23 April 2014

Ms. Jean Thurston
Renewable Energy Program Specialist
Bureau of Ocean Energy Management
Pacific OCS Region, Office of Strategic Resources
770 Paseo Camarillo
Camarillo, California 93010

Dear Ms. Thurston:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the Bureau of Ocean Energy Management's (BOEM) 24 March 2014 notice of an unsolicited lease request from the Northwest National Marine Renewable Energy Center at Oregon State University (NNMREC-OSU) to acquire a research lease for marine hydrokinetic technology testing on the Outer Continental Shelf (OCS) off the coast of Oregon (79 Fed. Reg. 16050) and the associated application for a lease from NNMREC-OSU. The *Federal Register* notice includes a request for interest from other potential wave energy developers and for public comments regarding the potential environmental consequences of wave energy development in the area. The Commission offers the following recommendations in response to that request.

RECOMMENDATION

The Marine Mammal Commission recommends that the Bureau of Ocean Energy Management—

- encourage NNMREC-OSU's efforts to consult and collaborate with experts in marine mammal biology, life history, and the effects of sound, electromagnetic fields, and renewable energy development on marine wildlife in the design and implementation of research and monitoring studies associated with the Pacific Marine Energy Center test sites; and
- direct NNMREC-OSU to disseminate broadly the results of its research on the effects of wave energy development on marine mammals and the marine environment.

BACKGROUND

NNMREC-OSU has submitted an unsolicited request to BOEM for a research lease to construct the Pacific Marine Energy Center South Energy Test Site (PMEC SETS), similar to its existing North Energy Test Site (NETS). The PMEC SETS would be a utility-scale grid-connected wave test facility designed in part to evaluate the performance of various wave energy converter devices and to assess potential environmental interactions with those devices. The lease request states that the facility would be located approximately 9 km off the coast of Newport, Oregon, in water depths ranging from 58 to 75 meters. The facility would consist of four test sites (berths), each designed to accommodate one or more wave energy converters and associated mooring systems.

Each berth would be connected to its own subsea cables which would transmit energy, as well as performance and environmental data, to an onshore control center.

NNMREC-OSU indicated in its application that, prior to installation of the test berths and cables, it would conduct baseline studies in coordination with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service, and Oregon Department of Fish and Wildlife. The baseline studies would involve vessel and other surveys and acoustic monitoring to characterize (1) habitat use by important species, including marine mammals, and (2) ambient electromagnetic fields and sound. NNMREC-OSU also indicated that marine mammal mitigation and monitoring measures associated with installation, operation, maintenance, and decommissioning of specific wave energy converters would be determined in consultation with NMFS.

RATIONALE

There are 29 species and 31 stocks of marine mammals documented in waters off Oregon which could be found in or near the proposed lease area, nine of which are listed as endangered or threatened under the Endangered Species Act (ESA) (Carretta et al. 2013, Allen and Angliss 2013, see Table 1). The installation, operation, and decommissioning of wave energy converters may pose risks to some of those species and to the ecosystems of which they are a part. Sound and vessel activity can disturb marine mammals and may interfere with important activities, including foraging, resting, socializing, and migrating. Marine mammal collisions with the devices, becoming entrapped in moving parts, or entangled in the mooring cables could cause injury or, in severe cases, death. Disturbance of the seafloor associated with installation of the submarine transmission cables or mooring systems could affect benthic habitats or benthic prey species. Support vessel activities pose the risk of collisions and also increase the risk of spills of fuel oil or other materials. Although little is known regarding the potential effect of electromagnetic fields (generated by transmission cables) on marine mammals, these may also result in disturbance or displacement of marine mammals from preferred habitats. The extent to which these risks may reduce long-term reproduction and survival of marine mammal populations in the area has yet to be fully evaluated.

Table 1. Marine mammal species/stocks found in U.S. OCS waters off Oregon, and their status under the ESA

Common name	Stock	Species name	ESA Status
Pinnipeds			
California sea lion	U.S.	*Zalophus californianus*	Not listed
Guadalupe fur seal	Mexico to California	*Arctocephalus townsendi*	Threatened
Harbor seal	Oregon/Washington coast	*Phoca vitulina richardsi*	Not listed
Northern elephant seal	California breeding	*Mirounga angustirostris*	Not listed
Northern fur seal	Eastern Pacific	*Callorhinus ursinus*	Not listed
Steller sea lion	Eastern U.S.	*Eumetopias jubatus*	Not listed
Cetaceans			
Baird's beaked whale	California/Oregon/Washington	*Berardius bairdii*	Not listed
Blue whale	Eastern North Pacific	*Balaenoptera musculus*	Endangered
Bottlenose dolphin	California/Oregon/Washington offshore	*Tursiops truncatus*	Not listed
Cuvier's beaked whale	California/Oregon/Washington	*Ziphius cavirostris*	Not listed

Common name	Stock	Species name	ESA Status
Dall's porpoise	California/Oregon/Washington	*Phocoenoides dalli*	Not listed
Dwarf sperm whale	California/Oregon/Washington	*Kogia sima*	Not listed
Fin whale	California/Oregon/Washington	*Balaenoptera physalus*	Endangered
Gray whale	Eastern North Pacific	*Eschrichtius robustus*	Not listed
	Western North Pacific		Endangered
Harbor porpoise	Northern California/Southern Oregon	*Phocoena phocoena*	Not listed
	Northern Oregon/Washington Coast		
Humpback whale	California/Oregon/Washington	*Megaptera novaeangliae*	Endangered
Killer whale	Eastern North Pacific Southern resident	*Orcinus orca*	Endangered
Mesoplodont beaked whales	California/Oregon/Washington	*Mesoplodon* spp.	Not listed
Minke whale	California/Oregon/Washington	*Balaenoptera acutorostrata*	Not listed
North Pacific right whale	Eastern North Pacific	*Eubalaena japonica*	Endangered
Northern right whale dolphin	California/Oregon/Washington	*Lissodelphis borealis*	Not listed
Pacific white-sided dolphin	California/Oregon/Washington	*Lagenorhynchus obliquidens*	Not listed
Pygmy sperm whale	California/Oregon/Washington	*Kogia breviceps*	Not listed
Risso's dolphin	California/Oregon/Washington	*Grampus griseus*	Not listed
Sei whale	Eastern North Pacific	*Balaenoptera borealis*	Endangered
Short-beaked common dolphin	California/Oregon/Washington	*Delphinus delphis*	Not listed
Short-finned pilot whale	California/Oregon/Washington	*Globicephala macrorhynchus*	Not listed
Sperm whale	California/Oregon/Washington	*Physeter macrocephalus*	Endangered
Striped dolphin	California/Oregon/Washington	*Stenella coeruleoalba*	Not listed

A thorough evaluation of the effects of wave energy converters on marine mammals and other components of the marine environment will depend on the availability of biological and environmental information collected prior to leasing activities (i.e., baseline information), during installation and operation, and through decommissioning. At a minimum, the information should be sufficient to demonstrate that the proposed activities are not likely to harm or damage natural resources, including marine mammals, ESA-listed species, and ESA-designated critical habitat (30 C.F.R. § 585.801). Ideally, the data should be collected at temporal and spatial scales sufficient to distinguish the effects of wave energy development from other possible sources of variability, such as seasonal effects, other natural cyclic effects, or effects of habitat variation.

Biological information needed to assess status and vulnerability of marine mammals to short- and long-term effects of wave energy development includes stock structure, distribution and seasonal movements, abundance and trends, and vital rates (e.g., survival, reproduction, emigration, immigration), as well as marine mammal habitat-use and foraging patterns. The collection of such

information requires both a near- and long-term commitment of effort and resources to continue the ongoing research and monitoring needed to detect adverse effects associated with wave energy development and provide a strong foundation for responsible management of marine ecosystems.

The responsibility for data collection to assess baseline conditions and the potential effects of wave energy development projects on marine mammals and the marine environment lies primarily with the lessee, but would be most effective if structured as a collaborative effort with BOEM, other federal and state resource agencies, and independent researchers to ensure that the data collected are of sufficient quality, duration, and scale to assess adverse effects. NNMREC-OSU has indicated that it is consulting as appropriate with these entities on baseline studies, and would continue to consult if the lease were to be issued and installation of the PMEC SETS facility were to go forward. In recognition and support of these efforts, the Commission recommends that BOEM encourage NNMREC-OSU's efforts to consult and collaborate with experts in marine mammal biology, life history, and the effects of sound, electromagnetic fields, and renewable energy development on marine wildlife in the design and implementation of research and monitoring studies associated with the Pacific Marine Energy Center test sites. The Commission further recommends that BOEM direct NNMREC-OSU to disseminate broadly the results of its research on the effects of wave energy development on marine mammals and the marine environment.

The Commission appreciates the opportunity to provide comments on BOEM's request for information and NNMREC-OSU's application for a research lease. Please contact me if you have questions concerning the Commission's recommendation.

Sincerely,

Rebecca J. Lent, Ph.D.
Executive Director

cc: Ms. Donna Wieting, NMFS Office of Protected Resources, Silver Spring, MD
Mr. Chris Yates, NMFS West Coast Regional Office, Long Beach, CA

References

Allen, B.M., and R.P. Angliss. 2013. Alaska marine mammal stock assessments, 2012. NOAA Technical Memorandum NMFS-AFSC-245, 282 pages.

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