



MARINE MAMMAL COMMISSION

5 August 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 National Marine Fisheries Service's 6 July 2011 *Federal Register* notice (76 Fed. Reg. 39706) and the application submitted by BP Exploration (Alaska) Inc. BP constructed its Northstar facility on Seal Island, in the Beaufort Sea, between 1999 and 2001. The facility began production in 2001 and has been producing steadily since then. Consistent with past practice, BP is now seeking issuance of new regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act to authorize the taking of small numbers of marine mammals incidental to the operation of the Northstar facility. Under the proposed regulations, the authorization would be in effect for a five-year period. The Marine Mammal Commission previously has commented on preceding proposed rules for activities at Northstar, most recently in 2006.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service issue the final rule, provided that it—

- require BP to provide a reasoned justification for the requested number of takes of beluga whales during the open-water season and ensure that the resulting take estimate is reflected accurately in section 217.142 of the regulations;
- (1) require BP to identify all untested or novel impulsive and continuous sound sources; (2) work with BP to determine activity- and site-specific in-air and in-water Level A and B harassment zones for all those sources (including using the 120-dB re 1 μ Pa (rms) threshold for continuous sources); and (3) require BP to monitor those zones during all operations of the various sound sources and report its findings;
- require BP to use ramp-up, shut-down, and power-down procedures with all activities that require establishment of harassment zones based on either impulsive or continuous noise, whether in air or in the water;
- require BP to conduct monitoring for 30 minutes before, during, and for 30 minutes after all in-water activities that use impulsive or continuous sources (e.g., pile driving, pile removal, drilling, etc.);
- work with BP to continue its monitoring, analysis, and reporting of the acoustic data it collects on the occurrence, abundance, distribution, and movement of bowhead whales for

- periods before, during, and after all of the proposed activities (especially, the use of vibratory or impact hammers and transiting of the vessels);
- work with BP and other industry operators to (1) evaluate the potential for using new technologies 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 technologies within those constraints;
 - review BP's revised Oil Discharge Prevention and Contingency Plan to determine whether the plan is adequate for preventing and responding to a major oil spill, convey the findings of this determination to the Bureau of Ocean Energy Management, Regulation, and Enforcement, include a full description of response capabilities in the final rule, and incorporate sufficient mitigation measures into that rule to address response capabilities, thereby minimizing the likelihood of spill-related serious injury to or mortality of marine mammals and other wildlife and preventing serious degradation of the marine environment; and
 - condition the final rule to require BP to suspend its activities if more than five ringed seals are killed in any year, or any other marine mammal is seriously injured or killed and the injury or death could have been caused by those activities (e.g., a fresh carcass is found).

RATIONALE

BP proposes to continue production, drilling, and emergency training operations at its Northstar facility. Activities that could have acoustic impacts include construction activities on the island; maintenance activities on the island and pipeline; drilling; construction of ice roads; use of vehicles, vessels, aircraft, generators, and production machinery; gas flaring; and camp operations. BP would use side scan, single beam, and multibeam sonar during ice gouge and strudel scour surveys but does not intend to use airguns for any of its possible surveys. Construction and maintenance activities may require the use of vibratory or impact hammers. Drilling would be included in the authorization, but the company does not plan to drill during the five-year period unless required to respond to an emergency. Non-acoustic impacts could result from the physical presence of personnel, structures, and equipment; construction or maintenance activities; and various response activities related to spills or other accidents.

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 six species of marine mammals and that any impact on those species would be negligible. The Service proposes to authorize the taking of up to five ringed seals per year by injury or death. 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) reducing the potential for taking ringed seals by initiating winter construction activities, primarily ice road construction, as soon as possible once weather and ice conditions allow;
- (2) using trained dogs to monitor for ringed seal lairs and avoiding identified lairs by at least

- 150 m if any construction activities are initiated after 1 March in previously undisturbed areas and in water deeper than 3 m;
- (3) minimizing disturbance of any located seal lairs after 1 March;
 - (4) notifying the Service within 48 hours after initiating ice road construction, ceasing ice road usage, and initiating ice-breaking activities;
 - (5) using qualified observers to monitor Level A harassment zones delineated by the 190 and 180 dB re 1 μ Pa (rms) isopleths for pinnipeds and cetaceans, respectively, during daylight hours for 30 minutes before and during use of vibratory or impact hammers;
 - (6) implementing shut-down procedures or reducing the sound being produced if any marine mammal is detected within a Level A harassment zone;
 - (7) limiting new drilling to all periods when the sea is covered with ice and in the autumn when the ice is broken;
 - (8) restricting vessel and aircraft use during the bowhead migration;
 - (9) limiting helicopter overflights to the corridor between the island and the mainland with a minimum altitude of 305 m;
 - (10) conducting acoustic measurements of airborne sounds of 90 dB re 20 μ Pa (rms) or greater for on-ice activities or activities at the water's edge that have not been previously measured;
 - (11) conducting nearshore and offshore acoustic monitoring of bowhead whales during their migration;
 - (12) conducting daily counts of ringed seals each year from 15 May to 15 July;
 - (13) implementing the oil spill contingency plan if an oil spill occurs;
 - (14) reporting to the National Marine Fisheries Service and its associated stranding network all injured and dead marine mammals encountered while conducting the proposed activities; and
 - (15) submitting monitoring reports.

BP has met, and will continue to meet, with various stakeholders for the purpose of developing and implementing an annual plan of cooperation. Each plan would include specific measures to minimize impacts to Alaska Natives who use marine mammals for subsistence purposes. BP also would ensure that vessel traffic is completed before the end of August to minimize the potential for disturbance of fall bowhead whale hunts. During other periods, BP would keep vessels and aircraft away from the area where Nuiqsut hunters typically search for bowheads. BP also will continue to coordinate traffic to and from Northstar with the North Slope Borough and the Alaska Eskimo Whaling Commission to avoid disruption of subsistence 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.

Take estimates for beluga whales

BP estimated that up to 20 beluga whales could be taken during the open-water season based on various assumptions. Some of those assumptions were based on data from peer-reviewed literature, while other assumptions had no reasoned explanation. As such, the Commission does not

believe that the information used to calculate the estimated number of takes of beluga whales was explained sufficiently or was scientifically sound. BP indicated that the southern edge of the main fall migration corridor is approximately 100 km north of Northstar. Aerial and vessel-based survey data that had been collected for nearly 30 years also indicated the maximum number of beluga whales sighted within the Level B harassment zone of 4 km in any given year was 6 whales. Although those observations suggest that 20 takes of beluga whales during the open-water season may be reasonable, the Commission believes that the rationale for estimating the number of takes should be clarified. In addition, the estimated number of takes of beluga whales included in Table 4 of the *Federal Register* notice is inconsistent with the number in section 217.142 of the proposed regulations. To address both of these concerns, the Marine Mammal Commission recommends that the National Marine Fisheries Service require BP to provide a reasoned justification for the requested number of takes of beluga whales during the open-water season and ensure that the resulting take estimate is reflected accurately in section 217.142 of the regulations.

Mitigation and monitoring measures for acoustic sources

BP's application did not specify Level A and B harassment zones for each of its proposed activities. Instead, it indicated that it would (1) shut down activities if a marine mammal was within the respective in-water Level A harassment zone for impulsive sources (which would include only the use of an impact hammer), and (2) conduct acoustic measurements for any novel sound sources that produce in-air sounds of 90 dB re 20 μ Pa (rms) or greater. In fact, for more than a decade BP has been measuring sound from a variety of in-air and in-water acoustic sources used at Northstar. The Commission supports such measurements and commends the company for such efforts. That being said, it is not clear that all sound sources have been identified and that BP has in place reasonable plans to monitor their impacts. To ensure that sound propagation from all important sources is measured and appropriate harassment zones are established, the Marine Mammal Commission recommends that the National Marine Fisheries Service (1) require BP to identify all untested or novel impulsive and continuous sound sources; (2) work with BP to determine activity- and site-specific in-air and in-water Level A and B harassment zones for all those sources (including using the 120-dB re 1 μ Pa (rms) threshold for continuous sources); and (3) require BP to monitor those zones during all operations of the various sound sources and report its findings.

The *Federal Register* notice does not indicate whether BP would use power-down procedures as a mitigation measure for the proposed activities. Instead, it states that BP would "reduce its SPL [sound pressure level] sufficiently to ensure that received SPLs do not exceed those prescribed SPL intensities at the affected marine mammal." It is not clear how BP will make such adjustments given that the marine mammal may be moving, the distance to it may be changing, estimating that distance may be difficult, and making real-time adjustments to sound sources may not be possible given the nature of the activity. In addition, the notice did not indicate that BP would use ramp-up procedures as a mitigation measure. The Service generally requires such procedures as standard mitigation measures for a number of the types of activities (e.g., maintenance and repair) that would occur at Northstar. The Marine Mammal Commission therefore recommends that the National Marine Fisheries Service require BP to use ramp-up, shut-down, and power-down procedures with all

activities that require establishment of harassment zones based on either impulsive or continuous noise, whether in air or in the water.

BP plans to monitor marine mammal presence and activity for 30 minutes before and during activities that use impulsive sources. However, post-activity monitoring was not discussed in the *Federal Register* notice or the application, and such procedures generally are required as standard monitoring measures. The information from post-activity monitoring may provide useful information regarding the potential impacts of sound on the marine mammals near the source. For example, if a marine mammal exhibits a notable change in behavior once a sound has ceased, that change in behavior supports the notion that the sound was interfering with its behavior. To provide a full assessment of sound effects on marine mammals near Northstar operations, the Marine Mammal Commission recommends that the National Marine Fisheries Service require BP to conduct monitoring for 30 minutes before, during, and for 30 minutes after all in-water activities that use impulsive or continuous sources (e.g., pile driving, pile removal, drilling, etc.). Such monitoring should contribute to a dataset that can be used to inform decisions regarding similar activities in the future.

The *Federal Register* notice states that BP has used and would continue to use nearshore and offshore passive acoustic monitoring devices to assess bowhead whale calls during migration. The Marine Mammal Commission commends the company for its commitment to such monitoring activities and recommends that the National Marine Fisheries Service work with BP to continue its monitoring, analysis, and reporting of the acoustic data it collects on the occurrence, abundance, distribution, and movement of bowhead whales for periods before, during, and after all of the proposed activities (especially, the use of vibratory or impact hammers and transiting of the vessels). The Commission also encourages BP to report data collected from any other vocalizing cetacean.

The peer-review panel at the 2011 Open-Water meeting suggested that the oil and gas industry investigate methods of far-field monitoring that do not require visual observers (i.e., unmanned aircraft). The panel also noted that other new technologies (i.e., unmanned underwater vehicles) could be used to provide far-field monitoring. The Commission believes that those technologies offer feasible monitoring techniques for future industry activities, but that legal constraints on using them (e.g., Federal Aviation Administration requirements) have yet to be addressed. To further improve mitigation and monitoring methods, the Marine Mammal Commission recommends that the National Marine Fisheries Service work with BP and other industry operators to (1) evaluate the potential for using new technologies 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 technologies within those constraints.

Mitigation measures for potential oil spills

The *Federal Register* notice and BP's application provided a summary of potential risks to marine mammals from oil spills, including contact with oil, ingestion of oil or contaminated prey, and inhalation of oil. In fact, the number and nature of risks to marine mammals goes beyond those

types of impacts. As was observed in the Gulf of Mexico, response to a spill could easily lead to a variety of activities that disturb or displace marine mammals from important habitat – for example, habitat used for reproduction or feeding. BP’s summary included information from the *Exxon Valdez* spill and other oil spills, and indicated that lethal or sub-lethal effects on marine mammals were caused either by acute exposure to oil or chronic exposure to persistent oil in the marine environment. Here, too, the Commission considers that description to under-represent the risks. Finally, BP concludes that “a major oil spill is unlikely, and, if it occurred, its effects are difficult to predict,” and that “[a] major oil spill might cause serious injury or mortality to small numbers of marine mammals.” The Service notes that taking of a marine mammal (whether by harassment, injury, or mortality) incidental to an oil spill would be prohibited, but that in the unlikely event of an oil spill, BP expects to be able to contain oil through its oil spill response and cleanup protocols.

Here, again, this statement downplays the situation. First, the Commission does not believe that BP’s record of late, whether in the Gulf of Mexico or along the North Slope of Alaska, supports the notion that such events can be dismissed as unlikely. In 1998 BP estimated a 7 percent probability that one or more well blowouts or tank spills greater than 1,000 barrels (42,000 gallons) could occur during the 15- to 20-year lifespan of the Northstar facility. It also estimated that the probability of a spill of similar size to a pipeline rupture was 19 percent. These are probabilities that should not be taken lightly and, indeed, BP operations have led to “unlikely” but serious accidents in 2005, 2006, and 2010.

Second, the actual risk of a spill is not simply a function of its probability of occurrence—the estimated risk also must take into account the consequences if such a spill occurs. Those consequences are, in part, a function of the spill’s characteristics and the ability of the industry and government to mount an effective response. In all areas, but particularly in the Arctic, the longstanding but still unresolved question is whether the responsible parties can mount an effective response. Having just witnessed the requirements for and difficulties of responding to a major spill in the much less harsh environment of the Gulf of Mexico, the Commission sees no basis for concluding that the necessary response capability exists in icy Arctic conditions. The assertion that BP would be able to respond adequately to any kind of major spill is simply unsupported by all the available evidence. The Commission does not mean to dismiss BP’s efforts to develop response capabilities, but the reality is that the harsh conditions and lack of infrastructure, trained personnel, supplies, etc., could make it virtually impossible to respond effectively to a significant Arctic spill.

With regard to marine mammals that might be affected, impacts from a spill would be determined by the time of year, the species in or migrating through the area downstream from the facility (i.e., in the spill’s path), and the amount of disruption to their natural behavior (e.g., reproduction, feeding). Given that marine mammals move through this area in large pulses, it may or may not be the case that few animals would be affected; it will depend on the timing and circumstances as well as the size of the spill. It also is important to consider that some of the animals may already be in a compromised state as a result of climate disruption, stochastic variation in food resources, or variation in physiological state due to normal life history events (e.g., molting or reproduction in pinnipeds).

The current Oil Discharge Prevention and Contingency Plan outlines several measures for preventing and responding to a spill, as summarized in the application. As a result of the Gulf of Mexico Deepwater Horizon oil spill, the Bureau of Ocean Energy Management, Enforcement, and Regulation recently issued revised requirements for new or previously submitted development and production plans. In accordance with those revised requirements, operators must demonstrate adequate planning and preparation to ensure that oil and gas activity on the Outer Continental Shelf conforms with all applicable federal laws and regulations, is safe, conforms to sound conservation practices and does not cause undue or serious harm or damage to the human, marine or coastal environment (30 CFR 250.202). It also requires operators to revise blowout and worst-case discharge scenarios (Notice to Lessees NTL 2010-N06) and to obtain additional resources and capabilities to help them avoid a major oil spill or respond if such a spill occurs. To clarify its existing response capabilities, BP should provide a realistic review and demonstration of its response capabilities (e.g., in-situ burning and mechanical recovery) and update its response plans based on lessons learned from the Deepwater Horizon oil spill and the conditions likely to be encountered in the Beaufort Sea.

The Commission understands that BP has submitted a revised Oil Discharge Prevention and Contingency Plan to the Bureau and that it has yet to be approved. For such purposes, the Service should be working closely with the Bureau to ensure that oil and gas operations are safe. Given that the Bureau, the state of Alaska, and the U.S. Coast Guard have yet to approve the plan, it is not clear how the Service can decide that the plan is adequate. For that reason, the Marine Mammal Commission recommends that the National Marine Fisheries Service review BP's revised Oil Discharge Prevention and Contingency Plan to determine whether the plan is adequate for preventing and responding to a major oil spill, convey the findings of this determination to the Bureau of Ocean Energy Management, Regulation, and Enforcement, include a full description of response capabilities in the final rule, and incorporate sufficient mitigation measures into that rule to address response capabilities, thereby minimizing the likelihood of spill-related serious injury to or mortality of marine mammals and other wildlife and prevent serious degradation of the marine environment.

Serious injury and mortality

BP is seeking authorization to take up to five ringed seals per year by serious injury or death, but it is not seeking similar authorization for other marine mammals. The *Federal Register* notice indicates that BP would be required to report all injured or dead marine mammals in the vicinity of its operations to the Service. But these conditions do not cover all possibilities. If, for example, BP's operations result in the serious injury or death of a marine mammal other than a ringed seal, then the proper response would be to halt the relevant activities and either make the necessary adjustments to reduce the likelihood of additional serious injuries or deaths or require the company to obtain authorization for additional Level A takes of the affected species. To address this shortcoming, the Marine Mammal Commission recommends that the National Marine Fisheries Service condition the final rule to require BP to suspend its activities if more than five ringed seals are killed in any year, or any other marine mammal is seriously injured or killed and the injury or death could have been caused by those activities (e.g., a fresh carcass is found). The Service should

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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 BP's activities 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 BP 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 necessary to provide information regarding the potential impact of Northstar's activities on marine mammals and to devise the means for avoiding such occurrences in the future.

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

Sincerely,

A handwritten signature in blue ink that reads "Timothy J. Ragen". The signature is written in a cursive style with a prominent initial "T".

Timothy J. Ragen, Ph.D.
Executive Director