

April 1, 2022

Chair Donne Brownsey
California Coastal Commission
455 Market Street, Suite 300
San Francisco, CA 94105

Re: Coastal Commission Hearing - April 7, 2022 - Item 8a
Federal Consistency Review for leasing and lease activities within the Humboldt Wind
Energy Area (CD-0001-22)

Dear Chair Brownsey:

Our organizations, Natural Resources Defense Council, National Audubon Society, Whale and Dolphin Conservation, Humboldt Baykeeper, Surfrider Foundation, Environmental Protection Information Center, Defenders of Wildlife, and Center for Biological Diversity, submit these comments regarding the California Coastal Commission's (Commission's) review of the Consistency Determination (CD) submitted by the Bureau of Ocean Energy Management (BOEM) for its proposal to issue up to three commercial wind energy leases and allow site assessment and site characterization activities on leases, grants, and other easements. The purpose of the Commission's review is to determine whether the proposal is consistent, to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).

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 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 strongly support the staff report's overarching approach of looking at offshore wind development holistically and the conditions put forth in the staff report. Further, we appreciate the recommendation that the Commission set expectations for development activities far in advance, as we believe that will help minimize or prevent project delay while fulfilling resource protection legal obligations. However, we urge the Commission to shift from expectation setting to establishing clear conditions in this consistency review for all offshore wind development activities to provide specific and enforceable requirements as BOEM and developers move forward.

The federal Coastal Zone Management Act (CZMA) is an exercise in cooperative federalism. Among other things, it requires that federal activities likely to affect a state's coastal resources be "fully consistent" with that state's coastal policies and programs, and it allows states to object to inconsistent proposals.¹ Under the CZMA, each coastal state may adopt a coastal management plan (CMP) that provides for "the protection of natural resources, including wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitat, within the coastal zone."² A CMP also guides "management of coastal development to improve, safeguard, and restore the quality of coastal waters, and to protect natural resources and existing uses of those waters," among other objectives.³ The CZMA guarantees participating states the opportunity to review federal and federally permitted activities for consistency with their CMPs.⁴ Any federal activity that may affect coastal resources must be "fully consistent with the enforceable policies of management programs."⁵ If a state finds that a federal applicant's activities are not fully consistent with its enforceable policies, it may object to that applicant's plans.⁶

In California, the standard of review for federal consistency determinations consists primarily of the principal component of the California Coastal Management Plan (CCMP), namely the policies of Chapter 3 of the Coastal Act. With regards to marine resources, Article 4 of the CCMP states: "Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes." California's authority under the CZMA has been integral to the state's very identity as one of iconic ocean vistas and unparalleled wildlife and habitat for all to enjoy.

The staff report states, "The leasing of the Humboldt WEA has a high likelihood of impacting marine habitats, species and ocean processes."⁷ We agree, and as detailed in this comment letter, we disagree with BOEM's assertion that, "The lease sale is not likely to result in the degradation of marine resources."⁸ BOEM's submitted CD is also insufficient because it fails to consider reasonably foreseeable impacts related to future development. The staff report notes that "...it is reasonably foreseeable that the leases will lead to construction and operation of at least some offshore wind facilities. It is also feasible to describe, at least at a high level, the types of impact that such facilities could have on coastal resources."⁹ We have previously commented to BOEM that consideration of leasing activities should also include impacts from development, because while a lease is not a promise that a project will be constructed, any eventual development cannot occur without a lease. Having thorough environmental review conducted before leasing will help identify concerns before developers invest in site assessment work and shape

¹ 15 C.F.R. § 930.32(a)(1).

² 16 U.S.C. § 1452(2)(A).

³ 16 U.S.C. § 1452(2)(A)-(C).

⁴ 15 C.F.R. §§ 930.41, 930.60.

⁵ 15 C.F.R. § 930.32(a)(1).

⁶ 15 C.F.R. § 930.63.

⁷ Staff report at 62.

⁸ BOEM CD at 27.

⁹ Staff report at 3, 22.

development plans. Stakeholder engagement based on thorough review is better informed and would benefit project development.

By not taking a more comprehensive look, BOEM's submitted CD ignores the ultimate goal of leasing –for offshore wind energy development to occur– and the broader possible impacts to wildlife and other resources resulting from development. We note that the CZMA regulations define effects on coastal resources broadly:

The term “effect on any coastal use or resource” means any reasonably foreseeable effect on any coastal use or resource resulting from a Federal agency activity or federal license or permit activity....Effects include both direct effects which result from the activity and occur at the same time and place as the activity, and indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.¹⁰

Similarly, the review of coastal resource effects must be applied broadly:

Effects are determined by looking at reasonably foreseeable direct and indirect effects on any coastal use or resource. An action which has minimal or no environmental effects may still have effects on a coastal use (e.g., effects on public access and recreational opportunities, protection of historic property) or a coastal resource, if the activity initiates an event or series of events where coastal effects are reasonably foreseeable.¹¹

We appreciate the Commission's leadership in considering the full context of offshore wind development both for the Humboldt WEA specifically and for offshore wind on the West Coast, and appreciate the discussion of several important topics in the staff report, including cumulative impacts, adaptive management, and the importance of coordinating data collection and sharing. However, we urge the Commission to require additional conditions for this consistency determination. The staff report notes, and we fully agree, that the BOEM CD for the Humboldt WEA is the key opportunity to “examine the impacts of offshore wind development at a programmatic level....Future consistency certifications at the construction and operations phase will examine specific projects and their specific impacts, but they are not well-suited to address larger issues related to the Humboldt WEA...”.¹² In other words, the CD for Humboldt at this phase of development is the Commission's *only* opportunity to review the Humboldt WEA for federal consistency at the programmatic level – where it is possible to identify areas for development of relatively lower sensitivity that are more likely to advance smoothly through the permitting process.

Further, demonstrating holistic offshore wind planning and siting in California would inform future floating offshore wind project development and design. The way offshore wind development advances in California has the potential to set a precedent for environmentally responsible wind leasing and development that advances climate and renewable energy goals while protecting and minimizing impacts to coastal and marine resources. The Humboldt precedent is particularly relevant in California: BOEM plans to offer for leasing both the

¹⁰ 15 C.F.R. 930.11(g).

¹¹ 15 C.F.R. § 930.33(a)(1).

¹² Staff report at 22.

Humboldt and Morro Bay WEAs in the same auction, clearly demonstrating that the Humboldt process is linked to that of Morro Bay.

We strongly support the conditions for leasing activities recommended in the Commission staff report.¹³ However, because offshore wind development is reasonably foreseeable, it is also necessary to include conditions associated with development activities. We therefore recommend the Commission require additional conditions associated with development for its consistency determination. Examining the full range of offshore wind activities –from site assessment and characterization to construction and operations at this stage of the offshore wind development process is California’s best opportunity to ensure that all activities associated with offshore wind development are fully consistent with the CCMP. As the staff report notes, “Review of this consistency determination is the state’s opportunity to examine the impacts of offshore wind development at a programmatic level.”¹⁴ Given that this is California’s sole opportunity to evaluate the potential impacts associated with three lease sales in the Humboldt WEA at the programmatic level, we urge the Commission to include conditions associated with development activities as part of its conditional concurrence with the Humboldt CD.

In this letter we comment on the Conditions recommended in the staff report and offer recommended conditions for development activities. As noted above, we urge the Commission to adopt the staff’s recommended Conditions for site assessment and characterization activities, and to require conditions associated with development activities.

COMMENTS ON CONDITIONS

Conditions 1.a., 1.b., 1.c., 1.d.: Our organizations support the intent of these four conditions. However, we are concerned that they do not specify the requirements for BOEM and lessees to meet them. Specifically in Condition 1.c., “encouraging lessees to collaborate” does not guarantee that this collaboration will happen, and thus provides no certainty that this measure will accomplish its intended aim to “increase efficiency and minimize impacts of geophysical and other surveys conducted during the site assessment phase.”¹⁵ The Commission should additionally require that BOEM’s review of survey, sampling, and analysis plans consider the cumulative impacts of all lessees’ plans, as well as require that the Commission can access the lessee’s survey plans submissions (1.b.) to ensure that oversight of lessees’ collaboration and impact minimization will occur.

While we support Condition 1.d. to make FOIA-applicable documents and data available, we recommend clarifying this condition to state that this information will promptly be made publicly available. As currently written, the language appears to allow BOEM to only make this information available upon a FOIA request.

¹³ We support adoption of the conditions, but only provide substantive comments on Conditions 1, 2, 3, and 7.

¹⁴ Staff report at 3.

¹⁵ Staff report at 11.

We also recommend the Commission require additional data transparency measures. For instance, environmental information from site assessment and characterization activities shall promptly be made publicly available. Additionally, all incidences of observed marine debris and entanglements and all incidences of collision fatality shall promptly be made publicly available. Public availability of documents and data and transparency conditions should apply to all phases of development.

Condition 1.e.: We recommend requiring, rather than encouraging, consistency with the State Lands Commission's low-energy geophysical survey program to minimize impacts and ensure prompt reporting of publicly available information.

BOEM should also require lessees to demonstrate how underwater noise will be minimized to the fullest extent feasible (as determined by BOEM) during site assessment and characterization activities, including through the use of technically and commercially feasible and effective noise reduction and attenuation measures (e.g., using survey equipment that can be deployed at depth, operating sub-bottom profiling systems at power settings that achieve the lowest practicable source level for the objective). As discussed in the previous section, we recommend requirements for data sharing and transparency so that the fewest number of surveys necessary are conducted to minimize impacts during the site assessment phase.

The Commission should adopt additional conditions related to construction and operational noise. Specifically, 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 the lessee 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).

Condition 1.f.i.: We support Conditions 1.f.i.1., 1.f.i.3., and 1.f.i.4.

Regarding Condition 1.f.i.2, we recommend a minimum of four Protected Species Observers (PSO) on each vessel, following a two-on, two-off rotation, each responsible for scanning no more than 180° of the horizon. Monitoring of the visual clearance zone should be undertaken by vessel-based PSOs stationed on the survey vessel to enable monitoring of the entire 500 meter clearance zone for marine mammals. We also recommend that PSOs monitor for and maintain appropriate distance to sea turtles in addition to marine mammal observations, in order to be consistent with the CCMP to maintain healthy populations of marine species. Finally, we recommend that surveys begin during daylight hours, in good visibility (1 nm or greater), and continue into the night if needed (rather than beginning at night)..These conditions should be required for all phases of development.

While we support Condition 1.f.i.5., we recommend this data promptly be made publicly available and include observed marine debris and entanglements and all observed incidences of

collision fatality. Survey activities could be completed over several years, so providing monitoring data only 90 days after completion 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 minimize impacts throughout all phases of development.

For offshore wind development to proceed responsibly, there is a need for additional survey and data collection on a wide array of species the CD discusses. As BOEM progresses with leasing in California, the agency should concurrently work to fill critical gaps in baseline data on wildlife in the Humboldt Bay WEA.¹⁶ We appreciate the discussion in the staff report regarding baseline, construction, and operational noise data. However, it is critical to assess baseline noise prior to project development, including leasing activities. We recommend that BOEM, in coordination with lessees, collect sufficient data (broadband soundscape recordings through all seasons) to assess 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 on noise levels within and adjacent to the WEA, vessel traffic routes, and transmission corridors to shore and provide for ‘control’ sites for future monitoring.

As part of the agency’s determination that leasing activities are consistent with marine resource protection under the Coastal Act, BOEM states that “Mooring will be designed to minimize or remove entanglement risk for protected species.”¹⁷ However, there are no details provided on these designs, no plans for monitoring moorings beyond projected metocean buoy yearly maintenance trips, and no requirements related to decommissioning. We agree with the staff report that the three buoys could increase risk of entanglement, particularly if marine debris is caught on mooring lines. We recommend monitoring for marine debris and removal of ensnared debris as soon as possible to minimize the risk of secondary entanglements.

We support the staff report’s discussion of elements for monitoring, mitigation, and adaptive management plans for the Commission’s future review of construction and operating plans. However, the staff report falls short of requiring conditions of offshore wind development activities. Rather than signal expectations, we believe the Commission should clearly set expectations for responsible offshore wind development in California, and urge the Commission to adopt the following additional conditions. We note that these are initial recommendations that may change as new scientific and/or technological advancements occur, and as data on the effectiveness of the measures becomes available informs the adaptive management of this risk. Additional recommendations may also be developed for other marine species.

Management Practices to Reduce Risk of Secondary Entanglement of Marine Mammals, Sea Turtles, Sharks, and Diving Birds

¹⁶ Please see page 6 in attached, Comments in Response to the Bureau of Ocean Energy Management’s Draft Environmental Assessment for Commercial Wind Lease and Grant Issuance and Site Assessment Activities on the Pacific Outer Continental Shelf, Humboldt Wind Energy Area; BOEM-2021-0085 (Jan. 11, 2022) Submitted by the Natural Resources Defense Council, National Audubon Society, Whale and Dolphin Conservation, Humboldt Baykeeper, Ocean Conservation Research, Surfrider Foundation.

¹⁷ BOEM CD at 27.

BOEM shall require the lessee to develop and implement management practices to monitor for and avoid and minimize the risk to marine species, including marine mammals, sea turtles, sharks, and diving birds, from secondary entanglement of marine debris (including fishing gear) ensnared on project infrastructure, including platforms, mooring lines, inter-array cables, and anchors. Below we provide initial recommendations for monitoring and minimizing the risk of secondary entanglement:

I. Monitoring

- 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 or other appropriate sensor-types with proven sufficient sensitivity to detect a marine debris ensnarement or entanglement event).
- B. Daily visual inspection of infrastructure for ensnarement of marine debris or entanglement of an animal¹⁸ at depths where marine debris is most likely to occur¹⁹ (e.g., using cameras 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 or other appropriate techniques).²⁰

II. Avoidance and Minimization Measures

A. Design features:

- a. The lessee shall design and maintain mooring lines and inter-array cables in configurations that minimize the potential for entanglement of marine species (e.g., lines and cables should remain under tension).²¹
- b. Infrastructure should be designed to maximize 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 textures to contrast with marine debris, and novel lighting techniques).²²

B. Protocol when ensnarement and/or entanglements are identified:

- a. 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), U.S. Fish and Wildlife Service (USFWS), and the California

¹⁸ 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.

¹⁹ 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.

²⁰ Underwater autonomous vehicle (AUV) or remotely operated vehicle (ROV) surveys could potentially supplement periodic inspection and may be an important tool for marine debris removal at depth.

²¹ Whales are more likely to become entangled in slack lines – see California Ocean Protection Council Best Management Practices for reducing entanglement risk:

http://www.opc.ca.gov/webmaster/_media_library/2016/08/Best_Practices_Guide_Final.pdf.

²² 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.

Department of Fish and Wildlife (CDFW) within 24 hours of detection and shall remove marine debris as soon as possible in a manner that does not jeopardize human safety, property, or the environment.

- b. If monitoring shows that marine mammals or sea turtles have become entangled, injured, or impinged by ensnared marine debris or project structures, the lessee will immediately notify NMFS, USFWS, and CDFW, follow the Reporting Protocol for Injured or Stranded Marine Mammals, and provide those agencies all available information on the incident.²³
 - c. If sharks or diving birds are observed entangled or entrapped in marine debris, the lessee will promptly report the incident to NMFS, FWS, and CDFW within 24 hours of detection, and consult with the appropriate agency regarding marine debris removal at the earliest possible time in a manner that avoids jeopardizing 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 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 marine debris and entanglements shall promptly be made publicly available.

Conditions 1.f.ii., 1.f.iii.: Support

Condition 1.f.iv., Condition 2: We support the requirement for an anchoring plan. However, we recommend increasing the buffer (Condition 1.f.iv.2) to a sufficient distance to ensure that the anchor rode's scour area does not come into contact with biogenic structural habitat. We also support the requirement that lessees avoid intentional contact within hard substrate, rock outcroppings, seamounts, or deep-sea coral/sponge habitat. We are particularly concerned about impacts on benthic habitat that is designated as 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. HAPC fulfill important ecological functions and are especially vulnerable to degradation.

We recommend the Commission adopt the staff's recommended conditions, as well as the additional conditions below throughout all phases of development to protect benthic habitat.

Protection of Benthic Habitat

- i. Site assessment and characterization
 - A. BOEM, in close coordination with NMFS, shall require that detailed benthic surveys of HAPC be conducted prior to leasing in the Humboldt Wind Energy Area (WEA). We note that in previous letters to BOEM we advocate for detailed mapping of HAPCs to occur *before* leasing of a WEA. This granular mapping should occur as part of site assessment and characterization activities at the very latest.

²³ See National Marine Fisheries Service Large Whale Entanglement Response Program for whale entanglement reporting protocol; Sea Turtle Disentanglement Network for sea turtle reporting protocol.

- 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 benthic sediment composition. The lessee shall avoid biogenic structural habitat (as confirmed by the core sample) when anchoring meteorological buoys.²⁴
- 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 will ensure that the lessee avoid intentional contact within hard substrate, 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.²⁵
 - C. Where surveys affirm the presence of biogenic structural habitat, and the lessee determines that impacts to biogenic structural habitat cannot be avoided, the lessee shall submit a mitigation plan to BOEM and the Commission for their approval prior to advancing development.
 - C. For developments where impacts to biogenic structural habitat cannot be avoided, BOEM shall require the lessee to select a mooring system with a minimally intensive benthic footprint.

Condition 3: We support this condition. A requirement for vessel speeds of 10 knots, including vessel transit, would be adequately protective. This condition should be required for all phases of development.

Increased vessel traffic associated with all phases of offshore wind energy development poses an increased vessel collision risk for sea turtles and marine mammals, particularly baleen whales.²⁶ The risk of serious injury and mortality from vessel collisions increases significantly with vessel speeds of 10 knots or greater.²⁷ Yet BOEM's submitted CD significantly underestimates the impact of vessel strikes on marine life. For leasing activities, the BOEM CD notes that "[v]essel speeds during site characterization surveys within the Proposed Action Area will be limited to less than 5 knots (2.57 m/s), but transit speeds will vary."²⁸ The CD adds, "the project-related vessel traffic could increase the overall vessel traffic and risk of collision with marine mammals in the Proposed Action Area; however the required vessel strike avoidance measures, as well as reporting requirements, will minimize vessel interactions with protected species to negligible levels."²⁹ It is difficult to fathom how BOEM reaches the conclusion that impacts from vessel

²⁴ 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>.

²⁵ This extends the language in Condition 2 to the development phase. Staff report at 13.

²⁶ Rockwood, R. C., Calambokidis, J., & Jahncke, J. 2017. High mortality of blue, humpback and fin whales from modeling of vessel collisions on the US West Coast suggests population impacts and insufficient protection. *PLoS one*, 12(8), e0183052.

²⁷ 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.

²⁸ BOEM CD at 26.

²⁹ BOEM CD at 26.

traffic associated with site characterization are expected overall to be “negligible,” when a vessel strike—even if a rare occurrence—has a high potential to result in the death of the individual that is struck. Further, the submitted CD entirely ignores the impact of potential vessel strikes during future project development because its scope is limited to site assessment and characterization activities. There are potentially hundreds of project-related vessels engaged in all phases of construction and operation, significantly increasing the risk of increased vessel collision and serious injury and mortality.

The staff report states, “If future consultation with NMFS, USFWS or other state or federal agency results in different vessel speed requirements, BOEM will work with Commission staff to ensure that any new requirements remain consistent and do not diminish the level of resource protection provided by this requirement.”³⁰ We support this and recommend that any changes to vessel speed requirements (e.g., allowing speeds above 10 knots) are limited to circumstances where the best available scientific information demonstrates that whales or sea turtles do not use the habitat or transit the area. We also note that slower speeds may be required in some instances to adequately protect sea turtles. Projects may develop, in consultation with NOAA, an “Adaptive Plan” that modifies these vessel speed restrictions. However, the monitoring methods that inform the Adaptive Plan must follow a scientific study design and be proven effective using vessels traveling at 10 knots or less. If the resulting Adaptive Plan is scientifically proven³¹ to be equally or more effective than a 10-knot speed restriction, the Adaptive Plan could be used as an alternative to the 10-knot speed restriction.

One of the mitigation measures BOEM requires in the CD is a minimum separation distance of 500 meters between all whales around the vessel at all times. We support this requirement, and remind the agency that in addition to ESA listed species, all marine mammals are protected under the Marine Mammal Protection Act (MMPA). We recommend adopting an additional condition that BOEM require all project-associated vessels to maintain a separation distance of 100 meters for other marine mammal species, and that both the 500 meter and 100 meter separation distance 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, consistent with the CCMP.

We recommend the Commission adopt an additional condition that BOEM require lessees to collect and review information to enable an accurate assessment of existing vessel traffic (routes, size, and number of vessels) prior to development activities to assess additional risk from project associated vessel traffic. We note that the BOEM CD includes Automatic Identification System (AIS) data on vessel traffic from 2017. Nonetheless, it is critical to have a more comprehensive understanding of vessel traffic and how project-associated vessel traffic will increase risk to marine species so that mitigation measures are adequately protective and consistent with the CCMP.

Condition 7: We support this condition and agree with the liaison’s proposed duties to coordinate survey work, help manage conflicts, and help prevent secondary entanglement during site assessment and characterization activities. While the fisheries liaison may be helpful in

³⁰ Staff report at 13.

³¹ e.g., *via* an independently conducted and peer-reviewed scientific publication.

mitigating “potential entanglement impacts throughout the course of lease exploration activities,” we urge the Commission to adopt the entanglement recommendations provided in this letter as its primary method of minimizing entanglement risk.³²

Conditions regarding Collision and Lighting for Birds and Bats: While there is significant concern for collision impacts during turbine operation, there is also risk of collision during site assessment and characterization activities (e.g., collision with meteorological buoys and vessels). We recommend the Commission evaluate risks to birds listed under the Federal and California Endangered Species Acts, with special attention paid to Short-tailed Albatross, Scripp’s Murrelet, and Marbled Murrelet for the Humboldt WEA. We also agree with the staff report that there is a need for much greater understanding of bird and bat distributions in the lease areas and greater understanding of the risk of turbine strikes and identification of species most at risk.

We recommend the Commission adopt additional conditions during all phases of development to maintain healthy populations of bird and bat species, consistent with the CCMP. The following suggestions are adapted from the New York State Energy Research and Development Authorities Environmental Technical Working Group:

- I. 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 FAA, USCG, 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.
 - 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.
- II. Collision Monitoring
 - A. Collision Risk Assessment: The Commission should recommend that BOEM require 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, and collision detection technologies.

³² Staff report at 47.

- 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 Lab³³ at Oregon State University and WT Bird from WEST, Inc.³⁴ 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.³⁵ However, these technologies should be fully integrated into turbine design before they can be deployed. DOE is currently evaluating the development status of these integrated systems based on their readiness for offshore wind deployment.³⁶ BOEM should support the development of these technologies and should require turbine developers to integrate these systems into their turbine designs, and the Commission should ask the agency to do so.
- 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 made publicly available and reported to USFWS.

III. Turbine Collision Minimization Strategies. In addition to the lighting recommendations provided above, we urge the Commission to encourage BOEM to adopt the following strategies to minimize collision risk with lease stipulations:

- A. Set restrictions on maximum allowable turbine height, as it has done in response to marine use concerns. The newest contracted offshore wind turbines are reaching heights of more than 300 meters. Further increasing this maximum turbine height will increase risk to trans-Pacific migrants. Likewise, BOEM should also set minimum requirements for turbine air-gap (e.g., the distance between the water surface and the rotor swept zone). Decreasing this air gap increases collision risk for lower flying foraging and commuting birds in the marine environment.

³³ Clocker, K., et al. 2021. Autonomous Sensor System for Wind Turbine Blade Collision Detection. Inst. Elec. & Elec. Eng'rs.

³⁴ Verhoef, J.P., et al. 2004. WT-Bird: A Low Cost Solution for Detecting Bird Collisions. Energy Research Center, Netherlands.

³⁵ 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.

³⁶ 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).

- B. Automated, smart, and/or seasonal curtailment strategies.³⁷ 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.³⁸
- C. 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),³⁹ ultraviolet lighting (which many bat species can see),⁴⁰ and ultrasonic noise emitters (to possibly “jam” bats’ radars and make wind facilities unappealing to bats).⁴¹ One of the ultrasonic deterrent technologies, NRG Systems, has been commercially deployed at land-based wind facilities.⁴² These technologies need to be assessed for use in the offshore environment, especially on turbines with large swept areas.

Conditions for Adaptive Management and Cumulative Impacts: We agree with the staff report that “...comprehensive monitoring plans and adaptive management strategies for offshore wind projects will be key to ensuring that coastal resources are protected and restored,” and that “The efforts made to understand, avoid, and minimize impacts now will also help inform future floating wind project design.”⁴³ To achieve outcomes based on these statements and that would ensure development in the Humboldt WEA is consistent with the CCMP, 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.

Publicly accessible data on impacts of offshore wind developments are the foundation of effective adaptive management. 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 developments, adaptive management is

³⁷ We acknowledge that blanket seasonal curtailment strategies may be economically unviable for offshore wind energy development. However, we note that reasonably tailored smart curtailment strategies will be an important mitigation strategy for responsibly operated offshore wind energy facilities in North Carolina. Developments in Next Generation Weather Radar, or “Nexrad”, System make it easier to predict migration timing. Ongoing research into the timing and environmental cues driving migration dynamics across the Atlantic makes it possible to predict 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.

³⁸ McClure et. al. 2021. Eagle fatalities are reduced by automated curtailment of wind turbines, *J. Applied Ecology*.

³⁹ 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>.

⁴⁰ 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>.

⁴¹ 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*.

⁴² 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>.

⁴³ Staff report at 62, 19.

especially important to protect the marine environment off the North Coast. We also recommend that BOEM require lessees to have an adaptive management advisory committee that includes a liaison for environmental non-governmental organizations.

Additionally, we are concerned that BOEM's submitted CD fails to assess cumulative impacts. The analysis of cumulative impacts is crucial to a robust assessment of leasing and development, and as noted in the staff report: "Consistency determinations must consider both the direct effects of project-related activities as well as the "indirect (cumulative and secondary) effects which result from the activity and are later in time or farther removed in distance, but are still reasonably foreseeable."⁴⁴ CZMA regulations describe indirect effects as "effects resulting from the incremental impact of the federal action when added to other past, present, and reasonably foreseeable actions, regardless of what person(s) undertake(s) such actions."⁴⁵

We appreciate the discussion of cumulative impacts that is included in the staff report, and agree that comprehensive baseline and post-project monitoring and implementation of an adaptive management framework are critical to understanding cumulative impacts and minimizing them. We urge the Commission to consider cumulative impacts during this consistency review, specifically by adopting conditions that require comprehensive monitoring as recommended in our comments regarding entanglement, noise, and benthic habitat, as well as requirements for adaptive management (as recommended above).

Importantly, the staff report notes that "Because 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 California."⁴⁶ 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. In the case of avian species, there are potential population-level impacts of displacing birds from important foraging areas or migratory routes.⁴⁷ Underwater noise from increased vessel traffic as well as turbine installation and operation poses a potential threat to diving birds occurring within and around Humboldt WEA.⁴⁸ BOEM has already committed resources to a key study designed to characterize avian distribution along the California Current System and inform responsible offshore wind development. The results of the long-awaited Data

⁴⁴ 15 C.F.R. § 930.11(g); Staff report at 29.

⁴⁵ 15 C.F.R. § 930.11(g).

⁴⁶ Staff report at 57.

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 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.

Synthesis and High-resolution Predictive Modeling of Marine Bird Spatial Distributions on the Pacific OCS⁴⁹ will be critical to consider in adaptive management and monitoring.

Lastly, as noted in the staff report, installation of electrical export cables to bring power from the Humboldt WEA to shore is expected to result in additional disturbance to the seafloor, potential future Humboldt Harbor District development, and increased Army Corps of Engineers widening of the Federal Navigation Channels⁵⁰ has the potential to result in disturbance to habitat within Humboldt Bay. These activities would contribute to cumulative impacts on migratory shorebirds and other species that depend on eelgrass and other biologically significant nearshore and coastal habitats. Humboldt Bay has over 30 percent of the eelgrass meadows remaining in California and the terrestrial areas on both the north and south spit contain sensitive habitats including snowy plover nesting sites on the south spit.⁵¹ It is critical to protect the state's remaining eelgrass and to avoid impacts to other sensitive habitats.

We appreciate the statement in the staff report that, "Future development, including cables and Humboldt Harbor District development, will need to be sited, constructed and operated to ensure that these habitats are maintained, enhanced and where feasible, restored."⁵² and recommend that the Commission include these impacts when considering cumulative impacts of offshore wind development. The Commission should also consider onshore impacts of transmission construction, as there are potential landfall options in addition to subsea transmission cables,⁵³ and how this will further contribute to cumulative impacts on avian species; a full picture of migratory pathways for land birds and seabirds must be evaluated.

In closing, we urge the Commission to expand this consistency review and build upon its leadership in advancing offshore wind development by adopting our recommendations for additional conditions. We thank Coastal Commission staff and the Commission for their work to ensure that offshore wind development off California's coast is fully consistent with the CCMP, and we appreciate the Commission's engagement with stakeholders and consideration of our comments. California is a leader in its efforts to tackle the climate crisis and in its history of protecting invaluable ocean and coastal resources - this is a critical opportunity to move forward responsibly and to further demonstrate the state's leadership on both priorities.

⁴⁹ <https://opendata.boem.gov/BOEM-ESP-Ongoing-Study-Profiles-2021-FYQ2/BOEM-ESP-PC-15-01.pdf>.

⁵⁰ Severy, M., Guerrero, I., Alstone, P. & Jacobson, A. 2021. Transmission Upgrades Report and Policy Analysis. In M. Severy, Z. Alva, G. Chapman, M. Cheli, T. Garcia, C. Ortega, N. Salas, A. Younes, J. Zoellick, & A. Jacobson (Eds.) California North Coast Offshore Wind Studies. Humboldt, CA: Schatz Energy Research Center. schatzcenter.org/pubs/2020-OSW-R12.pdf.

⁵¹ 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.

https://humboldt-bay.org/sites/humboldt-bay2.org/files/documents/Humboldt%20Bay%20Eelgrass%20Management%20Plan_10-10-17.pdf.

⁵² Staff report at 49.

⁵³ Severy, M., Guerrero, I., Alstone, P. & Jacobson, A. 2021. Transmission Upgrades Report and Policy Analysis. In M. Severy, Z. Alva, G. Chapman, M. Cheli, T. Garcia, C. Ortega, N. Salas, A. Younes, J. Zoellick, & A. Jacobson (Eds.) California North Coast Offshore Wind Studies. Humboldt, CA: Schatz Energy Research Center. schatzcenter.org/pubs/2020-OSW-R12.pdf.

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