



MARINE MAMMAL COMMISSION

14 July 2011

Mr. P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13635
Silver Spring, MD 20910

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's 14 June 2011 *Federal Register* notice (76 Fed. Reg. 34656) and the revised application submitted by the Bureau of Ocean Energy Management, Regulation, and Enforcement (the Bureau). The applicant is seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act to authorize the taking of small numbers of cetaceans incidental to oil and gas industry-sponsored seismic surveys for geological and geophysical exploration on the Outer Continental Shelf in the Gulf of Mexico. The activities would occur during a five-year period. The Service is considering whether to propose regulations that would authorize such taking and is inviting public comment regarding the Bureau's application. The applicant applied for a similar authorization for activities in the Gulf on 3 March 2003, but no regulations were proposed. On 18 April 2011, the Bureau submitted a revised application for authorization to take marine mammals incidental to seismic surveys to be conducted on the Outer Continental Shelf in the Gulf. The Commission commented on the previous request for an incidental take authorization on 3 April 2003, agreeing that the Service's intent to propose regulations to govern incidental taking by seismic surveys was appropriate.

RECOMMENDATIONS

Based on its review of the information provided, the Marine Mammal Commission recommends that, in the proposed rule, the National Marine Fisheries Service—

- provide sufficient justification for its selection of the appropriate threshold for Level A harassment in the proposed rule, regardless of which threshold is adopted;
- verify whether the Bureau is in fact requesting authority to take cetaceans by Level A harassment;
- verify whether geotechnical soil surveys are part of the proposed action and, if so, include in the proposed rule an estimate of the number and types of takes associated with the dynamic positioning system of the survey vessel;
- if the sound sources are considered continuous sources, use the threshold of 120 dB re 1 μ Pa (rms) rather than 160 dB re 1 μ Pa (rms) for estimating Level B harassment takes, which is based on Service precedent;
- identify activity-specific Level A and B harassment zones in the proposed rule—those zones should be based on acoustic modeling and/or empirical data and, if based on modeling, should be updated after in-situ measurements have been made and estimated sound pressure

- levels have been verified; and in-situ measurements should be made for all airgun configurations, the sub-bottom profiler, and geotechnical soil surveys at the onset of each activity and adjustments regarding the harassment zones should be made accordingly;
- include in the proposed rule a requirement that the Bureau use the same Level A harassment zone to initiate the shut-down of activities regardless of what species of marine mammal is detected within that zone;
- include power-down requirements in the proposed rule and supplement the mitigation measures proposed by the Bureau to include speed reduction and course alteration requirements and restrictions on the timing or location of activities to avoid disturbing marine mammals during breeding or calving seasons;
- include a requirement in the proposed rule that passive acoustic monitoring be used to collect data on the occurrence, abundance, distribution, and movement of marine mammals during periods before, during, and after all of the proposed activities (i.e., use of airguns and other sound sources and transits and dynamic positioning of vessels), and that the Bureau and/or operators report and analyze those data;
- advise the Bureau of the need to work jointly with industry operators to consider, and potentially fund, the testing of new technologies (i.e., unmanned aerial or underwater vehicles) for use in far-field monitoring; and
- require the Bureau to report immediately all injured and dead marine mammals in the vicinity of the proposed surveys to the Service and to suspend those activities if a marine mammal is seriously injured or killed and the injury or death could have been caused by those activities (e.g., a fresh dead carcass is found).

RATIONALE

Before issuing an incidental take authorization under section 101(a)(5)(A) of the Marine Mammal Protection Act, the Service is required to determine that the taking will have a negligible impact to the species or stocks. Further, the Service is required to determine that the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such taking have been structured to effect the least practicable adverse impact on marine mammal species and stocks. The Service has yet to make the required determinations. The Bureau anticipates that the proposed seismic surveys (i.e., 2-D, 3-D, wide azimuth, ocean bottom, and high-resolution surveys) would result in both Level A and B harassment, but would not result in the death of any marine mammal due, in part, to its proposed mitigation and monitoring measures. It is unclear if the Bureau is seeking authority to take marine mammals by Level A harassment or whether it believes implementation of the proposed mitigation and monitoring measures would avoid such takes. The proposed mitigation and monitoring measures (i.e., ramp-up and shut-down procedures based on visual monitoring by trained observers and the optional use of passive acoustic monitoring) are the same as the current mitigation and monitoring measures that have been used by the Bureau in the Gulf since December 2005. Those measures primarily focus on sperm whales, the species of greatest concern when the measures were originally adopted.

Estimation of Takes

The Bureau used the Service's Level A and B harassment thresholds of 180 and 160 dB re 1 μ Pa (rms), respectively, to estimate the number of takes that would result from the proposed surveys during a five-year period. The Bureau also used the injury threshold of 230 dB re 1 μ Pa (peak) from Southall et al. 2007 as an alternative basis for estimating the number of takes by Level A harassment. It is unclear which threshold ultimately will be used by the Service to estimate the number of takes by Level A harassment. Regardless of which threshold is adopted, the Marine Mammal Commission recommends that the National Marine Fisheries Service provide sufficient justification for its selection in the proposed rule. The Marine Mammal Commission further recommends that the Service verify whether the Bureau is in fact requesting authority to take cetaceans by Level A harassment.

The application does not clearly indicate whether geotechnical soil surveys are part of the proposed activities that would be conducted in the action area and, if so, whether they would be covered under the requested incidental take authorization. If so, the number of anticipated takes of marine mammals needs to be estimated for those activities that include dynamically positioning the vessel, as was done for industry operators in the Chukchi Sea. The Marine Mammal Commission therefore recommends that the National Marine Fisheries Service verify whether geotechnical soil surveys are part of the proposed action and, if so, include in the proposed rule an estimate of the number and types of takes associated with the dynamic positioning system of the survey vessel. Those sound sources may be considered continuous sources, and if so, based on Service precedent, the threshold for estimating takes by Level B harassment should be 120 dB re 1 μ Pa (rms) rather than 160 dB re 1 μ Pa (rms).

Mitigation and Monitoring

Until the Service can estimate with confidence the size of appropriate Level A and B harassment zones and the number of associated takes, it lacks a sound basis for making the determinations required under the Marine Mammal Protection Act — i.e., that only small numbers of marine mammals would be taken and that the takes would have a negligible impact on the affected species and stocks. The Level A and B harassment zones were not specified in the Bureau's application. However, it did indicate that it would require that activities be shutdown if a whale (other than a "whale" species in the Delphinidae family) is detected within 500 m of the vessel. The basis for establishing the 500-m safety zone is unclear, as is the basis for requiring shutdown only when whales are present. As such, the Marine Mammal Commission recommends that the National Marine Fisheries Service identify activity-specific Level A and B harassment zones in the proposed rule. Those zones should be based on acoustic modeling and/or empirical data and, if based on modeling, should be updated after in-situ measurements have been made and estimated sound pressure levels have been verified. In-situ measurements should be made for all airgun configurations, the sub-bottom profiler, and geotechnical soil surveys at the onset of each activity and adjustments regarding the harassment zones should be made accordingly. Industry operators have used in-situ measurements to verify and adjust harassment zones in other regions, and this would be appropriate in the Gulf as well. In addition, the Commission recommends that the Service

include in the proposed rule a requirement that the Bureau use the same Level A harassment zone to initiate the shut-down of activities regardless of what species of marine mammal is detected within that zone.

The application does not indicate that power-down would be used as a mitigation measure for the proposed activities. Such procedures are generally included as part of the mitigation measures that the Service adopts for all industry operators. The Bureau has proposed mitigation and monitoring measures that have been used in the Gulf since 2007. Unfortunately, those measures are outdated and not consistent with the measures currently employed by industry operators in other regions. The Marine Mammal Commission recommends that the National Marine Fisheries Service include power-down requirements in the proposed rule and supplement the mitigation measures proposed by the Bureau to include speed reduction and course alteration requirements and restrictions on the timing or location of activities to avoid disturbing marine mammals during breeding or calving seasons.

The Bureau's proposed mitigation and monitoring measures are based exclusively on vessel-based visual monitoring. In addition, it states that it will encourage the use of passive acoustic monitoring on a voluntary basis. Here again, these measures are not consistent with measures currently employed by industry operators in other regions. The Commission supports the use of passive acoustic monitoring and believes that it should be mandatory because it is an effective supplement to visual monitoring when marine mammals vocalize. . Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service include a requirement in the proposed rule that passive acoustic monitoring be used to collect data on the occurrence, abundance, distribution, and movement of marine mammals during periods before, during, and after all of the proposed activities (i.e., use of airguns and other sound sources and transits and dynamic positioning of vessels), and that the Bureau and/or operators report and analyze those data.

The use of aerial surveys also could supplement vessel-based visual monitoring, especially for far-field monitoring. However, some operators consider aerial surveys unsafe because some surveys would be conducted too far from land if an emergency occurs. If manned aerial surveys are not practicable, the Bureau and industry should investigate other methods of far-field monitoring (i.e., unmanned aircraft or unmanned underwater vehicles). The Commission believes that those technologies could be feasible for future industry activities, but that the technologies or constraints on using those technologies (e.g., Federal Aviation Administration requirements) have not been fully assessed. As such, the Marine Mammal Commission recommends that the National Marine Fisheries Service advise the Bureau of the need to work jointly with industry operators to consider, and potentially fund, the testing of new technologies (i.e., unmanned aerial or underwater vehicles) for use in far-field monitoring.

Level A Harassment and Mortality

As stated previously, it is unclear if the Bureau is seeking authorization to take marine mammals by Level A harassment. In particular it is not clear if authorization for serious injury is

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being sought, inasmuch as the Bureau is not seeking authorization for any mortalities. The application does not specify whether the Bureau intends to report all injured or dead marine mammals in the vicinity of authorized operations to the Service. Again, such a reporting requirement is considered a standard monitoring measure and it is unclear why it was not included in the application. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service require the Bureau to immediately report to the Service all injured and dead marine mammals in the vicinity of the proposed surveys, and to suspend those activities if a marine mammal is seriously injured or killed and the injury or death could have been caused by those activities (e.g., a fresh dead carcass is found). The Service should investigate any such incident to assess the cause and full impact (e.g., the types of injuries, the number of animals involved) and to determine what modifications in survey or other procedures are needed to avoid additional injuries or deaths. Full investigation of such incidents is essential to provide information regarding the potential impact of seismic surveys on marine mammals.

Please contact me if you have questions concerning the Commission's recommendations or comments.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director

References

Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendation. *Aquatic Mammals* 33(4):411–521.