, invertebrate, or coral species) listed by the National Marine Fisheries Service or U.S. Fish and Wildlife Service under the ESA of 1973, as amended.
c. Geophysical Survey: The deployment of devices including any boomers, sparkers, bubble guns, or chirp sub-bottom profilers that produce sound to record geophysical data.
d. Geotechnical Survey: Collectively refers to any physical testing or sampling of the surface or sub-surface of the seafloor.
e. Hard Substrate: Continuous, consolidated sediments on the seafloor. Also known as hard substrate, hard grounds, banks, rock outcroppings, seamounts, or rocky reefs. Hard substrates have higher probabilities of composing a sensitive seafloor biological resources or habitats.
f. Large Whale: An unidentified whale, usually referring to sperm whales and baleen whales. Baleen whales species groups in the Pacific Ocean include right whales, fin whales, sei whales, blue whales, humpback whales, and minke whales.
g. Sensitive Biological Resources or Habitats: Essential fish habitat, refuges, preserves, special management areas identified in coastal management programs, sanctuaries, rookeries, hard bottom habitat, chemosynthetic communities, calving grounds, barrier islands, beaches, dunes, and wetlands (30 CFR 585.627 (a)(5)).
h. Sensitive Seafloor Habitats: Features including chemosynthetic communities, topographic banks, pinnacles, live bottoms, or any other hard bottom benthic feature(s). These features are considered sensitive because they correlate with the presence of slow-growing species or higher

densities of species. Examples include higher densities of targeted fish species and cold-water coral and sponge reefs.

i. Marine Debris: Any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper, or any other man-made item or material that is lost or discarded in the marine environment.

j. Protected Species: All threatened and endangered marine and avian species listed under the ESA, all marine mammals protected under the Marine Mammal Protection Act, and all birds protected under the Migratory Bird Treaty Act.

k. Protected Species Observer (PSO): A person who has met the requirements to be approved as a specialist to observe protected species during specified operations.

l. Small Cetacean: Any species of dolphin in the family Delphinidae and harbor porpoises in the family Phocoenidae.

m. Small Delphinid: Any species of dolphin of the following genera: Delphinus, Lagenorhynchus, Stenella, and Tursiops.

n. Shutdown Zone: The area to be monitored for shutting down or stopping an activity. If a protected species is detected within or entering this zone, the lead Protected Species Observer (PSO) would call for an activity shutdown.

o. Ramp-up: The process of incrementally increasing the acoustic source level of the survey equipment when conducting geophysical surveys until it reaches the operational setting.

E-3. Best Management **Practices to Minimize Potential Adverse Impacts on Water Quality**

Under the Clean Water Act (CWA), it is unlawful for any person to discharge any pollutant from a point-source into navigable waters without a permit under its provisions. The Environmental Protection Agency (EPA) regulates discharges incidental to the normal operation of all non-recreational, non-military vessels greater than 24 m (79 ft) in length into U.S. waters, under Section 402 of the CWA (EPA 2013 Vessel General Permit [VGP]). Small vessels must follow ballast water discharge requirements established in the EPA 2013 VGP and the United States Coast Guard (USCG) ballast water regulations at 33 Code of Federal Regulations (CFR) 151.10. Adherence to applicable permits and regulatory requirements for vessel discharges by local authorities, State of Oregon, USCG, and EPA. See also Marine Debris BMPs below.

E-4. Marine Debris Awareness and Prevention

“Marine debris” is defined as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other solid, human-made item or material that is lost or discarded in the marine environment. This could occur by the lessee or an authorized representative of the lessee (collectively, the “lessee”) while conducting activities on the OCS in connection with a lease, grant, or approval issued by the Department of the Interior (DOI). The lessee must practice trash and debris reduction and handling practices to reduce the amount of offshore trash that could potentially be lost into the marine environment. The following trash management practices have resulted in a reduction of accidental loss of trash and debris: (1) substituting paper and ceramic cups and dishes for those made of Styrofoam or other extruded polystyrene foam; (2) recycling offshore trash; and (3) transporting and storing supplies and materials in bulk containers when feasible. Vessel operators will comply with pollution regulations outlined in 33 CFR 151.51-77.

To understand the type and amount of marine debris generated, and to minimize the risk of entanglement in and/or ingestion of marine debris by protected species, lessees must implement the following BMPS:

1. Training: All vessel operators, employees, and contractors performing OCS survey activities on behalf of the Lessee (collectively, "Lessee Representatives") must complete annual marine trash and debris awareness training. The training consists of the following: (1) viewing a marine trash and debris training video or slide show (described below); (2) receiving an explanation from management personnel that emphasizes their commitment to the requirements; (3) attendance measurements (initial and annual); (4) recordkeeping and availability of records for inspection by DOI. The marine trash and debris training videos, training slide packs, and other marine debris related educational material can be obtained on the Bureau of Safety and Environmental Enforcement (BSEE) Website. The training videos, slides, and related material can be downloaded directly from the website. Lessee representatives engaged in OCS survey activities must continue to develop and use a marine trash and debris awareness training and certification process to reasonably assure that they, as well as their respective employees, contractors, and subcontractors, are in fact trained.

   By January 31 of each year, the Lessee must submit to DOI an annual report signed by the Lessee that describes its marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. The Lessee must send the reports via email to *marinedebris@bsee.gov*.

2. Marking: Materials, equipment, tools, containers, and other items used in OCS activities that are of such shape or configuration that they are likely to snag or damage fishing devices and could be lost or discarded overboard must be clearly marked with the vessel or facility identification and properly secured to prevent loss overboard. All markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they could be exposed.
3. Recovery: Lessees must recover marine trash and debris that is lost or discarded in the marine environment while performing OCS activities when such incident is likely to: (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the entanglement of or ingestion by marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing equipment, or present a hazard to navigation). Lessees must notify DOI when recovery activities are (i) not possible because conditions are unsafe; or (ii) not practicable because the marine trash and debris released is not likely to result in any of the conditions listed in (a) or (b) above. The lessee must recover the marine trash and debris lost or discarded if DOI does not agree with the reasons provided by the Lessee to be relieved from the obligation to recover the marine trash and debris. If the marine trash and debris is within the boundaries of a potential archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact DOI for approval prior to conducting any recovery efforts. Recovery of the marine trash and debris should be completed immediately, but no later than 30 days from the date in which the incident occurred. If the Lessee is not able to recover the marine trash or debris within 48 hours (see BMP 4: Reporting), the Lessee must submit a recovery plan to DOI explaining the recovery activities ("Recovery Plan"). The Recovery Plan must be submitted no later than 10 calendar days from the date in which the incident occurred. Unless otherwise objected to by DOI, within 48 hours of the filing of the Recovery Plan

the Lessee can proceed with the activities described in the Recovery Plan. The Lessee must request and obtain approval of a time extension if recovery activities cannot be completed within 30 days from the date in which the incident occurred. The Lessee must enact steps to prevent similar incidents and must submit a description of these actions to BOEM and BSEE within 30 days from the date in which the incident occurred.

4. Reporting: The Lessee must report all marine trash and debris lost or discarded to DOI (using the email address listed on DOI's most recent incident reporting guidance). This report applies to all marine trash and debris lost or discarded, and must be made monthly, no later than the fifth day of the next month. The report must include the following:

    1. Project identification and contact information for the lessee, operator, and/or contractor
    2. The date and time of the incident
    3. The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees)
    4. A detailed description of the dropped object to include dimensions (approximate length, width, height, and weight) and composition (e.g., plastic, aluminum, steel, wood, paper, hazardous substances, or defined pollutants)
    5. Pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available
    6. Indication of whether the lost or discarded item could be a magnetic anomaly of greater than 50 nanoTesla (nT); a seafloor target of greater than 0.5 meters (m); or a sub-bottom anomaly of greater than 0.5 m when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profile in accordance with DOI's applicable guidance
    7. An explanation of how the object was lost
    8. A description of immediate recovery efforts and results, including photos.

In addition to the foregoing, the Lessee must submit a report within 48 hours of the incident ("48-hour Report") if the marine trash or debris could (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the ingestion by or entanglement of marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing equipment, or present a hazard to navigation). The information in the 48-hour Report would be the same as that listed above, but just for the incident that triggered the 48-hour Report. The Lessee must report to DOI if the object is recovered and, as applicable, any substantial variation in the activities described in the Recovery Plan that were required during the recovery efforts. The Lessee is not required to submit a report for those months in which no marine trash and debris was lost or discarded.

E-5. Best Management Practices to Minimize Potential Adverse Impacts on Birds

1. All vessels associated with survey activities (transiting [i.e., traveling between a port and the survey site] or actively surveying) must comply with the vessel strike avoidance measures specified in Section E-9.2 and travel at speeds of 10 knots or less within the action area. The only exception is when the safety of the vessel or crew necessitates deviation from these requirements. If any such incidents occur, they must be reported as outlined below under Reporting Requirements (BMP 7). The Vessel Strike and Disturbance Avoidance Zone for birds is

defined as 100 meters from any surface-sitting birds including federally listed species under the ESA (e.g., Marbled Murrelet and Short-tailed Albatross). If surface-sitting birds are sighted within the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless unsafe to do so) and steer away as much as possible. The vessel may resume normal operations once the vessel has passed the individual or flock.

2. During times of year when numbers of birds are known to occur in the survey area, vessels must avoid transiting through areas of visible aggregations, especially for species that can occur in numbers including alcids, albatrosses, shearwaters, storm-petrels, and cormorants. If operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
3. Vessels transiting to and from the proposed lease area and investigating potential cable export routes must stay a minimum of 500 m from the offshore rocks that comprise the Oregon Islands National Wildlife Refuge, which hosts large colonies of nesting seabirds, including Common Murres, Tufted Puffins, and Pigeon Guillemots. These areas should be avoided during the breeding and post-fledging periods when nesting seabirds are most likely to be present.
4. The Lessee will use only red flashing strobe-like lights for aviation obstruction lights and must ensure that these aviation obstruction lights emit infrared energy within 675–900 nanometers wavelength to be compatible with Department of Defense night vision goggle equipment.
5. Any lights used to aid marine navigation by the Lessee during construction, operations, and decommissioning of meteorological buoys must meet USCG requirements for private aids to navigation (from CG-2554) and BOEM's Guidelines for Lighting and Marking of Structures Supporting Renewable Energy Development.
6. For any additional lighting not described in (4) or (5) above, the Lessee must use such lighting only when necessary; turn off deck and interior lights when not in use; hood lighting downward, when possible, to reduce upward illumination and illumination of adjacent waters; use black-out curtains in vessels in windows; and minimize use of high intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, or other bright spotlights that exceed a color temperature of 2,700 degrees Kelvin.
7. Lessees must report all injured or dead birds and bats found on vessels and structures during construction, operations, and decommissioning to the Injury & Mortality Reporting (IMR) system following a standardized template and workflow protocols (including photographs of carcasses to be uploaded to IMR) by BOEM and the Service, ideally no more than 72 hours after the sighting. Any identified causes (e.g., lighting) should be rectified to the extent practicable. If practicable, the Lessees must carefully collect the dead specimen and preserve the material in the best possible state, contingent on the acquisition of any necessary wildlife permits and compliance with the Lessees' health and safety standards. Additionally, Lessees must submit quarterly reports documenting any dead or injured birds or bats found on vessels and structures during construction, operations, and decommissioning in the previous quarter. Carcasses with Federal or research bands must be reported to the U.S. Geological Survey's Bird Band Laboratory.
8. Anti-perching devices must be installed on the meteorological buoys to minimize the attraction of birds.
9. See marine debris BMPs and note this includes substituting paper and ceramic cups and dishes for those made of Styrofoam, recycling offshore trash, and transporting and storing supplies and materials in bulk containers when feasible.

E-6. Best Management Practices to Minimize Potential Adverse Impacts on Commercial Fishing

a. Removal of large marine debris objects and decommissioning instrumentation anchors should occur as soon as practicable and within required USACE and BSEE regulations and permits. Site assessment involves the deployment and decommissioning of meteorological buoys will be permitted by the USACE under the Nationwide Permit Number 5.
b. Vessel operators are required to comply with pollution regulations outlined in 33 CFR 151.51-77.
c. To enhance navigational safety, lessees will include in plans site-specific measures including, but not limited to, a Local Notice to Mariners, vessel traffic corridors, lighting specifications, and incident contingency plans.

E-7. Best Management Practices to Minimize Potential Adverse Impacts on Historic Properties

The Lessee will conduct HRG surveys prior to conducting bottom disturbing events such as geotechnical/sediment sampling and avoid all potentially eligible cultural resources or historic properties. In no case may the Lessee's actions impact a potential archaeological resource without BOEM's prior approval. The following elements ensure avoidance of historic properties:

1. The Lessee may only conduct geotechnical exploration activities, including geotechnical sampling or other direct sampling or investigation techniques, in areas of the leasehold in which an analysis of the results of geophysical surveys have been completed for that area by a qualified marine archaeologist.

2. The geophysical surveys should follow the recommendations in BOEM's Guidelines for Providing Archaeological and Historic Property Information, and the analysis must be completed by a qualified marine archaeologist who meets both the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738–44739) and has experience analyzing marine geophysical data:

    a. Analysis must include a determination whether any potential archaeological resources are present in the area

    b. Geotechnical (seabed and subsurface) sampling activities must avoid potential archaeological resources by a minimum of 50 m (164 ft). This distance is dependent on the type of archaeological resources and the analysis of HRG data surrounding the potential archaeological resource. The avoidance distance must be calculated from the maximum discernible extent of the archaeological resource.

3. If the Lessee discovers an archaeological resource during all ground-disturbing activities, including geotechnical exploration, the Lessee must immediately halt all seafloor-disturbing activities within the area of discovery, notify BOEM within 72 hours of the discovery, keep the location of the discovery confidential, not take any action that could adversely affect the resource until BOEM has made an evaluation and instructed the Lessee on how to proceed, and conduct any additional investigations as directed by BOEM to determine if the resource is eligible for listing in the National Register of Historic Places (30 CFR 585.702(b)). Written notification shall use the State of Oregon's Inadvertent Discovery Plan template.

E-8. Best Management Practices to Minimize Potential Adverse Impacts on Sensitive Seafloor Habitats

BOEM requires high-resolution data gathering and evaluation of seafloor habitats as part of a submitted Construction and Operation Plan, including sensitive biological resources and habitats (30 CFR § 585.627(a)(5)). The set and recovery locations of all prior and planned bottom contacts will be included in this plan.

As part of any plan with seafloor impact, the lessee shall submit to BOEM the details of how these activities will avoid placing anchors, equipment, or conduct sampling activities on or near sensitive seafloor habitats and shall include the following information:

a. Maps showing proposed anchoring or contact sites that are located with a written sufficient distance (e.g., buffer or setback) from sensitive habitats, hazards, and other anthropogenic features (e.g., power cables), if present
b. A description of the navigation equipment used to ensure anchors and seafloor equipment are accurately set.
c. Equipment handling procedures that prevent or minimize bottom disturbance, such as placing and removing all anchors vertically. Surface deployments should plan for a clearance zone up to 30% of depth in feet in high current areas.

Conservation recommendations to avoid or minimize adverse effects on essential fish habitat may be incorporated in the lease and must be adhered to by the applicant. BOEM may require additional surveys to define boundaries and avoidance distances (30 CFR 585.703). If, during the conduct of Lessee's approved activities, the Lessee or BOEM finds that sensitive seafloor habitats, essential fish habitat, or habitat areas of particular concern may be adversely affected by Lessee's activities, BOEM must consult with the National Marine Fisheries Service.

Lessees will characterize site-specific parameters to inform their plans and describe local conditions, including biological attributes. Lessees and their contractors may employ a range of methods to accomplish these goals but may not employ bottom trawling methodology to conduct these activities.

Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf (2019) and Best Management Practices for Fulfilling ESA and EFH Obligations When Conducting Offshore Wind Site Characterization and Site Assessment Activities in the Gulf of Mexico (2023) are useful resources for planning methods, equipment, and sampling densities. Surveys should prioritize high value target fisheries and sensitive biological resources and habitats and consult with US west coast scientists and relevant Tribal, Federal, and State governments for the species list and Coastal and Marine Ecological Classification Standard (2012) classification terms for substrates.

E-9. Best Management Practices to Avoid Impacts on Protected Species

E-9.1 Protected Species Observers

Qualified third-party PSOs to observe Clearance and Shutdown Zones must be used as outlined in the conditions below:

a. All PSOs must have completed an approved PSO training program and must receive NMFS approval to act as a PSO for geophysical surveys. Documentation of NMFS approval for geophysical survey activities in the Pacific and copies of the most recent training certificates of

individual PSOs' successful completion of a commercial PSO training course with an overall examination score of 80% or greater must be provided upon request. Instructions and application requirements to become a NMFS-approved PSO can be found online.

1. For situations where third-party PSOs are not required, crew members serving as lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.
2. PSOs deployed for geophysical survey activities must be employed by a third-party observer provider. While the vessel is underway, they must have no other tasks than to conduct observational effort, record data, and communicate with and instruct relevant vessel crew to the presence of ESA-listed species and associated mitigation requirements. PSOs on duty must be clearly listed on daily data logs for each shift. When PSOs are required on vessels when geophysical surveys are underway, non-third-party observers may be approved by NMFS on a case-by-case basis for limited, specific duties in support of approved, third-party PSOs.
3. A minimum of one PSO (assuming 360-degree visual coverage around the vessel is possible from a single vantage point on the operational platform) must be on duty observing for ESA-listed species at all times that noise-producing equipment < 180 kHz is operating, or the survey vessel is actively transiting during daylight hours (i.e., from 30 minutes prior to sunrise and through 30 minutes following sunset). Two PSOs must be on duty during nighttime operations. A PSO schedule showing that the number of PSOs used is sufficient to effectively monitor the affected area for the project (e.g., surveys) and record the required data must be included. PSOs must not be on watch for more than 4 consecutive hours, with at least a 2-hour break after a 4-hour watch. PSOs must not be on active duty observing for more than 12 hours in any 24-hour period.
4. Visual monitoring must occur from the most appropriate vantage point on the associated operational platform that allows for 360-degree visual coverage around the vessel. If 360-degree visual coverage is not possible from a single vantage point, multiple PSOs must be on watch to ensure such coverage.
5. Suitable equipment must be available to each PSO to adequately observe the full extent of the Clearance and Shutdown Zones during all vessel operations and meet all reporting requirements.
    a. Visual observations must be conducted using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
    b. Rangefinders (at least one per PSO, plus backups) or reticle binoculars (e.g., 7 x 50) of appropriate quality (at least one per PSO, plus backups) to estimate distances to ESA-listed species located in proximity to the vessel and Clearance and Shutdown Zone(s).
    c. Digital full frame cameras with a telephoto lens that is at least 300 mm or equivalent. The camera or lens should also have an image stabilization system. Used to record sightings and verify species identification whenever possible.
    d. A laptop or tablet to collect and record data electronically.
    e. Global Positioning Units (GPS) if data collection/reporting software does not have built-in positioning functionality.
    f. PSO data must be collected in accordance with standard data reporting, software tools, and electronic data submission standards approved by BOEM and NMFS for the particular activity.
    g. Any other tools deemed necessary to adequately perform PSO tasks.

E-10. Minimize Interactions with ESA-listed Species During Geophysical Survey Operations

To avoid injury of ESA-listed species (marine mammals and sea turtles) or other unidentified large marine mammals and minimize any potential disturbance, the following measures will be implemented for all vessels operating impulsive survey equipment that emits sound at frequency ranges < 180 kHz (within the functional hearing range of marine mammals). The Clearance Zone is defined as the area around the sound source that needs to be visually cleared of ESA-listed species or other unidentified large marine mammals for 30 minutes before the sound source is turned on. The Clearance Zone is equivalent to a minimum visibility zone for survey operations to begin (see BMP 6). The Shutdown Zone is defined as the area around the sound source that must be monitored for possible shutdown upon detection of ESA-listed whale species or other unidentified large marine mammals within or entering that zone. For both the Clearance and Shutdown Zones, these are minimum visibility distances and for situational awareness PSOs should observe beyond this area when possible. This applies to all sound sources on towed systems that emit sound at frequency ranges < 180 kHz (within the functional hearing range of marine mammals).

a. For situational awareness, a Clearance Zone extending at least (600 m in all directions) must be established around all vessels operating sources <180 kHz.
    a. The Clearance Zone must be monitored by approved third-party PSOs at all times and any observed ESA-listed species or other unidentified large marine mammals must be recorded (see reporting requirements below).
    b. For monitoring around the autonomous surface vessel (ASV) where remote PSO monitoring must occur from the mother vessel, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction to provide a field of view ahead of the vessel and around the ASV. PSOs must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft. In addition, night-vision goggles with thermal clip-ons and a hand-held spotlight must be provided and used such that PSOs can focus observations in any direction around the mother vessel and/or the ASV.
b. To minimize exposure to noise that could be disturbing, Shutdown Zones (500 m for ESA-listed whales or other unidentified large marine mammals visible at the surface) must be established around the sources operating at < 180 kHz being towed from the vessel.
    a. The Shutdown Zones must be monitored by third-party PSOs at all times when noise-producing equipment (< 180 kHz) is being operated and all observed ESA-listed species or other unidentified large marine mammals must be recorded (see reporting requirements below).
    b. If ESA-listed whale species or other unidentified large marine mammals are detected within or entering the respective Shutdown Zone, any noise-producing equipment operating below 180 kHz must be shut off until the minimum separation distance from the source is re-established and the measures in (5) are carried out.
        i. A PSO must notify the survey crew that a shutdown of all active boomer, sparker, and bubble gun acoustic sources ≤ 180 kHz is immediately required. The vessel operator and crew must comply immediately with any call for a

shutdown by the PSO. Any disagreement or discussion must occur only after shutdown.

c. If a Shutdown Zone cannot be adequately monitored for ESA-listed whale species or other unidentified large marine mammal presence (i.e., a PSO determines conditions, including at night or other low-visibility conditions, are such that ESA-listed species or other unidentified large marine mammals cannot be reliably sighted within the Shutdown Zone(s)), no equipment operating at < 180 kHz can be deployed until such time that the Shutdown Zone can be reliably monitored.

c. Before any noise-producing survey equipment (operating at < 180 kHz) is deployed, the Clearance Zone (600 m for all ESA-listed species or other unidentified large marine mammals) must be monitored for 30 minutes of pre-clearance observation.

a. If any ESA-listed species or other unidentified large marine mammal is observed within the Clearance Zone during the 30-minute pre-clearance period, the 30-minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30-minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.

d. When technically feasible, a "ramp up" of the electromechanical survey equipment must occur at the start or re-start of geophysical survey activities. A ramp up must begin with the power of the smallest acoustic equipment for the geophysical survey at its lowest power output. When technically feasible the power will then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually.

e. Following a shutdown for any reason, ramp up of the equipment may begin immediately only if: (a) the shutdown is less than 30 minutes; (b) visual monitoring of the Shutdown Zone(s) continued throughout the shutdown; (c) the animal(s) causing the shutdown was visually followed and confirmed by PSOs to be outside of the Shutdown Zone(s) (500 m for ESA-listed whale species or other unidentified large marine mammals, and heading away from the vessel; and (d) the Shutdown Zone(s) remains clear of all ESA-listed whale species or other unidentified large marine mammals. If all the conditions (a, b, c, and d) are not met, the Clearance Zone (600 m for all ESA-listed species or other unidentified large marine mammals) must be monitored for 30 minutes of pre-clearance observation before noise-producing equipment can be turned back on.

f. For geophysical surveys to be conducted at night or during low-visibility conditions, PSOs must be able to effectively monitor the Clearance and Shutdown Zone(s). No geophysical surveys may occur if the Shutdown Zone(s) cannot be reliably monitored for the presence of ESA-listed whale species or other unidentified large marine mammals to ensure avoidance of impact to those species.

a. An Alternative Monitoring Plan (AMP) must be submitted to BOEM (or the Federal agency authorizing, funding, or permitting the survey) detailing the monitoring methodology that will be used during nighttime and low visibility conditions and an explanation of how it will be effective at ensuring that the Shutdown Zone(s) can be maintained during nighttime and low-visibility survey operations. The plan must be submitted 60 days before survey operations are set to begin.

b. The plan must include technologies that have the technical feasibility to detect all ESA-listed whales or other unidentified large marine mammals out to 600 m and sea turtles out to 100 m.

c. PSOs should be trained and experienced with the proposed alternative monitoring technology.

d. The AMP must describe how calibration will be performed, for example, by including observations of known objects at set distances and under various lighting conditions. This calibration should be performed during mobilization and periodically throughout the survey operation.

e. PSOs shall make nighttime observations from a platform with no visual barriers, due to the potential for the reflectivity from bridge windows or other structures to interfere with the use of the night vision optics.

g. At times when multiple survey vessels are operating within a lease area, adjacent lease areas, or exploratory cable routes, a minimum separation distance (to be determined on a survey specific basis, dependent on equipment being used) must be maintained between survey vessels to ensure that sound sources do not overlap.

h. Any visual observations of ESA-listed species or other unidentified large marine mammals by crew or project personnel must be communicated to PSOs on-duty.

i. During good conditions (e.g., daylight hours; Beaufort sea scale 3 or less) when survey equipment is not operating, to the maximum extent practicable, PSOs must conduct observations for protected species for comparison of sighting rates and behavior with and without use of active geophysical survey equipment. Any observed ESA-listed species or other unidentified large marine mammals must be recorded regardless of any mitigation actions required.

E-11. Minimize Vessel Interactions with ESA-listed Species

All vessels associated with survey activities (transiting [i.e., traveling between a port and the survey site] or actively surveying) must comply with the vessel strike avoidance measures specified below and travel at speeds of 10 knots or less within the Action Area. The only exception is when the safety of the vessel or crew necessitates deviation from these requirements. If any such incidents occur, they must be reported as outlined below under Reporting Requirements (BMP 7). The Vessel Strike Avoidance Zone is defined as 500 m or greater from any sighted ESA-listed marine mammal or other unidentified large marine mammal and 100 m from any sea turtle visible at the surface.

1. Vessel captain and crew must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any ESA-listed species or other unidentified large marine mammal. The presence of a single individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised. If pinnipeds or small delphinids of the following genera: Delphinus, Lagenorhynchus, Tursiops, and Phocoena are visually detected approaching the vessel (i.e., to bow ride) or towed equipment, vessel strike avoidance and shutdown is not required.
2. Anytime a survey vessel is underway (transiting or surveying), the vessel must maintain a 500 m minimum separation distance and a PSO or trained crew member must monitor a Vessel Strike Avoidance Zone (500 m or greater from any sighted ESA-listed whale species or other unidentified large marine mammal, or 100 m from any sea turtle visible at the surface) to ensure detection of that animal in time to take necessary measures to avoid striking the animal (see BMP 3). For monitoring around the autonomous surface vessels, regardless of the equipment it may be operating, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction to provide a field of view ahead of the vessel and around the

ASV. A dedicated operator must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft.

1. Survey plans must include identification of vessel strike avoidance measures, including procedures for equipment shut down and retrieval, communication between PSOs/crew lookouts, equipment operators, and the captain, and other measures necessary to avoid vessel strike while maintaining vessel and crew safety. If any circumstances are anticipated that may preclude the implementation of this BMP, they must be clearly identified in the survey plan and alternative procedures outlined in the plan to ensure minimum distances are maintained and vessel strikes can be avoided.
2. All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of ESA-listed species. The expectation and process for reporting of protected species sighted during surveys must be clearly communicated and posted in highly visible locations aboard all project vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so.
3. The Vessel Strike Avoidance Zone(s) are a minimum and must be maintained around all surface vessels at all times.
4. If a large whale is identified within 500 m of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. Vessels may also shift to idle if feasible.
5. If a large whale is sighted within 200 m of the forward path of a vessel, the vessel operator must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m from the vessel. If stationary, the vessel must not engage engines until the large whale has moved beyond 500 m from the vessel.
6. If a sea turtle is sighted within the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless unsafe to do so) and steer away as possible. The vessel may resume normal operations once the vessel has passed the individual.
7. During times of year when sea turtles are known to occur in the survey area, vessels must avoid transiting through areas of visible jellyfish aggregations. In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.

3. To monitor the Vessel Strike Avoidance Zone, a PSO or trained crew member must be posted during all times a vessel is underway (transiting or surveying) to monitor for ESA-listed species in all directions.
    1. Visual observers monitoring the vessel strike avoidance zone can be either PSOs or trained crew members. If the trained lookout is a vessel crew member, this must be

their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. All observations must be recorded per reporting requirements.

2. Regardless of monitoring duties, all crew members responsible for navigation duties must receive site-specific training on ESA-listed species sighting/reporting and vessel strike avoidance measures.

4. Vessels underway must not divert their course to approach any ESA-listed species or other unidentified large marine mammal.
5. Lessees are directed to NMFS' Marine Life Viewing Guidelines, which highlight the importance of these measures for avoiding impacts on mother/calf pairs.
6. Wherever available, Lessees will ensure all vessel operators check for daily information regarding protected species sighting locations. These media can include, but are not limited to: Channel 16 broadcasts, whalesafe.com, and the Whale/Ocean Alert App.
7. Use of a moon pool: During times of the year when sea turtles are known to occur in the survey area and there is an intention to use a moon pool for the required activities, the following BMPs apply:
    a. Closure of the Hull Door
        i. Should the moon pool have a hull door that can be closed, the operator(s) should keep the doors closed as much as is reasonably practicable when no activity is occurring within the moon pool, unless the safety of crew or vessel require otherwise. This prevents protected species from entering the confined area during periods of non-activity.
        ii. Should the moon pool have a hull door that can be closed, then prior to and following closure, the moon pool must be monitored continuously by a dedicated crew observer with no other tasks to ensure that no individual protected species is present in the moon pool area. If visibility is not clear to the hull door from above (e.g., turbidity or low light), 30 minutes of monitoring is required prior to hull door closure.
        iii. If a protected species is observed in the moon pool prior to closure of the hull door, the hull door must not be closed, to the extent practicable. If the observed animal leaves the moon pool, the operator may commence closure. If the observed animal remains in the moon pool, contact the Bureau of Safety and Environmental Enforcement (BSEE) prior to closure of the hull doors according to reporting requirements (see below under Protected Species within an Enclosed Moon Pool Reporting).
    b. Movement of the vessel (no hull door) and equipment deployment/retrieval
        i. Prior to movement of the vessel and/or deployment/retrieval of equipment, the moon pool must be monitored continuously for a minimum of 30 minutes, by a dedicated crew observer with no other tasks, to ensure no individual protected species is present in the moon pool area.
        ii. If a protected species is observed in the moon pool prior to movement of the vessel, the vessel must not be moved and equipment must not be deployed or retrieved, except for human safety considerations. If the observed animal leaves

the moon pool, the operator may commence activities. If the observed animal remains in the moon pool, contact BSEE prior to planned movement of the vessel according to reporting requirements (see Reporting Requirements under Protected Species within an Enclosed Moon Pool Reporting).

c. BOEM does not advocate the lowering of crew members into the moon pool to free protected species. NMFS should be contacted if protected species are encountered in the moon pool.

E-12. Minimize Entanglement Risk During ROV Usage, Buoy Deployment, Operations, and Retrieval

Parameters described in Section E-9.3 minimizes the risk of entanglement of ESA-listed marine mammal, other unidentified large marine mammal, or sea turtle species during ROV usage, buoy deployment, operations, and equipment retrieval, and in the unlikely event that entanglement does occur, ensures proper reporting of entanglement events according to the measures specified below.

a. ROVs: A Clearance Zone (600 m for all ESA-listed marine mammals, unidentified large marine mammals, and sea turtle species) must be monitored for 30 minutes of pre-clearance observation by PSOs before ROVs are deployed. If any ESA-listed species is observed within the Clearance Zone during the 30-minute pre-clearance period, the 30-minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30-minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.

b. Ensure that any buoys attached to the seafloor use the best available mooring systems. Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of ESA-listed species or unidentified large marine mammals while ensuring the safety and integrity of the structure or device.

c. All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species.

d. Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.

e. During all buoy deployment and retrieval operations, buoys should be lowered and raised slowly to minimize risk to ESA-listed species, unidentified large marine mammals, and benthic habitat. Additionally, PSO should monitor for ESA-listed species and unidentified large marine mammals in the area prior to and during deployment and retrieval and work should be stopped if ESA-listed species or unidentified large marine mammals are observed within 500 m of the vessel to minimize entanglement risk.

f. If a live or dead marine protected species becomes entangled, the Lessee must immediately contact the applicable NMFS stranding coordinator using the reporting contact details (see Reporting Requirements section) and provide any on-water assistance requested.

g. All buoys must be properly labeled with the owner and contact information.

E-13. Reporting Requirements

To ensure compliance and evaluate effectiveness of mitigation measures, regular reporting of survey activities and information on all protected and ESA-listed species and unidentified large marine mammals will be required as follows:

a. Data requirements: Data from all PSO observations must be recorded based on standard PSO collection and reporting requirements. PSOs must use standardized electronic data forms to record data. The following information must be reported electronically in a format approved by BOEM and NMFS:

Visual Effort:

a. Vessel name
b. Dates of departures and returns to port with port name
c. Lease number
d. PSO names and affiliations
e. PSO ID (if applicable)
f. PSO location on vessel
g. Height of observation deck above water surface (in meters)
h. Visual monitoring equipment used
i. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort
j. Vessel location (latitude/longitude, decimal degrees) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts; recorded at 30 second intervals if obtainable from data collection software, otherwise at practical regular interval
k. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change
l. Water depth (if obtainable from data collection software) (in meters)
m. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort scale, Beaufort wind force, swell height (in meters), swell angle, precipitation, cloud cover, sun glare, and overall visibility to the horizon
n. Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (e.g., vessel traffic, equipment malfunctions)
o. Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (i.e., pre-clearance survey, ramp-up, shutdown, end of operations, etc.).

Visual Sighting (all Visual Effort fields plus):

a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform)
b. Vessel/survey activity at time of sighting

c. PSO/PSO ID who sighted the animal
d. Time of sighting
e. Initial detection method
f. Sighting's cue
g. Vessel location at time of sighting (decimal degrees)
h. Direction of vessel's travel (compass direction)
i. Direction of animal's travel relative to the vessel
j. Identification of the animal (e.g., genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species
k. Species reliability
l. Radial distance
m. Distance method
n. Group size; Estimated number of animals (high/low/best)
o. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.)
p. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics)
q. Detailed behavior observations (e.g., number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior)
r. Mitigation action; Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action
s. Behavioral observation to mitigation
t. Equipment operating during sighting
u. Source depth (in meters)
v. Source frequency
w. Animal's closest point of approach and/or closest distance from the center point of the acoustic source
x. Time entered shutdown zone
y. Time exited shutdown zone
z. Time in shutdown zone
aa. Photos/Video.

b. Final report: The project proponent must submit a final monitoring report to BOEM and NMFS (details to be provided) within 90 days after completion of survey activities. The report must fully document the methods and monitoring protocols, summarizes the survey activities and the data recorded during monitoring, estimates of the number of protected and/or ESA-listed species that may have been taken during survey activities, describes, assesses, and compares the effectiveness of monitoring and mitigation measures. PSO sightings and effort data and trackline data in Excel spreadsheet format must also be provided with the final monitoring report.

c. Vessel strike: In the event of a vessel strike of a protected species by any survey vessel, the project proponent must immediately report the incident to BOEM (details to be provided) and NMFS (details to be provided) and for marine mammals to the NOAA West Coast stranding hotline at 1-866-767-6114 and 562-506-4315. The report must include the following information:
    a. Name, telephone, and email or the person providing the report
    b. The vessel name
    c. Lease Number
    d. Time, date, and location (latitude/longitude) of the incident
    e. Species identification (if known) or description of the animal(s) involved
    f. Vessel's speed during and leading up to the incident
    g. Vessel's course/heading and what operations were being conducted (if applicable)
    h. Status of all sound sources in use
    i. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike
    j. Environmental conditions (wave height, wind speed, light, cloud cover, weather, water depth)
    k. Estimated size and length of animal that was struck
    l. Description of the behavior of the species immediately preceding and following the strike
    m. If available, description of the presence and behavior of any other protected species immediately preceding the strike
    n. Disposition of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, last sighted direction of travel, status unknown, disappeared)
    o. To the extent practicable, photographs or video footage of the animal(s).

d. Protected Species within an Enclosed Moon Pool: It is unlikely that a protected species would come in contact with a moon pool, but the following applies: If a protected species is observed within an enclosed moon pool and does not demonstrate any signs of distress or injury or an inability to leave the moon pool of its own volition, measures described in this section must be followed (only in cases where they do not jeopardize human safety). Although this particular situation may not require immediate assistance and reporting, a protected species could potentially become disoriented with their surroundings and may not be able to leave the enclosed moon pool of their own volition. Within 24 hours of any observation, and daily after that for as long as an individual protected species remains within a moon pool (i.e., in cases where an ESA-listed species has entered a moon pool, but entrapment or injury has not been observed), reporting is required.

6. For initial reporting, the following information is required:
    a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable)
    b. Species identification (if known) or description of the animal(s) involved
    c. Condition of the animal(s) (including carcass condition if the animal is dead)
    d. Observed behaviors of the animal(s), if alive

e. If available, photographs or video footage of the animal(s)
f. General circumstances under which the animal was discovered.

7. After the initial report (see above), the following reporting measures must be followed, and information must be reported to BSEE (contact details to be provided) for operations requiring use of a moon pool to continue:
    a. Describe the animal's status to include external body condition (e.g., note any injuries or noticeable features), behaviors (e.g., floating at surface, chasing fish, diving, lethargic, etc.), and movement (e.g., has the animal left the moon pool and returned on multiple occasions?)
    b. Description of current moon pool activities, if the animal is in the moon pool (e.g., drilling, preparation for demobilization)
    c. Description of planned activities in the immediate future related to vessel movement or deployment of equipment
    d. Any additional photographs or video footage of the animal, if possible
    e. Guidance received and followed from NMFS liaison or stranding hotline that was contacted for assistance
    f. Whether activities in the moon pool were halted or changed upon observation of the animal
    g. Whether the animal remains in the pool at the time of the report, or if not, the time/date the animal was last observed.

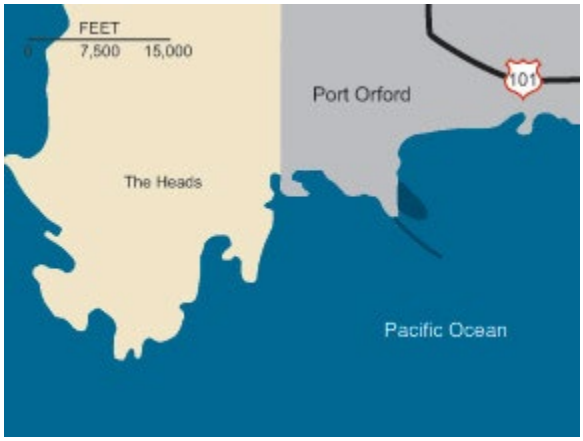
e. Sightings of any injured or dead protected species must be immediately reported, regardless of whether the injury or death is related to survey operations, to BOEM (details to be provided), and the NOAA West Coast stranding hotline at 1-866-767-6114 and 562-506-4315. If the project proponent's activity is responsible for the injury or death, they must ensure that the vessel assist in any salvage effort as requested by NMFS. When reporting sightings of injured or dead protected species, the following information must be included:
    a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable)
    b. Species identification (if known) or description of the animal(s) involved
    c. Condition of the animal(s) (including carcass condition if the animal is dead)
    d. Observed behaviors of the animal(s), if alive
    e. If available, photographs or video footage of the animal(s)
    f. General circumstances under which the animal was discovered.

f. Reporting and Contact Information:
    a. Injurious Takes of Endangered and Threatened Species: NOAA West Coast stranding hotline at 1-866-767-6114 and 562-506-4315.
    b. Injurious Takes of Endangered and Threatened Species: NOAA NMFS Long Beach Office, Protected Resources Division and BOEM Office of Environment, Pacific Region.

Appendix F
Supplemental Information for Ports, Fisheries, and Military Activities

F Port Maps

Figure F-1: Port of Port Orford, Oregon



Source: USACE 2024a

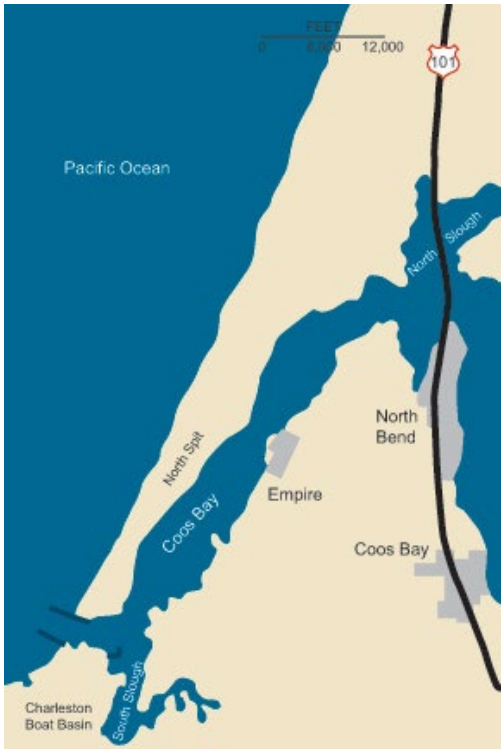
Figure F-2: Port of Brookings, Oregon

Source: USACE 2024b

Figure F-3: Port of Bandon, Oregon

Source: USACE 2024c

Figure F-4: Port of Coos Bay, Oregon

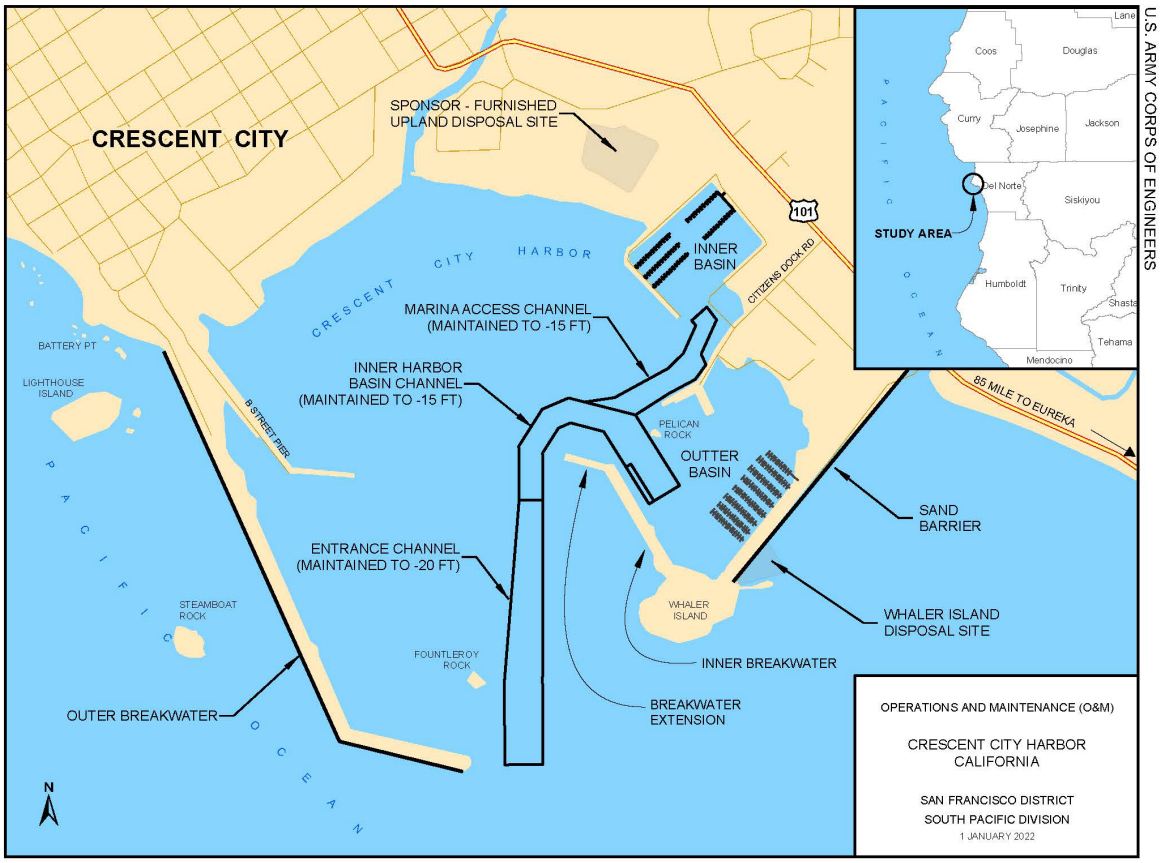


Source: USACE 2024d

Figure F-5: Port of Newport (Yaquina Bay), Oregon

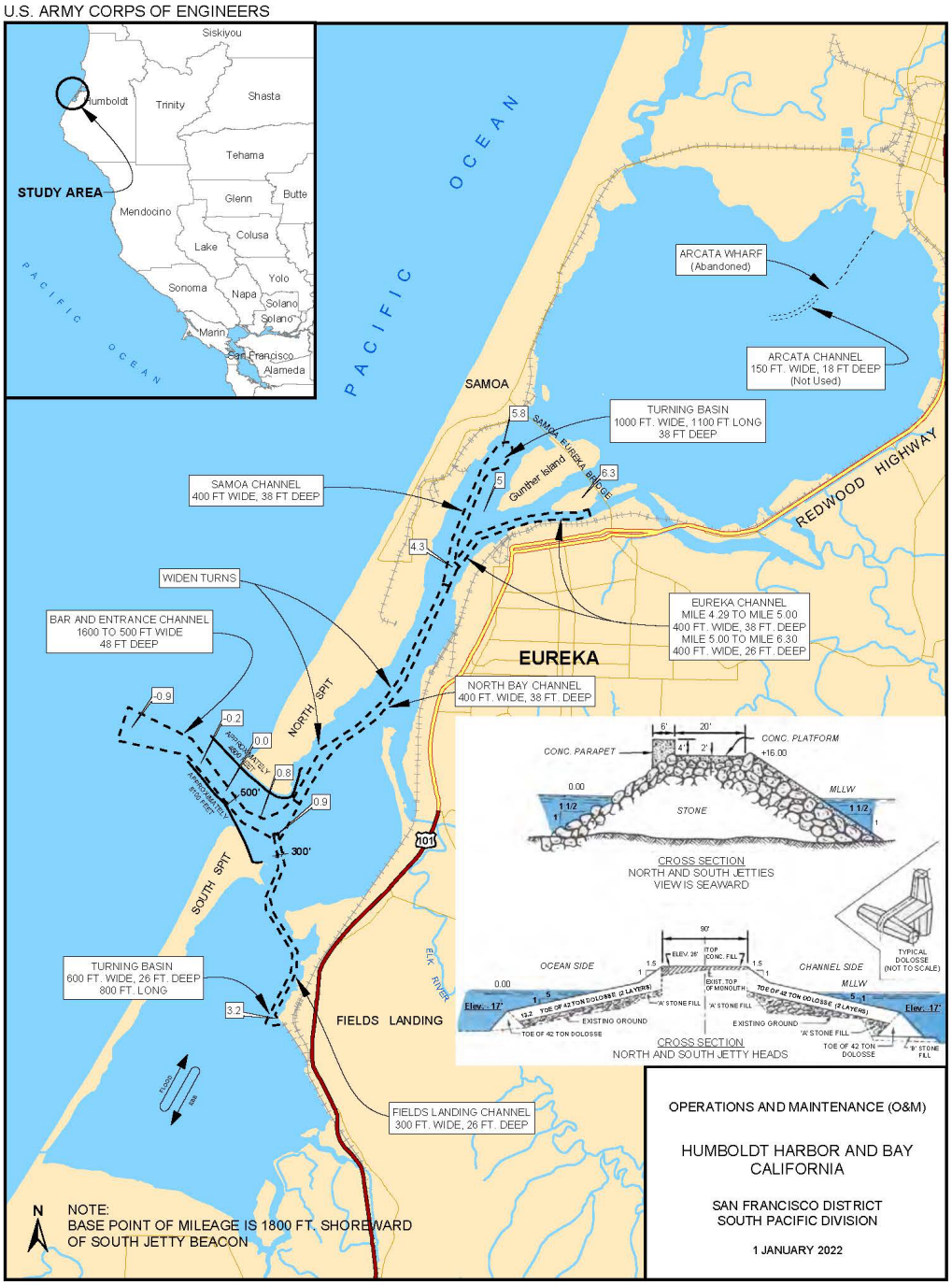
Source: USACE 2024e

Figure F-6: Port of Crescent City, Oregon



Source: USACE 2024f

Figure F-7: Port of Humboldt Bay (Eureka), California



Source: USACE 2024g

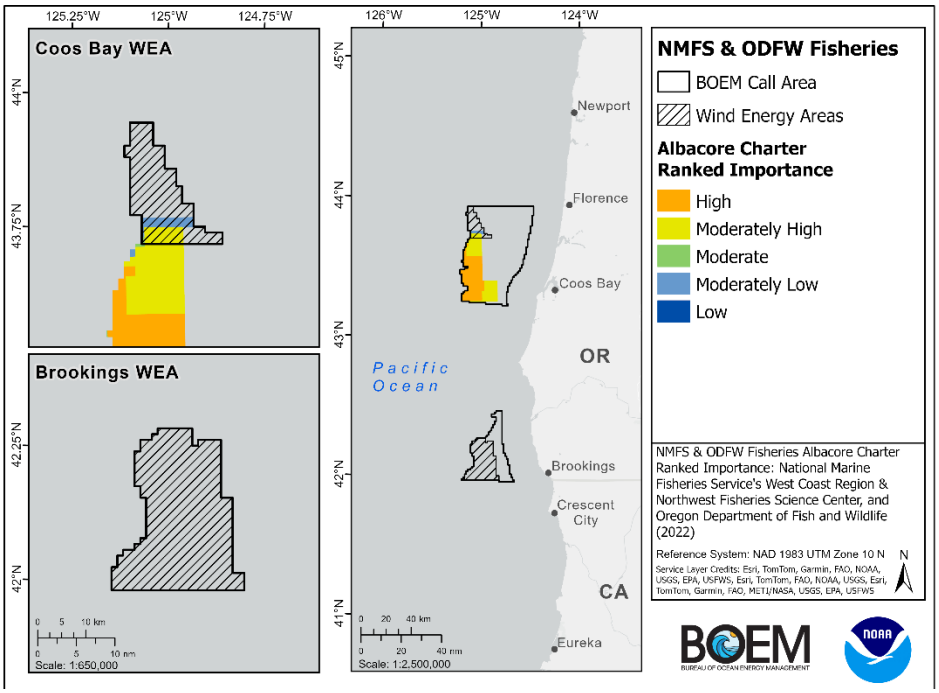
F-1. Fisheries Figures from Carlton et al. (2024)

The Draft wind energy areas (WEAs) in Carlton et al. (2024) are not the same as the final WEAs presented in this Environmental Assessment. The figures below show the two Draft WEAs identified through the spatial suitability modeling process in Carlton et al. (2024). The Brookings WEA was later

modified in the Oregon Area ID Memo 2024, with a portion of the WEA removed to better prevent conflict with long-term oceanic monitoring and sensitive habitat.

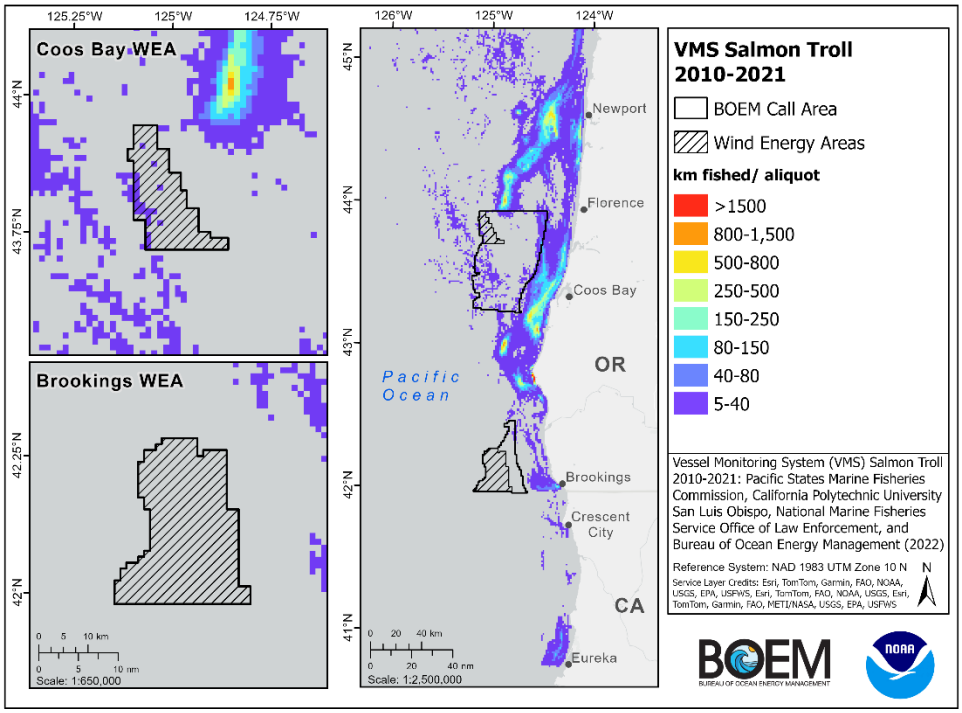
Data and information from the appendices of the National Centers for Coastal and Ocean Science (NCCOS) Draft Report (Carlton et al. 2024) provide an overview of the commercial fisheries resources in the Oregon Call Areas and WEAs. The NCCOS models used information from the National Marine Fisheries Service (NMFS) and Oregon Department of Fish and Wildlife (ODFW) for nine fisheries in Oregon, including 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.

Figure F-8: Ranked Importance of Charter Albacore- Relative to Oregon WEAs



Source: Carlton et al. 2024 (Figure 3.72)

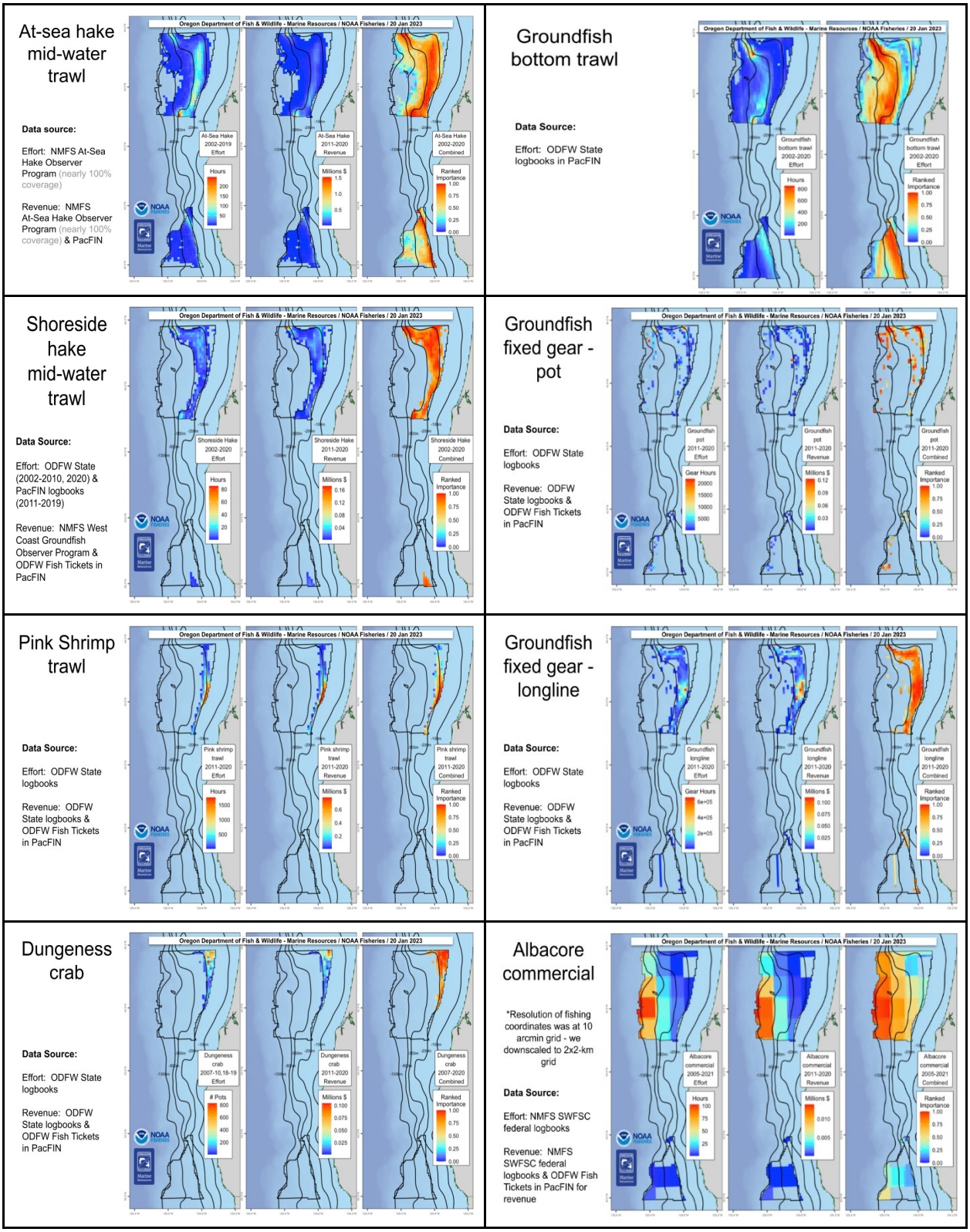
Figure F-9: Salmon Troll Fishing Relative to Oregon-WEAs

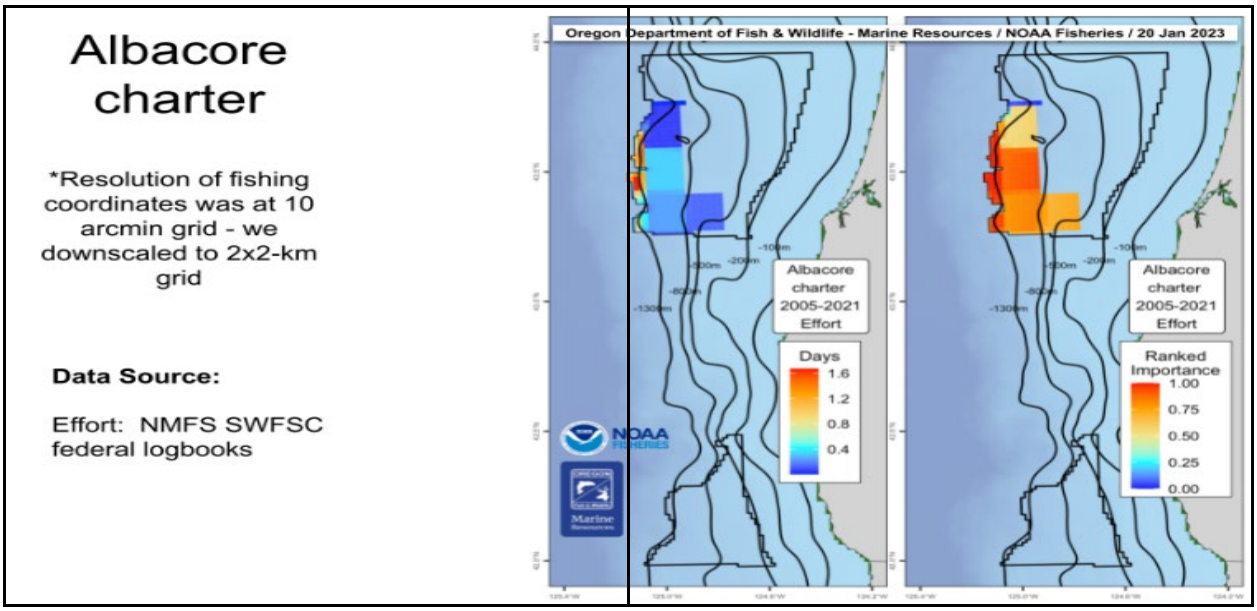


Source: Carlton et al. 2024 (Fig. 3.79)

From Appendix E in Carlton et al. (2024) pp 184 – 185, "Below are nonconfidential maps that NMFS and ODFW prepared for each of the nine fisheries and provided to BOEM. For each fishery, the map on the left shows raw effort, the center map shows raw revenue, and the map on the right shows the ranked importance (i.e., combined effort and revenue), with the exception of groundfish bottom trawl and recreational charter albacore that do not have a revenue map."

Figure F-10: Raw Effort, Raw Revenue, and Ranked Importance

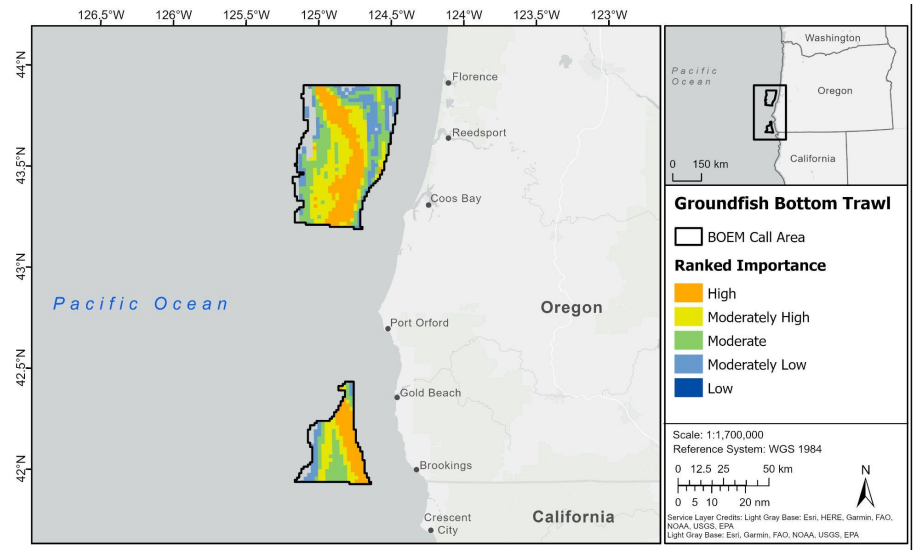




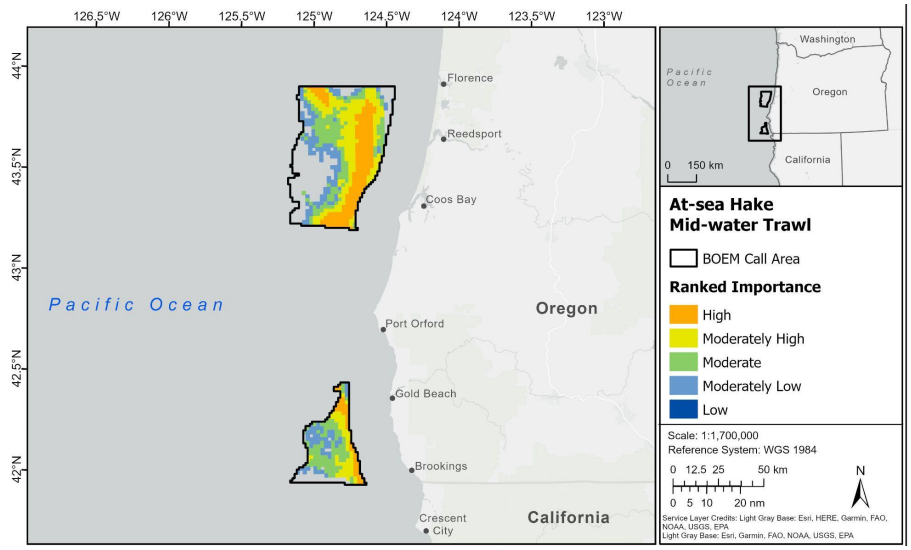
Carlton et al. 2024 (pp 184–185)

From Appendix E in Carleton et al. (2024), pp 185 – 188, "Below are the corresponding maps created by NCCOS using the data and recommendations provided by NMFS and ODFW."

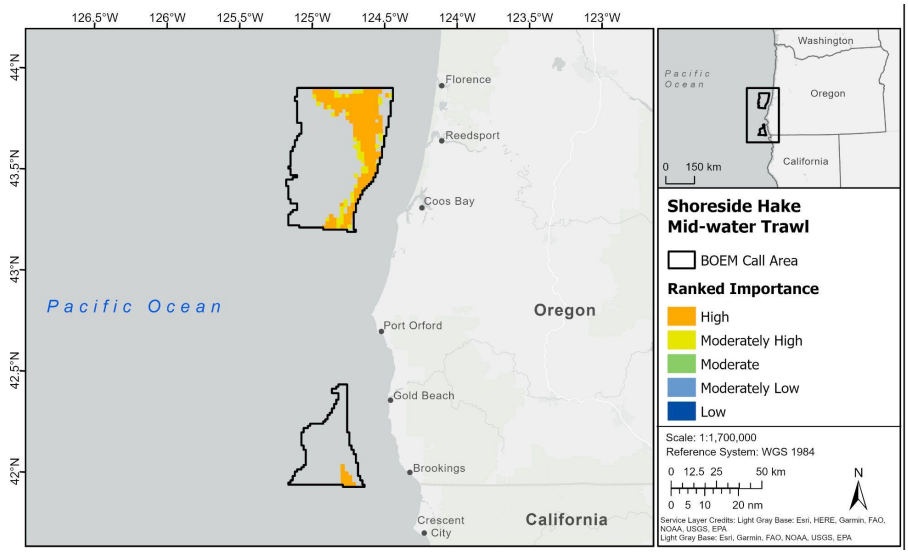
Figure F-11: Fisheries Showing Ranked Importance

Map Title and Description	NCCOS Map
Groundfish: Bottom Trawl Time Period: 2002–2020 (effort only) Cells containing data with < 3 vessels have been removed due to confidentiality.	

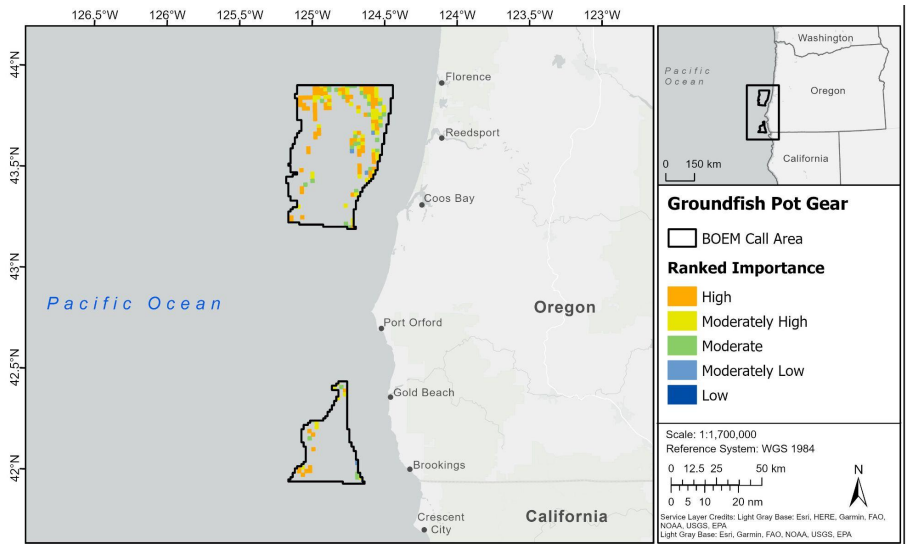
At-sea Hake - Mid-water Trawl
Time Periods:
a) revenue: 2011–2020
b) effort: 2002–2019
Cells containing data with < 3 vessels have been removed due to confidentiality.



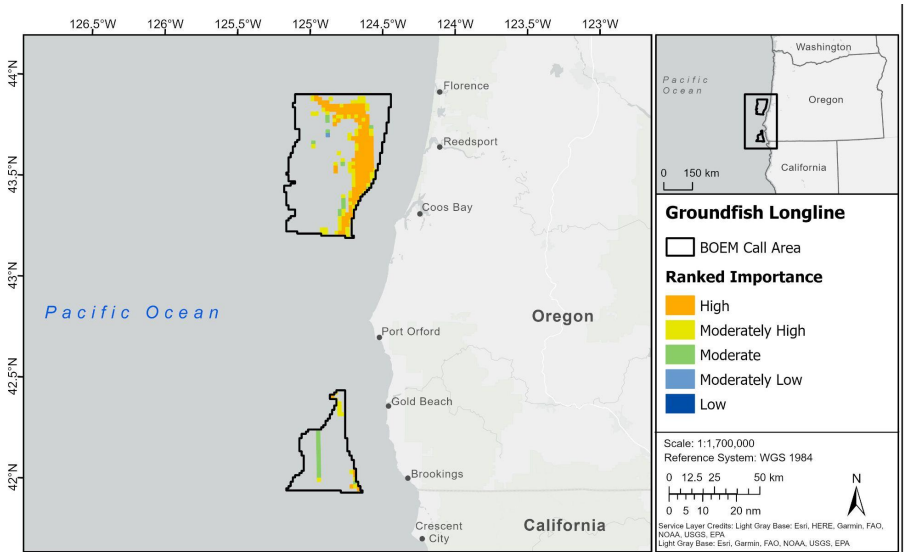
Shoreside Hake - Mid-water Trawl
Time Periods:
a) revenue: 2011–2020
b) effort: 2002–2020
Cells containing data with < 3 vessels have been removed due to confidentiality.



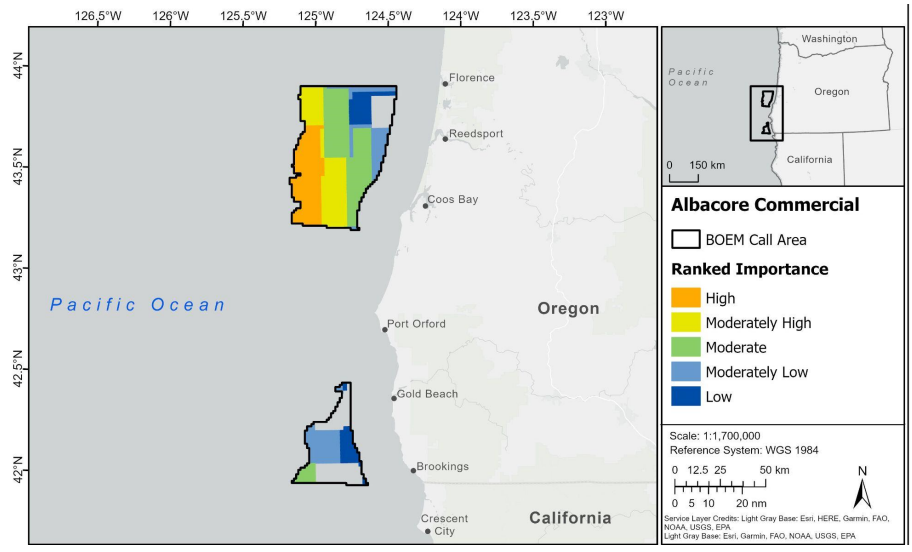
Groundfish fixed gear - pot
Time Period: 2011–2020
Cells containing data with < 3 vessels have been removed due to confidentiality.



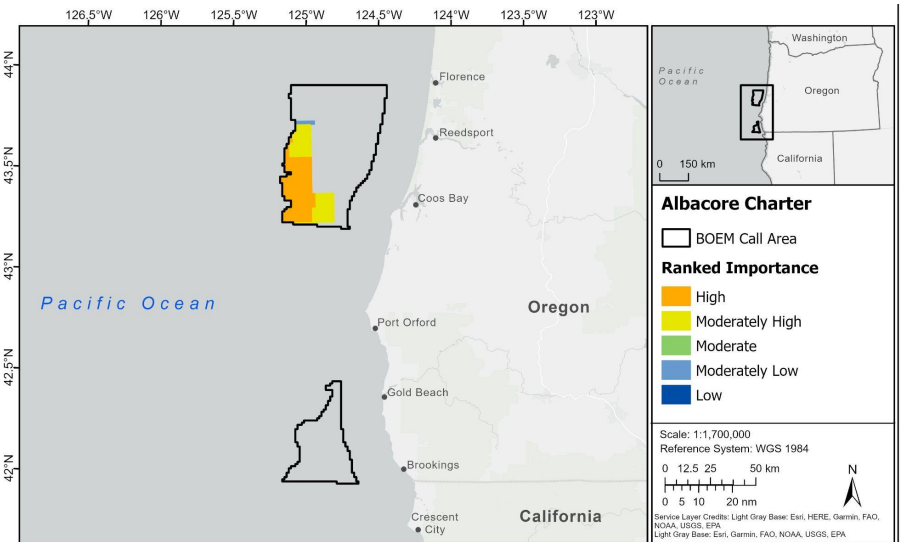
Groundfish fixed gear - longline
Time Period: 2011–2020
Cells containing data with < 3 vessels have been removed due to confidentiality.



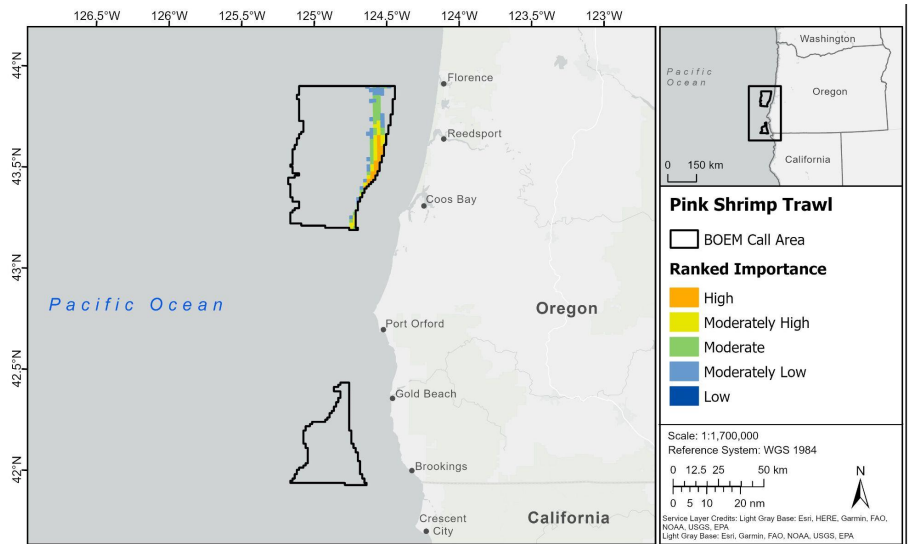
Commercial Albacore: Troll / Hook-and Line
Time Periods:
a) revenue: 2011–2020
b) effort: 2005–2021
Cells containing data with < 3 vessels have been removed due to confidentiality.



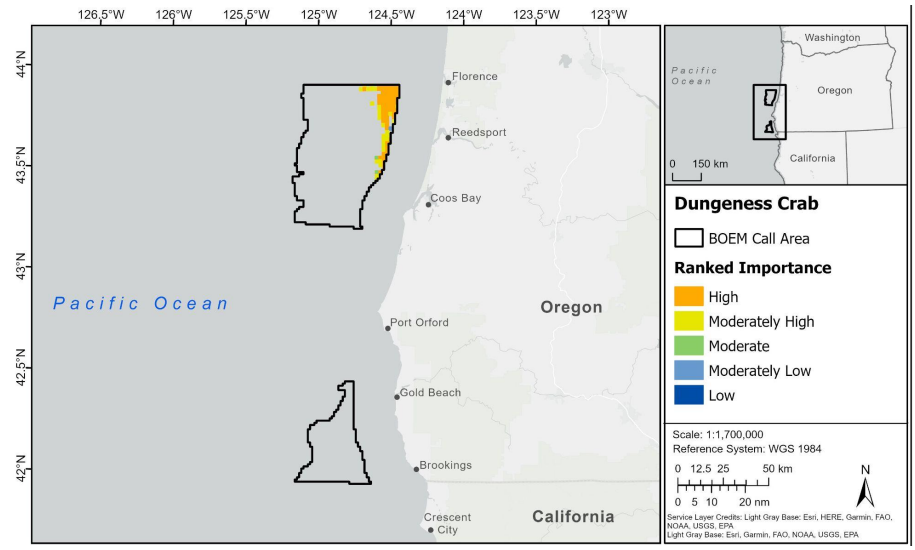
Charter Albacore:
Time Period: 2005–2021 (effort only)
Cells containing data with < 3 vessels have been removed due to confidentiality.



OR Pink Shrimp - Trawl
Time Period: 2011–2020
Cells containing data with < 3 vessels have been removed due to confidentiality.



OR Dungeness Crab - Pot
Time Periods:
a) revenue: 2011–2020
b) effort: 2007/08–2010/11 and 2018/19–2019/20 seasons
Cells containing data with < 3 vessels have been removed due to confidentiality.



Source: Carlton et al. 2024 (pp 185–188)

F-2. DOD Assessment Map of the Oregon Offshore Planning and Call Areas

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

ENERGY, INSTALLATIONS,
AND ENVIRONMENT

17 May, 2022

Necitas Sumait
Renewable Energy Section Chief
Bureau of Ocean Energy Management (BOEM)
Office of Renewable Energy Programs
Pacific Regional Office

Reference: Attachment (1) (U) DOD Assessment Map of the Oregon Offshore Planning and Call Areas (U)

Dear Ms. Sumait,

As requested, the Military Aviation and Installation Assurance Siting Clearinghouse coordinated within the Department of Defense (DoD) a review of the Oregon Offshore Planning and Call Areas. The results of our review (as depicted in Attachment 1) identified an area within and adjacent to the Coos Bay Call Area that would adversely impact DoD's mission.

A large portion within and adjacent to the Coos Bay Call Area is incompatible for development due to existing classified infrastructure. DoD requests wind development be excluded to ensure this infrastructure is not discovered or damaged by the construction of wind energy facilities. The Department of the Navy also conducts low-altitude aviator training within Military Training Route IR-346. The DoD requests wind development be excluded in this area as wind turbines will conflict with the safe and effective use of the airspace for training. (See Attachment 1)

- DON POC: Matthew Senska: matthew.senska@navy.mil; 571-970-8400

The areas shown in yellow (See Attachment 1) lie within radar line of site of multiple North American Aerospace Defense Command (NORAD) radar sites and will degrade NORAD operations. Considering both the expected heights of offshore turbines and future cumulative wind turbine effects, these adverse impacts are potentially mitigatable through Radar Adverse-impact Management (RAM). For projects where RAM mitigation is acceptable, we ask that BOEM include the following in any sale notification and project approval conditions:

1) Project owner will notify NORAD 30-60 days ahead of project completion and when the project is complete and operational for RAM scheduling;
2) Project owner contribute funds to DoD of no less than $80,000 toward the execution of the RAM for each Radar system affected;
3) Curtailment for National Security or Defense Purposes as described in the leasing agreement.

These conditions shall be accomplished by the lessee entering into an agreement with the DoD. The DoD requests that BOEM require the developer to enter into an agreement to mitigate the identified impact. Sixth Generation Over the Horizon Radar is currently in development. Offshore wind turbines may create adverse impacts to that system, but are not definitive at this time.

- NORAD POC: Frederick Shepherd: frederick.l.shepherd.civ@mail.mil; 719-556-3260

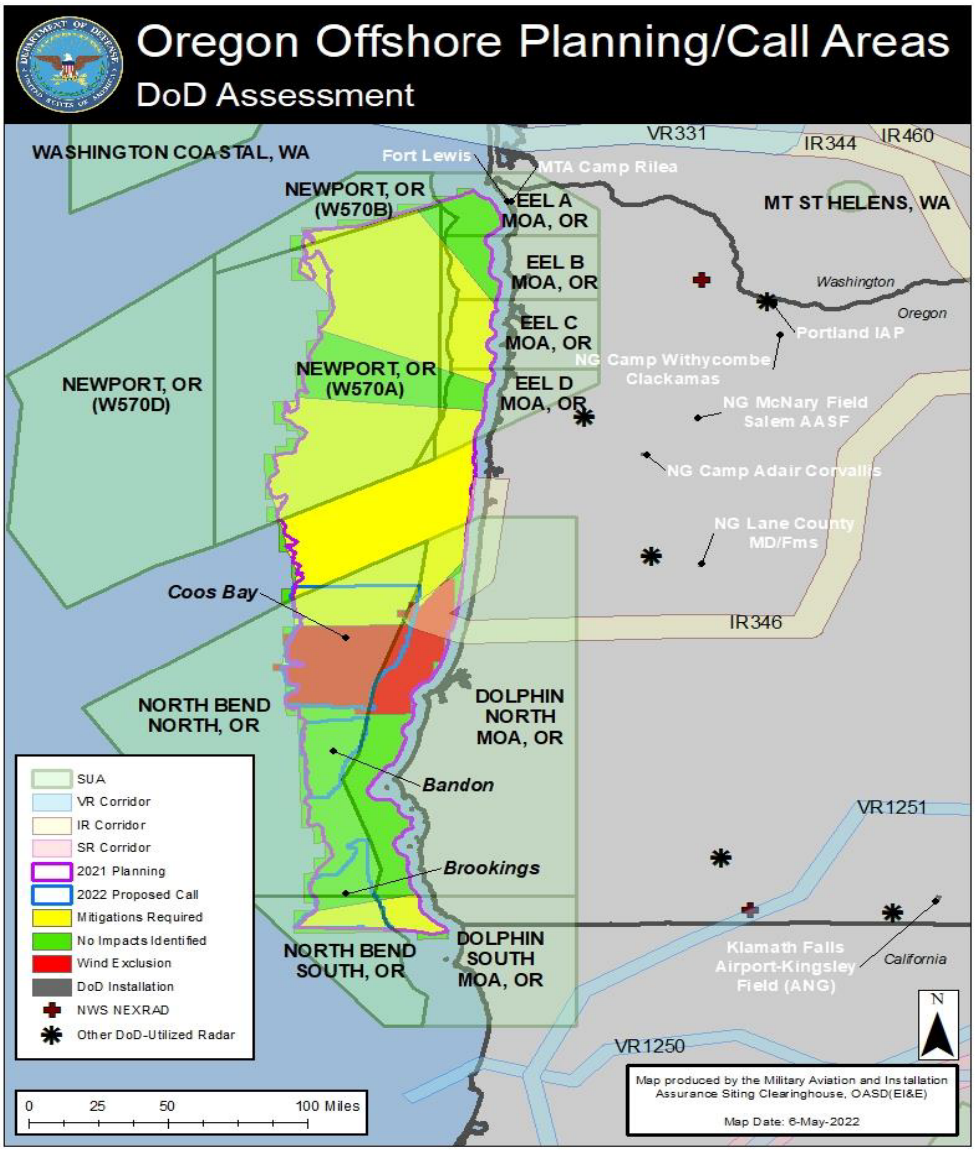
Thank you for the opportunity to coordinate on the Oregon Offshore Planning and Call Areas. We are providing the contact information for the affected missions to facilitate open mitigation discussions, but the Clearinghouse retains ovesight when official DoD input is required. If you have any questions, please contact me at steven.j.sample4.civ@mail.mil or at 703-571-0076.

Sincerely,

Steven J. Sample
Executive Director
Military Aviation and Installation
Assurance Siting Clearinghouse

Attachment (1)

DOD Assessment Map of the Oregon Offshore Planning and Call Areas



F-3. References

Carlton J, Jossart JA, Pendleton F, Sumait N, Miller J, Thurston-Keller J, Reeb D, Gilbane L, Pereksta D, Schroeder D, Morris Jr JA. 2024. A wind energy area siting analysis for the Oregon Call Areas. Camarillo (CA): U.S. Department of the Interior, Bureau of Ocean Energy Management. 237 p. Report No.: BOEM 2024-015.

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