MARINE MAMMAL COMMISSION

1 June 2012

Mr. P. Michael Payne, Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910-3226

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application from BP Exploration (Alaska), Inc., seeking an incidental harassment authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act. BP is seeking authorization to take small numbers of marine mammals by harassment incidental to a seismic survey in the Simpson Lagoon area of the Alaskan Beaufort Sea during the 2012 Arctic open-water season. The Commission also has reviewed the National Marine Fisheries Service's 1 May 2012 notice (77 Fed. Reg. 25830) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

RECOMMENDATIONS

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

- continue to include proposed incidental harassment authorization language at the end of *Federal Register* notices but ensure that the language is consistent with that referenced in the main body of the *Federal Register* notice;
- use species-specific maximum density estimates or average estimates adjusted by a precautionary correction factor as a basis for (1) estimating the expected number of takes and (2) making its determination regarding whether the total taking would have a negligible impact on the species or stocks;
- 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 exclusion and disturbance zones;
- restrict the commencement of ramp-up from a full shut-down at night or in periods of poor visibility, regardless of whether the entire 180-dB re 1 µPa exclusion zone is visible;
- specify reduced vessel speeds of 9 knots or less when whales are within 300 m or when weather conditions reduce visibility; and
- require BP to report injured and dead marine mammals to the Service and local stranding network using the Service's phased approach to reporting, as outlined in the proposed incidental harassment authorization language at the end of the *Federal Register* notice.

RATIONALE

BP has proposed to conduct a three-dimensional seismic survey in the Simpson Lagoon area of the Alaskan Beaufort Sea during the 2012 Arctic open-water season. The survey would cover an area of about 285 km^2 with 119 km^2 (42 percent) inside the barrier islands in water depths of 0 to 3 m, 93 km^2 (33 percent) outside the barrier islands in water depths of 1 to 15 m, and the remaining 73 km^2 (25 percent) on land. BP would use two main source vessels and one mini source vessel to tow the sound sources. Each of the two main source vessels would have two sub-arrays containing eight 40-in^3 airguns, with a total discharge volume of 640 in^3 per vessel. The estimated source level for those arrays would be 223 dB re 1 μPa (rms). The mini source vessel would have one array containing eight 40-in^3 airguns, with a total discharge volume of 320 in^3 and an estimated source level of 212 dB re 1 μPa (rms). BP would use a network of ocean bottom cables with hydrophones and geophones to collect the seismic data. The company also would attach pingers to the cables as a warning for marine mammals. The pingers would transmit at frequencies from 19 to 36 kHz at an estimated source level of 188 to 193 dB re 1 μPa (rms). The survey would involve an additional 14 to 16 support vessels and would be conducted 24 hours per day from 1 July to 15 October.

The Service preliminarily has determined that the proposed activities could result in a temporary modification in the behavior of small numbers of up to 11 species of marine mammals, but that the total taking would have a negligible impact on the affected species or stocks. The Service does not anticipate any take of marine mammals by death or serious injury. The Service also believes that the potential for temporary or permanent hearing impairment from seismic activities would be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include—

(1) conducting in-situ sound propagation measurements for the respective airgun arrays (including the full array and the single source used during power-down procedures) and adjusting the respective Level A exclusion zones (190 dB re 1 μPa for pinnipeds and 180 dB re 1 μPa for cetaceans) and Level B disturbance zones (160 dB re 1 μPa for pinnipeds and cetaceans and 120 dB re 1 μPa for bowhead female-calf pairs), as necessary;
(2) using two Service-approved vessel-based observers on each of the seismic source vessels to monitor (1) the 190- and 180-dB re 1 μPa exclusion zones during daylight hours throughout the entire survey period and (2) the 160-dB re 1 μPa disturbance zone for bowhead whale groups of 12 or more after 25 August;
(3) using two Service-approved vessel-based observers on a monitoring vessel stationed outside the barrier islands to monitor the 120-dB re 1 μPa disturbance zone for bowhead female-calf pairs after 25 August;
(4) using ramp-up and power-down procedures;
(5) not commencing ramp-up from a full shut-down at night or in periods of poor visibility if the entire 180-dB re 1 μPa exclusion zone is not visible;
(6) prohibiting the continuous firing of only one airgun for long periods of time to avoid monitoring the exclusion zone prior to and during ramp-up procedures;
(7) avoiding concentrations or groups of whales when operating vessels and not operating vessels in a way that separates members of a group;
(8) reducing vessel speed to 9 knots or less when close to feeding whales or aggregations;

(9) when whales are within 300 m, reducing vessel speed, steering around groups, and avoiding multiple changes in vessel direction and speed;
(10) checking the waters adjacent to a vessel for marine mammals before the vessel's propellers are engaged;
(11) reducing vessel speed when weather conditions diminish visibility;
(12) limiting aircraft overflights to an altitude of 305 m or higher when groups of whales are within 0.5 km;
(13) restricting aircraft hovering or circling above or within 0.5 km of groups of whales;
(14) reporting injured and dead marine mammals to the Service and local stranding network; and
(15) submitting field and technical reports and a final comprehensive report to the Service.

The Commission commends the Service for its inclusion of the draft incidental harassment authorization at the end of the *Federal Register* notice, as it clarifies the Service's proposed authorization. However, in several instances the measures outlined in that section differ from those outlined in the main body of the *Federal Register* notice. The measures identified above reflect those identified in the main body of the *Federal Register* notice. The Marine Mammal Commission recommends that, in the future, the National Marine Fisheries Service continue to include proposed incidental harassment authorization language at the end of *Federal Register* notices but ensure that the language is consistent with that referenced in the main body of the *Federal Register* notice.

Availability of marine mammals for subsistence

For the proposed seismic survey BP has signed a conflict avoidance agreement with the Alaska Eskimo Whaling Commission and the Whaling Captains' Associations of 11 North Slope communities. BP also has met, and plans to continue meeting, with various stakeholders to develop and implement a plan of cooperation. Mitigation measures identified in the agreement, and expected to be included in the plan, are intended to minimize impacts to Alaska Natives, who use marine mammals for subsistence purposes. As part of the plan, BP would not conduct airgun operations in the area north of the barrier islands after 25 August. BP also would employ a marine mammal observer/Inupiat communicator on board each seismic source vessel and report every six hours, or more often as necessary, to the appropriate communication center. BP would ensure that the communication center has an Inupiat operator on duty 24 hours per day from 15 August, or one week before the start of the fall bowhead season, until the end of the bowhead whale subsistence hunt. BP and the chairman of the Alaska Eskimo Whaling Commission would offer to host a joint meeting with the appropriate whaling captains and communicators to review the results of the open-water season. Based on the timing and location of the proposed activities and mitigation measures, the Service preliminarily has determined that the proposed taking would not have an unmitigable adverse impact on the availability of marine mammals for subsistence use by Alaska Natives. The Commission commends BP for its efforts to enter into a conflict avoidance agreement and implement measures necessary to avoid such impacts.

Estimating takes of marine mammals

BP used a variety of methods to estimate the number of takes expected to result from the proposed seismic survey. It used the sizes of the disturbance zones and associated ensonified areas with density estimates from previous surveys for bowhead and beluga whales and for ringed,

bearded, and spotted seals. In those cases, BP's application included both average and maximum densities corrected to account for animals not available at the surface during the survey, limited survey effort, and/or variability in the density estimates.

BP's application of correction factors and the Service's estimates of takes are not well explained in the application and *Federal Register* notice. For example, BP requested additional takes of belugas in the event a large group was encountered—an increase of an estimated take from 4 to 50. Neither the company nor the Service described the basis for that number, except to state that there is a small possibility that one large group of belugas can show up in the lagoon during the survey. For the three seal species, BP multiplied the average and maximum densities by four to account for the variability in estimated seal densities from three different surveys. Then, to account for the potential for spotted seals to form groups, BP multiplied the maximum number of spotted seals by four again to obtain their proposed take of 24 spotted seals. The Service subsequently proposed a take of 20 spotted seals in the *Federal Register* notice, with no explanation for the change from what BP proposed. In addition, BP derived density estimates from data collected during surveys that were conducted 15 or more years ago, despite the availability of more recent data. Specifically, BP used a summer density estimate for belugas of 0.0008 whales/km^2, which they indicate was derived from aerial surveys conducted in the Beaufort and Chukchi Seas from 1982 to 1986 (Moore et al. 2000). However, Moore et al. (2000) did not calculate density estimates for belugas; they provided estimates of sightings per unit effort. They did not provide additional information that would allow for calculation of density estimates. As such, it is unclear how BP and the Service derived an estimate of density using only sightings per unit effort information. In addition, Brandon et al. (2011) provided a more recent estimate of summer density for belugas of 0.0018/km^2 based on an aerial survey of Harrison Bay (adjacent to Simpson Lagoon) conducted in the summer and fall of 2010. BP used the density estimates from Brandon et al. (2011) for estimating bowhead whale takes, so it is not clear why it did not use that same source for estimating beluga whale density and takes as well.

The Service also should explain another inconsistency involving the use of average versus maximum take estimates. For bowhead whales and ringed and bearded seals, BP proposed take estimates based on maximum densities (Table 6.4 of the application), but the Service's notice included take estimates based on average densities (Table 4) without an explanation for the change. In other incidental harassment authorizations (e.g., the U.S. Geological Survey's proposed geophysical survey in the central Gulf of Alaska; 76 Fed. Reg. 18187), the Service has used maximum densities to estimate the number of takes because of uncertainties regarding density data—uncertainties not unlike those in BP's application.

If the take estimates are to provide a basis for ensuring that the total take has no more than a negligible effect, then the average value is not the best measure. If take estimates follow a normal distribution with no bias, then the actual number of takes can be expected to exceed the average number 50 percent of the time. If the negligible determination is based on the average value, then it follows that the analysis of impact will not address actual take levels 50 percent of the time. Given the uncertainties in the estimation process and the need to ensure no more than a negligible impact on marine mammals in the survey area, the Marine Mammal Commission recommends that the National Marine Fisheries Service use species-specific maximum density estimates or average estimates adjusted by a precautionary correction factor as a basis for (1) estimating the expected

number of takes and (2) making its determination regarding whether the total taking would have a negligible impact on the species or stocks.

Mitigation, monitoring, and reporting measures

The application and notice do not describe the criteria and process for determining if visibility is sufficient to continue the survey safely. The Commission has raised these concerns in letters for similar activities and must do so again. The Marine Mammal Commission recommends that 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 exclusion and disturbance zones. At a minimum, such justification should (1) identify those species that it believes can be detected with a high degree of confidence using visual monitoring only, (2) describe detection probability as a function of distance from the vessel, and (3) describe changes in detection probability under various sea state and weather conditions and light levels. If such information is not available, the Service and BP should conduct the studies needed to describe the efficacy of existing monitoring methods and develop alternative or supplemental methods to address current shortcomings.

The Service has proposed that BP be required to use vessel lights, night vision devices, and/or forward looking infrared to monitor the exclusion zones prior to ramp-up procedures at night or in periods of poor visibility. However, the effectiveness of these devices to detect marine mammals at various distances or in a variety of lighting conditions has yet to be fully determined. The Commission questions the effectiveness of these devices as a monitoring method prior to ramp-up in poor visibility conditions given (1) insufficient testing of the devices and (2) concerns regarding the efficacy of visual monitoring methods under even good visibility conditions. For these reasons, the Marine Mammal Commission recommends that the National Marine Fisheries Service restrict the commencement of ramp-up from a full shut-down at night or in periods of poor visibility, regardless of whether the entire 180-dB re 1 μPa exclusion zone is visible.

The Service also has proposed that vessels operating in the survey area would reduce their speed around marine mammals or in poor visibility conditions, and that both vessels and aircraft would avoid approaching marine mammals. However, the appropriate vessel operating speeds and approach distances are not specified consistently in all of the relevant mitigation measures. To address any ambiguity regarding safe vessel operating speeds and approach distances, the Marine Mammal Commission recommends that the National Marine Fisheries Service specify reduced vessel speeds of 9 knots or less when whales are within 300 m or when weather conditions reduce visibility.

BP is not seeking authorization to take marine mammals by serious injury or mortality. However, the *Federal Register* indicates that the applicant would be required to notify the Service within 48 hours of sighting an injured or dead marine mammal in the vicinity of the survey operations, or as soon as feasible if an injured or dead marine mammal is found outside that area. The Commission believes that the Service's "phased approach" for reporting, as outlined in the proposed incidental harassment authorization language at the end of the *Federal Register* notice, represents a more precautionary mechanism for reporting and investigating takes of injured and dead marine mammals. For that reason, the Marine Mammal Commission recommends that the

National Marine Fisheries Service require BP to report injured and dead marine mammals to the Service and local stranding network using the Service's phased approach to reporting, as outlined in the proposed incidental harassment authorization language at the end of the *Federal Register* notice.

Please contact me if you have questions regarding these recommendations.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Cc: Jon Kurland, National Marine Fisheries Service Alaska Regional Office
Jim Kendall, Bureau of Ocean Energy Management Alaska Region

References

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