



# MARINE MAMMAL COMMISSION

23 June 2011

Mr. P. Michael Payne, Chief  
Permits, Conservation, and Education Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Statoil USA E&P Inc. seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act to take small numbers of marine mammals by harassment. The taking would be incidental to an open-water shallow hazards survey in the Chukchi Sea, Alaska, from July through November 2011. The Commission also has reviewed the National Marine Fisheries Service's 24 May 2011 *Federal Register* notice announcing receipt of the application and proposing to issue the authorization, subject to certain conditions (76 Fed. Reg. 30110).

## RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- prior to granting the requested authorization, provide additional justification for its preliminary determination that the proposed monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within or entering the identified Level B harassment zones;
- require Statoil to (1) determine detection probabilities as a function of distance from the vessel and (2) describe changes in detection probabilities under the various sea state and weather conditions and light levels likely to be encountered at the times when activities would be conducted;
- require Statoil to report and analyze both visual and acoustic data on the occurrence, abundance, distribution, and movement of marine mammals for periods before, during, and after all of the proposed activities (i.e., use of airguns and other acoustic sources and transiting and dynamic positioning of the vessels);
- work with Statoil and other industry operators to (1) evaluate the potential for using new technology for mitigation and monitoring purposes and (2), when and as appropriate, consult with the Federal Aviation Administration and other responsible agencies to (a) clarify existing constraints on the use of such technology and (b) devise methods to implement the new technology while staying within the constraints set by the responsible agencies; and
- condition the incidental harassment authorization to require Statoil to suspend its 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), and if additional measures are not likely to reduce the risk of additional serious injuries or deaths to a very low level, require Statoil to obtain the necessary authorization for such takings under section 101(a)(5)(A) of the Marine Mammal Protection Act before allowing it to continue its activities or initiate additional activities.

## RATIONALE

In the 2010 open-water season, Statoil conducted a 3-D survey of its 16 leases acquired during Lease Sale 193 in the Chukchi Sea. It plans to use data from that survey to identify potential well sites that would be surveyed in 2011. Statoil would conduct shallow hazards and site clearance surveys at those sites to collect bathymetric and shallow sub-floor data for the evaluation of potential shallow faults, gas zones, and archeological features at prospective exploratory drilling sites, as required by the Bureau of Ocean Energy Management, Regulation, and Enforcement. The surveys would occur on and near Statoil's leases, an area of approximately 665 km<sup>2</sup> located 240 miles west of Barrow and 165 km northwest of Wainwright. Statoil would conduct the surveys in water depths of 30 to 50 m using the M/V *Duke*, which would tow a 4-airgun array (nominal source levels 204 to 218 dB re 1 $\mu$ Pa with a maximum discharge volume of 40 in<sup>3</sup>). Statoil also would operate a 2–7 kHz sub-bottom profiler, 114–410 kHz side scan sonar, and 200–400 kHz multibeam echo sounder during those surveys. The surveys would be completed in approximately 23 days.

In addition, Statoil would conduct geotechnical soil investigations to evaluate the suitability of the prospective exploratory drilling sites on its leases and leases jointly owned with ConocoPhillips Alaska Inc. Statoil would collect a maximum of 29 core samples using the M/V *Fugro Synergy* in water depths up to 100 m. All cores would be either 5.3 or 7.1 cm in diameter. Statoil also would operate an echosounder with 18 and 200 kHz transducers and would use a 21–30.5 kHz high-precision acoustic positioning system to position the vessel dynamically. The geotechnical soil investigations would be completed in approximately 14 days.

The Service preliminarily has determined that, at most, the proposed activities would result in a temporary modification in the behavior of small numbers of up to 13 species of marine mammals and that any impact on the affected species would be negligible. The Service also does not anticipate any take of marine mammals by death or serious injury. It also believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of the proposed mitigation and monitoring measures, which include—

- (1) using Level A and B harassment zones estimated by adding a 25 percent increase to the empirical measurements of the airgun array and mitigation airgun from the nearby Burger Prospect to serve as temporary zones until empirical measurements are obtained at the proposed sites;
- (2) measuring the distances at which received levels reach the Level A and B harassment thresholds established by the Service for multiple airgun configurations, the sub-bottom profiler, and soil investigation operations at the beginning of those activities and adjusting the harassment zones, accordingly;



- (3) using qualified Inupiat observers and experienced field biologists to monitor 30 minutes before, during, and 30 minutes after the proposed activities;
- (4) using ramp-up, power-down, and shut-down procedures;
- (5) using speed and course alterations to avoid marine mammals;
- (6) shutting down or delaying the start of the proposed shallow hazard surveys if an aggregation of 12 or more non-migrating bowhead or gray whales are present within the 160-dB re 1  $\mu$ Pa Level B harassment zone;
- (7) reducing vessel speed and altering course, but avoiding multiple changes in speed and course, within 274 m of whales;
- (8) requiring a 3-day training session for all observers before commencing the proposed activities;
- (9) using night-vision equipment during night-time observations;
- (10) continuing to use passive acoustic buoys deployed on and around Hanna Shoal to record marine mammal vocalizations to gain insight into species-specific occurrence, abundance, distribution, and movement and migration patterns;
- (11) continuing joint funding of an extensive environmental studies program in the Chukchi Sea in collaboration with Shell Offshore Inc. and ConocoPhillips Alaska Inc.;
- (12) reporting all injured and dead marine mammals encountered while conducting the proposed activities to the National Marine Fisheries Service and its associated stranding network;
- (13) possibly supplementing the proposed monitoring requirements based on recommendations provided by the peer-review panel at its 2011 Open-Water Meeting; and
- (14) submitting frequent field reports and final sound source verification and monitoring reports.

Statoil plans to maintain transparent mechanisms for sharing plans and information with all stakeholders associated with subsistence use, a process that it began in 2009. Statoil has met with various stakeholders and is finalizing a plan of cooperation for its 2011 proposed activities. The plan of cooperation would include specific mitigation measures designed to minimize impacts to subsistence use of marine mammals and would be finalized before issuance of the incidental harassment authorization. In addition to the mitigation measures previously listed, Statoil would not enter the Chukchi Sea until early August to minimize impacts on the spring bowhead and beluga whale hunts. The proposed activities also would occur more than 160 km from the closest Native community. Statoil would jointly fund, with other industry operators, the subsistence communication center in Wainwright. It routinely would contact the center when conducting the proposed activities to obtain updates regarding subsistence use in the area and to determine appropriate vessel routes and timing for crew changes to avoid conflict with subsistence users. Statoil would identify transit routes and schedule crew changes to avoid other subsistence use areas prior to commencing the proposed activities. Based on the timing and location of the proposed activities and these additional mitigation measures, the Service preliminarily has determined that the expected taking would not have an unmitigable adverse impact on the availability of marine mammals for subsistence use by Alaska Natives.



## Mitigation and Monitoring Measures

The Commission commends Statoil for its extensive list of proposed mitigation and monitoring measures. That being said, some of the measures are subject to important limitations, and those need to be evaluated and rectified. In this case, Statoil plans to use visual monitoring as an integral part of its mitigation and monitoring measures. However, visual monitoring is not effective for far-field monitoring or during periods of bad weather or at night, as described in previous Commission letters commenting on similar activities and in the peer-review panel's recommendations from the 2011 Open Water meeting. For the proposed activities, weather, sea state, and distance from the vessel impede and limit the effectiveness of visual monitoring. Although most of the proposed activities would occur during daylight hours in the summer months, some activities would occur later in the year, at times of reduced daylight. Therefore, the Marine Mammal Commission recommends that, prior to granting the requested authorization, the National Marine Fisheries Service provide additional justification for its preliminary determination that the proposed monitoring program will be sufficient to detect, with a high level of confidence, all marine mammals within or entering the identified Level B harassment zones. At a minimum, the Service should require Statoil to document and report when and where visual monitoring was compromised during surveys. As is well described in substantial literature on marine mammal surveys, distance will limit effective visual monitoring regardless of weather, sea state, and lighting conditions. Results from standard line-transect surveys, for example, are considered valid only if they are corrected for decreasing detection probability with distance. The same standard should be imposed in a case like this where it is important to provide reliable estimates of the number of takes occurring during a seismic survey. For that reason, the Marine Mammal Commission also recommends that the National Marine Fisheries Service require Statoil to (1) determine detection probabilities as a function of distance from the vessel and (2) describe changes in detection probabilities under the various sea state and weather conditions and light levels likely to be encountered at the times when activities would be conducted.

The *Federal Register* notice states that the applicant also would use moored passive acoustic monitoring buoys to assess species-specific occurrence, abundance, distribution, and movement patterns during the 2011 open-water season. In addition, passive acoustic monitoring would be used to compare differences in those parameters at times when the airguns are firing versus when they are silent. The Commission recognizes the potential to collect useful information with this approach but encourages Statoil and the Service to keep in mind the limitations of passive acoustic technology, the most important being that those instruments sample only those marine mammals that make detectable sounds within associated detection ranges that vary by call type. Given the shortcomings of both visual and passive acoustic approaches, the best strategy for mitigation and monitoring is to use both methods. With that in mind, the Marine Mammal Commission recommends that the National Marine Fisheries Service require Statoil to report and analyze both visual and acoustic data on the occurrence, abundance, distribution, and movement of marine mammals for periods before, during, and after all of the proposed activities (i.e., use of airguns and other acoustic sources and transiting and dynamic positioning of the vessels).



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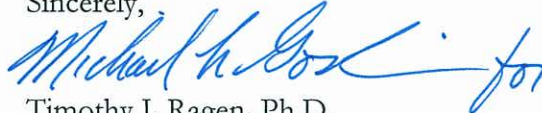
In the past, industry operators have expressed safety concerns about conducting aerial surveys in the Chukchi Sea. They have contended that aerial surveys in the Chukchi Sea are not safe because they would be conducted too far from land if an emergency occurs. If manned aerial surveys are not practicable, the peer-review panel suggested that industry should investigate other methods of far-field monitoring (i.e., unmanned aircraft). In addition, the panel indicated that other new technologies (i.e., unmanned underwater vehicles) could be used to provide far-field monitoring. 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 and addressed. As such, the Marine Mammal Commission recommends that the National Marine Fisheries Service work with Statoil and other industry operators to (1) evaluate the potential for using new technology for mitigation and monitoring purposes and (2), when and as appropriate, consult with the Federal Aviation Administration and other responsible agencies to (a) clarify existing constraints on the use of such technology and (b) devise methods to implement the new technology while staying within the constraints set by the responsible agencies.

#### **Level A Harassment and Mortality**

Statoil is not seeking authorization to take marine mammals by serious injury or death. The *Federal Register* notice indicates that Statoil would report all injured or dead marine mammals in the vicinity of its operations to the Service. In addition to that requirement, the Marine Mammal Commission recommends that the National Marine Fisheries Service condition the incidental harassment authorization to require Statoil to suspend its 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. This will require that the appropriate investigators have timely access to the carcass(es), which will require that Statoil take steps to provide such access (e.g., by securing the carcass(es) and providing transport for investigators to the site). Full investigation of such incidents is essential to provide information regarding the potential impact of geophysical surveys on marine mammals. If additional measures are not likely to reduce the risk of additional serious injuries or deaths to a very low level, the Service should require Statoil to obtain the necessary authorization for such takings under section 101(a)(5)(A) of the Marine Mammal Protection Act before allowing it to continue its activities or initiate additional activities.

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

Sincerely,



Timothy J. Ragen, Ph.D.  
Executive Director