

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

ON THE ISSUANCE OF INCIDENTAL HARASSMENT AUTHORIZATIONS TO UNION OIL COMPANY OF CALIFORNIA AND MARATHON OIL COMPANY TO TAKE MARINE MAMMALS BY HARASSMENT INCIDENTAL TO CONDUCTING SEISMIC OPERATIONS IN COOK INLET, ALASKA

I. INTRODUCTION

On March 30, 2007, National Marine Fisheries Service (NMFS) issued an incidental harassment authorization (IHA) to Union Oil Company of California (UOCC) under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA), to take by harassment small numbers of Cook Inlet beluga whales (*Delphinapterus leucas*), Steller sea lions (*Eumetopias jubatus*), Pacific harbor seals (*Phoca vitulina richardsi*), harbor porpoises (*Phocoena phocoena*), and killer whales (*Orcinus orca*) incidental to conducting open water seismic operations in northwestern Cook Inlet, Alaska (Figure 1), between May 1 and June 15, 2007 (72 FR 17118, April 6, 2007). However, as a result of ice condition in the Cook Inlet during spring 2007, UOCC was unable to begin seismic operations planned for May. As a result, on May 17, 2007, UOCC requested that NMFS change the effective date of its IHA to the time period September 4 through November 15, 2007.

On May 15, 2007, NMFS received an application from Marathon Oil Company (MOC) requesting an IHA for the possible harassment of small numbers of the Cook Inlet beluga whale, Steller sea lions, Pacific harbor seals, harbor porpoises, and killer whales incidental to conducting open water seismic operations in portions of Cook Inlet, Alaska. The proposed seismic survey would occur in lower Cook Inlet on the eastern shore at North Ninilchik, between October 1 and November 30, 2007.

II. PURPOSE AND NEED

Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking, by harassment, of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made.

The purpose and need for this Supplemental Environmental Assessment (SEA) is to provide an analysis on the potential environmental impacts that could result from the proposed IHA

In March 2007, NMFS prepared a final environmental assessment (FEA) on the issuance of IHAs to ConocoPhillips Alaska, Inc and UOCC to take marine mammals by harassment incidental to conducting seismic operations in upper Cook Inlet, Alaska. In the FEA, NMFS analyzed whether any incidental takings by harassment will: 1) have a negligible impact on the marine mammal species or stock; and 2) not have an unmitigable adverse impact on the availability of the species or stock for subsistence uses. In addition, NMFS prescribed in its IHAs the permissible methods of taking by harassment, other means of affecting the least practicable impact on the species or stock and their habitat, and requirements pertaining to the monitoring and reporting of such taking. A Finding of No Significant Impact was issued on March 30, 2007.

However, since the proposed modification of UOCC's seismic survey time frame and the proposed seismic survey by MOC would occur between September and November, rather than between March and June which was covered in the FEA, and because the newly proposed seismic survey would occur in an area further down the Inlet from those locations being analyzed in the FEA, NMFS believes that a SEA is warranted to address impacts on the environment that would result from the these proposed actions.

III. DESCRIPTION OF ACTIVITY COVERED BY AUTHORIZATIONS

Both proposed operations use an ocean-bottom cable (OBC) system to conduct seismic surveys. OBC seismic surveys are used in waters that are too shallow for the data to be acquired using a marine-streamer vessel and/or too deep to have static ice in the winter. This type of seismic survey requires the use of multiple vessels for cable layout/pickup, recording, shooting, and possibly one or two vessels smaller than those used in streamer operations. The utility boats can be very small, in the range of 10 - 15 m (33 - 49 ft). A detailed description of the open water seismic surveys using OBC system is provided in the NMFS 2007 FEA (NMFS, 2007).

The proposed operations would be active 24 hours per day, but the airguns would only be active for 1 - 2 hours during each of the 3 - 4 daily slack tide periods. The source for the proposed OBC seismic surveys would be a 900-in³ BOLT airgun array situated on the source vessel, the *Peregrine Falcon*. The array would be made up of 2 sub-arrays, each with 2 3-airgun clusters separated by 1.5 m (4.9 ft) off the stern of the vessel. One cluster will consist of 3 225-in³ airguns and the second cluster will have 3 75-in³ airguns. During seismic operations, the sub-arrays will fire at a rate of every 10 - 25 seconds and focus energy in the downward direction as the vessel travels at 4 - 5 knots (4.6 - 5.8 mph). Source level of the airgun array is 249 dB re 1 microPa at 1 m (0 - peak), and the dominant frequency range is 8 - 40 Hz.

The geographic region for the seismic operation proposed by UOCC remains the same as described in NMFS 2007 FEA (NMFS, 2007), which is in the northwestern Cook Inlet, paralleling the shoreline offshore of Granite Point, and extending from shore into the inlet to an

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average of about 1.6 km (1 mi) (Figure 2). However, it is expected that there would be more beluga whale occurrence within the proposed UOCC project site in the fall as opposed to spring season (Hobbs *et al.*, 2005).

The geographic region for the activity proposed by MOC encompasses a 68.51 km² (26.45 mi²) area in lower Cook Inlet on the eastern shore, paralleling the shoreline for about 15.2 km (9.5 mi) and extending from shore into the inlet an average of about 6.1 km (3.8 mi) (Figure 3). The approximate boundaries of the region of the proposed project area are 61°09'N, 151°30'W; 61°12'N, 151°34'W; 61°17'N, 151°25'W; and 60°16'N, 151°21'W. There are no major rivers flowing into the open water seismic project area. Water depths range from 0 to 15 m (48 ft), with most of the area less than 7.3 m (24 ft) deep. The proposed seismic operations would begin as early as October 1 and by November 30, 2007.

IV. ALTERNATIVES

4.1. Alternative 1 – Grant IHA Modification and Issue IHA with No Mitigation and Monitoring Measures

Under Alternative 1, NMFS would grant UOCC's request to modify the time frame of its IHA and issue separate IHA to MOC, allowing the incidental take of Cook Inlet beluga whales, Pacific harbor seals, Steller sea lions, harbor porpoises, and killer whales during seismic operations in northwestern Cook Inlet. No mitigation and marine mammal monitoring measures would be required under this Alternative since the proposed project would only occur in a small area of northwestern Cook Inlet for a short period of 3 - 4 months. However, since the MMPA requires any take to be reduced to the lowest level practicable, this Alternative is inconsistent with the MMPA and, therefore, is not NMFS' preferred Alternative.

4.2. Alternative 2 – No Action Alternative

Under the No Action Alternative, NMFS would not grant UOCC's request to modify the time frame of its IHA, and will not issue the IHA to MOC. The MMPA prohibits all takings of marine mammals unless authorized by a permit or exemption under the MMPA. If authorizations to incidentally take Cook Inlet beluga whales, Pacific harbor seals, Steller sea lions, harbor porpoises, and killer whales are denied, the applicants could choose to amend the projects either to avoid harassing marine mammals or forego the two proposed projects entirely. This alternative is not preferred because it is inconsistent with the purpose and need.

4.3. Alternative 3 – Issuance of Authorization with Mitigation and Monitoring Measures

Under Alternative 3, NMFS is proposing to issue grant UOCC's request to modify its IHA to be valid between September and November 2007, and to issue an IHA to MOC; allowing the incidental take by Level B behavioral harassment of a small number of Cook Inlet beluga whales, Pacific harbor seals, and harbor porpoises, and also allowing level B harassment of

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Steller sea lions and killer whales during seismic operations in northwestern Cook Inlet, conditioned on implementing mitigation and monitoring measures. The mitigation and monitoring requirements, described in Section VII, include: (1) establishing safety zones when sound pressure levels (SPLs) could reach 180 dB *re*: 1 μ Pa rms or higher for cetaceans and 190 dB *re*: 1 μ Pa rms or higher for pinnipeds; (2) altering ship speed and direction when marine mammals are expected to enter the safety zones when practicable and safe; (3) power-down airguns when marine mammals are expected to enter the safety zone when change of ship speed and course is not practicable, and shut-down airguns when marine mammals are found within the safety zones; (4) implementing ramp-up procedure during the initiation of airguns; and (5) conducting marine mammal survey and monitoring prior to and during seismic operations. Under the Alternative 3, these mitigation and monitoring measures would be incorporated into the IHAs and required to be fully implemented.

4.4. Alternative 4 (Preferred Alternative) – Issuance of Authorization with Mitigation and Monitoring Measures with Additional Aerial Monitoring Requirement for UOCC

The Alternative 4 is the same as Alternative 3, except NMFS would require additional aerial monitoring for beluga whales for seismic operations conducted by UOCC off Granite Point between September and November, 2007. Under the Preferred Alternative, all mitigation and monitoring measures would be incorporated into both IHAs, with additional aerial monitoring requirement be incorporated into the IHA to UOCC.

V. AFFECTED ENVIRONMENT

A detailed description of the physical and biological environment of Cook Inlet (Figure 1) is provided in NMFS 2007 FEA (NMFS, 2007). Please refer to that document for this information.

VI. ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

The environmental impact of Federal actions must be considered prior to implementation to determine whether the action will significantly affect the quality of the human environment. In this section, an analysis of the environmental impacts of issuing IHAs to UOCC and MOC, and the alternatives to that proposed action are presented.

6.1. Effects of the Seismic Surveys on Marine Mammals

A detailed analysis of the effects of seismic surveys on marine mammals, based on knowledge of characteristics of seismic sounds, marine mammal hearing sensitivity, and effects of intense sounds on marine mammals are provided in the FEA (NMFS, 2007). An estimate of numbers of marine mammals expected to be taken by the proposed UOCC and MOC seismic surveys in Cook Inlet is presented below:

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NMFS estimates that approximately 37 Cook Inlet beluga whales out of a population of 302 whales could be harassed incidentally by the two proposed seismic operations from September to November, 2007. This represents 12.1% Cook Inlet beluga whales that could be taken by Level B harassment if no mitigation and monitoring measures are implemented. This number is based on the animal density, length of track planned, and the assumption that all animals will be harassed at distances where noise at received level is at and above 160 dB re 1 μ Pa rms. Beluga whale density (0.03 whale/km²) was calculated by dividing the population (302) by 50% of the surface area of Cook Inlet (19,863 km², or 7,672 mi²), assuming their distribution is only limited to the upper portion of the Inlet (Hobbs *et al.*, 2005). The number of beluga whales could be taken by both proposed seismic projects is calculated by multiplying the whale density by the total length of the track lines (57 km or 35.4 mi for UOCC and 146 km or 90.7 mi for MOC) and by twice of the 160 dB isopleths range (3.0 km). This estimate is conservative as it assumes that all animals exposed by seismic impulses over 160 dB re 1 μ Pa would be harassed and disturbed. As mentioned earlier that the majority acoustic energy of low frequency airgun impulses falls outside beluga whale's most sensitive hearing range (Richardson *et al.*, 1995), it is most likely that only a portion of whales within the 160 dB re 1 μ Pa isopleth would be disturbed. In addition, it is also possible that many of the animals would be habituated to this level of acoustic disturbances. Furthermore, mitigation measures, including the ramp-up requirement during the initiation of the seismic operations could eliminate most, if not all, startling behavior from animals near the proposed project area. Therefore, NMFS believes that the actual number of Level B harassment takes of Cook Inlet beluga whale would be much lower than the estimated 37 whales.

There are no similar population surveys for harbor seals, harbor porpoises, Steller sea lions, and killer whales conducted within the proposed project area. However, based on an abundance survey of harbor porpoises within the entire Cook Inlet (Dahlheim *et al.*, 2000), it is estimated that the population density of harbor porpoise in the entire Inlet is 0.0072 animal per km². Based on this density data, NMFS estimates that about 9 harbor porpoises out of a population of 30,506 porpoises could be harassed incidentally by the two proposed seismic operations from September to November, 2007. This number of take represents less than 0.03% of harbor porpoises that could be taken by Level B harassment.

Average counts were used to estimate take instead of density for harbor seals, since count data were available (Boveng *et al.*, 2005a; 2005b) but not density data. Although no seals were counted in the vicinity of the proposed project areas, it is likely a small number of seals transit through the project areas in the fall. In order to account for seal occurrence in the proposed project areas, the count (1 - 10) at the location (Anchor Point) nearest to the MOC project area was used as the basis for calculating take. This count was quadrupled to account for seals in the water for both proposed project areas, since the conservative estimate of take, which is more likely high than low. Therefore, the estimated take of the Gulf of Alaska stock of harbor seals is 40 seals, which represent approximately 0.14% of the total population (29,175, Angliss and Outlaw, 2007).

There is no density estimates available for Steller sea lions and killer whales with in Cook Inlet.

However, their appearance in Upper Cook Inlet is rare and none of these species were sighted in the upper Inlet during the 2004 survey (Rugh *et al.*, 2005). Therefore, NMFS concludes that the harassment of these species is reasonably believed to be much lower than those of beluga whales and harbor seals.

6.2. Effects of the Alternatives on Marine Mammals

6.2.1. Alternative 1 – Grant IHA Modification and Issue IHA with No Mitigation and Monitoring Measures

Under Alternative 1, NMFS would grant UOCC's request to modify the time frame of its IHA and issue a separate IHA to MOC, allowing the incidental take of Cook Inlet beluga whales, Pacific harbor seals, Steller sea lions, harbor porpoises, and killer whales during seismic operations in Cook Inlet. No mitigation and marine mammal monitoring measures would be required under this Alternative since the proposed project would only occur in a small area of northwestern Cook Inlet for a short period of 3 - 4 months. However, since the MMPA requires any take to be reduced to the lowest level practicable, this Alternative is inconsistent with the MMPA and, therefore, is not NMFS' preferred Alternative.

Under this Alternative, marine mammals could be exposed to intense seismic sound if they happen to be at a location close to the airgun array when firing of airguns begins, and therefore, there is a potential that these animals could experience a hearing impairment due to temporary threshold shift (TTS). However, such incidents are expected to be rare since marine mammal species found in the vicinity of the proposed project area all have poor hearing sensitivity to low frequency seismic sounds. In addition, most free ranging marine mammals are known to avoid high intense sounds and swim away from sound sources during seismic operations, thus minimizing the possibility that marine mammals will be exposed to sound levels causing TTS in most cases (e.g., Malme *et al.*, 1986, 1988; Richardson *et al.*, 1995; Harris *et al.*, 2001). Although some species seem to be attracted to the anthropogenic sounds such as ship noise or seismic sounds (e.g., LGL, 2001), it is safe to conclude that in these circumstances the sounds are not at a level to cause TTS, as numerous control experiences have shown that even trained animals will avoid SPLs that could cause TTS (e.g., Kastak *et al.*, 1999; Schlundt *et al.*, 2000; Finneran *et al.*, 2002; 2005). Therefore, the probability that a marine mammal receives TTS, even with no mitigation and monitoring measures, is low. However, because the MMPA requires that activities reduce impacts to the lowest level practicable, this Alternative is not NMFS' preferred alternative.

6.2.2. Alternative 2 – No Action Alternative

Under the No Action Alternative, NMFS would not grant UOCC's request to modify the time frame of its IHA, and would not issue the IHA to MOC. The MMPA prohibits all takings of marine mammals unless authorized by a permit or exemption under the MMPA. If authorizations to incidentally take Cook Inlet beluga whales, Pacific harbor seals, Steller sea

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lions, harbor porpoises, and killer whales are denied, the applicants could choose to amend the projects either to avoid harassing marine mammals or forego the two proposed projects entirely.

Under this Alternative, marine mammals and other marine life in the proposed project area would not be exposed to additional intensive seismic sounds for the period between mid September and November, 2007, but would be exposed to sounds from existing industrial activities. Therefore, no additional takes of marine mammals would be expected.

6.2.3. Alternative 3 – Issuance of Authorization with Mitigation and Monitoring Measures

Under Alternative 3, NMFS is proposing to grant UOCC's request to modify its IHA to be valid between September and November 2007, and to issue an IHA to MOC; allowing the incidental take by Level B behavioral harassment of a small number of Cook Inlet beluga whales, Pacific harbor seals, and harbor porpoises, and also allowing level B harassment of Steller sea lions and killer whales during seismic operations in northwestern Cook Inlet, conditioned on implementing mitigation and monitoring measures.

As discussed above and in the FEA (NMFS, 2007), seismic surveys with intense acoustic energy from airguns may have potential adverse impacts to marine mammals, including beluga whales, harbor seals, harbor porpoises, Steller sea lions, and killer whales in Cook Inlet. However, since marine mammals subject to potential intense airgun noise exposure are free-ranging animals that could easily swim away from the proposed project vicinity, NMFS expects that only behavioral responses, such as those described above, by Cook Inlet beluga whales, Pacific harbor seals, harbor porpoises, Steller sea lions, and killer whales could occur as a result of airgun noise exposure from the proposed seismic operations. NMFS believes that these responses constitute Level B harassment only and would not cause TTS, injury, or mortality to these marine mammals in the vicinity of the proposed project. In addition, NMFS believes that implementation of mitigation and monitoring measures would further reduce potential Level B harassment caused by the proposed project.

The mitigation and monitoring requirements include: (1) establishing safety zones when SPLs could reach 180 dB *re*: 1 μ Pa rms or higher for cetaceans and 190 dB *re*: 1 μ Pa rms or higher for pinnipeds; (2) altering ship speed and direction when marine mammals are expected to enter the safety zones when practicable and safe; (3) power-down airguns when marine mammals are expected to enter the safety zone when change of ship speed and course is not practicable, and shut-down airguns when marine mammals are found within the safety zones; (4) implementing ramp-up procedure during the initiation of airguns; and (5) conducting marine mammal survey and monitoring prior to and during seismic operations. A detailed description of these mitigation measures are provided in Section VII.

Under this Alternative, marine mammal species and stocks within the proposed project area would be protected from exposure to intense seismic sounds. Therefore, no TTS or serious injury to marine mammals is expected as a result of the proposed seismic operations. Only small numbers of beluga whales, harbor seals, and harbor porpoises, with addition of Steller sea lions

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and killer whales might be affected by Level B behavioral harassment due to the firing of airguns and the presence of survey vessels.

6.2.4. Alternative 4 (Preferred Alternative) – Issuance of Authorization with Mitigation and Monitoring Measures and Additional Aerial Monitoring Requirement for UOCC

Alternative 4 is the same as Alternative 3, except NMFS would require additional aerial monitoring for beluga whales for seismic operations conducted by UOCC off Granite Point between September and November, 2007. The aerial surveys would: (1) collect and report data on the distribution, numbers, movement and behavior of marine mammals near the seismic operations on the westside of Cook Inlet between Tyonek and Trading Bay, with special emphasis on beluga whales; (2) advise operating vessels as to the presence of marine mammals in the general area of operation; and (3) support regulatory reporting related to the estimation of impacts of seismic operations on marine mammals.

This additional requirement, as discussed in Sections 7.2.2, would provide more monitoring coverage in an area and time that are known to be used more frequently by Cook Inlet beluga whales (Hobbs *et al.*, 2005).

6.3 Impacts on the Economics, Subsistence Needs, and Marine Environment of the Proposed Project Area

A detailed analysis of the impacts on the economics, subsistence needs, and marine environment of the proposed project area as a result of the seismic surveys is provided in the FEA (NMFS, 2007).

6.4. Cumulative Impacts

Cumulative effects are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions” (40 CFR §1508.7). While past actions have been analyzed in the FEA (NMFS, 2007), the modification of the UOCC seismic survey to fall and a new proposed seismic survey by MOC in Cook Inlet would have additional impacts to the human environment. As discussed in this document, it is estimated that small number of beluga whales and harbour porpoises may be taken incidental to seismic surveys, by no more than Level B harassment and that such taking will result in no more than a negligible impact on such species or stocks. In addition, Pacific harbour seals, Steller sea lions, and killer whales, if present within the vicinity of the proposed activities could be taken incidentally, by no more than Level B harassment and that such taking would result in no more than a negligible impact on such species or stocks. In addition, the proposed seismic operations are limited to a very small area of the Inlet for a short period of time, and there would be no objects released into the water column. Therefore, NMFS has determined preliminarily that the proposed action would not have a significant cumulative effect on either the human or marine environment. In addition, NMFS has determined preliminarily

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that the proposed action would not be likely to have significant cumulative effects on Cook Inlet beluga whales, Pacific harbor seals, Steller sea lions, killer whales, and harbor porpoises. Particularly, the latter three species are rare in the proposed project area.

VII. MITIGATION MONITORING AND REPORTING

7.1. Mitigation

Under the Preferred Alternative, the following mitigation measures would be required under the proposed IHA modification to UOCC and the proposed IHA issued to MOC for conducting seismic operations in Cook Inlet. The implementation of these mitigation measures would reduce impacts to marine mammals to the lowest extent practicable. A detailed analysis of the mitigation measures are addressed in the FEA (NMFS, 2007), except size of safety zones, which have been updated to reflect sound pressure measurement during the CPAI seismic surveys; and the requirement for night-time operations, which was not specified in the FEA.

For the proposed September – November seismic surveys, the applicants would establish a 454-m (1,490-ft) radius safety zone for cetaceans and a 140-m (459-ft) radius safety zone for pinnipeds for the seismic operations. These safety zone radii are based on empirical measurements conducted by JASCO on the same airgun array operated in Cook Inlet, where the received SPL attenuated to 180 dB and 190 dB re 1 μ Pa rms, respectively. As discussed in the FEA, these SPL are NMFS criteria for Level A harassment and the possible onset of temporary threshold shifts (TTS) in cetacean and pinniped hearings, respectively.

During night-time operations when the safety zone cannot be visually inspected, a single airgun will operate by firing every one minute whenever regular acquisition airgun operations are not occurring to keep marine mammals at a safe distance. If, during these non-recording times, this airgun is inactive for more than 30 minutes, operations will cease and all airguns will be shut down until the safety zone can be visually inspected and monitored for the absence of marine mammals.

7.2. Monitoring

The applicants are required to designate biologically-trained, on-site marine mammal observers (MMOs), approved in advance by NMFS, to monitor the area for marine mammals before, during, and after seismic surveys. Data to be collected by MMOs include marine mammal behavior, overall numbers of individuals observed, frequency of observation, the time corresponding to the daily tidal cycle, and any behavioral changes due to the seismic operations shall be recorded. MMOs would be equipped with binoculars and optical or digital laser range finders for monitoring. Night vision devices would be used for monitoring during low-light hours. A detailed analysis of the vessel-based monitoring measures is provided in the FEA (NMFS, 2007).

As an additional mitigation measure, seismic surveys conducted off the Granite Point between September and November, 2007, by UOCC would also be required to conduct aerial monitoring. The aerial surveys would: (1) collect and report data on the distribution, numbers, movement and behavior of marine mammals near the seismic operations on the westside of Cook Inlet between Tyonek and Trading Bay, with special emphasis on beluga whales; (2) advise operating vessels as to the presence of marine mammals in the general area of operation; and (3) support regulatory reporting related to the estimation of impacts of seismic operations on marine mammals.

The aerial monitoring area will be centered on the project area plus a buffer for detecting belugas before or after they pass through the project area. The boundary for the aerial survey extends approximately 4 mi (6.4 km) east and west of the project area, between Tyonek and Trading Bay (directly east of the Trading Bay State Game Refuge boundary), and 0.25 mi (0.4 mi) from the water's edge, which will vary depending on tide levels. The size of the survey area provides a design for observing whales before and during exposure to seismic sounds.

Aerial monitoring will be conducted from a single engine helicopter, which will fly a single transect line paralleling the shoreline along the coast in the project area. The aerial survey will begin from the northeast end and finish at the southwest end of the transect. This pattern will be flown unless observation conditions (glare, etc) require flying from southwest to northeast depending on the effect of glare on observations. The helicopter operations will be based out of Beluga or Shirleyville. The helicopter will fly at 1,500 ft (457 m), due to glide path needs, and at a ground speed of 60 knot (111 km/h). This altitude should prevent disturbance of marine mammals and birds by the helicopter noise.

Helicopter monitoring will be conducted at a frequency that reflects the monthly occurrence of belugas in the project area (LGL, 2006). The helicopter will be flown once per week from the time the seismic operations begin until the project is completed. However, if beluga whales are observed by helicopter or boat in or near the project area, survey flights will be conducted daily until whales are not observed for two consecutive days. Once belugas are no longer observed for two consecutive days, surveys will again be flown once per week until the project ends.

Aerial monitoring will fly 1 - 2 times shortly before and one half of the survey transect will be flown once during seismic operations, whenever possible, in a given day. Half transects are limited in duration to prevent noise interference with seismic data acquisition. Half transect flight directions will be determined by the relative position of activities to the helicopter landing location.

To the extent consistent with applicable aviation regulation, aerial surveys will be conducted under the following conditions: (1) when the pilot considers it safe to do so; (2) during daylight hours; (3) during good viewing conditions (ceiling height above 1,500 ft (457 M) and Beaufort Sea States below 4; and (4) during periods allowed by regulatory agencies. Flights will also be oriented to minimize sun glare on the observer.

One NMFS-approved MMO will be on the helicopter observing and recording marine mammals, covering the 180° view in front of the helicopter. Space will be made available on the helicopter for NMFS staff to participate in surveys when possible.

Data from aerial monitoring will be recorded on the species, number, group size, location (latitude/longitude), time, date, direction and angle from helicopter as determined by using a clinometer. Data will also be collected on tide, real time positions (latitude/longitude) of seismic survey vessel, shooting, and vessel activities. Observation conditions will be recorded at the start and finish of each survey or whenever conditions change. Data will be recorded on ceiling height, Beaufort Force, glare, and weather (snow, fog, etc.). All information collected during the marine mammal survey and/or reported to the vessel will be recorded on a field form. The information will be included with real time data on seismic activity (boat location, shooting, activities).

7.3. Reporting

Reports from aerial and land-based monitoring would be faxed or e-mailed to NMFS Anchorage Field Office on a daily basis.

Reports from UOCC and MOC would be submitted to NMFS within 90 days after the end of the seismic operations. The reports would describe the operations that were conducted, the marine mammals that were detected near the operations, and provide full documentation of methods, results, and interpretation pertaining to all monitoring. The reports would also include estimates of the amount and nature of potential “take” of marine mammals by harassment or in other ways.

VIII. COMPLIANCE WITH ENDANGERED SPECIES ACT (ESA)

An informal consultation on the ESA was conducted for the proposed issuance of UOCC and MOC’s IHAs. As a result of informal consultation, NMFS Anchorage Field Office has determined that the proposed seismic activities are not likely to adversely affect listed species or critical habitat.

IX. COMPLIANCE WITH STATE REGULATIONS

The Division of Oil and Gas of the Alaska State Department of Natural Resources has completed its coordinating the state’s review of the proposed UOCC and MOC projects for consistency with the Alaska Coastal Management Program (ACMP). Based on the reviews, the State of Alaska concurs that the proposed seismic operations in Cook Inlet are consistent with the ACMP.

X. CONCLUSION

NMFS has determined preliminarily that small numbers of beluga whales and harbor porpoises may be taken incidental to seismic surveys, by no more than Level B harassment and that such taking will result in no more than a negligible impact on such species or stocks. In addition, NMFS has determined preliminarily that Pacific harbor seals, Steller sea lions, and killer whales, if present within the vicinity of the proposed activities could be taken incidentally, by no more than Level B harassment and that such taking would result in no more than a negligible impact on such species or stocks. At this time, NMFS is not able to determine whether any potential take would involve small numbers of Pacific harbor seals, Steller sea lions, or killer whales due to data limitations and our inability to develop density estimates. Regardless, given the infrequent occurrence of these species (or none at all), NMFS believes that any take would be significantly lower than those of beluga whales.

While behavioral modifications, including temporarily vacating the area during the project period may be made by these species to avoid the resultant visual and acoustic disturbance, NMFS nonetheless finds that this action would result in no more than a negligible impact on these marine mammal species and/or stocks. NMFS also finds that the proposed action will not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence uses.

In addition, no take by Level A harassment (injury) or death is anticipated or authorized, and harassment takes should be at the lowest level practicable due to incorporation of the mitigation measures described in this document. The proposed projects are not expected to interfere with any subsistence hunting of marine mammals.

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NMFS will make a final determination regarding whether the requirements of section 101(a)(5)(D) of the MMPA have been met and the authorizations can be issued, pending public review and comment on the proposed seismic surveys and this document.

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FIGURE 1. MAP OF COOK INLET

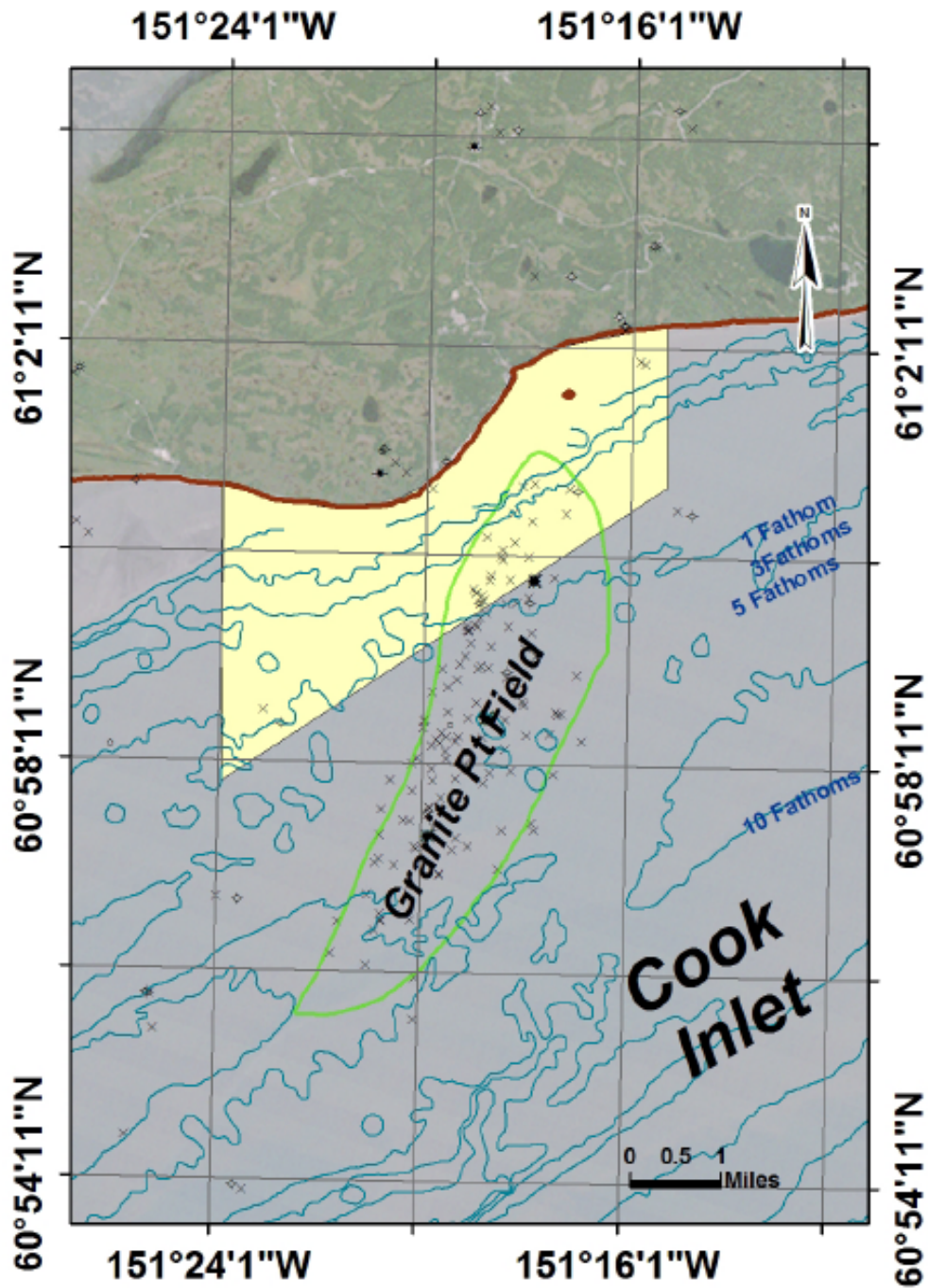


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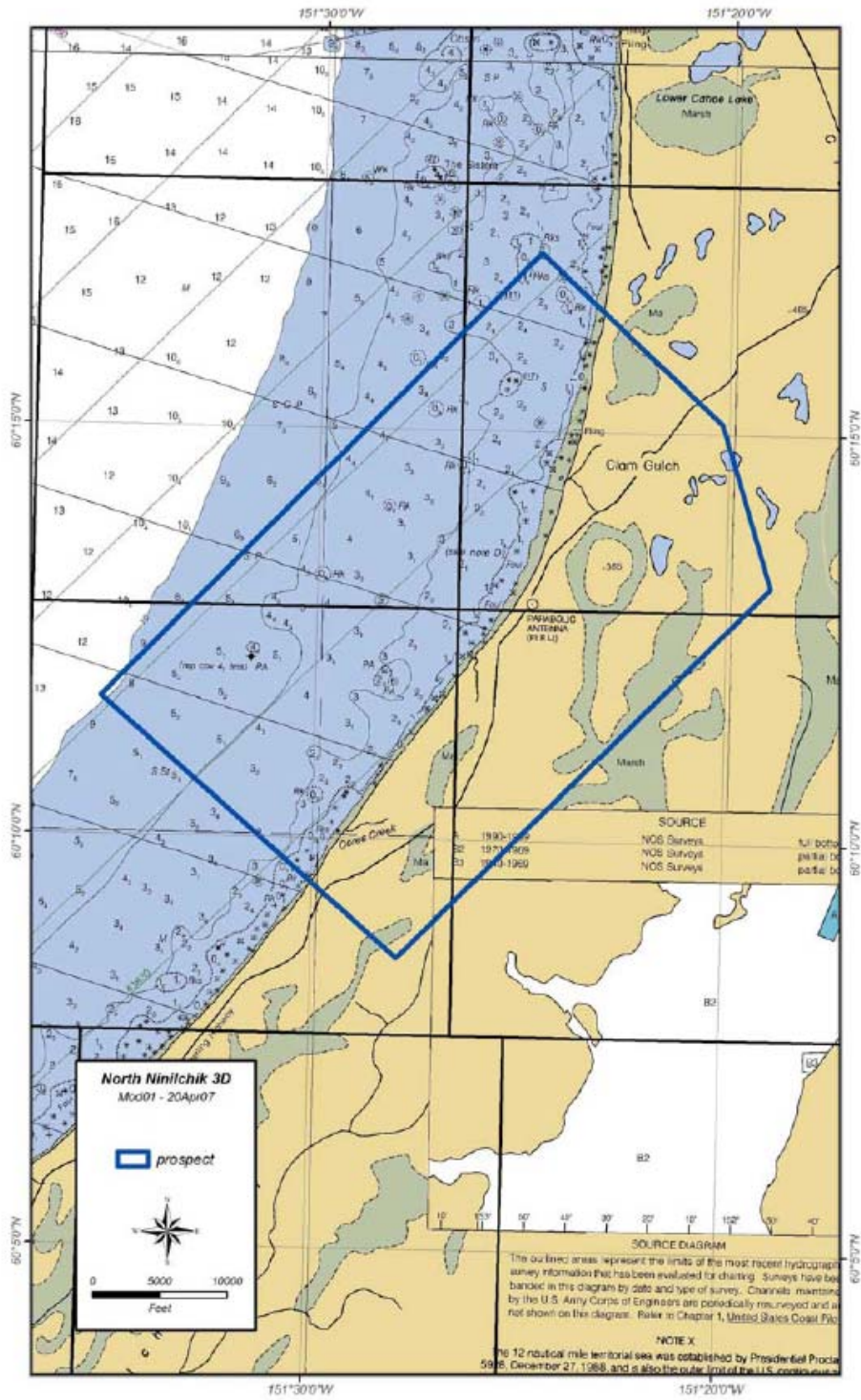
FIGURE 2. MAP OF UOCC PROPOSED ACTION AREA



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 FIGURE 3.

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 MAP OF MOC PROPOSED ACTION AREA

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