



MARINE MAMMAL COMMISSION

9 December 2020

Dr. Rodney E. Cluck, Chief
Division of Environmental Sciences
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, Virginia 20166

Dear Dr. Cluck:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors, provides the following suggestions for consideration in the development of the Bureau of Ocean Energy Management's (BOEM) Environmental Studies Plan (ESP) for Fiscal Years (FY) 2022–2023. Overall, the Commission supports the projects identified in the current FY 2021–2022 Studies Development Plan (SDP) and commends BOEM for its continued investments in marine mammal research and its commitment to working collaboratively with other agencies and funding entities to further our understanding of the effects of offshore energy development on marine mammals and their habitat.

Ecosystem-wide protected species assessment programs and partnerships

BOEM's offshore energy program requires regularly updated information on marine mammals and their habitat to assess the potential impacts of various energy-related activities in all active Outer Continental Shelf (OCS) planning areas. Foundational to these assessments are ecosystem-wide surveys to estimate abundance, distribution, and behavior of marine mammals and develop spatially explicit density models used in incidental take estimation. BOEM has provided multi-year funding for ecosystem-wide surveys in several areas of offshore energy development¹, in partnership with other federal agencies. These include the Atlantic Marine Assessment Program for Protected Species (AMAPPS I/II/III), the Gulf of Mexico Marine Assessment Program for Protected Species (GoMMAPPS), the Pacific Marine Assessment Partnership for Protected Species (PacMAPPS), and the Aerial Survey of Arctic Marine Mammals (ASAMM). Each of these programs should be continued, as they provide information needed to evaluate the effects of energy development on marine mammals and contribute to the development and refinement of mitigation measures. Disruption of ecosystem-wide assessment programs and major gaps in available data could undermine BOEM's ability to evaluate the effects of offshore energy development accurately and fully. These programs also help to ensure that leasing and energy development-related activities have minimal adverse impacts on protected species.

¹ Throughout this letter, "energy development" refers to energy exploration, extraction, production, transport, and decommissioning.

Gulf of Mexico. The Gulf of Mexico has a long history of oil and gas development. In 2010, the Gulf experienced the largest oil spill in U.S. history following the explosion of the *Deepwater Horizon* platform, and marine life in the Gulf continues to be threatened by this and smaller spills and chronic hydrocarbon discharges (Asl et al. 2016). In 2017, BOEM provided funding for a multi-agency partnership to conduct a five-year survey of marine mammals and other marine wildlife in the Gulf. The objectives of the GoMMAPPS was to obtain information on abundance, distribution, and habitat use of marine mammals and other protected species, and to improve the quantity and quality of information used to mitigate and monitor various threats associated with oil and gas development. GoMMAPPS has made significant contributions to date, filling long-recognized gaps in population-level data for several offshore marine mammal species. It is therefore concerning that BOEM has decided to discontinue funding for GoMMAPPS, despite the continuing need for updated information on marine mammal abundance and densities, and the development of robust data on population trends over time, in areas where oil and gas leasing and development continues and there is potential for expansion. Some funding is available from *Deepwater Horizon* restoration-related sources for limited and targeted marine mammal surveys, but these will not provide the broad-scale abundance and distribution data generated by visual and shipboard visual surveys. It is not clear how such information would be obtained on a regular basis otherwise so that trends can be detected and abundance estimates and densities are kept current for marine mammals. This is of particular concern for endangered species such as sperm and Bryde's whales and acoustically sensitive species such as beaked whales and dwarf and pygmy sperm whales. The Commission recommends that BOEM resume funding in FY 2022 for regularly occurring, ecosystem-wide visual surveys for marine mammals in the Gulf.

Arctic. In the U.S. Beaufort and Chukchi seas, information on the distribution and summer-fall movements of large whales, belugas, and walrus had been provided by aerial surveys conducted since 1979. The most recent program has been conducted since 2007 through an inter-agency agreement between BOEM's Alaska Region and NOAA's Marine Mammal Laboratory in Seattle, Washington. The combined multi-decade survey data were compiled by the ASAMM program and have been instrumental in understanding how marine mammals are being affected by increasing human activities in the Arctic, including from oil and gas activities. For example, the ASAMM data have been used to develop density models for several species of Arctic marine mammals (Schick et al. 2017), and to inform the U.S. Coast Guard's Alaska Arctic Coast Port Access Route Study (see Commission's [10 November 2020 letter](#) to USCG). Funding for the ASAMM program was discontinued by BOEM as of 2020. In its FY 2021-2022 Studies Development Plan, BOEM has proposed funding a new survey program called the Arctic Marine Assessment Program for Protected Species (ArMAPPS). The ArMAPPS would use visual and acoustic surveys and satellite-linked telemetry to obtain data on the presence, distribution, and abundance of cetaceans, with particular focus on subsistence-harvested species such as bowhead and beluga whales. Additionally, habitat-based density models would be developed to generate fine-scale predictions of cetacean seasonal density or occurrence. However, the survey design, as described in the FY 2021-2022 SDP, calls for a rotation of the survey through the three Arctic sub-regions — the Bering, Chukchi, and Beaufort Seas. The Commission supports the proposed funding of ArMAPPS but is concerned that a rotational approach may not provide adequate information to assess cetacean seasonal distribution and relative abundance, particularly in the Chukchi and Beaufort Seas where oil and gas leasing has been more active. Given the significant inter-annual variability in weather conditions in the Arctic, the rapid rate of seasonal sea ice loss, the potential for expanded oil and gas development and

increased vessel traffic, and the importance of marine mammals to Alaska Native communities, regular ecosystem-wide marine mammal surveys are critical. The Commission recommends that BOEM provide ASAMM-level support for the ArMAPPS to ensure that information is collected annually on cetacean seasonal distribution and relative abundance in the Arctic, especially in the Chukchi and Beaufort Seas. With respect to non-cetacean species, the Commission supports continued efforts by BOEM to survey ice seal, walrus, and polar bear populations in areas of active or potential oil and gas development, in coordination with the National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and Alaska Native communities.

Cook Inlet. Recent and proposed lease sales in Cook Inlet OCS waters underscore the importance of year-round visual and acoustic surveys to determine the occurrence and movements of beluga whales and sea otters. However, the future of BOEM's marine mammal assessment programs in Cook Inlet is not clear. BOEM has initiated aerial and acoustic surveys in Cook Inlet, which the Commission believes should continue as long as oil and gas exploration and development activities move forward. The Commission is concerned that increasing human activities in Cook Inlet, including disturbance from seismic surveys and other oil and gas-related activities, may be contributing to the continued decline in the abundance of beluga whales, as documented by biennial NMFS summer aerial surveys (Shelden et al. 2019). Winter aerial surveys and passive acoustic monitoring funded by BOEM and conducted in partnership with NMFS are providing additional information on the year-round distribution and habitat use of both beluga whales and sea otters in Cook Inlet. Such information can be used to identify more effective mitigation and monitoring measures in oil and gas lease areas. The Commission recommends that BOEM work with NMFS to develop a long-term strategy for assessing year-round distribution and movements of beluga whales and sea otters throughout Cook Inlet in anticipation of expanded oil and gas development and in the face of continued declines in the Cook Inlet beluga whale population. Such efforts should include visual and acoustic monitoring, as well as continued photo-identification, satellite-linked telemetry, and unmanned aircraft system (UAS) studies.

Additional studies plan suggestions

Acoustic modeling. There is an ongoing need in all offshore energy areas to better understand and mitigate the effects on marine mammals of sound-producing activities associated with energy development. As such, the Commission supports BOEM's development of its Center for Marine Acoustics and other efforts to expand its acoustic impact modeling capabilities in the Environmental Assessment Program. BOEM's Environmental Studies Program also funds studies involving applied underwater acoustics and modeling. To model accurately the impacts of the various sound-producing activities, sediment composition and layering of those sediments in the project area must be known², as they can cause major discrepancies in the modeled results. Unfortunately, geoacoustic data are lacking in most regions and are not routinely described when *in-situ* measurements are collected (including for pile driving). Therefore, the Commission recommends that BOEM (1) consider funding studies investigating sediment composition and layering, particularly for the Atlantic OCS, and (2) work with the other programs within the agency (e.g., the Environmental

² Sediment composition and the associated layering affect the depth-dependent sound speed and attenuation profiles (i.e., sediment porosity and particle size), which are dominant factors when modeling sound propagation in shallow water.

Assessment Program and the Marine Minerals Program) to compile a database of geoacoustic data for the Atlantic and other OCS regions.

Level B harassment. NMFS is in the process of revising its behavior thresholds for Level B harassment of marine mammals. Studies conducted to date, including those funded by BOEM in partnership with other federal agencies, have provided insights into how certain species of marine mammals respond to seismic airguns and the effectiveness of commonly-used mitigation measures (e.g., ramp-up). However, many uncertainties remain. To better inform the derivation of behavior thresholds for sources used by industry operators, the Commission recommends that BOEM fund additional studies investigating which sources and what sound levels result in Level B harassment. Those studies should investigate—

- How different species of marine mammals, particularly low-frequency cetaceans and other sensitive cetacean species (i.e., harbor porpoises and beaked whales), respond to seismic surveys and other impulsive sound sources via directed and indirect³ behavioral response studies;
- The sensitivity of high-frequency cetaceans (i.e., harbor porpoises) to non-impulsive, intermittent sources used in high-resolution geophysical surveys (e.g., echosounders and chirps); and
- How various factors, including reproductive and behavioral state (e.g., foraging, resting, migrating, bow-riding), presence of predators, varying levels of human activity, and changing environmental conditions might explain observed responses.

Effects of wind energy development on right whales. Disturbance from offshore energy development has the potential to result in long-term, cumulative effects on marine mammals. Of the greatest immediate concern are the effects of offshore wind energy development on North Atlantic right whales. Although disturbance from wind energy development by itself is unlikely to lead to the demise of right whales, concerns have been expressed that it could contribute to a biologically significant, population-level response (Kraus et al. 2019). Efforts are being made to understand and mitigate potential effects on right whales from wind energy development. For example, BOEM has proposed to develop a right whale bioenergetics model, enhance tagging technology, deploy acoustic and telemetry tags to study diving behavior and habitat use, and conduct a comparative analysis of aerial survey techniques. BOEM also has proposed a pilot program to conduct aerial surveys, passive acoustic monitoring, and prey sampling in the various wind energy project sites. The Commission commends BOEM for supporting these and other studies to better understand the potential short- and long-term impacts of wind energy development on right whales along the U.S. east coast, as well as marine mammals in other wind energy development areas. The results of those studies will be critical for understanding disturbance from wind energy development so that adverse effects can be more effectively mitigated. The Commission recommends that BOEM continue to work with NMFS and other federal agencies, wind energy developers, states, and regional stakeholder groups⁴

³ These include tagging and acoustic studies that do not involve a controlled exposure experiment in which either the actual source or a playback recording of the source is used.

⁴ E.g., the [Regional Wildlife Science Entity](#), the [Responsible Offshore Science Alliance](#), the [New York State Energy Research and Development Authority](#), and the [Offshore Renewable Joint Industry Program](#).

Dr. Rodney E. Cluck

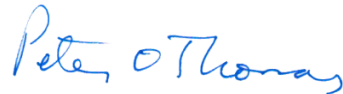
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to support and expand research focused on long-term, region-wide studies to better understand and mitigate the effects of wind energy development on right whales and other marine mammals.

The Commission appreciates the opportunity to provide these comments and recommendations regarding marine mammal research and monitoring in conjunction with ocean energy development. Please contact me if you have questions concerning any of the Commission's comments and suggestions.

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

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