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TO: BOEM, Humboldtoffshorewind@boem.gov AND
https://www.regulations.gov/commenton/BOEM-2021-0044-0001
DATE: 17 August 2021
SUBJECT: Off-shore Wind Energy Projects off Humboldt County and Morro Bay

1) **Humboldt** Wind Energy Area Environmental Assessment - Scoping
2) ID BOEM-2021-0044-0001- Commercial Leasing for Wind Power Development Offshore (OCS) **Morro Bay**, CA

It is paramount that we redouble efforts to develop renewable energy that can help address the climate emergency, however we must also be concerned with rushing forward with ill-considered proposals for offshore energy without adequate efforts to resolve serious potential conflicts such as whale entanglement. I hope people can work together towards resolving these under-appreciated conflicts. This issue deserves far more study and attention.

From an energy standpoint, the best ocean energy potential off the U.S. west coast unfortunately overlaps with whale migration routes and there is a serious risk that whales will become tangled in dense networks of anchor cables. Whales don't have reverse gear so they get tangled in anchor cables and then twist themselves up.

As we learned with wind energy, avoiding unacceptable wildlife conflicts depends a lot on choosing the right *locations*. Offshore of the U.S. west coast may not one of the good places (low conflict) for ocean energy. These conflicts need to be much more carefully investigated by scientists and discussed with the public before we embrace off-shore energy in this critical migration corridor. More than 10 years ago NOAA noted several concerns about marine mammal conflicts with ocean energy -

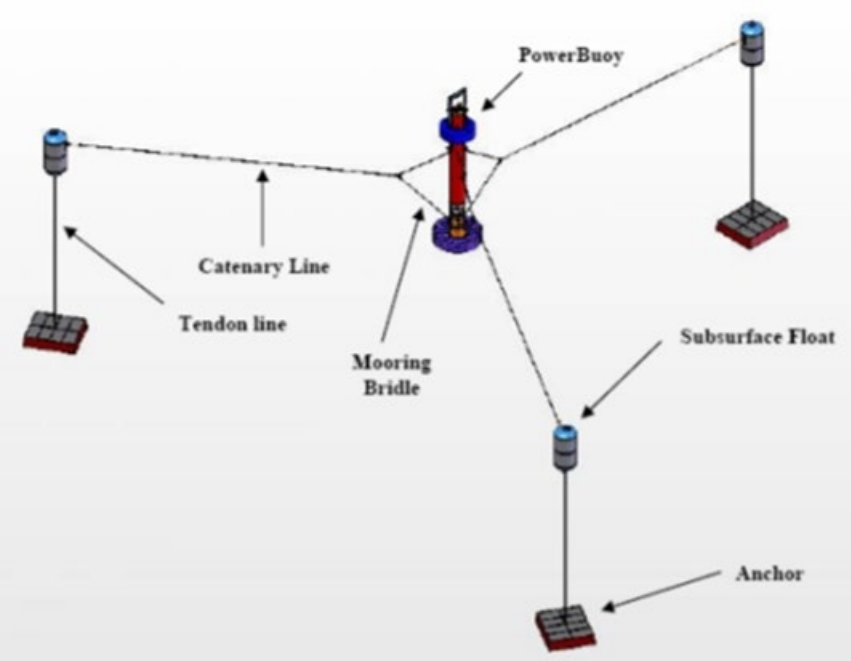
> A diversity of concerns exists for Marine Mammals; the nature of mooring cables (slack v. taut; horizontal v. vertical; diameter) is critical to entanglement issues. Fundamental baseline data will be needed (mammal biology, presence/absence/species diversity, information on prey species) to understand projects' impacts and long-term buildout scenarios. There is some need for immediate monitoring of cetaceans (e.g., videography, beachings, tagging, vessel surveys) to understand how they interact with wave energy facilities.
> …
> Information about the effects of wave energy on cetaceans and pinnipeds is lacking. … The group emphasized the need for monitoring to determine if these are the most significant impacts for both pilot- and commercial-scale projects. … The biggest potential biological and ecological threat to cetaceans is probably mooring and "attendant" cables. The group doubted that whales would actually see the mooring cables, and as a result could strike them or become entangled in them and be injured or killed. … Thin mooring cables are more dangerous than thick ones because they may cause lacerations and entanglements, although thick cables may cause blunt-force trauma. Slack cables are more dangerous than taut ones for entanglement risk, and depending on where they are in the water column,

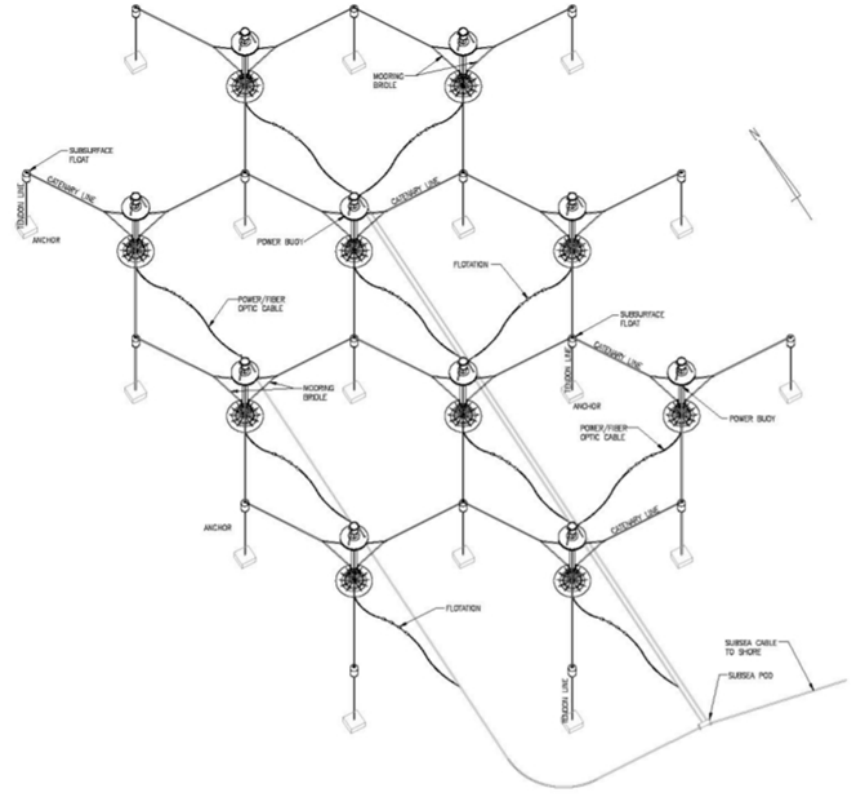
> horizontal cables are more dangerous than vertical lines. In this respect, even short tag lines attached to a buoy with a slack horizontal line pose a significant risk for entanglement. In addition, if the transmission cables and/or anchor lines associated with a wave energy array are buried less than 1 m, gray whales could dig them up while feeding …

Boehlert, G. W, G. R. McMurray, and C. E. Tortorici (editors). 2008. Ecological effects of wave energy in the Pacific Northwest. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-F/SPO-92, 174 p. http://spo.nmfs.noaa.gov/tm/Wave%20Energy%20NOAATM92%20for%20web.pdf. Even while wave energy continues to get a lot of attention, I am not aware of major efforts to advance our understanding of this identified issues.

In 2018 there were 46 whale entanglement incidents along the west coast, many of them caused by crab pots. Cassandra Profita 2019. New Crab Pot Could Help Reduce Whale Entanglements. OPB Nov. 29, 2019 https://www.opb.org/news/article/ropeless-crab-pot-whale-entanglements/. Off-shore energy projects pose a significant additional cumulative risk of entanglement because, the energy platforms and buoys are deployed 24x7x365, and the steel cables and concrete anchors are far stronger and less forgiving than the ropes used to hold crab pots.

Additionally, the anchor lines for ocean energy are not simple straight cables to the ocean floor. There is a need to distribute the load from the powerful waves, so anchoring large energy buoys requires large networks that pose a greater risk to whales. The risk of entanglement is increased by the fact that abandoned fishing gear will likely get tangled with the anchor lines, thus increasing the hazard for marine mammals. BOEM should carefully consider the cumulative entanglement hazard posed by both the anchor cables AND the abandoned fishing gear that might attach to the anchor cables.





Proponents of off-shore energy often claim they hope to steer marine mammals away from these wave energy parks by making deterrent sounds, but I am not aware of any

proven technology to deter whales from areas where wave energy buoys are present. If it existed would it be used by crab fishers?

Please make sure these issues are carefully studied in the NEPA review process and mitigated the planning and implementation of these off-shore energy projects.