



MARINE MAMMAL COMMISSION

9 May 2014

Ms. Jolie Harrison, Supervisor
Incidental Take Program
Permits and Conservation Division
National Marine Fisheries Service
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the December 2013 application submitted by Buccaneer Alaska Operation, LLC (Buccaneer), seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) to take small numbers of marine mammals by harassment incidental to exploratory drilling in Cook Inlet, Alaska, to be conducted from May through October 2014. The Commission has also reviewed the National Marine Fisheries Service's (NMFS) 7 April 2014 *Federal Register* notice (79 Fed. Reg. 19252) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions.

RECOMMENDATIONS

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

- prior to issuance of the final authorization, include beluga whales and Steller sea lions and analyze whether the proposed activities would affect no more than a small number of those marine mammals and have no more than a negligible impact on the affected stocks;
- develop clear policies and issue clear criteria for ensuring full consideration of the effects of each new activity in combination with the cumulative effects of other ongoing and planned activities in Cook Inlet;
- work with applicants who are conducting activities in the same area at the same time of year to ensure that the most appropriate and up-to-date information is used to derive density estimates;
- require Buccaneer to implement additional delay and shut-down procedures if an aggregation of four or more killer whales, harbor porpoises, or gray whales is observed approaching or within the Level B harassment zone during pipe driving and the seismic survey;
- require Buccaneer to maintain a radial distance of at least 457 m when marine mammals are present;
- require Buccaneer to coordinate with other seismic and drilling operators that may be working in Cook Inlet in 2014 to deploy a series of bottom-mounted, passive acoustic

- monitoring buoys throughout the combined operation areas to collect additional information on cetacean presence and movements;
- require Buccaneer to deploy a minimum of two protected species observers on the drill rig and additional vessel-based observers on the perimeter of the Level B harassment zone during pipe driving and seismic profiling to 1) increase the probability of detecting all marine mammals in or approaching the Level B harassment zones and 2) assist in the collection of data on activities, behaviors, and movements of marine mammals around the source; and
 - require Buccaneer to monitor for marine mammals 30 minutes before, during, and 30 minutes after pipe driving and seismic activities have ceased.

BACKGROUND

Buccaneer proposes to conduct exploratory drilling in Cook Inlet, Alaska, from May through October 2014. Buccaneer would drill two wells in upper Cook Inlet, at Buccaneer's Tyonek Deep or Southern Cross well sites. Buccaneer would use a tug to tow the jack-up drill rig from the winter mooring site to each of the well sites and then back to the mooring at the end of the season, for a total of three towing events. Prior to drilling, a conductor pipe would be installed at each of the well sites using an impact hammer. Each pipe would take one to three days to install. Drilling would take approximately 30 to 75 days per well. Buccaneer would use an airgun array with total maximum volume of 720 cubic inches¹ to conduct vertical seismic profiling following completion of drilling each well. A helicopter and supply vessel would be used to transport personnel, groceries, and supplies to the drilling sites.

NMFS preliminarily has determined that the proposed activities could modify temporarily the behavior of small numbers of up to six species of marine mammals but that the total taking would have a negligible impact on the affected species or stocks. NMFS does not anticipate any take of marine mammals by death or serious injury. It believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of Buccaneer's proposed mitigation and monitoring measures, as well as additional measures proposed by NMFS, which include—

- (1) conducting in-situ sound source and sound propagation measurements for the airgun array, drill rig, and impact hammer and adjusting, as necessary, the proposed Level A harassment zones (based on the 180- and 190-dB re 1 μ Pa thresholds for cetaceans and pinnipeds, respectively), and the Level B harassment zone (based on the 160-dB re 1 μ Pa threshold for all marine mammals);
- (2) using a sufficient number of protected species observers on the drill rig to monitor the Level A and B harassment zones during all daytime activities;
- (3) using soft-start, ramp-up, delay, and shut-down procedures to prevent takes of all marine mammals detected within the Level A harassment zones;
- (4) using shut-down procedures within the Level B harassment zones to prevent takes of marine mammals for which takes are not authorized;

¹ The *Federal Register* notice stated that Buccaneer would use an airgun array with the total volume between 600 and 880 cubic inches. However, NMFS has indicated that an airgun volume of 720 cubic inches most likely would be used and therefore based the Level A and B harassment zones on that volume.

- (5) prohibiting ramp-up of airguns during nighttime activities or during low-light hours;
- (6) limiting helicopter flights to an altitude no less than 305 m (except during takeoff, landing, or an emergency situation);
- (7) reporting injured and dead marine mammals to the NMFS Office of Protected Resources and the Alaska Regional Stranding Coordinators using NMFS's phased approach and suspending activities, if appropriate; and
- (8) submitting field and technical reports and a final comprehensive report to NMFS.

RATIONALE

Potential takes of beluga whales or Steller sea lions

Buccaneer has not requested authorization to take, by harassment, beluga whales or Steller sea lions incidental to the proposed activities, despite the fact that both of these species are likely to occur within the proposed project area (Goetz et al. 2012, Shelden et al. 2013, Lomac-MacNair et al. 2014). Instead, Buccaneer has stated, and NMFS has agreed, that implementation of its proposed mitigation measures would prevent any takes of beluga whales and Steller sea lions. The Commission does not agree with NMFS's approach or conclusion for several reasons.

First and foremost, incidental harassment authorizations should include request for takes of all marine mammals that are likely to occur in the project area if there is the potential for taking. Buccaneer has requested takes for species that commonly occur in mid- to upper-Cook Inlet (i.e., harbor seals and harbor porpoises) as well as less commonly occurring species (i.e., Dall's porpoises, killer whales, gray whales, and minke whales). However, NMFS provided no clear rationale regarding why takes were proposed only for those species and not for belugas and Steller sea lions. Second, Buccaneer has stated that it would avoid taking those species by shutting down the activities if a beluga whale or Steller sea lion approaches the Level B harassment zone. The Commission does not believe that implementation of mitigation measures should be the sole basis for not including a species in an incidental take authorization. The Commission has also argued on many occasions, most recently in a letter dated 4 April 2014, that reliance on vessel-based (or in this case, rig-based) visual monitoring as the only method to detect marine mammals that may be within or approaching the Level B harassment zone may have significant limitations, especially in the far field. Some animals may be at the surface but may not be detected by observers because of weather, sea state, or because of difficulty in detecting animals due to the turbid water typically found in Cook Inlet. Other animals may be underwater and therefore not available for detection by observers before the animals enter the harassment zone. Thus, a shutdown of activities may not be implemented in time to avoid a take. Third, NMFS has determined that other companies conducting seismic activities during the 2014 open-water season in the same area of Cook Inlet as Buccaneer's proposed activities have some likelihood of taking belugas and Steller sea lions by Level B harassment. Finally, it appears that Buccaneer may have refrained from seeking taking authorization for those two species to avoid triggering the consultation requirements applicable under section 7 of the Endangered Species Act.

The Commission recognizes that the greatest risk of failing to detect a marine mammal within or approaching the Level B harassment zone is during pipe driving and when conducting seismic surveys, as the harassment zones associated with those activities are much larger than those

associated with drilling and rig towing. The Commission also recognizes that pipe driving and seismic surveys will occur for only a short duration (i.e., six days for impact hammering and four days for seismic surveys). Therefore, the potential for takes of beluga whales and Steller sea lions associated with those activities may be small, but it is not zero, even with the proposed shutdown measures. As such, Buccaneer and NMFS should have included in the proposed authorization some small number of takes for each species, to reflect the possibility that animals could approach or enter the Level B harassment zone undetected, resulting in a take prior to implementation of mitigation measures. Based on an average group size of 6.9 beluga whales observed during aerial surveys conducted during a 2012 seismic survey conducted by Furie Operating Alaska LLC (Furie; 79 Fed. Reg. 12174), the Commission estimates that at least 14 beluga whales could be taken by Level B harassment, based on two groups of whales entering the harassment zone before detection. For Steller sea lions, Furie used an average estimated density of 0.00579 animals/square km. To estimate takes, one would multiply the density by the ensonified area by the number of activity days, for a total estimated take of two animals for those activities².

For these reasons, the Commission recommends that, prior to issuance of the final authorization, NMFS include beluga whales and Steller sea lions and analyze whether the proposed activities would affect no more than a small number of those marine mammals and have no more than a negligible impact on the affected stocks.

The Commission also remains concerned that NMFS is not adequately addressing the combined or cumulative effects of activities on beluga whales in Cook Inlet. NMFS is not able to rule out the possibility that the combined, aggregate, or cumulative disturbance associated with the broad suite of activities occurring in the Inlet (e.g., oil and gas exploration and production; port construction; shipping; coastal development; military activities; fisheries; discharge of contaminated water; etc.) is contributing to the continued decline of that endangered population. The Commission does not believe that NMFS's approach of analyzing each activity in isolation and looking only at the incremental increase in disturbance, without adequate consideration of other activities being conducted concurrently or the cumulative impact of all sources of disturbance in Cook Inlet on the beluga whale population, meets the requirements of the MMPA. This is particularly true with Cook Inlet beluga whales, for which the status quo already appears to be having significant adverse impacts on the population.

Rather than continuing to consider only the incremental effects of new activities in its issuance of incidental take authorizations, and in light of increasing oil and gas-related activities in Cook Inlet, the Commission recommends that NMFS develop clear policies and issue clear criteria for ensuring full consideration of the effects of each new activity in combination with the cumulative effects of other ongoing and planned activities in Cook Inlet. There are several potentially useful tools for accomplishing this, including the development of clear criteria for making negligible impact determinations as the Commission has recommended previously. In addition, the ongoing development of a recovery plan for the Cook Inlet beluga whale provides an excellent opportunity to promote additional research needed to identify the cause or causes of the population's decline and to investigate the possible cumulative effects of multiple factors. That

² For impact pipe driving: density (0.00579 animals/km) x ensonified area (11.3 km²) x 6 days = 0.4 animals; for the seismic survey: density (0.00579 animals/km) x ensonified area (19.2 km²) x 4 days = 0.4 animals

research could be coupled with periodic reviews of all sources of potential disturbance to beluga whales in Cook Inlet, adoption of measures to mitigate such disturbance, and regular evaluations of the effectiveness of current conservation measures.

The Commission believes that precautionary management of authorizations issued under section 101(a)(5) of the MMPA is an important tool for minimizing or even preventing takes in the face of considerable uncertainty, such as in the case of Cook Inlet beluga whales. Currently, NMFS is exploring options to engage stakeholders more broadly in efforts to address and minimize cumulative effects on Cook Inlet beluga whales. The Commission appreciates NMFS's invitation to assist in the planning and convening of stakeholder-based forums and encourages NMFS to expedite such actions.

Density estimates

As noted above, several applicants are proposing to conduct activities in the same area of Cook Inlet at the same time during the 2014 open-water season. To date, each has used a different method and/or different data for estimating densities of marine mammals. For example, Buccaneer's density estimate for harbor seals was based on surveys conducted in 1996 by Boveng et al. (2003). That estimate was less than the estimate provided by Furie, which was based on aerial surveys conducted in Cook Inlet in 2009, 2010, and 2012 (79 Fed. Reg. 12177). Apache provided a density estimate that used a longer timeframe of aerial surveys but inappropriately presented that estimate as animals per square kilometer per hour (77 Fed. Reg. 80406). Considering the limited information available on densities of marine mammals in Cook Inlet, there should be consistency in how those species-specific density estimates are derived and used, including use of the most appropriate and up-to-date information. The Commission recommends that NMFS work with applicants who are conducting activities in the same area at the same time of year to ensure that the most appropriate and up-to-date information is used to derive density estimates.

Mitigation and monitoring measures

In other incidental harassment authorizations proposed for the same area and during the same time period involving impulsive sound sources, NMFS has proposed that operators implement additional delay and shut-down procedures if an aggregation of four or more killer whales, harbor porpoises, or gray whales is observed approaching or within the Level B harassment zone. To ensure that Buccaneer is implementing mitigation measures consistent with other activities in the same area, the Commission recommends that NMFS require Buccaneer to implement additional delay and shut-down procedures if an aggregation of four or more killer whales, harbor porpoises, or gray whales is observed approaching or within the Level B harassment zone during pipe driving and the seismic survey.

Buccaneer has indicated, and NMFS has proposed, that helicopter flights would be limited to an altitude no less than 305 m, except during takeoff, landing, or an emergency situation. However, no measures were included to restrict the distance at which helicopters should avoid approaching marine mammals that may be present in the project area. The Commission recommends that NMFS require Buccaneer to maintain a radial distance of at least 457 m when

marine mammals are present, which is a standard mitigation measure in other incidental harassment authorizations when aircraft are used.

As a supplement to rig-based visual monitoring, passive acoustic monitoring represents an additional tool that could be useful in the detection of beluga whales and other cetaceans throughout the survey area. Researchers have successfully detected belugas and other cetaceans in Cook Inlet with moored buoys (Lammers et al. 2013), and the Commission believes that a series of moored buoys deployed throughout all of the 2014 proposed seismic survey and drilling areas in Cook Inlet could provide useful information. Although calls recorded by these buoys would not be useful for real-time mitigation monitoring, the data could be analyzed after the open-water season to better understand beluga and other marine mammal use of those areas during and after activities. As such, the Commission recommends that NMFS require Buccaneer to coordinate with other seismic and drilling operators who may be working in Cook Inlet in 2014 to deploy a series of bottom-mounted, passive acoustic monitoring buoys throughout the combined operation areas to collect additional information on cetacean presence and movements.

In its proposed authorization, NMFS has indicated that Buccaneer would deploy a “sufficient” number of NMFS-qualified, vessel-based protected species observers to monitor marine mammals near the drill rig. For activities in which the Level B harassment zone is of considerable size (i.e., during pipe driving and seismic surveys), at least two observers should be deployed on the drilling rig and additional vessel-based observers deployed on the perimeter of the zone to increase the probability of detecting marine mammals approaching or within the harassment zone. Additional observers on the drilling rig could also assist in the collection of data on activities, behavior, and movements of marine mammals in the exclusion and disturbance zone. Behavioral response information is critical for understanding the effect of acoustic activities on various marine mammal species, particularly on sensitive species such as beluga whales and harbor porpoises. The Commission recommends that NMFS require Buccaneer to deploy a minimum of two protected species observers on the drill rig and additional vessel-based observers on the perimeter of the Level B harassment zone during pipe driving and seismic profiling to 1) increase the probability of detecting all marine mammals in or approaching the Level B harassment zones and 2) assist in the collection of data on activities, behaviors, and movements of marine mammals around the source.

NMFS proposed that Buccaneer monitor for marine mammals 30 minutes before and during pipe driving and seismic activities. No post-activity monitoring appears to be proposed. However, post-activity monitoring is needed to ensure that marine mammals are not taken in unexpected or unauthorized ways or in unanticipated numbers. Some types of taking (e.g., taking by death or serious injury) may not be observed until after the activity has ceased. Accordingly, the Commission recommends that NMFS require Buccaneer to monitor for marine mammals for 30 minutes before, during, and for 30 minutes after pipe driving and seismic activities have ceased.

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The Commission appreciates the opportunity to review this incidental harassment authorization. Please contact me if you have questions regarding these recommendations.

Sincerely,

A handwritten signature in blue ink that reads "Rebecca J. Lent". The signature is written in a cursive style with a large initial 'R'.

Rebecca J. Lent, Ph.D.
Executive Director

cc: Jon Kurland, National Marine Fisheries Service, Alaska Regional Office

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