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Comments of Natural Resources Defense Council *et. al.* on Proposed Sale Notice for Commercial Leasing for Wind on the Outer Continental Shelf in California – *Docket No. BOEM-2022-0017*

On behalf of American Bird Conservancy, Center for Biological Diversity, Defenders of Wildlife, Environmental Defense Center, Environmental Protection Information Center, Humboldt Baykeeper, Monterey Bay Aquarium, National Audubon Society, National Wildlife Federation, Natural Resources Defense Council, Ocean Conservation Research, Surfrider Foundation, and our millions of members and supporters, we submit these comments on the Proposed Sale Notice (PSN) for Pacific Wind Lease Sale 1 for Commercial Leasing for Wind Power on the Outer Continental Shelf (OCS) in California prepared by the Bureau of Ocean Energy Management (BOEM), Docket No. BOEM–2022–0017.

Offshore wind provides a tremendous opportunity to fight climate change, reduce local and regional air pollution, and grow a new industry that will support thousands of well-paying jobs in both coastal and inland communities. Our organizations strongly support the Biden Administration's leadership to direct the United States to transition to clean energy sources. We fully recognize the climate benefits of offshore wind energy and also vigorously advocate for policies and actions needed to bring it to scale in an environmentally protective manner. Protecting biodiversity and rapidly transitioning to clean energy need not be in conflict – we can and need to accomplish both goals.

Our organizations are united in support of responsibly developed offshore wind, which: (1) avoids, minimizes, mitigates, and monitors for adverse impacts on wildlife and habitats; (2) minimizes negative impacts on other ocean uses; (3) includes robust consultation with Native American Tribes and communities; (4) meaningfully engages state and local governments and stakeholders from the outset; (5) includes comprehensive efforts to avoid negative impacts to underserved communities; and (6) uses the best available scientific and technological data to ensure science-based and stakeholder-informed decision making.

We appreciate BOEM's request for recommendations regarding how the leasing process can be used as a tool for realizing the Biden Administration's commitment to responsible offshore wind development. We also appreciate the effort by BOEM to consider these important improvements to the leasing process for offshore wind power at this pivotal moment in floating offshore wind development on the California coast. It is crucial to the nation's renewable energy future, as well as to the future of the floating wind energy industry, that care be taken upfront to prioritize avoiding the most environmentally sensitive areas and adopt minimization and mitigation measures. This would help ensure the first projects have minimal harm on the environment and coastal communities as well as provide the greatest chances of success. Careful consideration of how we achieve a zero-carbon future is vital for protecting California's internationally treasured wildlife, landscapes, marine ecosystems, diverse habitats, and cultural resources. As the development of offshore wind moves forward nationwide, we urge BOEM to apply the measures used in California to protect other ocean habitats and support communities adjacent to wind energy sites.

Summary of Comments

Our comments offer recommendations for lease stipulations and incentives for a Final Sale Notice (FSN) that can further the Administration's goals of fighting climate change while developing American offshore wind power in a manner that protects biodiversity and creates good jobs.

Please note that our organizations offer these comments with the goal of fighting climate change, creating a market that ensures responsible renewable energy, protecting the environment, and advancing environmental justice. We are not, however, speaking on behalf of environmental justice communities and encourage the Administration to pursue meaningful ongoing outreach to ensure these and other strategies to benefit underserved communities are informed and led by them.

We strongly urge BOEM to incorporate environmental avoidance and mitigation measures and requirements directly into the FSN, rather than wait for inclusion of protective measures in future environmental permits. This approach would increase certainty for developers and ensure a

successful and environmentally responsible offshore wind industry. Moreover, we recommend that the leases include stipulations pertinent to not only the site assessment and characterization stage, but for all phases of development and operations, up to and including decommissioning. Incorporating stipulations relevant to the project's entire potential lifespan at this juncture will outline for developers the boundaries within which future phases should be designed and serve as a crucial step in ensuring that the ultimate project will meet environmental standards.

In addition to including strong environmental protections in the FSN, we request that BOEM prepare a Programmatic Environmental Impact Statement (PEIS) to ensure full and adequate evaluation of potential direct, indirect, and cumulative impacts, measures to avoid, minimize, mitigate and monitor for potential impacts, and alternatives for wind development within the Humboldt WEA and Morro Bay WEA. As several of our groups have commented previously,[1] potentially significant impacts may result from wind development in these areas, and currently there is still no plan to assess or address regional cumulative impacts. A PEIS should consider the reasonably foreseeable effects of development within both WEAs and the cumulative impacts of development in the region. In addition, a PEIS should consider the onshore impacts – such as environmental impacts of building needed transmission infrastructure – that will result from wind development on the West Coast. Improved knowledge of impacts would enable BOEM and developers alike to make better decisions early in the process, when there is greater flexibility. We note that BOEM is preparing a PEIS to analyze the effects of wind energy development in the New York Bight[2] and urge BOEM to prepare one here as well.

The California Coastal Commission's conditions for Morro Bay and Humboldt Bay must be included as lease terms in the FSN in order to safeguard California's coastal and marine environment. We urge BOEM to include the modifications which we have recommended in our prior comments and set forth below. We also recommend that BOEM modify the bid credit structure, in order to support investments into research into the environmental effects of wind development, as well as to ensure that benefits flow to communities affected by wind development. We also offer other recommendations in response to BOEM's request for input on specific topics.

I. Recommendations for environmental protections in lease terms
    A. Risk reduction of secondary entanglement of marine mammals, sea turtles, sharks, and diving birds – p. 6

[1]Letter from Natural Resources Defense Council, *et. al.*, to Bureau of Ocean Energy Management, Comments in Response to the Bureau of Ocean Energy Management Draft Environmental Assessment for Commercial Wind Lease Grant Issuance and Site Assessment Activities on the Pacific Outer Continental Shelf, Humboldt Wind Energy Area, BOEM-2021-0085 (Jan. 11, 2022); Letter from Environmental Defense Center, *et. al.* to Bureau of Ocean Energy Management, Re: Morro Bay Wind Energy Area Draft Environmental Assessment, BOEM-2021-0044-0128 (May 16, 2022). As the draft Morro Bay EA is not yet final, we urge BOEM to consider our public comments on the Morro Bay draft EA in development of the FSN.
[2] 87 Fed. Reg. 42,495 (July 15, 2022).

I. Recommendations for Environmental Protections in Lease Terms

BOEM should include a set of environmental measures as lease stipulations in the FSN, to ensure that offshore wind development proceeds in a manner that avoids and minimizes ocean user conflicts and safeguards vulnerable ocean habitats and wildlife. BOEM has used such stipulations to protect species, topographic features, and benthic habitat when regulating oil and gas development.[3] We urge that BOEM adopt the "mitigation hierarchy" within the FSN to

[3] Recent offshore oil and gas lease sales have established stipulations that protect the environment. Since at least 2012, most Gulf of Mexico lease sales have included some combination of three environmental stipulations: protected species, topographic features, and live bottom. *E.g.*, Lease Sale 257, Final Notice of Sale (https://www.boem.gov/sites/default/files/documents/oil-gas-energy/leasing/Sale-257-Lease-Stipulations.pdf).

The Protected Species stipulation requires lessees and operators to comply with the reasonable and prudent measures, terms and conditions, and mitigation measures established in the relevant Endangered Species Act biological opinion. Lessees and operators also must report any dead or injured protected species. (*Id*. at 8-9). The Topographic Features stipulation requires lessees and operators to protect banks and other biologically sensitive underwater areas. This stipulation refers to the guidelines provided in the BOEM Notice to Lessees and Operators (NTL) on Biologically-Sensitive Underwater Features and Areas (NTL No. 2009-G39, https://www.boem.gov/sites/default/files/regulations/Notices-To-Lessees/2009/09-G39.pdf), which, for example, limits use of bottom-disturbing activities like anchors and chains. The Live Bottom stipulation also protects seagrass communities and areas containing biological assemblages consisting of sessile invertebrates by requiring lessees and operators to submit a live bottom survey report to BOEM prior to conducting activities that may cause disturbance. Further, BOEM can require the lessee to take protective measures, including monitoring the area and even moving operations. (*Id*. at 17).

clarify expectations that lessees first avoid, then minimize and mitigate, potential environmental impacts from all stages of offshore wind development, and note that the monitoring stipulations will be a critical part of informing the implementation of this hierarchy.[4]

BOEM is required by law to protect the environment when administering the offshore wind leasing program, including when specifying lease stipulations. The Outer Continental Shelf Lands Act (OCSLA) authorizes the Bureau of Ocean Energy Management to grant leases on the Outer Continental Shelf to produce energy "from sources other than oil and gas," including offshore wind. 43 U.S.C. § 1337(p)(1)(C). When issuing wind leases, BOEM must provide for: safety; the protection of the environment; prevention of waste; conservation of the natural resources of the outer Continental Shelf; consideration of other uses of the sea or seabed, including fisheries; and oversight, inspection, research, monitoring, and enforcement relating to a lease. 43 U.S.C. §§ 1337(p)(4)(A)-(L); *see also*, 43 U.S.C. §§ 1331(g)-(i) (defining "environment"); 30 C.F.R. § 585.102. Further, Congress declared that "the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public," which in addition to being used for development must be "subject to environmental safeguards." 43 U.S.C. § 1332(3).

We remind BOEM that conditions adopted by the California Coastal Commission in its conditional concurrence for the Humboldt WEA and Morro Bay WEA,[5] pursuant to the Coastal Zone Management Act ("CZMA," 16 U.S.C. § 1451 *et. seq.*), must be included in the FSN. We

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Recent Alaska lease sales have likewise included environment-protecting stipulations. Lease Sale 244, conducted in 2013 for the Cook Inlet planning area, includes a Protection of Biological Resources stipulation and several protected species-specific stipulations. (Lease Sale 244, Final Notice of Sale, Lease Stipulations, https://www.boem.gov/sites/default/files/about-boem/BOEM-Regions/Alaska-Region/Leasing-and-Plans/Leasing/Lease-Sales/Sale-244---Cook-Inlet/Sale-244-FNOS-Stipulations.pdf).

The Protection of Biological Resources stipulation is broad: if biological populations or habitats requiring "additional protection" are identified in the leased area, BOEM can require the lessee or operator to conduct surveys assessing "the extent and composition" of these populations or habitats. (*Id*. at 3). Based on the surveys, BOEM can require the lessee or operator to relocate operators, restrict operations to certain times, or modify operations to prevent adverse effects. (*Id*.). This stipulation also requires the lessee or operator to report discoveries of populations or habitats of biological significance and "make every reasonable effort to preserve the biological resource and protect it from damage." (*Id*.).

Lease Sale 244's Protection of Beluga Whale Critical Habitat stipulation sets seasonal prohibitions on seismic surveys and exploratory drilling (*Id*. at 6). Similarly, the Protection of Beluga Whale Nearshore Feeding Areas and Protection of Beluga Whales stipulations set seasonal prohibitions on marine seismic surveys (*Id*. at 7, 8). Lease Sale 244's Protection of Northern Sea Otter Critical Habitat stipulation prohibits lessees from certain discharges and seafloor disturbing activities within 1000 meters of Northern Sea Otter critical habitat. (*Id*. at 9).

[4] Leon Bennun et al., Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers, IUCN & THE BIODIVERSITY CONSULTANCY (2021), available at https://portals.iucn.org/library/node/49283. Please note that the IUCN document provides general guidelines on how the mitigation hierarchy could be and has been applied, but its application in each case will be context and site specific, and based on best available scientific information and technologies available at the time.

[5] Humboldt WEA Consistency Determination No.: CD-0001-22; Morro Bay WEA Consistency Determination No.: CD-0004-22

strongly support those conditions, and our recommendations in this letter reflect public comments we submitted in response to the consistency determinations for the Humboldt WEA and for the Morro Bay WEA.[6]

Additionally, in the PSN, BOEM has proposed to include the agency's "Typical Mitigation Measures for Protected Marine Species"[7] (or the most current version of these measures) in the leases.[8] Here we remind BOEM that in addition to Endangered Species Act listed species, all marine mammals are protected under the Marine Mammal Protection Act (MMPA), and the agency's measures should be clarified to reflect that the requirements apply to all marine mammals.[9]

A. Recommendations to Reduce Risk of Secondary Entanglement of Marine Mammals, Sea Turtles, Sharks, and Diving Birds

BOEM should require lessees to develop and implement management practices to monitor for and minimize the risk to marine species most susceptible to entanglement, including marine mammals, sea turtles, sharks, and diving birds, from secondary entanglement in marine debris (including fishing gear). This form of entanglement could occur if marine debris becomes ensnared on project infrastructure, including platforms, mooring lines, inter-array cables, and anchors, and subsequently entangle marine wildlife. BOEM and NOAA should also be responsible for approving these management plans and practices following public review and input. In addition, "primary" entanglement, where an animal becomes directly entangled in the lines and cables, and "tertiary" entanglement, where marine debris already entangling an animal becomes ensnared on the infrastructure, are potential concerns that warrant monitoring as floating offshore wind development proceeds.

Several science-based solutions and new technologies that can help minimize these risks are now available or are on the horizon.[10] The following recommended measures represent initial recommendations based on the best available scientific and technological information for monitoring and minimizing the risk of secondary entanglement. Our recommendations may change as new scientific and/or technological advancements occur, or as monitoring data on

[6] Letter from Natural Resources Defense Council, *et. al.* to California Coastal Commission, Re: Coastal Commission Hearing – April 7, 2022 – Item 8a (April 1, 2022); Letter from Natural Resources Defense Council, *et. al.*, to California Coastal Commission, Re: Coastal Commission Hearing – June 8, 2022, Item 7a (June 3, 2022).
[7] APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA
[8] 87 Fed. Reg. at 32,453
[9] Currently, the mitigation measures use "protected marine mammal species", "listed species", and "marine mammal species" (D-4 and D-6 through D-8, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA).
[10] We note that the construction of floating offshore wind is approximately five years away, which provides the time necessary to undertake research and development into the most effective and appropriate monitoring and mitigation systems, as well as identify cost efficiencies.

the effectiveness of the measures becomes available and informs the adaptive management of this risk factor (e.g., monitoring frequency may increase or decrease).

We recommend a monitoring approach using multiple methods in parallel, especially as we build our understanding of entanglement risk associated with offshore wind infrastructure. Investment and monitoring of the floating wind developments will be of crucial importance to gather information on the likelihood and type of interactions with marine debris and vulnerable wildlife, and inform future monitoring needs.

Continuous monitoring of any unexpected weight or strain on mooring lines or cables can provide an early warning signal of the incidence and general location of an entanglement or ensnarement event, and monitoring data can be used to trigger additional management action. Studies indicate that buoyant plastic fishing gear is a type of marine debris that poses a high risk of secondary entanglement, and tends to remain near the surface.[11] The risk of secondary entanglement may therefore be highest in the first few meters of the water column close to floating platforms. We recommend daily remote visual inspection of the mooring lines and cables close to the platforms in order to detect an entanglement event within at least a 24-hour period; this frequency of inspection may allow for a rescue attempt if a marine mammal or sea turtle is observed entangled but alive at the surface. We also recommend monthly acoustic or remote visual inspections of the full length of the submerged structures to inform of our understanding of the types of marine debris that may become ensnared at different depths, the configuration of the ensnarement, and what species may be vulnerable to entanglement at different depths and from different types of marine debris. These monthly inspections may also be useful for validating continuous monitoring approaches by confirming the location of ensnarement or entanglement events detected by the continuous monitoring system, or identifying events that were missed, during early applications of the technology.

[11] Of the megaplastics collected from the Great Pacific Garbage Patch using Manta trawls, 86 percent of their total tonnage contribution represented fishing nets. By far the most common polymer types found in those fishing nets were buoyant polyethylene and polypropylene (Lebreton et al. 2018. "Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastics." Scientific Reports, 8, art. 4666. https://doi.org/10.1038/s41598-018-22939-w). A separate study on microplastics found that lower density polymers, including polypropylene and polyethene, dominated sea surface samples and decreased in abundance throughout the water column. (Erni-Cassola et al. 2019. "Distribution of plastic polymer types in the marine environment; A meta-analysis. Journal of Hazardous Materials, 369, 691-698. https://doi.org/10.1016/j.jhazmat.2019.02.067). The highest risk abandoned, lost, and discarded fishing gear to the marine environment (ghost fishing was one of several considerations) include set and fixed gillnets and trammel nets, and drift gillnets made of buoyant plastic (Gilman et al. 2021. "Highest risk abandoned, lost and discarded fishing gear. Scientific Reports, 11, art. 7195. https://doi.org/10.1038/s41598-021-86123-3). Trajectories of buoyant purse seine and gill nets were found to have drift trajectories of between 30 and 120 days based on a study in the Maldives, indicating that these buoyant gear types could potentially migrate into offshore wind development regions from distant fishing areas (Stelfox et al. 2020. "Minimum drift times infer trajectories of ghost nets found in the Maldives." Marine Pollution Bulletin, 154, 1-13. http://dx.doi.org/10.1016/j.marpolbul.2020.111037).

I. Monitoring during operations

A. Continuous monitoring for strains on mooring lines and inter-array cables resulting from ensnarement of marine debris or entanglement of an animal (e.g., using load cells[12] or other appropriate sensor-types with proven sufficient sensitivity to model line and cable movements under normal conditions and to detect abnormal movement caused by a marine debris ensnarement or entanglement event).

B. Daily remote visual inspection of infrastructure for ensnarement of marine debris or entanglement of an animal[13] at depths where marine debris is most likely to occur[14] (e.g., using cameras, remote aerial surveys, or other appropriate techniques).

C. Monthly inspection of the full length of submerged infrastructure (including platforms, mooring lines, inter-array cables, and anchors) for ensnared marine debris or entanglement of an animal (e.g., using side-scan sonar, and/or underwater autonomous vehicle (AUV) or remotely operated vehicles (ROV) designed specifically for surveys of offshore energy infrastructure)[15]

II. Avoidance and Minimization Measures

A. Design features:

1. Mooring lines and inter-array cables should be designed and maintained in configurations that minimize the potential for entanglement of marine species (e.g., lines and cables should remain under tension).[16]

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[12] "…the Kincardine Floating Offshore Wind Farm in Scotland has integrated load cells with the mooring lines to periodically monitor line performance and potentially detect the entanglement of floating marine debris, including derelict fishing gear." SEER Educational Research Brief on Risk to Marine Life from Marine Debris & Floating Offshore Wind Cables Systems (p.5). https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational Research-Brief-Entanglement-Considerations.pdf.

[13] Visual inspection at least once during each 24-hour period may provide an alert of an entangled marine mammal or sea turtle at an early enough point in time that rescue efforts can be made and the animal can be released alive.

[14] This information will be based on data from other regions. Initial research and expert consultation indicates that marine debris ensnarement is most likely to occur at depths of 0-5 meters below the sea surface.

[15] ROVs may also be an important tool for marine debris removal at depth. The Kincardine Floating Offshore Wind Farm also "will use remotely operated vehicles and vessel-mounted sensors (such as multibeam sonar) to periodically survey floating cable systems, which could also monitor for the presence of derelict fishing gear." SEER Educational Research Brief on Risk to Marine Life from Marine Debris & Floating Offshore Wind Cables Systems (p.5). https://tethys.pnnl.gov/sites/default/files/summaries/SEER-Educational-Research-Brief Entanglement-Considerations.pdf. See, also, Federal Energy Regulatory Commission (FERC) Environmental Assessment for Hydropower License for the PacWave South Project (April 2020) at p. xvi. https://www.boem.gov/sites/default/files/documents/regions/pacific-ocs-region/environmental analysis/PacWave%20South%20EA.pdf

[16] Marine species are more likely to become entangled in slack lines. "Taut mooring configurations are preferable because less slack in lines is likely to reduce entanglement potential (Benjamins et al. 2014). Highest relative risk may occur with catenary moorings given that the lines are not taut. Chains and nylon ropes are thought to have higher snagging potential, as do accessory buoys." Maxwell et al. 2022. "Potential impacts of floating wind turbine technology for marine species and habitats." Journal of Environmental Management, 307, 114577 (p. 10). https://doi.org/10.1016/j.jenvman.2022.114577. Burying inter-array cables, when possible, may also reduce entanglement risk. Id. at Table 2.

2. Infrastructure should be designed to facilitate visual or acoustic detection of ensnared marine debris at depths where marine debris is most likely to occur (e.g., by using lighter coloration or, for acoustic detection, textures that contrast with marine debris at depths where light is limited).

B. Protocol when ensnarement and/or entanglements are identified:
   1. If monitoring shows that marine debris has become ensnared on any project structure, but no marine mammals, sea turtles, sharks or diving bird species are caught within it, the lessee will notify the National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS), as appropriate, the U.S. Coast Guard, and the California Department of Fish and Wildlife (CDFW) within 24 hours of detection. After discovery, the lessee shall remove the marine debris as soon as is possible to do so, as determined by the appropriate federal and state agencies, in a manner that does not jeopardize human safety, property, or the environment.
   2. If monitoring shows that marine mammals or sea turtles have become entangled or injured by marine debris ensnared on project structures, the lessee will immediately notify NMFS or USFWS, as appropriate, the U.S. Coast Guard, and the CDFW; follow the Reporting Protocol for Injured or Stranded Marine Mammals or the sea turtle reporting protocol developed by the Sea Turtle Disentanglement Network; and provide the agencies with all available information on the incident.[17]
   3. If sharks or diving birds are observed entangled or entrapped in marine debris, the lessee will report the incident to NMFS or USFWS, the U.S. Coast Guard, and the CDFW within 24 hours of detection. After discovery, the lessee shall remove the marine debris as soon as is possible to do so, as determined by the appropriate federal and state agencies, in a manner that does not jeopardize human safety, property, or the environment.

C. Return/recycle: The lessee shall report recovered fishing gear to CDFW. The lessee shall consult with CDFW to arrange for the return or disposal of the gear at a suitable location, prioritizing the physical recycling of materials (as opposed to incineration).

III. Data transparency: All incidences of observed ensnarements of marine debris on floating offshore wind infrastructure and entanglements of marine life shall promptly be made publicly available.

[17] See National Marine Fisheries Service Large Whale Entanglement Response Program for whale entanglement reporting protocol (https://www.fisheries.noaa.gov/west-coast/marine-mammal-protection/west-coast-large-whale entanglement-response-program#reports); Sea Turtle Disentanglement Network for sea turtle reporting protocol. https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-life-distress/sea-turtle-disentanglement-network).

BOEM's required measures for entanglement avoidance[18] as referenced in the PSN[19] (BOEM's "Typical Mitigation Measures for Protected Marine Species" as included in the Final Humboldt EA) should be improved as detailed below.

- Measure 17 should be clarified: "Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of listed species while ensuring the safety and integrity of the structure or device." (emphasis added). As written, it is unclear how this measure will be implemented and enforced. BOEM should require lessees provide detailed plans for their designs, including how those designs will minimize the risk of primary entanglement, with adaptation measures to modify those designs if they are found to be ineffective.
- Measure 18 should be amended such that "shortest practicable line length" is a requirement for mooring and attachment lines, rather than optional: "18. All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species."

B. Vessel strike avoidance and reduction measures

We strongly support the requirement included in BOEM's mitigation measures and the California Coastal Commission's conditional concurrence that all vessels conducting site characterization studies, surveys, metocean buoy installation, maintenance, or decommissioning or any other survey related activities, including vessel transit, will travel at speeds of no more than 10 knots.[20] The risk of serious injury and mortality from vessel collisions increases significantly with vessel speeds of 10 knots or greater.[21] This vessel speed limit has also been adopted by a developer on the East Coast, in order to protect the critically endangered North Atlantic Right Whale.[22]

BOEM's current requirement also states, "If future consultation with NMFS, USFWS or other state or federal agency results in different vessel speed requirements, BOEM will work with California Coastal Commission staff to ensure that any new requirements remain consistent and

[18] D-8, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA.
[19] 87 Fed. Reg. at 32,453
[20] California Coastal Commission, Staff Report re: Consistency Determination No. CD-0004-22 (May 20, 2022) at 65; https://documents.coastal.ca.gov/reports/2022/6/W7a/W7a-6-2022-Report.pdf
[21] Conn, P. B., & Silber, G. K. 2013. Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales. Ecosphere, 4(4), 1-16.
[22] *See* South Fork Wind, LLC – NGO Agreement for the Protection of North Atlantic Right Whales (June 16, 2022) at 8; https://orstedcdn.azureedge.net/-/media/www/docs/corp/us/south-fork-wind/south-fork-wind-right-whale-agreement.ashx?la=en&rev=97a14aa3402a4abdbdac180a9dcdc28b&hash=8FB0F361FBFD3FE1799407C6E98261F1&hash=8FB0F361FBFD3FE1799407C6E98261F1

do not diminish the level of resource protection provided by this requirement."[23] We support this and urge the 10-knot speed limit remain in place for all project-related vessels throughout the project's lifetime unless an equally effective, scientifically-proven adaptive speed management plan is in place. We also note that slower speeds may be required in some instances to adequately protect sea turtles in key habitats, such as jellyfish aggregations.

Another mitigation measure that BOEM requires states that, "Any time a survey vessel is underway (transiting or surveying), a PSO [Protected Species Observer] must monitor a Vessel Strike Avoidance Zone (500 m (1,640 ft) or greater from any sighted whales or other unidentified large marine mammal and 50 m (164 ft) or greater from any other marine mammal species visible at the surface, unless the marine mammals are actively approaching the vessel) to ensure detection of that animal in time to take necessary measures to avoid striking the animal. If the survey vessel does not require a PSO for the type of survey equipment used, a trained crew lookout or PSO may be used."[24] While we support the 500 m Vessel Strike Avoidance Zone for whales, we recommend that BOEM require all project-associated vessels to maintain a separation distance of 100 m, rather than 50 m, for other marine mammal species, and that both the 500 m and 100 m separation distances be required during all activities, including transit. This is necessary for all phases of development to ensure that activities are undertaken in a manner sufficiently protective of all marine mammals. There is precedent for use of a 500 m separation distance - South Fork Wind has agreed to use a minimum 500 m clearance zone for survey vessels, in order to protect the North Atlantic right whale.[25] We also recommend that PSOs monitor for and that vessels maintain appropriate distance from sea turtles. Additionally, all vessels responsible for crew transport should use thermal detection systems to supplement visual monitoring of marine mammals.

C. Noise avoidance and mitigation measures

Acoustic impacts from offshore wind's siting, construction, operation, and decommissioning activities are of significant concern for marine wildlife. BOEM should require lessees to demonstrate how underwater noise will be avoided, minimized, and mitigated to the fullest extent feasible during site assessment and characterization activities, including through the use of effective noise reduction and attenuation measures (e.g., using survey equipment that can be deployed at depth, and operating sub-bottom profiling systems at power settings that achieve the lowest practicable source level for the objective).

[23] D-6, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA
[24] D-7, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA
[25] South Fork Wind, LLC - NGO Agreement for the Protection of North Atlantic Right Whales (June 16, 2022) at 7; https://www.nrdc.org/sites/default/files/na-right-whales-ngo-agreement-20220616.pdf

As required by the California Coastal Commission's conditional concurrence, we support the requirement that lessees use low-energy equipment for geophysical surveys. However, we further recommend that the FSN require consistency with the California State Lands Commission's low-energy geophysical survey program to minimize adverse impacts and ensure prompt reporting of publicly available information.

Noise impacts will continue through the construction, operation, and decommissioning phases, with varying degrees of severity reliant on the technologies adopted. Committing to minimization of underwater noise throughout the project's lifetime will yield significant benefits to marine wildlife and the broader ecosystem, and will direct developers to seek quieter development and operation options early in the leasing process. We recommend that BOEM require the lessee to submit a plan to BOEM, NMFS, and the Commission detailing the noise generating activities that will occur during construction of floating wind platforms (e.g., vessel noise, dynamic positioning systems (if used), pile driving for anchors at depth), the difference from baseline soundscape noise, and the actions that will be taken to reduce noise levels to the fullest extent feasible. We also recommend that BOEM require that lessees take measures to reduce underwater noise levels generated by turbines during operations (e.g., engineering solutions to acoustically decouple the turbine from the mast and platform, use of direct drive wind turbine generators as opposed to generators that rely on a gear box).

For monitoring of marine mammals and sea turtles during potentially harmful high-resolution geophysical surveying activities, we recommend a minimum of four PSOs[26] on each vessel, following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon. PSOs should be required to use night-vision and thermal detection equipment when monitoring during periods of darkness. Passive acoustic monitoring should also be used to supplement visual monitoring, which is necessarily restricted during darkness or other periods of poor visibility.

Geophysical surveys should begin during daylight hours, in good visibility (1 nm or greater), and only continue into the night if needed (rather than being initiated at night or during low-visibility conditions). In order for geophysical surveys to be initiated at night or during low-visibility conditions, we recommend that the Alternative Monitoring Plan (as currently included in BOEM mitigation requirements[27]) be independently reviewed by an external scientific expert and that the effectiveness of the technology must be proven equivalent to daytime and high-visibility conditions with adequate independently collected data.

[26] The term "PSO" refers to an individual with a current NOAA Fisheries approval letter as a Protected Species Observer.
[27] D-5, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA

D. Recommendations to Protect Benthic Habitat

Benthic habitat supports biodiverse marine communities, commercially important fisheries, and nutrient cycling. BOEM should require the lessee to implement management practices to first avoid, then minimize and mitigate adverse impacts from all stages of development and types of project infrastructure that would destroy benthic habitat. It is particularly important to protect biogenic structural habitat,[28] which is comprised of three-dimensional structures created by slow-growing living organisms (e.g., corals, sponges) that support a high density and diversity of marine species, and Habitat Areas of Particular Concern (HAPC), which are subsets of Essential Fish Habitat that have a particularly important ecological role in fish life cycles or are especially sensitive, rare, or vulnerable to degradation. BOEM should prioritize avoidance of development in these areas.

We remind BOEM that the FSN should include conditions adopted by the California Coastal Commission in its conditional concurrence for the Humboldt WEA and Morro Bay WEA, including conditions to protect benthic habitat.[29] We support those conditions, including the requirement for an anchoring plan and the requirement that anchoring sites include a buffer of sufficient distance to fully protect sensitive habitat from anchors and related infrastructure. We also support the requirement that lessees avoid intentional contact within hard substrate, rock outcroppings, seamounts, or deep-sea coral/sponge habitat during site assessment and characterization activities.

We recommend the FSN include the additional measures below to inform what steps are needed to fully protect benthic habitat.

I. Site assessment and characterization
    A. Detailed benthic surveys of HAPC conducted prior to leasing are highly recommended. If detailed surveys are not conducted prior to leasing, surveys must occur as part of site assessment and characterization activities at the very latest.[30]
    B. Prior to deployment of anchored meteorological buoys, the lessee shall obtain a box core sample in the expected location of each buoy's anchor to confirm

[28] Biogenic habitats "encompass both a) those living species that form emergent three-dimensional structure, that separate areas in which it occurs from surrounding lower vertical dimension seafloor habitats and b) non-living structure generated by living organisms, such as infaunal tubes and burrows." Source: New Zealand Government Ministry for Primary Industries, "Linking marine fisheries species to biogenic habitats in New Zealand: a review and synthesis of knowledge. New Zealand Aquatic Environment and Biodiversity Report No. 130. May 2014. https://fs.fish.govt.nz/Doc/23651/AEBR_130_2514_HAB2007-01%20(obj%201,%202,%20RR3).pdf.ashx.

[29] Condition 1.f.iv. and Condition 2 in conditions adopted by the California Coastal Commission for the Humboldt WEA (Consistency Determination No.: CD-0001-22) and Morro Bay WEA (Consistency Determination No.: CD-0004-22). The Commission describes benthic habitat as "hard substrate, rock outcroppings, seamounts, or deep-sea coral/sponge habitat." *Id.*

[30] We continue to recommend that mapping be required before leasing to best inform siting decisions and avoid or minimize adverse impacts to benthic habitat. As that is not possible for the Humboldt WEA and Morro Bay WEA at this stage, we recommend that BOEM require detailed mapping during site assessment and characterization.

benthic sediment composition. The lessee shall avoid biogenic structural habitat (as confirmed by the core sample) when anchoring meteorological buoys.[31]

II. Construction and operations

A. The lessee shall conduct detailed benthic habitat surveys of prospective offshore wind development sites, ensuring that designated HAPCs receive particular attention.

B. As part of BOEM's review of a lessee's construction and operations plan, BOEM shall require that the lessee avoid intentional contact within rock outcroppings, seamounts, or deep-sea coral/sponge habitat and include a buffer that fully protects these habitats from bottom contact, including, but not limited to, anchoring, mooring, and sediment sampling.[32]

C. Where surveys affirm the presence of biogenic structural habitat, and responsible agencies determine that adverse impacts to biogenic structural habitat cannot be avoided, the lessee shall submit a mitigation plan to the responsible agencies for their approval prior to advancing development. This mitigation plan shall include, but not be limited to, plans for a mooring system with a minimally intensive benthic footprint. Such plans should be made available during responsible agencies' process for approving construction and operations activities.

E. Recommendations Regarding Collision and Lighting for Birds and Bats

The FSN should require lessees to adopt the measures detailed below to monitor, avoid and minimize bird and bat collisions. There is significant concern for collision impacts during turbine operation as well as during site assessment and characterization activities. While there is a need for much greater understanding of bat distributions in the lease areas, greater understanding of the risk of turbine strikes and bird and bat mortality, and identification of species most at risk, our current understanding of offshore wind-avian interactions and avian at-sea distribution along the Pacific OCS is sufficient to predict that potential impacts are likely to occur and the nature of those impacts, and therefore it is important to integrate monitoring and protections for birds and bats into the FSN. A number of species warrant specific consideration within the lease areas, such as those listed under the Federal and California Endangered Species Acts, the Migratory Bird Treaty Act, and Birds of Conservation Concern.[33]

[31] Biogenic habitat is described in Buhl-Mortensen, 2010 et al. Biological structures as a source of habitat heterogeneity and biodiversity on the deep ocean margins. https://onlinelibrary.wiley.com/doi/full/10.1111/j.1439-0485.2010.00359.x.

[32] This extends the language in the California Coastal Commission's conditional concurrence (Condition 1.f.iv. and Condition 2) to the development phase. We recommend BOEM require avoidance of biogenic habitat at all phases of development to sufficiently protect these important ecosystems.

[33] Mandated under 16 U.S.C. 2901–2912 and developed by the U.S. Fish and Wildlife Service.

In BOEM's Measures to Minimize Potential Adverse Impacts to Birds,[34] we recommend strengthening the requirements as detailed below:

- D: Reports on dead birds and bats found on vessels and structures during construction, operations, and decommission should be promptly made publicly available and reported to USFWS.
- E: Anti-perching devices should be installed on all structures, not just on metocean buoys, where there is a potential for birds to roost.

Additionally, we recommend the FSN build upon BOEM's existing measures and include the below stipulations during all phases of development to maintain healthy populations of bird and bat species and to avoid further adverse impacts to vulnerable populations. The FSN should also specify that if monitoring efforts reveal a need to minimize bird or bat fatalities, developers must deploy commercially available and technologically feasible minimization and avoidance technology and/or strategies.

The following suggestions are adapted from the New York State Energy Research and Development Authority's Environmental Technical Working Group and existing lease stipulations:

I. To help address information gaps on offshore movements of birds and bats, including ESA-listed species, BOEM should require the lessee to install Motus stations on meteorological or environmental data buoys in coordination with USFWS's Offshore Motus network. This stipulation has been included in recent offshore wind leases in both the New York Bight (OCS-A 0537, 0538, 0539, 0541, 0542, 0544) and Carolina Long Bay (leases OCS-A 0545 and 0546) and should be included as a lease stipulations for the Humboldt and Morro Bay leases, as well.

II. To avoid and minimize attraction and disorientation-related impacts to birds and bats, artificial lighting on offshore wind projects (e.g., flight safety and navigation lighting, work-related lighting) should be reduced to the extent possible while maintaining human safety and compliance with Federal Aviation Administration, U.S. Coast Guard, Department of Defense and BOEM regulations. This should be implemented during all phases of offshore wind energy development, from pre-construction to decommissioning, and include the following:
    A. Use of 'On demand' transportation safety lighting systems (e.g., Aircraft Detection Lighting Systems).
    B. Use the fewest number of lights on structures possible under regulatory requirements and protection of human safety.
    C. To the extent possible, avoid use of white lights in favor of red or other colors and use flashing lights instead of steady burning lights.

[34] As referenced in 87 Fed. Reg. at 32,453; D-14, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA.

D. Avoid high intensity lights (e.g., sodium vapor, quartz, halogen).
E. Lighting should be hooded, down-shielded, and/or directional (e.g., down-lit).
F. Activities that would require extensive lighting should be planned during daylight hours when feasible. This is particularly important for activities requiring flood lighting during periods of high risk to birds and bats.
G. Where feasible, lighting intensity should be reduced, or lights should be extinguished during periods when birds are most likely to be present and on overcast nights when lights are most likely to attract/disorient birds.

III. Collision Monitoring

A. Collision Risk Assessment: BOEM should require lessees use comprehensive and complementary tools to evaluate risks and document impacts to birds and bats vulnerable to population-level impacts from turbine collision, including marine radar, acoustic detectors, and collision detection technologies; Lessees should be required to deploy strike detection technologies once commercially available for use on offshore wind turbines.
B. Documenting Collision Events: Understanding the population-level cumulative impacts of the offshore wind build out along the Pacific OCS will require a method for accurately estimating the *observed* level of take of birds and bats of all sizes. The Department of Energy (DOE) has recently funded development of collision detection technology from the Albertani Lab[35] at Oregon State University and WT Bird from WEST, Inc.[36] Similar technologies are being tested at Block Island Wind Project and other offshore locations in the European Union and United Kingdom and are making rapid gains in being effective, officially verified, commercially available, and affordable at scale in the near future, possibly at the same time as the projects would be ready for construction and operation.[37] DOE is currently evaluating the development status of these integrated systems based on their readiness for offshore wind deployment.[38] BOEM should support the development of these technologies and should require turbine developers to integrate these systems into their turbine designs.
C. Data transparency: All incidences of observed avian and bat collision with turbines, vessels, platforms, buoys or other structures associated with site assessment, construction, and operation activities should be promptly made publicly available and reported to USFWS.

[35] Clocker, K., et al. 2021. Autonomous Sensor System for Wind Turbine Blade Collision Detection. Inst. Elec. & Elec. Eng'rs.
[36] Verhoef, J.P., et al. 2004. WT-Bird: A Low Cost Solution for Detecting Bird Collisions. Energy Research Center, Netherlands.
[37] Dirksen, S. 2017. Review of methods and techniques for field validation of collision rates and avoidance amongst birds and bats at offshore wind turbines. Sjoerd Dirksen Ecology.
[38] Brown-Saracino, J. Technologies and Approaches for Monitoring Bird and Bat Collisions Offshore (Presentation to the State of the Science Workshop on Wildlife and Offshore Wind Energy Development), N.Y. ETWG (Nov. 13-14, 2018).

IV. Turbine Collision Minimization Strategies. In addition to the lighting recommendations provided above, BOEM should require the following strategies to minimize collision risk with lease stipulations:

A. Developers should commit to rigorous monitoring and collaboration with subject matter experts to determine how turbine design affects species collisions, which will inform appropriate height limits and minimum turbine air gaps in subsequent construction and operation plans. The newest contracted offshore wind turbines are reaching heights of more than 300 meters. Further increasing this maximum turbine height could increase risk to trans-Pacific migrants. Decreasing the turbine air gap - the distance between the water surface and the rotor swept zone - could increase collision risk for lower flying foraging and commuting birds in the marine environment.

B. Developers should be required prepare a bird and bat adaptive management plan that commits the lessee to using the best available minimization technologies or strategies if monitoring reveals significant collision impacts::

1. Developers should evaluate the feasibility of automated, smart, and/or seasonal curtailment strategies. We note that reasonably tailored smart curtailment strategies could be an important mitigation strategy for responsibly operated offshore wind energy facilities. Developments in Next Generation Weather Radar, or "Nexrad", System make it easier to predict migration timing. Research into the timing and environmental cues driving migration dynamics along the Pacific coast can inform specific periods when collision risk might be highest. Developments in collision detection technology will also likely provide a mechanism for smart curtailment based on the proximity of individual birds and bats to the turbines. This type of automated curtailment system has resulted in significant decreases in collision mortality events within land-based wind farms where it has been deployed.[39]
2. Bat deterrent systems. Deterrent technologies are being developed for land-based turbines, including turbine coatings (to counteract bat attraction to smooth surfaces which might be perceived as water),[40] ultraviolet lighting (which many bat species can see),[41] and ultrasonic noise emitters (to possibly "jam" bats' radars and make wind facilities

[39] McClure et. al. 2021. Eagle fatalities are reduced by automated curtailment of wind turbines, J. Applied Ecology.
[40] Victoria J. Bennett & Amanda M. Hale, Texturizing Wind Turbine Towers to Reduce Bat Mortality: DE EE0007033 (PowerPoint presentation), U.S. Department of Energy (DOE) (last visited Feb. 9, 2022), https://www.energy.gov/sites/prod/files/2019/05/f63/TCU%20-%20M17%20-%20Hale-Bennett.pdf.
[41] National Renewable Energy Lab., Technology Development and Innovation Research Projects (last visited Aug. 30, 2021), https://www.nrel.gov/wind/technology-development-innovation-projects.html; *see also,* USGS, Paul M. Cryan *et. al.*, Influencing activity of bats by dimly lighting wind turbine surfaces with ultraviolet light (2022); https://www.usgs.gov/publications/influencing-activity-bats-dimly-lighting-wind-turbine-surfaces-ultraviolet-light

unappealing to bats).[42] One of the ultrasonic deterrent technologies, NRG Systems, has been commercially deployed at land-based wind facilities.[43] These technologies need to be assessed for use in the offshore environment, especially on turbines with large swept areas.

F. Preventing spread of invasive species

Future development activities may lead to an increase in introduced/invasive species due to the presence of floating foundations, mooring lines, and anchors. However, site assessment activities may also lead to the introduction of species that may travel on survey boats' hulls, anchor chains, etc. We recommend the FSN require lessees provide a plan to reduce the likelihood of the introduction of species during site assessment and characterization, as well as future development activities.

G. Lessees should contribute to robust scientific research pertaining to offshore wind development and develop monitoring plans to inform avoidance, minimization, mitigation, and compensatory mitigation strategies

Standardized monitoring is vital to ensuring a successful and efficient buildout of environmentally responsible offshore wind in California. Environmental baseline data collection and long-term environmental monitoring of offshore wind, at both the regional level and at specific project sites, will help explain whether and how floating offshore wind projects impact the surrounding environment. Standardized monitoring is necessary to assess the degree to which efforts to avoid, minimize, and mitigate harm have been successful, while also enabling the adaptive management and effective mitigation of adverse environmental impacts that may occur.

To that end, BOEM should include stipulations in the FSN requiring lessees provide robust plans for monitoring potential individual and cumulative impacts on wildlife - marine mammals, sea turtles, birds, bats, fish, elasmobranchs, and invertebrates - from site assessment and characterization, construction, operation, and decommissioning of all offshore wind infrastructure and other activities that support these activities from generation to distribution through the life of the project. BOEM, NOAA, and other relevant agencies should establish monitoring standards and should be responsible for approving these monitoring plans and practices. As noted below, there are also instances where BOEM should require lessees to

[42] Kinzie, K., et al., 2011. Ultrasonic bat deterrent technology, U.S. DOE.; Weaver, S.P. et al. 2020. Ultrasonic acoustic deterrents significantly reduce bat fatalities at wind turbines. Glob. Ecology & Conservation; Arnett, E.B., et al. 2013. Evaluating the effectiveness of an ultrasonic acoustic deterrent for reducing bat fatalities at wind turbines. PLoS One.

[43] Duke Energy, Duke Energy Renewables to Use New Technology to Help Protect Bats at its Wind Sites (June 26, 2019), https://news.duke-energy.com/releases/duke-energy-renewables-to-use-new-technology-to-help-protect-bats-at-its-wind-sites.

contribute to research by independent third parties to better understand baseline conditions and develop mitigation measures.

Given the uncertainty of floating offshore wind energy impacts, monitoring plans must include sufficient baseline data collection to effectively assess development impacts in a Before After Control Impact (BACI) or BAG design strategy, as appropriate. These surveys should be designed for long-term review and regularly sampled during the life of the wind farm and through its decommissioning.

In addition to the monitoring recommendations provided in this letter in previous sections, we recommend general monitoring for the following:

1. **Noise**

All activities associated with offshore wind, from siting and installation through operation and decommissioning will be accompanied by noise, posing adverse impacts for marine mammals and other marine life. Underwater noise from increased vessel traffic as well as turbine installation and operation also poses a potential threat to diving birds occurring within and around the Humboldt WEA and Morro Bay WEA.[44]

Robust baselining of the WEAs would reveal the acoustical changes to the habitat as a consequence of the development, deployment, and operation of floating offshore wind turbines, and the associated ongoing support and maintenance of the equipment. Changes in the soundscape are a necessary complement to behavioral studies to assess potential displacement from important habitat areas due to increased noise.

We recommend that BOEM, in coordination with lessees, collect sufficient data (broadband soundscape recordings through all seasons) to analyze noise levels prior to project development to assess the extent to which development will increase underwater noise and subsequent risks to marine life, and to promptly make this data publicly available. Broadband baseline soundscape recordings are needed across all four seasons within and adjacent to the WEAs, vessel traffic routes, and transmission corridors to shore, and provide for control sites for future monitoring. It is critical to assess baseline noise prior to project development, as well as to conduct continuous, ongoing broadband soundscape recordings of the WEAs throughout all phases of project development to inform adaptive management and inform mitigation measures for future projects. Some of this research is already being developed and deployed around the Morro Bay WEA with private research institutions, NOAA, and BOEM, and Humboldt will

[44] Anderson Hansen K, Hernandez A, Mooney TA, Rasmussen MH, Sørensen K, Wahlberg M. 2020. The common murre (Uria aalge), an auk seabird, reacts to underwater sound. The Journal of the Acoustical Society of America 147:4069–4074.

require similar monitoring efforts. BOEM should require lessees to fund the development and ongoing deployment and analysis of this research.

2. Biophysical processes

It is critical that comprehensive pre-installation and continued monitoring at the WEAs is implemented to assess impacts on the biophysical processes which encompass abiotic and biotic conditions, including the chemical, biological, physical, and ecological components. This type of monitoring will allow for assessment of adverse impacts from installation and operation of offshore wind farms. Traditional oceanographic sampling of the water column, including instrumentation to sample water movement, chemical components (e.g., NO_2, NO_3, CO_2, P), water quality (e.g. O_2 saturation, pH, turbidity, nutrient load), and upwelling characteristics, in spatiotemporal conjunction with benthic biological sampling, will be needed to accurately assess ecosystem conditions pre- and post-installation.

In particular, as offshore wind development occurs, it is important to understand how offshore wind projects may impact upwelling near or within the Humboldt WEA and Morro Bay WEA and how changes to upwelling may have impacts on wildlife and other consequences for the California Current Ecosystem.[45] BOEM should require lessees to provide funding for independent modeling studies and a comprehensive monitoring and physical oceanographic data collection plan, independently or in collaboration with existing observation networks, that assesses potential impacts to upwelling both of individual projects and cumulatively with other projects and the buildout of BOEM's WEAs.[46]

3. Monitoring to measure displacement and population level impacts

Given the potential for serious consequences across taxa and trophic levels of displacement from offshore wind developments, BOEM should require lessees to develop comprehensive monitoring plans for species using the WEAs that may be impacted by offshore wind development. These monitoring plans are necessary to: (1) support the collection of baseline distribution and habitat use data, (2) detect the degree of displacement (if any), (3) help quantify the consequences of displacement to population vital rates, including survival and reproductive parameters; and (4) document changes in important life history behaviors such as foraging and socializing. For example, in the case of avian species, there are potential population-level

[45] Modeling found modest changes to wind speeds are found in the lee of wind farms (approximately 5% reduction), which leads to an approximately 10-15% decrease in upwelled volume transport and resulting nutrient supply to the coastal zone in the vicinity of the Morro Bay and Diablo Canyon call areas. Integral Consulting, 2021. An Assessment of the Cumulative Impacts of Floating Offshore Wind Farms, Agreement Number C0210404. Prepared for the Ocean Protection Council.

[46] We note the California Coastal Commission's expectation that modeling studies be submitted with COPs, but we recommend establishing this requirement at the outset. (California Coastal Commission Consistency Determination No.: CD-0004-22, pp. 68-69)

impacts of displacing birds from important foraging areas or migratory routes.[47] Species that may be particularly impacted are modeled in a recent study designed to characterize avian distribution along the California Current System and inform responsible offshore wind development, which is critical to consider in adaptive management and monitoring.[48]

A comprehensive monitoring plan must include transect surveys in concert with additional methods, including environmental data to inform the development of predictive spatial density models, to identify suitable habitat, and to assess potential changes in distribution, behavior, or migratory patterns before and after construction. Transect surveys must be designed with high enough spatial and temporal scale and resolution to be able to detect seasonal as well as inter-annual changes in species distribution and behavior. Telemetry (e.g., radio and/or satellite telemetry as appropriate) and marine radar monitoring methods should also be employed as they serve different (though complimentary) objectives for different suites of species.

Additionally, as noted by the California Coastal Commission, "[b]ecause habitat displacement and avoidance could occur on a scale that significantly exceeds a specific lease area, limiting baseline data collection and post-project monitoring activities to an individual lease area is not likely to be sufficient to assess this type of an impact. Regional-scale monitoring and coordinated project-specific monitoring across multiple lease areas will be necessary to understand how future offshore wind development affects pelagic and benthic environments offshore of California."[49] We agree that coordinated regional monitoring will be critical for understanding cumulative impacts, particularly to monitor and account for population level effects resulting from all phases of development. BOEM should lead coordination of regional monitoring, in collaboration with lessees and other relevant agencies, and require lessees develop regional monitoring plans, which will be approved by responsible agencies.

4. Data transparency and collaboration

To ensure sound stewardship of ocean resources, science should be conducted in a collaborative and transparent manner, involve recognized marine and wildlife experts, engage relevant stakeholders, and making results publicly available. All baseline, monitoring, incident

[47] Mendel B, Schwemmer P, Peschko V, Müller S, Schwemmer H, Mercker M, Garthe S. 2019. Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (Gavia spp.). Journal of Environmental Management 231:429–438; Peschko V, Mendel B, Müller S, Markones N, Mercker M, Garthe S. 2020. Effects of offshore windfarms on seabird abundance: Strong effects in spring and in the breeding season. Marine Environmental Research:105157.

[48] Leirness JB, Adams J, Ballance LT, Coyne M, Felis JJ, Joyce T, Pereksta DM, Winship AJ, Jeffrey CFG, Ainley D, Croll D, Evenson J, Jahncke J, McIver W, Miller PI, Pearson S, Strong C, Sydeman W, Waddell JE, Zamon JE, Christensen J. 2021. Modeling at-sea density of marine birds to support renewable energy planning on the Pacific Outer Continental Shelf of the contiguous United States. Camarillo (CA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-014. 385 p.

[49] California Coastal Commission Consistency Determination No.: CD-0001-22 (Humboldt), Staff report p. 57; California Coastal Commission Consistency Determination No.: CD-0004-2 (Morro Bay), Staff report pp. 64-65.

and assessment data should be made publicly available and shared with standard metadata conventions used by the Marine Cadastre, the U.S. Integrated Ocean Observing System, regional ocean data portals, or other long-term collaborative data-management efforts.[50] One useful model for housing data with an independent entity could be that used by the Northeast Regional Ocean Council[51], which among other functions, provides access to regional data on marine life, seafloor habitat, and other data relevant to planning for offshore wind development; and also hosts the Regional Wildlife Science Collaborative, which develops research related to the offshore wind industry.

As mentioned previously in this letter, data on entanglements, vessel strikes and fatalities, and turbine collisions should promptly be made publicly available. Survey activities could be completed over several years, so providing monitoring data only annually[52] or after completion[53] is not adequately informative when impacts could arise at any point prior to completion. Delaying the release of monitoring data precludes adaptive management and prevents meaningful mitigation. Frequent reporting is necessary to alert agencies, lessees, and the public to impacts in a timely manner and to enable avoidance, minimization, and mitigation of adverse impacts throughout all phases of development, operations, and decommissioning.

5. Additional survey needs and data collection

For offshore wind development to proceed responsibly in California, there is a need for additional survey and data collection on a wide array of species that scientists have identified as expected to occur in the Humboldt WEA and Morro Bay WEA. There is also a need for additional surveys and data collection on environmental variables for preferred habitat conditions. As BOEM progresses with leasing in California, the agency should concurrently work to fill critical gaps in baseline data on wildlife at a variety of spatial and temporal scales.

[50] We recommend incorporation of the detailed recommendations for data transparency and equitable data sharing found in Amy Trice et al., Challenges and Opportunities for Ocean Data to Advance Conservation and Management, OCEAN CONSERVANCY (2021), https://oceanconservancy.org/wp-content/uploads/2021/05/Ocean Data-Report-FINAL.pdf.

[51] https://neoceanplanning.org/data-issues/northeast-ocean-data-portal-work-plan/

[52] Measures to Minimize Potential Adverse Impacts to Birds: "D. An annual report shall be provided to BOEM documenting any dead birds or bats found on vessels and structures during construction, operations, and decommissioning." D-14, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA

[53] D-12, APPENDIX D Typical Environmental Protection Mitigation Measures and Best Management Practices, Humboldt WEA Final EA, E. Reporting Requirements, Required Mitigations: "30. The Lessee must submit a monitoring report to BOEM and NMFS within 90 days after completion of yearly survey activities. The report must fully document the methods and monitoring protocols, summarize the data recorded during monitoring, estimate the number of protected species that may have been taken during survey activities; and describe, assess, and compare the effectiveness of monitoring and mitigation measures. PSO raw sightings and trackline data must also be provided with the final monitoring report.

H. Lessees should provide plans for adaptive management and compensatory mitigation

We recommend that BOEM require lessees to provide plans for adaptive mitigation strategies and compensatory mitigation for project development, as needed, based on monitoring outcomes. The first key to effective adaptive management is the generation of meaningfully and publicly accessible data concerning impacts from project operation. Concerns about the transparency of project data are addressed elsewhere in this letter. Effective adaptive management also requires clear, objective standards or "triggers" that are biologically meaningful. Given that so much is unknown about the impacts of construction and operations of floating offshore wind, adaptive management is especially important to protect the marine environment off the California Coast and to ensure new information is applied to existing and future developments. We also recommend that BOEM require lessees to participate in an adaptive management advisory committee, which includes a liaison for environmental non-governmental organizations, as well as representatives from the academic, research, tribal, and government agency sectors. Rather than a committee per project, such committees could be organized per WEA.

Comprehensive baseline and post-project monitoring and implementation of an adaptive management framework are critical to understanding cumulative adverse impacts and minimizing them. We urge BOEM to adopt conditions that require comprehensive monitoring as recommended in our comments regarding entanglement, noise, benthic habitat changes, and habitat displacement, as well as requirements for adaptive management (as recommended above).

We expect developers to be prepared to adapt project construction and operation procedures based on new information or changes to wildlife populations and the levels at which these populations interact with the lease areas. For example, should rates of avian collision be higher than anticipated, lessees should have plans in place for increased collision avoidance measures, as well as plans for compensatory mitigation; or, should an oceanographic change (e.g. marine heatwave) affect the distribution or increase vulnerability of marine species, lessees should be prepared to adopt precautionary measures to reduce adverse project impacts to cumulative risk.

III. Recommendations for Developer Incentives

A. BOEM should substantially increase the amount of bid credits

In the Carolina Long Bay Final Sale Notice, BOEM allowed 20 percent of a bid to be in the form of credits for supply chain development or workforce training.[54] In the California PSN, BOEM has proposed allowing bid credits of up to 20 percent for workforce training or supply chain

[54] 87 Fed. Reg. 17,324, 17,331 (Mar. 28, 2022).

investments, and up to 2.5 percent for a community benefit agreement (CBA) with a community or stakeholder group whose use of the lease area would be directly impacted by offshore wind development.[55]

BOEM states that the CBA credit should be used to mitigate adverse impacts to the community or to stakeholders from wind development, and "particularly to assist fishing and related industries to manage transitions, gear changes, or other similar impacts which may arise from the development of the Lease Area."[56] But as we detail in this letter, there are many more effects of offshore wind than impacts to one specific industry, and there are additional investments developers should be making to support environmental research and the health of the local economy, beyond investments in supply chain and workforce development.

BOEM should increase the cap on bid credits beyond 22.5 percent. Increasing the amount of bid credits would allow developers to support other initiatives to ensure that offshore wind develops in an environmentally sustainable manner that also supports local communities.

B. Incentives for Environmental Research and Mitigation

As we have noted above, there are numerous potential impacts from offshore wind development and operations, and more research is needed to understand the full suite of effects from offshore wind development. Further, as developers gather site assessment and characterization data and data gleaned from these activities and operations, it will be necessary to house, synthesize and integrate the information so that appropriate monitoring, avoidance, minimization and mitigation measures can be developed. This data integration and utilization effort will require consistent and dedicated resources from a third party or government agency.

In addition to bid credits for workforce training programs, domestic supply chain investments, and community benefit agreements, BOEM should also grant bid credits to support a consolidated research center or hub. The funds would be used to support research into infrastructure design, analysis of monitoring data, data sharing and transparency agreements, and research to support adaptive management (e.g., research into improving monitoring, avoidance, and mitigation measures).

Developers could provide funding to an academic institution researching the effects of offshore wind, or to a public agency analyzing the effects of offshore wind, such as the California Coastal Commission or Ocean Protection Council, or to an independent entity created to further environmental research, such as the Regional Wildlife Science Collaborative[57], in order to

[55] 87 Fed. Reg. at 32,447-48.
[56] *Id*. at 32,450.
[57] *See https://neoceanplanning.org/rwse/*

receive credit. Research priorities should be directed by the Intergovernmental Renewable Energy Task Force, in consultation with stakeholders. As with the workforce training or supply chain development credit, BOEM would provide developers with a discount on the bid price for investing in environmental research.[58] And as with existing bid credits, there should also be a documentation and enforcement mechanism – developers should be required to show documentation of the research they have funded, as well face a penalty if such funding cannot be verified.[59]

The use of an environmental bid credit in a multi-factor auction is well within BOEM's authority. OCSLA requires BOEM to provide for "protection of the environment," as well as to ensure that offshore wind development is "subject to environmental safeguards." 43 U.S.C. §§ 1337(p)(4), 1332(3). In BOEM's regulations, "environmental considerations" are explicitly authorized as a permissible factor in a multi-factor bidding process. 30 C.F.R. § 585.220(a)(4).

In its PSN, BOEM contemplates that the Community Benefit Agreement (CBA) bid credit would be used "to mitigate potential impacts…from renewable energy activity or structures on the Lease Area," as well as "to assist fishing and related industries to manage transitions, gear changes, or other similar impacts…" 87 Fed. Reg. at 32,450. Providing developers with bid credits for investments in a research center to understand the environmental impacts of offshore wind development and appropriate mitigation measures would serve a similar purpose, and would support OCSLA's statutory goals.

C. Incentives for Investments to Benefit Underserved Communities

In the PSN, BOEM is requesting input on stipulations and incentives to facilitate sharing the benefits of development with underserved communities.[60] Our organizations believe that BOEM not only has the authority to include such mechanisms in the FSN, but that these are critical for successful and responsible offshore wind leasing. Lease provisions that help protect and mitigate adverse impacts on the human environment would help BOEM meet its goals under OCSLA.

Establishing lease stipulations or credits for investments that environmentally, economically, and socially benefit environmental justice communities will further BOEM's goals under OCSLA. Congress recognized that the development of the Outer Continental Shelf "will have significant impacts on coastal and non-coastal areas of the coastal States," that there is a "national interest in the effective management of the marine, coastal, and human environments." 43 U.S.C. § 1332(4). The "human environment" is defined as "the physical, social, and

[58] *See* 87 Fed. Reg. at 32,448.
[59] 87 Fed. Reg. at 32,451.
[60] 87 Fed. Reg. at 32,447.

economic components, conditions, and factors which interactively determine the state, condition, and quality of living conditions, employment, and health of those affected, directly or indirectly, by activities occurring on the outer Continental Shelf." *Id.* § 1331(i). Assistance to states and local governments to protect affected areas from adverse effects may be required, and states and local governments' rights to preserve and protect their marine, human, and coastal environments should be considered and recognized. *Id.* § 1332(5). In addition, BOEM's regulations allow consideration of "public benefits" and "compatibility with State and local needs" in a multi-factor bidding process. 30 C.F.R. § 585.220(a)(4). Under OCSLA and its implementing regulations, BOEM has the authority to include stipulations or credits to provide a broad suite of benefits to community organizations.

Further, the California Coastal Commission, in issuing its consistency determinations for Humboldt Bay and Morro Bay, required BOEM to engage with local environmental justice communities on all elements of the wind development process.[61] The Commission also required engagement with Native American tribes.[62] These requirements should be included in the FSN.

The same logic that holds for crediting investments in community-based organizations (CBOs), as BOEM has done in previous lease auctions and as it does in the California PSN,[63] applies to investments in environmental justice community-based organizations (EJCBOs). Further, investments in environmental justice communities can help meet BOEM's obligations under OCSLA by mitigating adverse impacts on the human environment through better informing infrastructure development and reducing local pollution (including air and water pollution and soil contamination). Targeted investments could also help ameliorate adverse impacts on the human environment by supporting improvements in energy efficiency in under-resourced communities and other programs to help mitigate potential disproportionate adverse economic and environmental impacts of offshore wind development. Development of port and transmission infrastructure, for example, is likely to disproportionately impact under-resourced communities. Impacted communities should have decision making power to decide if, where, and how this development is done.

1. Investments in workforce development and training

For supply chain and labor investments, we join the BlueGreen Alliance in calling for support for union jobs, domestic manufacturing and supply chains, and delivering benefits to local

[61] California Coastal Commission, Re: Consistency Determination CD-0001-22, Humboldt Wind Energy Area (April 25, 2022) Condition 5; https://documents.coastal.ca.gov/assets/upcoming-projects/offshore-wind/CD-0001-22_Concurrence%20Letter.pdf; California Coastal Commission, Adopted Findings, CD-0004-22 (June 14, 2022) Condition 5; https://documents.coastal.ca.gov/assets/upcoming-projects/offshore-wind/W7a-6-2022-AdoptedFindings.pdf
[62] *Id.* Condition 6.
[63] See 79 Fed. Reg. 34,771, 34,779 (June 18, 2014); 87 Fed. Reg. at 32,50..

communities.

We support BOEM's provision of bid credits for workforce development and training[64], and encourage it to foster opportunities for underserved communities. The United States Department of Transportation (USDOT) has successfully implemented Local Hire and Workforce Development Pilot Programs from 2015 to 2017 and is currently expanding local hire initiatives under the Biden Administration.[65] "Local hiring" is a geographic based hiring preference that enhances opportunities for disadvantaged communities and invests in communities most impacted by construction and development. Local hiring can set mandatory minimum percentage requirements for hiring and generate opportunities for underserved communities.

2. Contracting with minority- and women-owned businesses

BOEM can and should establish stipulations or credits for contracting with minority- and women-owned businesses. Creating meaningful pathways of engagement for these businesses in the offshore wind industry is consistent with President Biden's E.O.s (e.g., E.O. 14,008, which updates E.O. 12,898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations) and the Justice40 Initiative.

3. Investments in promoting and delivering environmental justice

Following the Justice40 Initiative, BOEM should encourage investments that environmentally, economically, and socially benefit environmental justice communities. As discussed above, E.O. 14,008 created the Justice40 Initiative, which, among other things, directs federal agencies to make sure that 40 percent of the benefits from all federal investments flow to disadvantaged communities.

One way to achieve this is to encourage bidders to commit to directing 40 percent of any investments stipulated or credited in the auction toward environmental justice communities. For example, if an auction credit encourages community benefit agreements, bidders should be required to make at least 40 percent of their investments in environmental justice communities to earn the full credit. Similarly, if credits are offered for investments in workforce development, then developers should have to make at least 40% of those investments in environmental justice communities.

[64] 87 Fed. Reg. at 32,449.
[65] U.S. Department of Transportation, Bulletin, U.S. Department of Transportation Announces Expanded Local Hire and Workforce Development Pilot Programs (sent May 19, 2021) available at https://content.govdelivery.com/accounts/USDOT/bulletins/2da0566; 86 Fed. Reg. 27,667 (May 21, 2021).

D. Process Recommendations for Verifying Investments to Benefit Underserved Communities

We support BOEM providing credits for community benefit agreements, as well as workforce and supply chain development, and suggest that it improve the verification process for these investments.

In the 2014 multi-factor lease auction regarding leases off the Massachusetts coast, BOEM created a three-member panel to evaluate each bidder's proposals to receive auction credits as a result of Community Benefit Agreements in place.[66] We recommend BOEM adapt this approach to ensure a workable and transparent process for all parties that can facilitate verified and efficient investments that will contribute to the successful development of offshore wind energy on the OCS.

Specifically, we recommend that bidders' investments be evaluated by issue-specific panels that also include stakeholders with expertise in the goals being addressed (e.g., workforce training or environmental justice). BOEM should consult with the White House Environmental Justice Advisory Council (WHEJAC) in selecting the panel for reviewing environmental justice investments, and BOEM should consider charging the panel to apply, to the extent practicable, the WHEJAC's Climate and Economic Justice Screening tool to evaluate investments.[67] BOEM should also provide clear and transparent criteria that will be utilized to review and verify these investments. Finally, in the event a developer fails to uphold the commitments made to secure the community benefit agreement bid credit, the moneys returned to the Office of Natural Resources Revenue should be directed to the community organizations slated to benefit from the agreement.

IV. Recommendations for Engagement with Tribal Governments and Ocean Users, Underserved Communities, Agencies, and Other Stakeholders

In addition to the incentives recommended above, we support the measures in the PSN aimed at increasing engagement and reporting,[68] and urge the agency to incorporate community feedback in order to foster development of the most successful and defensible projects. Fully engaging tribal nations, and the full range of stakeholders at the start and throughout the leasing and permitting process will help secure greater trust and endorsement of the siting outcomes.[69] Beyond state and local governments, stakeholders

[66] See 79 Fed. Reg. at 34,779.
[67] *Id.*
[68] 87 Fed. Reg. at 32,451 ("Tribal Governments, Ocean Users, Underserved Communities, Agencies, and Other Stakeholders Engagement and Reporting")
[69] It is important to identify transmission landing sites to the greatest extent possible at the lease identification stage in order to encourage early participation from potentially impacted communities.

include conservation groups, various sectors of the commercial and recreational fishing industries, wind developers, utilities, academia and other scientific experts, maritime industry, labor groups, environmental justice communities, and impacted communities.

We further recommend that the Department of Interior consider providing a source of funds for offshore wind research and review directly to tribes, states, and local communities, as needed, to allow groups that may be limited in capacity to engage more deeply. Facilitating an inclusive process helps advance leases that will result in successful projects, not mired in controversy.

We support BOEM's proposed lease stipulation requiring lessees to develop a Native American Tribes Communication Plan (NATCP).[70] Given the strong role provided to the federally recognized tribes in the offshore wind development process through government-to-government consultation, the NATCP is an opportunity to elevate the engagement of state-recognized tribes, as well as tribes with cultural and historic ties to the Lease Areas.

IV. **Other Considerations**

A. Minimizing potential adverse impacts of transmission and port infrastructure

Any floating offshore wind development in the Humboldt WEA and Morro Bay WEA will require ancillary transmission and port infrastructure to bring the power to shore. It will also require the build out of existing port infrastructure in the state, to enable the installation of offshore wind turbines. Wind development could also result in an increase in truck and vehicle traffic to portside communities, which will negatively affect the health of local residents. We urge BOEM to evaluate the environmental impacts of the onshore development that will occur as offshore wind is developed; and to work closely with state agencies to ensure that associated infrastructure and its potential impacts on state land and waters is properly considered during these early stages of the planning process. The leasing of offshore wind plots, site assessment and construction activities, operating wind developments, and onshore build-outs are all connected actions that must be considered and addressed at this stage.

Shipping activities, transmission elements, and port-based construction and operation (including port upgrades or new deep-water port construction) have significant potential to disrupt, disturb, or otherwise cause negative impacts to coastal and shoreline dwelling species and sensitive coastal and nearshore habitats. Service ports and transmission lines associated with offshore wind operations might affect, among other species and habitats: southern sea otter; migratory shorebirds; various pinniped, fish, amphibian, and invertebrate species; and kelp forest and

[70] 87 Fed. Reg. at 32,454.

seagrass[71] communities. BOEM, in collaboration with other agencies and stakeholders, will need to address the environmental impacts of offshore wind energy transmission and infrastructure.

Although California state agencies are the governing authorities for offshore wind facility-associated transmission and infrastructure, it is imperative that BOEM coordinate with state agencies to ensure alignment with proper siting and environmental review. Determining how best to utilize existing infrastructure and minimize further adverse environmental impacts will be essential for the smooth and efficient development of prospective offshore wind facilities.

B. Recommendations for Prescribed Layouts and Transit Corridors

BOEM has solicited comment on whether there should be uniform turbine layouts. 87 Fed. Reg. at 32,452. It is unclear whether there are benefits to wildlife and ecosystems from specific prescribed turbine layouts. While increased spacing (1 nm) and vessel transit corridors have been prescribed for some offshore wind developments in the Atlantic OCS, this increased spacing has not been used in Europe. Therefore, there is no operational comparison to be made between different spacing layouts and their resulting wildlife impacts. Conversely, increased spacing between turbines results in fewer turbines and less energy production within a project footprint, meaning more projects (and more space) would be necessary to meet state and national energy goals.

Many birds and marine mammals with high risk of displacement from wind turbines experience these effects from greater than 1 nm from the turbine array. Presumably, greater spacing between turbines, and thus a larger cumulative development footprint overall, would only increase displacement impacts for these species. Alternatively, if species vulnerable to collision are less likely to exhibit macro-avoidance for layouts with greater space between turbines, the collision risk could be greater as a result. The same could be true for entanglement risk.

While vessel transit corridors may concentrate vessel traffic through specified "highways," there is no evidence to suggest this limits risks to marine mammals and other wildlife. Reduced vessel speeds are generally the key to minimizing collision risk for marine mammals and other wildlife, and it is unclear that there is any benefit to wildlife from transit corridors or prescribed layouts. Regional monitoring across sites will be needed to understand varying potential impacts from different layout specifications.

[71] Humboldt Bay has over 30% of the eelgrass meadows remaining in California (Whelan A. Gilkerson and Keith W. Merkel, "Humboldt Bay Eelgrass Comprehensive Management Plan. Prepared for Humboldt Bay Harbor, Recreation and Conservation District", 2014, accessed, August 4, 2021).

C. Recommendations Regarding Vessel Transit

BOEM has solicited comment on measures to facilitate vessel transit.[72] As noted by the California Coastal Commission review of BOEM's consistency determination, there is significant existing vessel traffic in the Morro Bay WEA, and vessel trips from lease exploration alone would be a significant addition to vessel traffic.[73] BOEM should collect and review information to support an accurate assessment of existing vessel traffic (routes, size, and number of vessels) during exploration and prior to development activities to assess additional risk from all project associated vessel traffic. We note that BOEM reviewed Automatic Identification System (AIS) data on vessel traffic from 2011 and 2017 in the Morro Bay WEA[74] and from 2017 in the Humboldt WEA.[75] However, it is critical to have a more recent and comprehensive understanding of vessel traffic in both WEAs to assess how project-associated vessel traffic will increase risk to marine species so that mitigation measures are adequately protective.

Conclusion

We greatly appreciate the opportunity to provide these recommendations for advancing responsible development of offshore wind power through the leasing process, and urge BOEM to take action to establish lease stipulations and incentives that can realize this vision. At this key moment in the climate crisis being felt around the nation and the globe, we must seize the opportunity to ensure that this climate change solution is developed in a manner that protects our environment, maximizes quality job creation, and furthers environmental justice.

Sincerely,

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[72] 87 Fed. Reg. at 32,452.
[73] In 2017, some portions [of] the Morro Bay WEA had over 300 vessels traveling through them annually, with most of the WEA averaging between 100 and 200 vessels (California Coastal Commission Consistency Determination No.: CD-0004-2 (Morro Bay), Staff report p. 50).
[74] P. 46, CONSISTENCY DETERMINATION For Leasing Wind Energy Areas Offshore Morro Bay, California. U.S. Department of the Interior, Bureau of Ocean Energy Management, Pacific Outer Continental Shelf Region. April 15, 2022.
[75] P. 17, CONSISTENCY DETERMINATION For Leasing Wind Energy Areas Offshore Humboldt County, California. US. Department of the Interior, Bureau of Ocean Energy Management, Pacific Outer Continental Shelf Region. January 24, 2022.

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