

**KATE BROWN**  
GOVERNOR



March 9, 2018

Kelly Hammerle  
National OCS Oil and Gas Leasing Program Manager  
Bureau of Ocean Energy Management (VAM-LD)  
45600 Woodland Road  
Sterling, VA 20166-9216

Re: Docket ID BOEM-2017-0074

Dear Ms. Hammerle,

Thank you for providing the State of Oregon an opportunity to comment on the development of the U.S. Department of Interior's five-year National Draft Proposed Program (DPP) for Oil and Gas Leasing on the Outer Continental Shelf (OCS) for 2019 -2024. This letter builds on Governor Brown's discussion with Secretary Zinke to share her strong concerns with the proposed program. She has been joined by neighboring Governors of California and Washington in voicing strong opposition to the proposal for offshore drilling of oil and gas along the Pacific Coast. I provided a letter during the public meeting in Salem, Oregon on February 6, 2018 that indicated there would be a more detailed set of comments from Oregon state agencies forthcoming. This letter provides those detailed comments.

Oregon has a long history of commenting on this issue, and will continue to oppose efforts to lease oil and gas areas in Oregon OCS waters. Natural resource agencies in Oregon with a nexus to any proposed oil and gas leasing activity within federal waters on the OCS have researched and drafted comments below. We are providing information and rationale to continue the longstanding policy decision to exclude the waters of Oregon and Washington from the new leasing program. These comments also include priority areas and information that should be included in any Environmental Impact Statement (EIS) for the DPP.

Efforts to establish an oil and gas leasing program on the OCS lands of Oregon originated in the 1960s through exploratory surveys that revealed very limited resources available in our geographic region. In response to those efforts, Oregon established several policies and laws, such as Statewide Land Use Planning Goal 19 (The Ocean Resources Goal) and the Oregon Ocean Resources Management Plan, which identify the policy preferences of Oregonians. Goal 19 declares that the highest priority for the management of ocean resources is the long-term use and protection of renewable resources. Actions that put the ecological, economic, and social values and benefits derived from our ocean resources at risk, like the development of non-renewable oil and gas resources, are in direct conflict with that policy. In line with this policy, all Governors of Oregon dating back to the mid-1970s have provided letters opposing the identification of lease areas on Oregon OCS lands during the OCS Leasing Program renewal process.

Through passage of HB 3613 (2010), prohibition of oil and gas leasing within the Territorial Sea of Oregon is codified in law. In doing so, the Governor and Oregon Legislature agreed that, “Oregon is unwilling to risk damaging sensitive marine environments or to sacrifice environmental quality to develop offshore oil and gas resources.”

In response to the recent BOEM DPP, I worked with the state’s natural resource agencies to develop detailed comments on the DPP and the Notice of Intent to conduct a programmatic EIS. The detailed comments below highlight our continued opposition to the plan for including the Outer Continental Shelf of Oregon in any future National OCS Oil and Gas Leasing Program.

In the formulation of these comments, state agencies were asked to provide a statement about the proposed DPP in relation to agency policies or statutes, along with general information about the inclusion of Oregon in the DPP and specific information on analysis that should be included in any EIS of the DPP. The detailed state agency comments below were also coordinated by the Oregon Coastal Management Program of the Department of Land Conservation and Development, as the lead coordination agency for ocean policy issues, and include comments from the following state agencies:

- Oregon Coastal Management Program (OCMP), Department of Land Conservation and Development
- Oregon Department of Fish and Wildlife (ODFW)
- Oregon Parks and Recreation Department (OPRD)
- Oregon Department of Environmental Quality (DEQ)
- Oregon Department of Energy (ODOE)
- The Oregon Department of Geology and Mineral Industries (DOGAMI)

As described in this letter, many other natural resource management policies are distributed among Oregon state agencies and apply to the activities that would be associated with the identification and extraction of oil and gas resources. What follows is an executive summary of the areas addressed in each agency’s comments, followed by the full text of each agency’s detailed comments.

Please feel free to contact me at [ruchi.sadhir@oregon.gov](mailto:ruchi.sadhir@oregon.gov) or a state agency staff directly if you have follow up questions.

Thank you,



Ruchi Sadhir  
Energy and Climate Change Policy Advisor  
Office of Governor Kate Brown

## *Executive Summary of Oregon Agency Comments*

**The Oregon Coastal Management Program (OCMP)**, a program of the Department of Land Conservation and Development, is Oregon’s federally approved Coastal Zone Management Program. The OCMP is a networked coastal program, all the agencies commenting in this letter and their implementing statutes, are part of the OCMP. The OCMP coordinates management of state waters through implementation of the Territorial Sea Plan, the Oregon Ocean Resources Management Plan, and Goal 19 (the Ocean Resources Goal). The foundational principle in those policies is Goal 19’s primary policy statement, “To conserve marine resources and ecological function for the purpose of providing long-term ecological, economic and social value and benefits to future generations.” Goal 19 provides specific implementation requirements that help define what is meant by protecting renewable marine resources, including ecosystem functions and important marine habitats, as well as important commercial and recreational fisheries. Further, it states that the OCMP shall protect and encourage the beneficial uses of ocean resources such as navigation, food production, recreation, aesthetic enjoyment, and uses of the seafloor consistent with the above stated goal.

If any oil and gas leases are included on Oregon’s OCS lands, the OCMP will use the federal consistency provisions within the Coastal Zone Management Act to ensure that actions will not have any reasonably foreseeable impacts on coastal resources and uses that are protected under state policy. The OCMP will also seek to hold the decision making process to high standards, as in the necessary scientific and environmental studies to evaluate the potential impacts versus the expected benefits of such actions.

The state has also identified an Ocean Stewardship Area, which extends to the toe of the slope of Oregon’s continental shelf, in which it has interest in the human and natural processes that can effect uses and resources in the Territorial Sea. Within that area, the state will use all applicable laws and regulations to promote its interest in the management and conservation of ocean resources, encourage scientific research that will assist in making management decisions, and seek co-management arrangements with federal agencies when appropriate to ensure management practices are consistent with the established state ocean policies.

### ***Staff Contacts for OCMP/DLCD Comments:***

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Andy Lanier, Marine Affairs Coordinator, [andy.lanier@state.or.us](mailto:andy.lanier@state.or.us), 503-934-0072

**The Oregon Department of Fish and Wildlife (ODFW)** is a key networked partner of the Oregon Coastal Management Program, and has management authority over all fish and wildlife of the state under its jurisdiction, including marine fish and marine wildlife. In addition to direct regulatory authority to conduct and manage sport and commercial fisheries, ODFW is advisory to all State business that could have impacts on marine fish and wildlife. This includes, but is not limited to:

- permitting of human development, such as docks, jetties, rip rap, offshore energy installations, undersea/coastal telecommunications cables, liquid natural gas terminals and pipelines;
- permitting of dredging removal/disposal, permitting of aquaculture, such as oyster plat leases; and
- clean water certifications.

ODFW also collaborates directly with federal agency partners on several issues including, but not limited to:

- fisheries management, such as collaboration with NOAA as council members on the Pacific Fisheries Management Council; and
- offshore renewable energy, such as collaboration with BOEM as members of BOEM's Oregon Task Force on Renewable Energy.

While ODFW plays the primary role in managing living marine resources in state waters, its interest and authority extend throughout federal waters based on the state's role in implementing the Magnusson-Stevens Fisheries Conservation and Management Act, the Coastal Zone Management Act, and other authorities.

The [comments provided by ODFW](#) cover the values that Oregon receives from the existing resource management policy, specifically addressing the Section 18 (1) requirements of the OCS Lands Act and indicating that the values of the existing uses of the ocean resources far surpasses the limited benefits from any oil and gas extraction on Oregon's OCS. Specific example of those values are provided, including:

- the ecosystem services of the benefits of healthy fish, wildlife, and habitats;
- the systems natural resilience to ocean water quality changes; and
- commercial and recreational fisheries.

ODFW also provides comments on the scoping process for the EIS including DPP *alternatives*, *impacting factors*, and *environmental resources and issues of concern* that should be evaluated in the Programmatic EIS. The comments provided on the content of an EIS include a list of the environmental resources of concern associated with identified Goal 19 resources and uses. The comments also include specific impact concerns for environmental, social, and economic communities of Oregon.

Additionally, the ODFW respectfully requests the opportunity to engage with BOEM during the EIS process, as the comments provided in this letter are only a preliminary list of current concerns and should not be considered as final. Finally, ODFW suggests that an alternative for consideration in the EIS should be “no oil and gas leasing program off of the Oregon/Washington OCS lands.”

***Staff Contacts for ODFW Comments:***

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Dave Fox, Resources and Assessment Section Leader, [david.s.fox@state.or.us](mailto:david.s.fox@state.or.us) (541) 867-4741

**The Oregon Parks and Recreation Department (OPRD)**, another key partner of the OCMP, is the state agency charged with management and permitting decisions for activities on Oregon’s 362-mile public Ocean Shore State Recreation Area, as specified in Oregon’s Beach Laws (ORS 390.605-390.770). The "State Recreation Area" is described as the area of land or water, or a combination of, that is under the jurisdiction of OPRD and is used by the public for recreational purposes. The “Ocean Shore” denotes all land lying between the extreme low tide of the Pacific Ocean and the vegetation line (ORS 390.770). Additionally, OPRD owns and operates many oceanfront state parks along the Oregon coast, and it houses the State Historic Preservation Office (SHPO).

The [OPRD comments](#) focus on the existing uses and values of the ocean shore recreation area, which depend upon the maintenance of healthy natural resources, scenic viewsheds, and a strong cultural heritage. The OPRD comments emphasize the importance of a healthy ocean to communities on the Oregon coast because of the economic impacts of tourism, with over 31 million visits, providing over \$600 million spent in the areas near coastal state parks. OPRD and the Oregon State Historic Preservation Office also recognize that Oregon’s offshore lands have the potential for possessing significant submerged prehistoric and historic cultural resources, which establishes a strong need for early communication and coordination associated with meaningful consultation with Oregon’s federally recognized tribal nations. Lastly, OPRD has the responsibility for the permitting of activities that cross the ocean shore, with a focus on maintaining safety of visitors and managing recreational impacts to the beach. Any potential impact to ocean shore resources, recreational use of the beach, and the safety of visitors should be strongly considered in development of the DPP along with a thorough consideration of costs incurred for emergency preparation, response, and recovery from accidental oil spills.

***Staff Contacts for OPRD Comments:***

- Trevor Taylor, Stewardship Section Manager ([trevor.taylor@oregon.gov](mailto:trevor.taylor@oregon.gov)), 503-986-0738
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- Jay Sennewald, Ocean Shore Permit Coordinator ([jay.sennewald@oregon.gov](mailto:jay.sennewald@oregon.gov)), 541-563-8504
- Samuel Willis, Coastal Region State Park Archaeologist ([samuel.willis@oregon.gov](mailto:samuel.willis@oregon.gov)), 541-563-8500

**The Department of Environmental Quality (DEQ)** has no regulatory authority for offshore oil facilities outside State waters, however DEQ is responsible for protection of human health and the environment for oil spills that could threaten Oregon’s coastal zone under ORS 468b. DEQ, in partnership with the United States Coast Guard, is responsible for the development of plans to respond to oil spills in coastal waters of Oregon.

The [comments provided by DEQ](#) are focused on the limited resources available for oil spill response. Current resources address spill events of a much smaller magnitude than would be possible from a developed oil well. Oregon is not prepared, staffed, or resourced to be able to respond to a spill of the potential magnitude presented by development of offshore exploration and development. In addition, DEQ is in the process of updating the coastal spill protection plans (Geographic Response Plans), which highlight the difficulty of containing a spill given the exposed nature of our coasts and the energetic environment that response efforts will be required to work in. DEQ also points out that the risks associated with oil and gas exploration and production activities off of Oregon would be much higher than in other regions due to the unconsolidated sediments and shelf deposits on the OCS, given that it is an unstable platform in an active tectonic region.

In the event of a spill, the Pacific Ocean and nearshore currents are likely to disperse any spill along a large section of the coast, making cleanup and prevention with existing resources a significant challenge. DEQ’s comments reinforce the perspective that the mitigation and response funds associated with any proposed development should be sufficient to pay for the improvement in Oregon’s ability to respond to a spill – these funds should be included in the costs for any development when the Section 18 balancing analysis is conducted. Additionally, DEQ comments that due to the gap in Oregon’s oil spill response capabilities, the EIS process must take into consideration that any proposed oil and gas development plans will need to consider the costs associated with bringing in new response equipment and staffing required to respond to catastrophic discharge events.

Additionally, it is likely that the use of dispersants for large discharges of oil from oil and gas exploration or development would have devastating impacts on crucial fisheries and critical offshore habitat. Some studies suggest that the impacts from the use of dispersants may be more harmful to certain types of species than the spilled oil itself.

***Staff Contacts for DEQ Comments:***

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**The Oregon Department of Energy (ODOE)** is statutorily charged with the responsibility to collect, evaluate, and disseminate information about energy use in Oregon, including the responsibility to prepare a comprehensive energy report under ORS 469.059. Under ORS 469.010 and 469.030, ODOE is charged to work with other public agencies and private entities on energy program activities to promote energy conservation, energy efficiency, and permanently sustainable energy resources. In dealing with the federal government to aid that responsibility, ODOE "may intervene in any proceeding undertaken by an agency for the purpose of expressing its views as to the effect of an agency action upon state energy resources and state energy policy." (ORS 469.110(2)).

The [ODOE comments](#) provide information on how energy policy in Oregon has been developed with a focus on the reduction of greenhouse gas (GHG) emissions through a comprehensive approach on energy conservation, development of renewable energy resources, and energy facility siting. Through the Energy Facility Siting Council, ODOE is charged with ensuring that energy development, including transport through pipelines, is accomplished consistent with the protection of the public health and safety, and in compliance with the energy policy and air, water, solid waste, land use, and other environment protection policies of Oregon. The state of Oregon has made a commitment to reduce GHG emissions through policies such as the adoption of aggressive emissions reduction goals, the renewable portfolio standard, and the Clean Fuels program. Development of oil and gas resources on the OCS would be incompatible with those goals and policies. The ODOE comments specifically ask for GHG emissions associated with the recovery and transport of oil and gas to be included in the EIS, along with as much detail as possible on the methods for transport and proposed development activities.

***Contact for ODOE Comments:***

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**The Oregon Department of Geology and Mineral Industries (DOGAMI)** provides earth science information and regulation to make Oregon safe and prosperous. The DOGAMI Geological Survey & Services program develops maps, reports, and data to help Oregon manage natural resources and prepare for natural hazards such as earthquakes, tsunamis, landslides, floods, volcanoes, coastal erosion, and climate change. The Mineral Land Regulation & Reclamation program oversees the state's mineral production, and works to minimize impacts of natural resource extraction and to maximize the opportunities for land reclamation.



[The DOGAMI comments](#) highlight the high level of seismic risk and the low potential for development of the resources on Oregon's OCS waters. The Oregon OCS is a region that is subject to several significant natural hazards, including subduction zone earthquakes, tsunamis, submarine landslides, and extreme storm waves. The entire OCS is adjacent to the Cascadia Subduction zone, a 600 mile-long fault that extends from Northern California to British Columbia. The Cascadia Subduction Zone produces Magnitude 8-9 earthquakes with return periods of ~240 to ~530 years, with the most recent a Magnitude 9 in 1700. Such earthquakes will produce severe shaking for durations of 1-5 minutes, and will generate large tsunamis that may arrive at some OCS locations within minutes of the onset of the earthquake.

In sloping areas of the OCS, the shaking may trigger undersea landslides and associated turbidity flows of rapidly moving suspended sediment. Any long-term facilities installed on the OCS will need to be designed to withstand these hazards. Lastly, the DOGAMI comments highlight the additional challenge of designing a structure to withstand Oregon's wave climate, which is one of the most severe in the world with wave heights reaching 80 feet or more.

***Staff Contacts for DOGAMI Comments:***

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## *Oregon Department of Fish & Wildlife Comments*

The Oregon Department of Fish and Wildlife (ODFW) has management authority over all fish and wildlife of the state under its jurisdiction, including marine fish and wildlife. ODFW's statutory responsibilities for resource management are contained within the following Oregon Revised Statutes (ORSs) and Oregon Administrative Rules (OARs) applicable to management of fish and wildlife species as well as fisheries:

- Wildlife Policy (ORS 496.012)
- Threatened and Endangered Wildlife Species (ORS 496.171 through 496.182)
- Fish Screening (ORS 498.301 through 498.346)
- Food Fish Management Policy (ORS 506.109)
- Fisheries Conservation Zone (ORS 506.750 & 755)
- Oregon Plan for Salmon and Watersheds (ORS 541.405)
- Native Fish Conservation Policy (OAR 635-007-0502 through 0509)
- Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000 through 0030)
- Wildlife Diversity Plan (OAR 635-100-0001 through 0030)

In addition to direct regulatory authority to conduct and manage sport and commercial fisheries, ODFW is advisory to all State business that could have impacts on marine fish and wildlife. This involves permitting of human development including docks, jetties, rip rap, offshore energy installations, undersea/coastal telecommunications cables, liquid natural gas terminals, and pipelines; permitting of dredging removal/disposal, permitting of aquaculture such as oyster plat



leases; clean water certifications, and other actions. ODFW also collaborates directly with federal agency partners on many issues including fisheries management in collaboration with NOAA as council members on the Pacific Fisheries Management Council and offshore renewable energy in collaboration with BOEM as members of BOEM's Oregon Task Force on Renewable Energy.

While ODFW plays the primary role in managing living marine resources in state waters, its interest and authority extend throughout federal waters based on the state's role in implementing the Magnuson-Stevens Fisheries Conservation and Management Act, the Coastal Zone Management Act, and other authorities.

### **ODFW comments on Draft Proposed Program to be evaluated in Programmatic EIS**

ODFW's initial comments are to convey that we find oil and gas development offshore of Oregon to be incompatible with state resources and uses in both state and federal waters for reasons expressed here and further discussed in subsequent comments to the scoping process:

- First, the monetary value derived from Oregon's fishing industry far exceeds the maximum potential monetary value for oil and gas extraction from the Washington/Oregon Planning Area as evaluated by BOEM in the development of the 2017-2021 oil and gas program that is being replaced by the current process for the 2019-2023 oil and gas program.<sup>1</sup> BOEM should consider the balance between the existing and on-going value of federal waters to Oregon and the nation as realized from the fish and wildlife resources, outlined below, and the much more modest short-term value that may be realized from future oil and gas extraction in the same area. Oregon's portion of the potential oil and gas natural resource is far less than the *one-time maximum* \$2.7 billion for the Washington/Oregon planning area. Yet Oregon's fisheries alone produce approximately \$1.5 billion per year in *annual* economic value for our coastal communities. Sustainable, profitable fisheries depend on healthy fish and shellfish stocks, as well as adequate access to fishing grounds, both of which may be threatened by oil and gas exploration and extraction activities. Lessons from previous oil spills have demonstrated that incidents can have outsized impacts on fisheries revenue by dramatically impacting the public's purchasing behavior and their confidence in the safety and quality of seafood, and for years to come as toxins are known to persist for decades in the environment<sup>2</sup>. The risk of losing the tens of billions in long-term fishery revenue in exchange for a short-term extraction of a much lower value oil and gas resource is unacceptable.

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<sup>1</sup> BOEM Fact Sheet: Assessment of Undiscovered Oil and Gas Resources of the Nation's Outer Continental Shelf, 2016a

<sup>2</sup> Carls, M.G., Babcock M.M., Harris P.M., Irvine, G.V., Cusick, J.A., Rice, S.D. 2001. Persistence of oiling in mussel beds after the Exxon Valdez oil spill, Marine Environmental Research, 51(2): 167-90

- Second, the marine ecosystem off Oregon is in a progressively fragile state due to factors related to climate change such as increasing temperature, ocean acidification and hypoxia (OAH), and harmful algal blooms. The health and resilience of fish and wildlife populations are already directly affected by a rapidly changing climate. The risks to fish and wildlife resources from potential oil and gas extraction are numerous, ranging from disturbance to destruction, and would further tax the resiliency of marine populations and the marine ecosystem. Oregon's fragile marine ecosystem is at high risk; oil and gas development presents significant additional risk.
- Third, per Oregon Statewide Planning Goal 19, Oregon has prioritized living marine resources over non-renewable resources like oil and gas extraction from the ocean. Based on this existing policy as well as the risk of losing the economic value of Oregon's sport and commercial fisheries far surpassing the potential gain from short-term oil and gas extraction, ODFW does not support including marine waters off Oregon in the 2019-2023 oil and gas program.

ODFW believes that oil and gas exploration in the Washington/Oregon Planning Area is inconsistent with Section 18 of the Outer Continental Shelf (OCS) Lands Act which requires that OCS leasing find balance between the potential for the discovery of oil and gas, the potential for environmental damage, and the potential for adverse impact on the coastal zone. ODFW has concluded that such a balance is unattainable. The comments below address the requested input as well as those factors to be considered by BOEM under Section 18 of the OCS Lands Act involving fish and wildlife and habitat resources. This list of concerns and recommendations on scoping should not be considered as an all-inclusive list of ODFW's concerns and suggestions but rather as a list that includes our current concerns, which may change with further evaluation and with any modifications to the proposed program. ODFW respectfully requests BOEM to engage with Oregon and the other states during the development of the EIS to ensure that the EIS evaluation process is comprehensive.

In addition to the specific suggestions below, ODFW requests that BOEM take into consideration the concerns and scope of analysis that Oregon documented in the Geographic Location Description<sup>3</sup> (GLD), which was adopted by NOAA for use in addressing Coastal Zone Management Act federal consistency review for offshore renewable energy development. Content and analysis contained in Oregon's GLD would be equally applicable under Section 18(a)(2) of the OCS Lands Act for potential offshore oil and gas development. In the GLD, Oregon's Ocean Stewardship Area and marine resources and uses are described in detail. The primary uses and resources of concern are those that ensure the functional integrity of the marine ecosystem and the continued use of the area for commercial and recreational fishing and other uses. Areas needed to ensure the preservation and use of important marine resources and uses are listed below and further discussed in the GLD:

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<sup>3</sup> Geographic Location Description. 2015. Oregon Department of Land Conservation and Development, Oregon Coastal Management Program. [http://www.oregon.gov/LCD/OCMP/docs/GLD\\_final.pdf](http://www.oregon.gov/LCD/OCMP/docs/GLD_final.pdf)

- Areas important to the biological viability of commercial and recreational fisheries;
- Areas necessary for the survival of threatened and endangered species;
- Areas that are ecologically significant to maintaining ecosystem structure, biological productivity, and biological diversity;
- Areas that are essential to the life history or behaviors of marine organisms;
- Biological communities that are especially vulnerable because of the size, composition, or location in relation to the impacts of the proposed activities;
- Biological communities that are unique or of limited range within the region;
- Areas important to fisheries including those that are important on a seasonal basis, to individual ports or particular fleets, or of particularly high value species;
- Habitat areas that support food or prey species important to sustaining the commercial and recreational fisheries; and
- Beneficial uses such as scientific research

In response to the request from BOEM for input on the draft proposed oil and gas leasing program, the following comments outline the value of Oregon’s existing ocean resources and uses located in:

- federal waters off of Oregon out to 200 miles;
- state waters, estuaries, coastal areas where natural resources connect with the marine environment, inland watersheds that support anadromous fish species such as salmonids, sturgeon, eulachon and lamprey; and
- ocean waters off of WA, CA, and AK where Oregon fisheries/businesses operate.

The BOEM scoping process for the EIS “solicits input from the public regarding *alternatives*, *impacting factors*, and *environmental resources and issues of concern* in the DPP areas that should be evaluated in the Programmatic EIS.”

#### Alternatives

- 1) Include a no-action alternative for “no oil and gas leasing program off of Oregon/Washington,” as part of the EIS process. In keeping with the existing oil and gas leasing program, exclude all of the Oregon/Washington planning area.
- 2) BOEM is also soliciting information on areas considered to be environmentally sensitive, which will be analyzed in the Programmatic EIS and could be considered for exclusion as part of the Section 18 winnowing process. ODFW recommends BOEM consider the marine and estuarine habitats discussed below under ***Ecosystem Function and Ecological Resources*** for exclusion from consideration for oil and gas exploration or extraction.

#### Impacting Factors

The risks to fish and wildlife resources from future potential oil and gas extraction include but are not limited to disturbance during exploration, disturbance during infrastructure development,

disturbance during extraction/transportation process, damage and loss of essential habitat, competing use of space for fisheries, contamination from potential chronic and catastrophic oil spills, and others. Oil spills or large seepages can penetrate every marine and estuarine habitat *even if the source of the spill is miles away*, killing or poisoning marine organisms in the water column of the ocean and estuaries, on the water surface, on the seafloor and estuary bottom, in rocky and sandy intertidal zones, and along coastal and estuarine shorelines. Oregon's fragile marine ecosystem is at high risk from impacting factors including:

- 1) Any and all effects to living marine natural resources and habitats from oil and gas exploration including but not limited to effects due to: seismic and other survey equipment, entanglement and destruction of fishing gear by survey operations, disruption of fishing operations by the presence of survey vessels, exploratory well drilling and operations, and oil or other spills from survey or exploratory operations.
- 2) Any and all effects to living marine natural resources and habitats from oil and gas development and operation including but not limited to effects due to: occupation of ocean space which disrupts and limits fishing operations and could act as an impediment to migratory animals, construction and installation of oil and gas rigs and related infrastructure such as drilling impacts, noise, disruption of fishing, operation of oil and gas rigs and related infrastructure such as noise, lighting, drilling impacts, and decommissioning of oil and gas rigs and related infrastructure.
- 3) Any and all effects to living marine natural resources and habitats from oil spills, other chemical or material spills, and other environmental accidents.
- 4) Cumulative effects of oil and gas development in association with human-caused or natural phenomena impacting living marine natural resources and habitats including but not limited to dredging and dredged material disposal, marine renewable energy development, coastal and estuary development, coastal, estuary and ocean human use, hypoxia, ocean acidification, harmful algal blooms, and loss of ecosystem resilience due to the above impacting factors.
- 5) Social and economic effects to the individuals, sectors, and communities that would result from the above impacting factors.

#### Environmental Resources and Issues of Concern

Per Oregon Statewide Planning Goal 19, Oregon has prioritized living marine resources over non-renewable resources such as oil and gas extraction from the ocean. Issues of concern include the following:

1) **Value of Commercial and Recreational Fisheries:** BOEM’s analysis should consider areas important to the biological viability of commercial and recreational fisheries. The monetary value derived from Oregon’s fishing industry far exceeds the maximum monetary value potentially derived from oil and gas extraction from the Washington/Oregon Planning Area, which was evaluated by BOEM in the development of the 2017-2021 oil and gas program that is being replaced by the current process for the 2019-2023 oil and gas program. BOEM should consider the balance between the existing and increasing on-going value of federal waters to Oregon and the nation as realized from fish and wildlife resources and the much more modest short-term value that may be realized from future oil and gas extraction in the same area. Periodic estimates of recoverable oil and gas have remained unchanged since 1995. The Washington/Oregon Planning Area is assessed at 0.4 billion barrels (Bbo), worth \$2.7 billion.<sup>4</sup> This value does not take into consideration the significant cost to develop the infrastructure to extract this modest amount of oil and gas resource, nor does it take into consideration the cost to decommission any infrastructure, including platforms, pipelines, and other decommissioning needs, or the cost of spill response, clean up, and restitution for lost resources and revenue to local and state economies. Oregon’s portion of the potential oil and gas natural resource is far less than the *one-time maximum* \$2.7 billion for the Washington/Oregon planning area. Yet Oregon’s fisheries alone produce approximately \$1.5 billion per year in *annual* economic value for our coastal communities. Translated to just a 10-year period, the fishery value is more than five times greater than the oil and gas value. The economic value of these fisheries is increasing over time, and that value benefits the coast, the State of Oregon, and the nation. Sustainable, profitable fisheries depend on healthy fish and shellfish stocks, as well as adequate access to fishing grounds, both of which may be threatened by oil and gas exploration and extraction activities. Lessons from previous oil spills have demonstrated that incidents can have outsized impacts on fisheries revenue by dramatically impacting the public’s purchasing behavior and their confidence in the safety and quality of seafood, and for years to come as toxins are known to persist for decades in the environment, as demonstrated from the Exxon Valdez oil spill.<sup>5</sup> The risk of losing the tens of billions in long-term fishery revenue in exchange for short-term extraction of a much lower value in oil and gas resources is unacceptable. In its analysis, BOEM should consider:

- Potential impacts to all fish and invertebrates species caught by commercial or sport fisheries that operate off of Oregon or land fish or invertebrates in Oregon.
- Oregon commercial fisheries are valued between \$130-\$150 million per annum in ex-vessel value. In terms of personal income value to Oregon, commercial fisheries are valued over \$500 million per annum. These fisheries are essential to the coastal communities that rely on this income for significant portions of their livelihoods.

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<sup>4</sup> BOEM Fact Sheet: Assessment of Undiscovered Oil and Gas Resources of the Nation’s Outer Continental Shelf, 2016a

<sup>5</sup> Carls, M.G., Babcock M.M., Harris P.M., Irvine, G.V., Cusick, J.A., Rice, S.D. 2001. Persistence of oiling in mussel beds after the Exxon Valdez oil spill, Marine Environmental Research, 51(2): 167-90

- Oregon sport fisheries are valued at \$1 billion per annum. This includes 1.5 million for fishing trips per year, along with additional value in supplies, services, lodging, meals, and other costs associated with sport fisheries.<sup>6</sup>
- Oregon estuaries support the important shellfish aquaculture industry, valued at \$12 million per annum in direct sales, with personal income economic impact being of greater value to the Oregon economy and the national economy.
- Oregon coastal tourism, which relies on Oregon's unspoiled coastline and access to fishing and wildlife viewing, is increasing and was valued at \$1.9 billion in 2016.<sup>7</sup> Wildlife viewing activities on Oregon's coast have alone been valued at over \$150 million annually.<sup>8</sup>
- Oregon's commercial and recreational fisheries are the lifeblood of coastal communities. Roughly 10,000 coastal jobs are generated by the Oregon fishing industry not including those in related industries, resource management, and other areas.<sup>9</sup>
- Thirty three commercial and recreational fisheries occur in state and/or federal waters, from shore to 1,300 meters depth. Most of the 130 fish species and more than 20 shellfish species landed in Oregon are harvested from marine and estuarine waters off of Oregon. Some commercial species landed in Oregon are caught off Washington and northern California.
- More than 1,000 commercial fishing vessels supplied 30,000 deliveries to 13 coastal ports each year.
- Four of Oregon's largest regional fisheries – albacore, pink shrimp, groundfish, and whiting – are certified sustainable by the Marine Stewardship Council, which is a distinction of increasing importance to seafood consumers.
- The impacts associated with oil spills would directly jeopardize Oregon's fishing industry, fragile coast, and coastal communities, as well as Oregon's reputation for exceptional water quality and abundant viewable species, which are at the heart of Oregon's coastal tourism trade.
- Full inventory of all fisheries resources including associated prey species and habitats is required to adequately assess impacts from oil and gas development and extraction.

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<sup>6</sup> Dean Runyan and Associates. 2009. Fishing, Hunting, Wildlife Viewing, and Shellfishing in Oregon. 2008. State and County Expenditure Estimates. 72 pages. [http://www.dfw.state.or.us/agency/docs/Report\\_5\\_6\\_09--Final%20%282%29.pdf](http://www.dfw.state.or.us/agency/docs/Report_5_6_09--Final%20%282%29.pdf)

<sup>7</sup> Dean Runyan and Associates. 2017. Oregon Travel Impacts 1992-2016p. [http://www.deanrunyan.com/doc\\_library/ORImp.pdf](http://www.deanrunyan.com/doc_library/ORImp.pdf)

<sup>8</sup> Dean Runyan and Associates. 2009. Fishing, Hunting, Wildlife Viewing, and Shellfishing in Oregon. 2008. State and County Expenditure Estimates. 72 pages. [http://www.dfw.state.or.us/agency/docs/Report\\_5\\_6\\_09--Final%20%282%29.pdf](http://www.dfw.state.or.us/agency/docs/Report_5_6_09--Final%20%282%29.pdf)

<sup>9</sup> The Research Group, LLC. 2017. Oregon Commercial Fishing Industry Year 2016 Economic Activity Summary for the Oregon Department of Fish and Wildlife. 13 pages.



2) **Protected Species:** BOEM's analysis should consider areas necessary for the survival of protected species:

- Several Federal and state ESA-listed species occur in the OCS off Oregon including: green sea turtle, leatherback sea turtle, loggerhead sea turtle, Pacific Ridley sea turtle, Oregon Coast Coho salmon, Lower Columbia River Chinook Salmon, Lower Columbia River Coho salmon, green sturgeon, eulachon, marbled murrelet, western snowy plover, short-tailed albatross, California brown pelican, California least turn, blue whale, fin whale, humpback whale, killer whale, north Pacific Right Whale, and sea otter.<sup>10</sup> Species already at risk would be further compromised by activities and pollution related to oil and gas exploration, including indirect effects on their prey base and habitats
- Potential impacts to species of greatest conservation need listed in Oregon's Conservation and Nearshore Strategies and species listed as threatened or endangered by the state of Oregon.
- Twenty six species of cetaceans reside or migrate and forage throughout the OCS off Oregon,<sup>11</sup> including blue whale, sperm whale, fin whale, northern right whale, humpback whale, beaked whale, several species of dolphins, and Dall's porpoise. These species are directly affected by oil spills as they use the water surface to breathe, as well as by the underwater noise from oil and gas extraction infrastructure development and operations.
- Several offshore rocks and coastal beaches are rookeries or haul-out locations for Steller sea lion, California sea lion, northern elephant seal, and Pacific Harbor Seal. Oil spills or seepages can result in oil accumulation at or near these rookery and haul-out locations, causing toxicity in these species federally protected by the Marine Mammal Protection Act.

3) **Ecosystem Function and Ecological Resources:** BOEM's analysis should consider areas that are ecologically significant to maintaining ecosystem structure, biological productivity, and biological diversity, including:

- Impacts to the fish, invertebrate, and algal prey resources that the fishery stock species depend upon.
- Biological communities that are especially vulnerable because of the size, composition, or location in relation to the impacts of the proposed activities.
- Biological communities that are unique or of limited range within the region
- Impacts to habitats especially vulnerable to oil spills including, but not limited to, kelp beds, rocky intertidal areas, sandy beaches, subtidal rocky reefs, and estuary intertidal flats, eelgrass beds, algal beds, and coastal wetlands.
- Kelp beds and seagrasses provide shelter and foraging habitat for juvenile and adult fishes, seabirds, pinnipeds, and cetaceans. Kelp beds are particularly effective at trapping

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<sup>10</sup> Oregon Department of Fish and Wildlife. 2017. Threatened and Endangered Species List.

[http://www.dfw.state.or.us/wildlife/diversity/species/threatened\\_endangered\\_candidate\\_list.asp](http://www.dfw.state.or.us/wildlife/diversity/species/threatened_endangered_candidate_list.asp)

<sup>11</sup> Dean Runyan and Associates. 2009. Fishing, Hunting, Wildlife Viewing, and Shellfishing in Oregon. 2008. State and County Expenditure Estimates. 72 pages. [http://www.dfw.state.or.us/agency/docs/Report\\_5\\_6\\_09--Final%20%282%29.pdf](http://www.dfw.state.or.us/agency/docs/Report_5_6_09--Final%20%282%29.pdf)

and retaining oil on the surface and in the water column for extended periods, causing increased exposure times and toxicity impacts to the species associated with kelp.

- Impacts to ecosystem processes that support marine species and resources.
- Bottom-feeding and filter-feeding species such as halibut, sole, flounder, crabs, urchins, shrimp, clams, mussels, scallops, oysters, corals and sponges, and zooplankton can directly succumb to oil toxicity or retain toxins in their tissues over years which can transfer to their progeny.
- Rocky reefs support diverse and abundant fish and invertebrate communities. Reefs are particularly vulnerable to degradation, trapping and retaining heavy oils.
- Habitat-forming invertebrates on rocky and sandy bottoms such as corals, sponges, tube worms, anemones provide shelter and forage habitat for fish and other invertebrate communities. These are at risk for toxicity, suffocation, and burial.
- Oregon's estuaries provide food, shelter, and nursery habitat for a number of coastal animals, including salmon, Dungeness crabs, groundfish, lingcod, shrimp, seals, sea lions, seabirds, shorebirds, wading birds, bald eagles, and others. Offshore oil spills and seepages can be advected into estuaries where there is the greatest capacity for oil retention and ecological impacts. Estuaries support dense populations of shellfish for commercial and recreational harvest. Estuarine eelgrass beds are particularly important nursery habitat to juvenile salmon. Eelgrass beds and all seagrasses retain oil at a greater capacity than areas without eelgrass.
- Fish of all species can be directly killed by chemical toxicity and water quality degradation or severely impaired leading to death by predation or starvation. Fish eggs are especially vulnerable to toxicity.
- Potential impacts to all bird and marine mammal species that occupy or depend on Oregon's ocean and estuary environments, and nearby coastal areas. Over a million seabirds of multiple species nest on over 1,800 offshore rocks and islands and along hundreds of miles of coastal headlands and cliffs. Thousands of pelagic birds migrate, rest and forage across the OCS.<sup>12,13</sup> Seabirds are among the most vulnerable species to oil spills as any amount of oil affects their waterproofing capacity and is ingested with preening.
- Rocky shores make up 40 percent of Oregon's shoreline. Oregon's rocky intertidal habitats are the most diverse, unique, and populated marine communities on the coast. Several rocky shore areas are designated as Marine Gardens, Research Reserves and Habitat Refuges for their exceptional ecological value in the nearshore ecosystem, and as long-term research and educational sites. Rocky habitats and associated species are

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<sup>12</sup> Nearshore Ecological Data Atlas. 2011. Oregon Department of Land Conservation and Development, Oregon Ocean Information. [Spatial Data Library](#)

<sup>13</sup> Suryan, R.M., K.J. So, E.M. Phillips, J.E. Zamon, R.W. Lowe, S.W. Stephensen. 2012. Seabird colony and at-sea distribution along the Oregon coast: Implications for offshore energy facility placement and information gap analysis. Report to the Northwest National Marine Renewable Energy Center, Oregon State University.

extremely susceptible and sensitive to short- and long-term damage from oil toxicity and smothering from oil spills of any magnitude.

- Hundreds of newly-discovered methane seeps on the Cascadia Margin and Juan de Fuca subduction zone produce habitat-forming structure and nutrients that supports diverse flora and fauna, including deep sea corals and sponges.<sup>14</sup> Sites with the highest species diversity occur near deepwater rocky reefs off Oregon. Drilling near these sites could have effects on methane seep formation. Sinking crude oil would likely have detrimental effects on this unique biome.

#### **4) Environmental Sensitivity and Risk to Changing Ocean Conditions**

- Global oceans have absorbed approximately 550 billion tons of anthropogenic carbon dioxide (CO<sub>2</sub>) emissions released into the atmosphere from the fossil fuel industry and other industries.<sup>15</sup> The California Current Ecosystem (CCE) of the west coast is particularly vulnerable to ocean acidification (OA) with Oregon at the epicenter of climatological change.<sup>16</sup>
- Oregon is experiencing and observing changing ocean conditions including but not limited to: ocean chemistry with observed acidification), sea level rise, increasing storm intensity and surge, increasing ocean temperature, increasing frequency and intensity of harmful algal blooms. These conditions are all correlated with and/or caused by accumulation of carbon dioxide in the atmosphere and the resulting changes in atmospheric and oceanic conditions.
- Marine resources that are most vulnerable to oil spills are also the most valuable in providing resilience to changing ocean conditions. Specifically, healthy rock reef, rocky intertidal, and estuary habitats and communities are rich with kelp, algae, and seagrasses. These primary producers not only provide habitat and forage for the base of the food chain, they also buffer against changing ocean conditions such as storm surge, which is increasing with intensifying storm trends, and with sea level rise. In addition, they buffer against acidification of ocean waters by locally reducing acidification through chemical buffering processes. Any threat to these species or communities, such as from increased probability of oil spills from the proposed BOEM leasing program, also directly threaten Oregon's ability to build resilience in the face of climate change impacts such as ocean acidification and sea level rise.

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<sup>14</sup> Seabrook, S., F.C. De Leo, T. Baumberger, N. Raineault, A.R. Thurber. 2017. Heterogeneity of methane seep biomes in the Northeast Pacific. *Deep Sea Research Part II: Topical Studies in Oceanography*.

<sup>15</sup> Bednaršek N., R.A. Feely, N. Tolimieri, A.J. Hermann S.A. Siedlecki, G.G. Waldbusser, P. McElhany, S.R. Alin, T. Klinger, B. Moore-Maley & H.O. Pörtner. 2017. Exposure history determines pteropod vulnerability to ocean acidification along the US West Coast. *Scientific Reports*.

<sup>16</sup> Chan, F., J. A. Barth, C. A. Blanchette, R. H. Byrne, F. Chavez, O. Cheriton, R. A. Feely, G. Friederich, B. Gaylord, T. Gouhier, S. Hacker, T. Hill, G. Hofmann, M. A. McManus, B. A. Menge, K. J. Nielsen, A. Russell, E. Sanford, J. Sevadjan & L. Washburn. 2017. Persistent spatial structuring of coastal ocean acidification in the California Current System, *Scientific Reports*.

- Ocean chemistry is changing in the coastal and shelf waters off Oregon, where ocean acidification (OA) is more intense than other coastal regions worldwide.<sup>17</sup> OAH conditions extend across the entire continental shelf.<sup>18</sup> Hypoxic conditions and harmful algal blooms (HAB) occur almost annually and can cover the entire shelf. Ocean Acidification and Hypoxia (OAH) and HAB have increased in intensity, frequency, duration, and spatial extent impacting marine fauna, marine fisheries and coastal economies.
  - Excess CO<sub>2</sub> in the system is corrosive and fatal to calciferous organisms such as oysters and pteropods, a marine snail and important prey species for multiple species in the marine food web, including salmon, herring, anchovy, cod, and others.
  - Severe hypoxic events are responsible for high mortality of Dungeness crab and severely impacted catch rates of all fisheries in those years.
  - In 2015, a large warm water mass occupied the eastern Pacific ocean for many months resulting in the largest HAB ever recorded. Several species of marine mammals, birds, Dungeness crab and bivalves were infected with a neurotoxin, deadly if consumed by another animal, including humans. This event impacted all fisheries and coastal economies along the entire west coast.
- The marine ecosystem is in a fragile state of balance. Marine fauna unable to adapt to a rapidly changing ocean are less resilient to further assault. This further threatens ecosystem stability and ecosystem health. Building resilience into the marine ecosystem is achieved, in part, by protecting against additional risk. The oil and gas leasing program presents significant additional risk, with questionable economic benefit.

5) **Research:** Existing beneficial uses of the ocean off of Oregon include scientific research that is essential to the performance of fisheries management and conservation decision making.

- Oregon designates and manages marine reserves and marine protected areas that provide protected, long-term monitoring sites for changes in the nearshore ocean ecosystem. Oil spills would severely impact natural resources in these protected areas and damage their utility as long-term scientific research and monitoring sites.
- ODFW performs at-sea research on fishery stock species and fishery-limiting (e.g. overfished) species to support state and federal fisheries management. Oil and gas exploration, installation, or contamination could impact fisheries assessments in a number of ways including direct interference with at-sea surveys, changes in species behavior and spatial distribution, and fishing patterns.

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<sup>17</sup> Klinger T, Chornesky EA, Whiteman EA, Chan F, Largier JL, Wakefield WW. Using integrated, ecosystem-level management to address intensifying ocean acidification and hypoxia in the California Current large marine ecosystem. *Elem Sci Anth.* 2017; 5:16

<sup>18</sup> Chan, F., J. A. Barth, C. A. Blanchette, R. H. Byrne, F. Chavez, O. Cheriton, R. A. Feely, G. Friederich, B. Gaylord, T. Gouhier, S. Hacker, T. Hill, G. Hofmann, M. A. McManus, B. A. Menge, K. J. Nielsen, A. Russell, E. Sanford, J. Sevadjian & L. Washburn. 2017. Persistent spatial structuring of coastal ocean acidification in the California Current System, Scientific Reports.

- University and federal scientists have long-term oceanographic survey sites consisting of moored instruments that could be disrupted by oil and gas activities and contaminants.

6) **Economic Effects:** BOEM should consider all the social and economic impacts to the individuals, sectors, and communities that engage in Oregon’s marine-related natural resource economy that would result from oil and gas environmental impacts. This should include the economic costs to state and local governments for performing environmental review and permitting, building new infrastructure related to oil and gas exploration and development, and for managing oil spill planning, response, clean up, and recovery.

### **Conclusion**

Section 18(a)(3) of the OCSLA requires the Secretary to strike a balance between the potential for environmental damage, the discovery of oil and gas, and adverse impacts on the coastal zone. The Secretary’s balancing effort must be informed by analysis of the Section 18(a)(2) factors and a comparative analysis of all 26 planning areas. For the DPP, an element of the comparative analysis is an estimation of societal net benefits for each planning area, derived by calculating the value of undiscovered economically recoverable oil and natural gas resources minus the cost to industry and the environmental and social costs of developing those resources. Based on this existing policy as well as the risk of losing the economic value of Oregon’s sport and commercial fisheries far surpassing the potential gain from short-term oil and gas extraction, ODFW does not support including marine waters off Oregon in the 2019-2023 oil and gas program. Furthermore, ODFW believes that oil and gas exploration in the Washington/Oregon Planning Area is inconsistent with Section 18 of the Outer Continental Shelf (OCS) Lands Act, which requires that OCS leasing find balance between the potential for the discovery of oil and gas, the potential for environmental damage, and the potential for adverse impact on the coastal zone. Based on the information and comments we provide here, we conclude that such a balance is unattainable.

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## *Oregon Parks and Recreation Department Comments*

Oregon Parks and Recreation Department (OPRD) is the state agency charged with management and permitting decisions for activities on Oregon's 362-mile public Ocean Shore State Recreation Area, as specified in Oregon's Beach Laws (ORS 390.605-390.770). The "State Recreation Area" is described as the area of land or water, or a combination of, that is under the jurisdiction of OPRD and is used by the public for recreational purposes. The "Ocean Shore" means the land lying between the extreme low tide of the Pacific Ocean and the vegetation line (ORS 390.770). Additionally, OPRD owns and operates many oceanfront state parks along the Oregon coast, and houses the State Historic Preservation Office (SHPO).

### ***Coastal Recreation***

The recreational enjoyment of the Oregon coast is of vital economic and cultural importance to Oregon and its scenic beauty, and is a primary contributor to the character of the coastal region and its communities.<sup>19, 20</sup> Oregon's beaches and coastal state parks offer views of the extensive expanses of Oregon's diverse open ocean seascape populated by headlands, islands and rocks at this land-ocean interface, including the coast-spanning Oregon Islands National Wildlife Refuge and marine reserves. This aesthetic and recreational resource has made the Oregon coast an internationally recognized tourist destination, supporting millions of visits by residents and travelers each year. Oregon's coastline is also unique in that it has over seventy state parks running along the highway, providing "public access and resource protection in a way that is unrivaled by any other U.S. coastline park system."<sup>21</sup>

In 2017, there were an estimated 31.2 million visits to Coastal Region State Park properties, including day-use visitors and campers.<sup>22</sup> Visits to the coast have increased every year since 2011, and visitors to Oregon State Parks properties spent more than \$1.1 billion in the communities located around Oregon State Parks properties. The majority of expenditures were for lodging, gasoline, and food and drinks in restaurants/bars and grocery stores. Because the Coastal Region has the greatest number of visits and slightly higher levels of average spending, the region accounts for about half of Oregon's state park system-wide recreation visitor

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<sup>19</sup> Swedeen, P., D. Batker, H. Radtke, R. Boumans, C. Willer. 2008. *An Ecological Economics Approach to Understanding Oregon's Coastal Economy and Environment*. Audubon Society of Portland. Portland, OR.

<sup>20</sup> Needham, M. D., Cramer, L. A., & Perry, E. E. 2013. *Coastal resident perceptions of marine reserves in Oregon*. Final project report for Oregon Department of Fish and Wildlife (ODFW). Corvallis, OR: Oregon State University, Department of Forest Ecosystems and Society; and the Natural Resources, Tourism, and Recreation Studies Lab.

<sup>21</sup> CH2MHill, 1997. *Pacific Coast Scenic Byway Corridor Management Plan for U.S. 101 in Oregon*. Prepared for Coastal Policy Advisory Committee on Transportation (CPACT) and the Oregon Department of Transportation by CH2MHill and associated firms: Jeanne Lawson Associates, Jones & Jones, The Mandala Agency, Parametrix, Vanasse Hangen Brustlin, W&H Pacific. December 1997. 164 pp.

<sup>22</sup> Oregon Parks and Recreation Department (OPRD). 2018. *Day-use and overnight camping visitation estimates for coastal region state parks based on automated parking lot counters and camping reservation numbers*. Generated by the Oregon Parks and Recreation Department. Updated January 2018.

spending, totaling approximately \$619 million.<sup>23</sup>Based on previous surveys of Coastal Region state park visitors, 66% of day-use visitors are Oregon residents and 34% come from outside of the state. Forty-nine percent of overnight visitors are Oregon residents and 51% come from outside of the state<sup>24</sup>.

According to the 2017 Oregon Resident Outdoor Recreation Survey,<sup>25</sup> over half (57%) of Oregon residents participated in ocean beach activities during 2017, with an estimated 22.5 million annual user occasions. Other recreational activities that depend on Oregon’s diverse and vibrant coastal ecosystems include whale watching (~3.4 million user occasions) and tidepooling (~5.5 million user occasions).

According to the 2017 Oregon Resident Outdoor Recreation Survey (Bergerson, 2018), over half (57%) of Oregon residents participated in ocean beach activities during 2017, with an estimated 22.5 million annual user occasions. Other recreational activities that depend on Oregon’s diverse and vibrant coastal ecosystems include whale watching (~3.4 million user occasions) and tidepooling (~5.5 million user occasions).

### ***Scenic Resources***

Scenic enjoyment is the third most commonly stated primary recreational activity that visitors say they engage in at Oregon’s coastal beaches<sup>26</sup>. The Oregon Coast highway (Pacific Coast Scenic Byway) has been federally recognized by the National Scenic Byways program, established by Congress and administered by the U.S. Department of Transportation’s Federal Highway Administration. The highway has a series of viewpoints overlooking unique ocean vistas built into it at various points. In addition to being one of the first Scenic Byways in the country, it has also been designated an “All American Road,” which recognizes US 101 as possessing “multiple intrinsic qualities that are nationally significant and have one-of-a-kind features that do not exist elsewhere,” including eleven National-Register-listed bridges along its 363 miles. The complete inventory of maps for the 144 scenic ocean viewsheds delineated and

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<sup>23</sup> White, E.M. 2018. Economic Activity from Recreation use of Oregon State Park Properties-System Report. Report developed for Oregon Parks and Recreation Department. Available online at: [oregon.gov/oprd/PLANS/docs/scorp/2013-2018\\_SCORP/EconomicActivityRecreationOregonStateParksSystemReport.pdf](https://www.oregon.gov/oprd/PLANS/docs/scorp/2013-2018_SCORP/EconomicActivityRecreationOregonStateParksSystemReport.pdf).

<sup>24</sup> White, E.M., Goodding, D. and R.S. Rosenberger. OSU. 2012. Spending and Economic Activity from Recreation at Oregon State Park Units-Coastal Region and Milo McIver State Park, an update. Available online at: [oregon.gov/oprd/PLANS/docs/scorp/2013-2018\\_SCORP/Spending\\_Economic\\_Activity\\_Coastal\\_Region\\_Milo\\_McIver.pdf](https://www.oregon.gov/oprd/PLANS/docs/scorp/2013-2018_SCORP/Spending_Economic_Activity_Coastal_Region_Milo_McIver.pdf)

<sup>25</sup> Bergerson, T. 2018. 2017 Oregon Resident Outdoor Recreation Survey. 2018-2022 Oregon Statewide Comprehensive Outdoor Recreation Plan Supporting Documentation. Oregon Parks and Recreation Department. 216 pages.

<sup>26</sup> Shelby, B. and Tokarczyk, J. 2002. Oregon Shore Recreational Use Study. Report prepared for Oregon Parks and Recreation Department. Available online at: [oregon.gov/oprd/PLANS/docs/scorp/2008-2012\\_scorp/ocean\\_shore\\_recreational\\_use\\_study.pdf](https://www.oregon.gov/oprd/PLANS/docs/scorp/2008-2012_scorp/ocean_shore_recreational_use_study.pdf)

incorporated into the Territorial Sea Plan Part Five is available online at:  
[http://oregon.gov/lcd/ocmp/Pages/Ocean\\_TSP](http://oregon.gov/lcd/ocmp/Pages/Ocean_TSP).

Given the height of structures associated with offshore oil and gas development in other areas, it seems likely that structures would be visible once constructed. Based on the conclusion of a BOEM funded study, “Offshore Wind Turbine Visibility and Visual Impact Threshold Distances” offshore wind facilities, although different from oil and gas related structures, “may be visible at distances of 26 mi (42 km) in daytime and 24 mi (39 km) in nighttime views, and be a major focus of visual attention at distances of up to 10 miles”<sup>27</sup>, a thorough visual impact analysis is justified for all phases of planning for potential and actual development offshore Oregon.

The entire 362-mile picturesque coastline of Oregon is relatively undeveloped, and large oil and gas infrastructure will not blend in and will likely be a major focus of attention. Given the sensitivity of state park visitors and the scenic quality of the coastal landscape and seascape at many locations along the coast, visualizations should be conducted from, at a minimum, key viewpoints identified in Oregon’s Territorial Sea Plan during the planning stages, including during draft program development. These are highly visited state parks that extend up and down the entire coastline and are destinations for their scenic beauty, cultural history, proximity to the ocean and the remote, rugged character of the coastal landscape. There are multiple key viewing areas within coastal parks that are listed in the National Register along with those considered Traditional Cultural Places (TCPs) and Traditional Cultural Landscapes (TCLs) by Oregon’s Tribes.

The viewshed of parks classified in the highest category of visual resource protection standards in Oregon’s Territorial Sea Plan maintain a standard that allows for “level[s] of change to the characteristic seascape” that are “very low and may not attract attention” within the Territorial Sea. Please refer to the visual resource protection standards established in the Oregon Territorial Sea Plan<sup>28</sup>.

### ***Cultural Resources***

The Oregon coast contains a rich archaeological record representing use by native peoples over many thousands of years. Much of the ancient coastal landscape that would have once been available to early peoples is now submerged due to rising postglacial sea levels. This now submerged paleolandscape likely contains preserved cultural materials important to both Oregon and North America prehistory. Although currently inundated, any cultural site located on the

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<sup>27</sup> Sullivan, R., Kirchler, L., Cothren, J., & Winters, S. 2013. Offshore Wind Turbine Visibility and Visual Impact Threshold Distances. *Environmental Practice*, 15(1), 33-49

<sup>28</sup> Ocean Policy Advisory Council (OPAC). 2013. Oregon Territorial Sea Plan, Part Five. Available online at: [oregon.gov/lcd/ocmp/Pages/Ocean\\_TSP](http://oregon.gov/lcd/ocmp/Pages/Ocean_TSP)

continental shelf would be intrinsically connected to terrestrial archaeological resources along the current Oregon coastline.

OPRD recommends that early and on-going meaningful consultation with the affected tribes, including the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians, the Coquille Indian Tribe, the Confederated Tribes of Siletz and the Confederated Tribes of Grand Ronde occur to assure that Traditional Cultural Places and Landscapes are identified and efforts are made to assure that these important cultural resources are protected.

EuroAmerican settlement of the Oregon coastline dates to the 1860s, with the earliest known, extant, above-ground cultural resources dating from the 1870s, represented by three lighthouses. Six other lighthouses date from the 1880s-1890s, with the newest built in 1934. All nine are listed in the National Register of Historic Places. Small auto resorts and vacation houses from the early-twentieth century dot the coastline, along with historic downtowns reflecting postwar growth. The nationally significant US Naval Air Station Dirigible Hangar B is the crown jewel of the north coast, located in Tillamook.

Evaluating and protecting cultural resources located both offshore and along the current coastline is important to OPRD's mission to protect cultural and historic sites for present and future generations. Consultation with the coastal certified local governments (CLGs) and the statewide preservation non-profit, Restore Oregon, is a sound mechanism for engaging the public in this conversation.

While not having any specific project areas to look at, the Oregon State Historic Preservation Office recognizes that Oregon's offshore lands have the potential for possessing significant submerged prehistoric and historic cultural resources. Our office is very interested in protecting any significant sites that may exist off our coastline and on coastal land so that proposed activities will not result in an adverse effect. Potential project impacts that could occur from offshore drilling would include:

- 1) damage to sites that exist on lands located within offshore lease areas (e.g., earlier coastal prehistoric sites now inundated due to rising ocean levels, historic shipwrecks);
- 2) damage from any proposed cable routes that might be needed to transport minerals or energy to and from land to offshore platforms/equipment, and
- 3) any lands that would be affected on shore that would be accessed to reach existing power grids or necessary staging/transportation areas.

Our comments for each of these areas are noted below.

- 1) Offshore development in federal waters – For all submerged lands in federal waters affected by future offshore drilling projects, our office will want to receive an electronic copy of any cultural resource report detailing the results of the cultural resource reviews in addition to spatial information regarding the paleo landscape reconstructions and modeling for the probability of submerged prehistoric sites. It would be useful if these

results are compared to the larger database that BOEM collected recently that is documented in the ICF International, Southeastern Archaeological Research and Davis Geoarchaeological Research report (2013).

- 2) For all submerged lands where cables or pipelines would be needed, our office will want to receive spatial information similar to what has been developed in the above noted report. This data layer should include the results of side-scan sonar and sub-bottom profile data as well as information on any known historic shipwrecks. The applicability of this information will assist our office in recommending the placement of any offshore structures, drilling site, and associated features into areas of low potential to contain significant prehistoric and historic resources.
- 3) All lands onshore that could be affected by cables or pipelines extended from future drilling platforms or onshore staging/transportation areas linked to such projects will need to have a cultural resource survey. The survey may need subsurface probing should ground disturbing activities be considered necessary. A report detailing the results of this investigation will also need to be submitted electronically to our office through our Go Digital process for review. Please be sure that state above-ground survey guidelines and our field archaeology and report guidelines are followed for such a study. Our website has a copy of current state guidelines:  
<http://www.oregon.gov/OPRD/HCD/ARCH/Pages/index.aspx>.

### ***Natural Resources***

Oregon's beautiful rugged coastline is environmentally sensitive, with many difficult-to-reach headlands and rocky shorelines that would pose a significant access challenge in the event of an oil spill. The Oregon Islands National Wildlife Refuge runs the length of the coastline, home to fifteen species of nesting seabirds with an estimated population of 1.3 million individuals<sup>29</sup> and four species of marine mammals that haul out on the rocks and raise young in designated National Wilderness habitat. The Oregon Dunes National Recreation Area is a one-of-a-kind natural feature—one of the most expansive temperate coastal sand dunes in the world, and home to threatened Western snowy plover and many other native plants and wildlife. Whether it is rocky intertidal habitat, reefs, rocks, islands, or sandy dunes, the biodiverse Oregon coastline is highly susceptible to potential impacts from spills. Oregon's Geographic Response Plans are not designed for the response to spills from offshore development of oil and gas resources. The ocean off Oregon is highly dynamic and response options would be limited for most of the year, even in accessible areas. Further concerns relate to the onshore infrastructure that would be required such as pipes, oil processing sites, storage tanks, and other infrastructure, which could have direct and indirect impacts on the ocean shore.

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<sup>29</sup> Naughton, M. B., D. S. Pitkin, R. W. Lowe, K. J. So, and C. S. Strong. 2007. Catalog of Oregon Seabird Colonies. U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication FWS/BTP-R1009-2007, Washington, D.C.

### ***Safety and Spill Response***

As the managers of the Ocean Shore State Recreation Area, potential safety concerns have been identified associated with the proposal to consider oil and gas development in the OCS offshore Oregon. Any potential impact to ocean shore resources, recreational use of the beach and the safety of visitors should be considered in development of the DPP along with a thorough consideration of costs incurred for emergency preparation, response, and recovery from accidental oil spills.

Studies should include modeling that helps predict probable landfall locations at various times of the year given the dynamic nature of the Pacific Ocean offshore Oregon. Impact and risk analysis should include potential resource concerns associated with oil spill risk along with landfall of anticipated and unanticipated project-related marine debris and associated removal efforts, particularly for sensitive areas identified in Oregon's Territorial Sea Plan and western snowy plover critical habitat and state management areas defined in a Habitat Conservation Plan (HCP) developed with the U.S. Fish and Wildlife Service.

### ***Permitting Requirements***

Under ORS 390.640 and ORS 390.715, anyone conducting an ocean shore alteration, or placing any pipeline, cable line, or other conduit over, across or under the state recreation area or submerged lands adjoining the ocean shore, must obtain an "Ocean Shore Alteration Permit" from OPRD which can be found online at: <http://oregon.gov/oprd/RULES/Pages/oceanshores> . Factors evaluated in review of Ocean Shore Alteration Permits include consideration of the public need for healthy, safe, esthetic surroundings and conditions, along with the natural, scenic, recreational, economic and other resources of the area. Permit award is not a given, and each permit's conditions are based on the specifics of the application.

### ***Staff Contacts for OPRD Comments:***

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- Jay Sennewald, Ocean Shore Permit Coordinator ([jay.sennewald@oregon.gov](mailto:jay.sennewald@oregon.gov)), 541-563-8504
- Samuel Willis, Coastal Region State Park Archaeologist ([samuel.willis@oregon.gov](mailto:samuel.willis@oregon.gov)), 541-563-8500

## ***Department of Environmental Quality Comments***

The Oregon Department of Environmental Quality (DEQ) has no regulatory authority for offshore oil facilities outside State waters. DEQ is responsible for protection of human health and the environment for oil spills that could threaten Oregon's coastal zone under ORS 468b. DEQ is responsible by statute for the development of plans to respond to oil spills in coastal waters of Oregon, in partnership with the United States Coast Guard.



The oil spill protection plans (Geographic Response Plans) developed for the Oregon Coast were not designed for the response to spills of the potential magnitude presented by the development of offshore oil resources. The plans for the Oregon Coast are based on limited resource data available at the time of creation, and do not represent the current state of response technology or equipment availability in the Pacific Northwest.

DEQ is the primary state agency responsible for prevention and cleanup of hazardous material spills in Oregon. DEQ does not have the Incident Command resources to conduct large-scale, long-term response to significant spills of oil. Because of staff and resource limitations, DEQ relies on the resources and leadership of the United States Coast Guard and Environmental Protection Agency to conduct response to significant oil and hazardous material spills that threaten the environment.

Oregon is not prepared, staffed, or resourced to respond to a spill in the coastal zone of the potential magnitude presented by development of offshore oil exploration and development, and because Oregon does not regulate facilities outside Oregon's waters, would have no means of developing or expanding oil spill program resources to match the increases in risk posed by offshore drilling.

Under the National Contingency Plan, Area Committees are established to develop Geographic Response Plans and facilitate planning needed to conduct a coordinated response. The member agencies of the Northwest Area Committee (state and federal) have struggled over the past 5-6 years to provide staffing to conduct the work needed to adapt the Area Plan to emerging risks from new types and sources of oils and new transportation routes to refineries and markets.

Oregon, in contrast to other West Coast States, has struggled to provide staff resources having but 10% of the oil spill planning and response staff that Washington maintains, and 5% of the staff that California maintains to support their programs.

Currently, scientists are predicting that there is about a 40 percent chance that a megathrust earthquake of 9.0+ magnitude in the Cascadia subduction zone along the Oregon and Washington coast will occur in the next 50 years. An earthquake along the coastal zone of Oregon or Washington would like result in significant spill of oil at a time where the state or region has no capacity to respond. Survivors in coastal communities would be faced with oil washing ashore creating life safety challenges and serious long-term recovery and restoration challenges.

### **Comments on BOEM's Proposed Program**

In Section 7.2.1 Accidental Oil Spills of the DPP, it states "Oil spills are accidental and unauthorized events. Industry practices and government regulations minimize the frequency of these spills, and industry and government entities are prepared to respond or prevent spills from reaching the coast should a spill occur."

- a. There are few response strategies that are available to protect Oregon’s nearshore waters, estuaries and shorelines from oil spills due to the high energy environmental conditions present throughout much of the year in the Pacific Northwest.
- b. In the event of a spill, impacts to Oregon’s shoreline are likely and would extend along the coast through ocean and nearshore currents. Although the Draft Proposed Plan points out that the control of spills can be accomplished using booms and skimming off shore, these techniques are less effective in open waters, and Oregon does not maintain the quantities and types of equipment needed to accomplish control of oil in the offshore environment, even if weather did not prevent its use.
- c. The only effective tool to combat significant quantities of oils released in heavy seas offshore is the aerial or boat application of dispersants. However, the effects and consequences of using dispersants at sea are only beginning to be understood. The largest, well-studied use of dispersants was in response to the Deepwater Horizon (DWH) Spill, and though nearly 8 years have passed, much of the science of the use and effects of large-scale dispersants application has only recently become available. The use of dispersants in cold water marine environments is less well studied, but some data indicates that dispersants used in DWH do not readily break down in colder ocean applications,<sup>30</sup> and the effects on habitats in colder regions is unknown. It is likely that the use of dispersants for large discharges of oil from oil and gas exploration or development would have devastating impacts on crucial fisheries and critical offshore habitat. Some studies suggest that the impacts from the use of dispersants may be more harmful to certain types of species than the spilled oil itself.<sup>31</sup>
- d. The techniques available to cleanup sensitive rocky and sandy intertidal habitats are very limited, have limited effectiveness, and have inherent environmental tradeoffs when implemented: any significant spillage from offshore oil production will have dramatic long-term consequences for Oregon, even if cleanup of shorelines is conducted.
- e. Experience in the Pacific Northwest with smaller spill incidents, such as Exxon Valdez, New Carissa, Cosco Busan, and others, have stretched the limits of responder and response organization capabilities to accomplish shoreline assessment and the cleanup of shorelines impacted by comparatively smaller releases of oils.

In Section 7.2.1.2 of the Draft Proposed Program on Catastrophic Discharge Events (CDE), it states “Statistically unexpected, a CDE is an event that results in a very large discharge of oil (typically greater than one million barrels) into the environment and could cause long-term and widespread effects on marine and coastal environments.” and then further states “A catastrophic spill is not expected, and would be considered well outside the normal range of probability,

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<sup>30</sup> *Biodegradability of Corexit 9500 and Dispersed South Louisiana Crude Oil at 5 and 25 °C*. Campo, Venosa, and Suidan; *Environ. Sci. Technol.*, **2013**, 47 (4), pp 1960–1967

<sup>31</sup> Dispersant used to clean Deepwater Horizon spill more toxic to corals than the oil, study suggests. Cordes: *Phys.Org Online Journal*, 2015, <https://phys.org/news/2015-04-dispersantdeepwater-horizon-toxic-corals.html>

despite the inherent risks of oil exploration, development, or production-related activities expected from the 2019-2024 Program.”

- a. Given the oceanographic and meteorological conditions present off the coast of Washington and Oregon, the conduct of exploration, development and production of oil and gas would pose challenges that would increase the potential for CDEs.
- b. The unconsolidated continental shelf deposits, and the periodic shaking associated with subduction zone earthquakes, has caused numerous turbidite deposits and other soft sediment deformation, even on relatively modest sloping deposits due to the saturated nature of the sediments. This relatively unstable platform is the setting of the proposed offshore development program, which further increases the likelihood of a significant discharge of oil through exploration and production activities.
- c. Although statistically improbable, the magnitude of risk associated with such an event establishes the need to conduct response planning and response equipment staging commensurate with that risk. Such equipment staging and planning for CDEs has not been conducted in the Pacific Northwest.

### **Guidance to BOEM in development of an Environmental Impact Statement**

Because of the present gap in marine oil spill planning in Oregon, and the lack of spill response resources to combat oil spills of the magnitude presented by the potential development of offshore oil and gas resources, any EIS evaluation must include the ability to factor in the threat presented by lack of current state of preparation, and the costs associated with bringing those capabilities to needed levels to support offshore drilling.

Because of the gap in marine oil spill response resources in the Pacific Northwest, the EIS process must account for the threat posed and additional risks to PNW shorelines that will result from having to bring resources in from other parts of the US and Canada. The gap in response equipment and resources availability will result in substantial loss of opportunity to respond, unless these resources are staged in Oregon and Washington. The EIS process must take into account the fact that these resources, typically available in areas of the country that have long ago developed oil and gas production offshore, are not available in Oregon.

Oregon’s coastal zone and nearshore waters represent a unique ecosystem that supports many highly valued fisheries and habitats. The DPP values the habitat for all offshore waters of the United States, but fails to recognize the high quality and relatively pristine waters off Oregon and Washington. This evaluation should be conducted again to make sure the methodology for habitat valuation accurately recognizes the place, function and critical nature of Oregon and Washington’s offshore waters before undertaking an EIS analysis.

### ***Staff Contacts for DEQ Comments:***

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## *Oregon Department of Energy Comments*

The mission of the Oregon Department of Energy (ODOE) is to lead Oregon to a safe, clean, and sustainable energy future. ODOE has a number of statutory responsibilities that intersect with the Bureau of Ocean Energy Management (BOEM) Offshore Drilling Proposal.

### *General Mission*

Under Oregon Revised Statutes (ORS) 469.030, ODOE is statutorily charged with the responsibility to collect, evaluate, and disseminate information about energy use in Oregon, including the responsibility to prepare a comprehensive energy report under ORS 469.059. Under ORS 469.010 and 469.030, ODOE is charged to work with other public agencies and private entities on energy program activities to promote energy conservation, energy efficiency, and permanently sustainable energy resources. In dealings with the federal government to aid that responsibility, ODOE "may intervene in any proceeding undertaken by an agency for the purpose of expressing its views as to the effect of an agency action, upon state energy resources and state energy policy." (ORS 469.110(2).)

### *Renewable Electricity*

ODOE may approve by rule new generating sources as eligible for the Oregon Renewable Portfolio Standard (RPS) beyond those currently allowed, except for any petroleum, natural gas, coal, or nuclear fission-based sources. (ORS 469A.025(9).) Through its Electricity Resource Mix process and in partnership with the Washington Department of Commerce, ODOE works each year to produce data on overall electricity consumption in Oregon. Investor-owned utilities then use this information to fulfill their statutory requirement of Oregon Administrative Rule (OAR) 860-038-0300 to disclose electricity price, power source, and environmental impact information to customers so that they can make informed choices.

### *Facility Siting*

Under ORS 469.310, ODOE is also charged with ensuring that the siting, construction, and operation of state jurisdictional energy facilities are accomplished in a manner consistent with the protection of the public health and safety and in compliance with the state's energy policy and air, water, solid waste, land use, and other environmental protection policies of Oregon. If an offshore drilling facility were to transport any fossil energy resources to shore via a pipeline with some or all of its footprint in Oregon, the pipeline could potentially fall under the jurisdiction of the Energy Facility Siting Council (EFSC) under ORS 469.300(11)(a)(E), depending on the specific parameters of the project, such as size, location, and length. Additionally, if an offshore drilling facility were to require a source of electricity from onshore in Oregon to the rig, this could fall under the jurisdiction of EFSC under ORS 469.300(11)(a)(C). Oregon's energy facility siting review process is a technology neutral, standards based process in which an applicant has the burden of proof to show they meet all applicable standards before they can receive an approval. All applicants are reviewed against the same set of applicable standards and criteria, regardless of energy facility type.

### *Climate Change*

The director of ODOE serves as an ex officio non-voting member of the Oregon Global Warming Commission under ORS 468A.220(1)(a). ODOE staff provide technical support to assist Commission activities including, development and preparation of the biennial report to the Legislature (ORS 468A.260), an outreach strategy to educate Oregonians about the scientific and economic impacts of climate change, ways to reduce greenhouse gas emissions, and ways to prepare for the effects of climate change. (ORS 468A.225(3) and 468A.245.)

### **Comments from the agency on BOEM’s proposed program**

Section 18 of the Outer Continental Shelf Lands Act requires that the United States Department of Interior consider the “laws, goals, and policies of affected states” when revising the oil and gas leasing program.<sup>32</sup> The BOEM proposal for oil and gas leasing on the outer continental shelf is inconsistent with the current and proposed direction of Oregon’s laws, goals, and policies with regard to its energy system and economy. Oregon has a long history of embracing energy efficiency as well as renewable energy sources for electricity production, transportation, and for stationary fuel use. Additionally, Oregon has state greenhouse gas (GHG) reduction goals, with a 2050 target of a 75 percent reduction in GHG emissions below 1990 levels. Overall, Oregon’s energy policy is to “promote the efficient use of energy resources and to develop permanently sustainable energy resources,” (ORS 469.010) and to reduce the state’s GHG emissions (ORS 468A.205). Even without accounting for processing, transmission, storage, distribution, or ultimate combustion of petroleum and natural gas, offshore oil and gas drilling alone releases a considerable amount of GHGs into the atmosphere. For example, according to 2015 data from the U.S. Environmental Protection Agency, domestic offshore oil and gas production emitted approximately 7,000,000 metric tons of carbon dioxide equivalent. Thus, the BOEM proposal is firmly at odds with Oregon energy policy.

### *Renewable Electricity*

Oregon adopted its renewable portfolio standard (RPS) in 2007, which requires an increasing percentage of the electricity consumed in the state to come from renewable sources. The RPS explicitly excludes electricity generated from natural gas or other fossil fuels. In 2016, Oregon increased its RPS target to 50 percent renewable electricity by 2040, joining a short list of other states with similarly aggressive renewable energy goals. Additionally, in 2017, the Multnomah County Board of County Commissioners, representing the most populous Oregon county, and the City of Portland, the state’s largest city, each unanimously voted to commit their respective jurisdictions to a target of 100 percent renewable energy use by 2050.

As Oregon plans ahead for an increasingly decarbonized electricity industry, it supports consideration of emerging new technologies, including offshore wind and wave energy. In December 2016, US DOE announced the award of up to \$40 million to a team led by Oregon State University to “design, permit, and construct an open-water, grid-connected national wave

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<sup>32</sup> Outer Continental Shelf Lands Act, 43 U.S.C. § 1344.

energy testing facility” off the coast of Newport, Oregon. The Northwest National Marine Renewable Energy Center operates testing facilities located around the Pacific Northwest, collectively referred to as the Pacific Marine Energy Center, with two of the sites located off the central Oregon coast.

### *Renewable Natural Gas*

Oregon demonstrated its interest in finding low-carbon renewable fuels that originate in and support local Oregon economies with the passage of SB 334 (2017). The law, which authorizes ODOE to conduct a detailed inventory of all potential sources of biogas and renewable natural gas (RNG) within the state of Oregon, as well as to estimate the potential production quantities of biogas and RNG. Additionally, the bill authorizes analysis of current technology for converting biomass to biogas and for processing biogas into RNG, identification of the potential for RNG to reduce greenhouse gas emissions and improve air quality, and identification of the myriad barriers to developing and utilizing biogas and RNG.

### *Transportation*

Oregon has numerous policies in place to reduce its dependence on petroleum transportation fuels and to transition to a greater share of zero emission vehicles (ZEV) on its roads. Oregon’s 2007 renewable fuel standard (RFS) requires almost all gasoline to be blended with ethanol and diesel to be blended with biodiesel or renewable diesel. In 2009, Oregon established a state law to reduce the carbon intensity of Oregon’s transportation fuels by 10 percent over a ten year period. Oregon’s ZEV program requires automobile manufacturers to meet an increasing share of their vehicle sales with ZEVs through 2025. In 2017, the Oregon Legislature established an EV rebate program (HB 2017), and Governor Brown’s Executive Order 17-21 directs the state to adopt a goal of 50,000 plug-in vehicles registered in the state by 2025. Both of Oregon’s large investor-owned utilities now offer complementary policies to residential customers like time-of-use rates for EV owners.

### *Greenhouse Gas Emissions*

In 2007, the Oregon created the Oregon Global Warming Commission to track and evaluate progress toward Oregon’s GHG emissions reduction goals, and to recommend statutory and administrative changes, policy measures, and other recommendations for reducing GHG emissions and for preparing for the effects of global warming. That year, the Oregon also codified its GHG reduction goals in statute (ORS 468A.205), setting a goal of achieving GHG levels that are at least 10 percent below 1990 levels and a 2050 goal of 75 percent below 1990 levels.

In its 2017 Biennial Report to the Legislature,<sup>33</sup> the Oregon Global Warming Commission found that despite anticipated emissions reductions due to Oregon’s renewable energy policies, the

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<sup>33</sup> Oregon Global Warming Commission. 2017. *2017 Biennial Report to the Legislature*.



state is not expected to meet the 2020 and 2050 GHG emissions reduction goals. The report found that Oregon is on track to miss its 2020 goal by just under 11 million MTCO<sub>2e</sub>.<sup>34</sup> Oregon's emissions had been declining or holding relatively steady through 2014, but increased between 2014 and 2015, largely (60%) due to increased emissions from the transportation sector, specifically the use of gasoline and diesel.

### **Scoping Guidance for BOEM's EIS Development**

Given the potential of EFSC jurisdiction, ODOE requests that BOEM be as specific as possible when identifying and analyzing proposals and alternatives on the number of potential production platforms that could be installed and the type of support infrastructure these installations might need, especially related to onshore power. Additionally, ODOE requests as much detail as possible on the proposed methods that might be used to transport the oil and gas that are produced.

As the support agency for the Oregon Global Warming Commission and co-author of the Commission's reports, ODOE also requests that any associated EIS includes estimates of the GHG emissions associated with the recovery and the transport of oil and gas from offshore drilling facilities in Oregon.

#### ***Contact for ODOE Comments:***

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## ***Department of Geology and Mineral Industries Comments***

### **Oil and gas potential of the Oregon (OCS)**

The potential for discovery of economically significant oil and gas fields on the Oregon OCS is poorly understood, and the Department of Geology and Mineral Industries (DOGAMI) has not evaluated offshore oil and gas potential since the 1960s. The only previous exploration occurred between 1961 and 1967, when seafloor sampling and geophysical and seismic surveys were carried out and nine wildcat wells were drilled. The wells were drilled to depths of 3,000 to 12,000 feet below the seafloor in water ranging from 324 to 469 ft deep. Total expenditures were estimated at \$73 million (\$ 576 million adjusted for inflation), and no significant oil or gas was reported.

In the intervening decades, scientific geophysical and seismic surveys have substantially increased our knowledge of the geologic structure in the Oregon OCS, but there has not been any further oil and gas exploration. The technology for finding oil and gas deposits and for offshore

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<sup>34</sup> MTCO<sub>2e</sub> refers to metric tons of carbon dioxide equivalent. This is a common measurement used to compare the various global warming potentials of different greenhouse gases.

drilling have both dramatically improved in the last 50 years. The entire Oregon OCS is within the depth range commonly accessible by current drilling technology.

North of Bandon, the Oregon OCS is comprised entirely of marine sedimentary rocks, which are the most common source rock and host rock for oil and gas deposits globally. South of Bandon the shelf is composed of complexly deformed metamorphic rocks that are unlikely to host oil or gas.

In its 2016 assessment of oil and gas resources of the Pacific OCS, the Bureau of Ocean Energy Management (BOEM) evaluated the potential for undiscovered oil and gas in the Oregon and Washington OCS for three different price levels. More resources can be economically produced as prices increase. The value of the total undiscovered resource for Oregon and Washington is shown in the table below with current prices at ~\$70/bbl for oil, \$3.15/Mcf for gas. For comparison, Oregon’s only producing field is the Mist gas field in Columbia County, which has produced ~80 billion cubic feet since 1980, worth \$252 million at today’s price.

<b>Economic Potential \$</b>	\$40/bbl & \$2.14/Mcf	\$100/bbl & \$5.34/Mcf	\$160/bbl & \$8.54/Mcf
<b>Oil</b>	\$6.4 billion	\$27 billion	\$48 billion
<b>Gas</b>	\$1.11 billion	\$5.13 billion	\$10.25 billion
<b>Combined O&amp;G Total</b>	\$7.51 billion	\$32.13 billion	\$58.25 billion

### **Regulation of Drilling**

Within the three mile limit, DOGAMI has jurisdiction over the drilling and operation of oil and gas wells to ensure that they are constructed in a manner that is safe and protects the environment. DOGAMI’s authority postdates the last offshore drilling in Oregon, and it is likely that statutory or rule changes would be needed in order to adequately regulate such wells. DOGAMI has no experience with offshore drilling.

### **Natural Hazards in the Oregon OCS**

The Oregon OCS is a region that is subject to several significant natural hazards, including subduction zone earthquakes, tsunamis, submarine landslides and extreme storm waves. The entire OCS is adjacent to the Cascadia Subduction zone, a 600 mile-long fault that extends from Northern California to British Columbia. The Cascadia Subduction Zone produces Magnitude 8-9 earthquakes with return periods of ~240 to ~530 years, with the most recent a Magnitude 9 in 1700. Such earthquakes will produce severe shaking for durations of 1-5 minutes, and will generate large tsunamis that may arrive at some OCS locations within minutes of the onset of the earthquake. The 2014 USGS National Seismic Hazard Maps (2% in 50 years) show that the entire Oregon OCS is subject to ground shaking of 60 to 80% g (acceleration due to gravity), a level classified by USGS as “Violent” (level 8 on a 9-level scale). In sloping areas of the OCS, the shaking may trigger undersea landslides and associated turbidity flows of rapidly

moving suspended sediment. Any long-term facilities installed on the OCS will need to be designed to withstand these hazards.

The wave climate off the coast of Oregon is one of the most severe in the world. Wave models based on data from offshore buoys has been used to predict the size of waves that can be expected to occur at a given frequency. The table below shows data for NGDC Buoy #46050, located 21 miles west of Newport. Significant wave height describes the highest 1/3 of the waves in ~20 minute record, while the maximum wave height describes the largest single wave expected.

Any offshore drilling and production facilities will need to be designed and constructed in order to operate safely under these wave conditions.

Recurrence Interval ( <i>years</i> )	Extreme Significant Wave Height ( <i>ft</i> )	Extreme Maximum Wave Height ( <i>ft</i> )
10	39.2	72.5
25	42.2	78.1
50	44.1	81.6
75	45.1	83.4
100	45.6	84.4

***Staff Contacts for DOGAMI Comments:***

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***Attachments:***

Attached: Geographic Location Description

Attached: 2017 August 15 Oil and Gas OCS Leasing Letter

Link: <http://oregonocean.info/index.php/gld>

Attached: Table 1\_OregonFisheries (extracted from GLD; describes volume/location of fisheries species) Link to Oregon’s Geographic Location Descriptor (GLD), prepared to acquire automatic federal consistency review for offshore renewable energy siting/projects; this document has a lot of useful analysis for the value of Oregon’s offshore for aesthetics/visual resources, fisheries resources, and other.