



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Silver Spring, MD 20910

## Incidental Harassment Authorization

Apache Alaska Corporation (Apache), 200 Post Oak Boulevard, Suite 100, Houston, Texas 77056, is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1371(a)(5)(D)), to harass small numbers of marine mammals incidental to a marine geophysical (seismic) survey conducted by Apache in Cook Inlet, Alaska between April 2012 and April 2013:

1. This Authorization is valid from April 30, 2012 through April 30, 2013.
2. This Authorization is valid only for Apache's activities associated with seismic survey operations that shall occur in the following specified geographic area:

Area 1 encompasses approximately 3,554 km<sup>2</sup> and includes a 6.41 km buffer around intertidal and offshore areas, as specified in Apache's Incidental Harassment Authorization application, Biological Assessment, and associated Environmental Assessment. On the western side of Cook Inlet, Area 1 extends from the Beluga River to approximately 4.5 km south of the Big River. On the eastern side, Area 1 extends from the town of Salamantof on the Kenai Peninsula to approximately 7 km north of the Swanson River.

### 3. Species Authorized and Level of Takes

(a) The incidental taking of marine mammals, by Level B harassment only, is limited to the following species in the waters of Cook Inlet:

(i) Odontocetes – see Table 2 (attached) for authorized species and take numbers.

(ii) Pinnipeds – see Table 2 (attached) for authorized species and take numbers.

(iii) If any marine mammal species are encountered during seismic activities that are not listed in Table 2 (attached) for authorized taking and are likely to be exposed to sound pressure levels (SPLs) greater than or equal to 160 dB re 1  $\mu$ Pa (rms), then the Holder of this Authorization must alter speed or course, power-down or shut-down the sound source to avoid take.

(b) The taking by injury (Level A harassment) serious injury, or death of any of the species listed in Table 2 or the taking of any kind of any other species of marine mammal is prohibited and may result in the modification, suspension or revocation of this Authorization.



4. The methods authorized for taking by Level B harassment are limited to the following acoustic sources without an amendment to this Authorization:

- (i) Two air gun arrays, each with a capacity of 2,400 in<sup>3</sup>;
- (ii) A 440 in<sup>3</sup> air gun array;
- (iii) A 10 in<sup>3</sup> air gun;
- (iv) A Scout Ultra-Short Baseline (USBL) transceiver; and
- (v) A Lightweight Release USBL transponder.

5. The taking of any marine mammal in a manner prohibited under this Authorization must be reported immediately to the Office of Protected Resources, National Marine Fisheries Service (NMFS), at 301-427-8401.

6. The Holder of this Authorization is required to cooperate with NMFS and any other Federal, state, or local agency monitoring the impacts of the activity on marine mammals.

#### 7. Mitigation and Monitoring Requirements

The Holder of this Authorization is required to implement the following mitigation and monitoring requirements when conducting the specified activities to achieve the least practicable adverse impact on affected marine mammal species or stocks:

(a) Utilize a sufficient number of NMFS-qualified, vessel-based Protected Species Visual Observers (PSVOs) (except during meal times and restroom breaks, when at least one PSVO shall be on watch) to visually watch for and monitor marine mammals near the seismic source vessels during daytime operations (from nautical twilight-dawn to nautical twilight-dusk) and before and during start-ups of sound sources day or night. Two PSVOs will be on the source vessels and two PSVOs will be on the support vessel to observe the safety and disturbance zones. PSVOs shall have access to reticle binoculars (7x50 Fujinon), big-eye binoculars (25x150), and night vision devices. PSVO shifts shall last no longer than 4 hours at a time. PSVOs shall also make observations during daytime periods when the sound sources are not operating for comparison of animal abundance and behavior, when feasible. When practicable, as an additional means of visual observation, Apache's vessel crew may also assist in detecting marine mammals.

(b) In addition to the vessel-based PSVOs, utilize a shore-based station to visually monitor for marine mammals. The shore-based station will follow all safety procedures, including bear safety. The location of the shore-based station will need to be sufficiently high to observe marine mammals; the PSOs would be equipped with pedestal mounted "big eye" (20x110) binoculars. The shore-based PSOs would scan the area prior to, during, and after the survey operations involving the use of sound sources, and would be in contact with the vessel-based PSOs via radio to communicate sightings of marine mammals approaching or within the project area.

(c) When survey operations occur near a river mouth, utilize the crew helicopter to conduct aerial surveys near river mouths prior to the commencement of air gun operations in order to identify locations where beluga whales congregate. The helicopter may also be used to look for marine mammals during other times, when practicable. The types of helicopters currently planned for use by Apache include a Bell 407, Bell UH1B, and ASB3. Weather and scheduling permitting, aerial surveys will fly at an altitude of 305 m (1,000 ft). In the event of a marine mammal sighting, aircraft will attempt to maintain a radial distance of 457 m (1,500 ft) from the marine mammal(s). Aircraft will avoid approaching marine mammals from head-on, flying over or passing the shadow of the aircraft over the marine mammal(s).

(d) PSVOs shall conduct monitoring while the airgun array and nodes are being deployed or recovered from the water.

(e) Record the following information when a marine mammal is sighted:

(i) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction to the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), and behavioral pace; and

(ii) Time, location, heading, speed, activity of the vessel (including number of airguns operating and whether in state of ramp-up or power-down), Beaufort sea state and wind force, visibility, and sun glare; and

(iii) The data listed under Condition 7(c)(ii) shall also be recorded at the start and end of each observation watch and during a watch whenever there is a change in one or more of the variables.

(f) Utilize the passive acoustic monitoring (PAM) system to detect and allow some localization of marine mammals around the source vessels during all seismic survey operations and during most periods when sound sources are not operating. One NMFS-qualified Protected Species Observer (PSO) and/or expert bioacoustician (i.e., Protected Species Acoustic Observer [PSAO]) shall monitor the PAM at all times in shifts no longer than 6 hours. An expert bioacoustician shall design and set up the PAM system and be present to operate or oversee PAM, and available when technical issues occur during the survey.

(g) Do and record the following when an animal is detected by the PAM:

(i) Notify the on-duty PSVO(s) immediately of a vocalizing marine mammal so a power-down or shut-down can be initiated, if marine mammals are detected (visually or acoustically) approaching or within the relevant EZ (as defined in Table 1, attached);

(ii) Enter the information regarding the vocalization into a database. The data to be entered include an acoustic encounter identification number, whether it was linked with a visual sighting, date, time when first and last heard and whenever any additional information was recorded, position, and water depth when first detected, bearing if determinable, species or species group (e.g., unidentified dolphin, sperm whale), types and nature of sounds heard (e.g., clicks, continuous, sporadic, whistles, creaks, burst pulses, strength of signal, etc.), and any other notable information.

(h) Visually observe the entire extent of the exclusion zone (EZ) (180 dB re 1  $\mu$ Pa [rms] for cetaceans and 190 dB re 1  $\mu$ Pa [rms] for pinnipeds; see Table 1 [attached] for distances) using NMFS-qualified PSVOs, for at least 30 minutes (min) prior to starting the airgun array (day or night). If the PSVO finds a marine mammal within the EZ, Apache must delay the seismic survey until the marine mammal(s) has left the area. If the PSVO sees a marine mammal that surfaces, then dives below the surface, the PSVO shall wait 30 min. If the PSVO sees no marine mammals during that time, they should assume that the animal has moved beyond the EZ. If for any reason the entire radius cannot be seen for the entire 30 min (i.e., rough seas, fog, darkness), or if marine mammals are near, approaching, or in the EZ, the airguns may not be ramped-up.

(i) Establish a 180 dB re 1  $\mu$ Pa (rms) and 190 dB re 1  $\mu$ Pa (rms) EZ for marine mammals before the full array (2400 in<sup>3</sup>) is in operation; and a 180 dB re 1  $\mu$ Pa (rms) and 190 dB re 1  $\mu$ Pa (rms) EZ before a single airgun (10 in<sup>3</sup>) is in operation, respectively. See Table 1 (attached) for distances and EZs.

(j) Implement a “ramp-up” procedure when starting up at the beginning of seismic operations or anytime after the entire array has been shutdown for more than 10 min, which means start the smallest sound source first and add sound sources in a sequence such that the source level of the array shall increase in steps not exceeding approximately 6 dB per 5-min period. During ramp-up, the PSVOs shall monitor the EZ, and if marine mammals are sighted, a power-down, or shut-down shall be implemented as though the full array were operational. Therefore, initiation of ramp-up procedures from shut-down requires that the PSVOs be able to visually observe the full EZ as described in Condition 7(h) (above).

(k) Alter speed or course during seismic operations if a marine mammal, based on its position and relative motion, appears likely to enter the relevant EZ. If speed or course alteration is not safe or practicable, or if after alteration the marine mammal still appears likely to enter the EZ, further mitigation measures, such as a power-down or shut-down, shall be taken.

(l) Power-down or shut-down the sound source(s) if a marine mammal is detected within, approaches, or enters the relevant EZ (as defined in Table 1, attached). A shut-down

means all operating sound sources are shut-down (i.e., turned off). A power-down means reducing the number of operating sound sources to a single operating 10 in<sup>3</sup> airgun, which reduces the EZ to the degree that the animal(s) is no longer in or about to enter it.

(m) Following a power-down, if the marine mammal approaches the smaller designated EZ, the sound sources must then be completely shut-down. Seismic survey activity shall not resume until the PSVO has visually observed the marine mammal(s) exiting the EZ and is not likely to return, or has not been seen within the EZ for 15 min for species with shorter dive durations (small odontocetes and pinnipeds) or 30 min for species with longer dive durations (large odontocetes, including killer whales and beluga whales).

(n) Following a power-down or shut-down and subsequent animal departure, survey operations may resume following ramp-up procedures described in Condition 7(h).

(o) Marine geophysical surveys may continue into night and low-light hours if such segment(s) of the survey is initiated when the entire relevant EZs can be effectively monitored visually or acoustically (i.e., PSVO(s) or PSAO(s) must be able to see the extent of or hear sounds within the entire relevant EZ).

(p) No initiation of survey operations involving the use of sound sources is permitted from a shut-down position at night or during low-light hours (such as in dense fog or heavy rain) when the entire relevant EZ cannot be effectively monitored (visually or acoustically) by the PSVO(s) or PSAO on duty.

(q) If a beluga whale (*Delphinapterus leucas*) cow/calf pair is visually sighted approaching or within the 160-dB disturbance zone, survey activity will not commence or the sound source(s) shall be shut-down until the animals are no longer present within the 160-dB zone.

(r) Whenever aggregations or groups of beluga whales (*Delphinapterus leucas*) and/or killer whales (*Orcinus orca*) are detected approaching or within the 160-dB disturbance zone, survey activity will not commence or the sound source(s) shall be shut-down until the animals are no longer present within the 160-dB zone. An aggregation or group of whales shall consist of when five or more individuals of any age/sex class are visually sighted that do not appear to be traveling (e.g., feeding, socializing, etc.).

## 8. Reporting Requirements

The Holder of this Authorization is required to:

(a) Submit a weekly field report, no later than close of business (Alaska time) each Thursday during the weeks when in-water seismic survey activities take place. The field reports will contain and summarize the information required under Condition 8(b).

(b) Submit a monthly report, no later than the 15<sup>th</sup> of each month, to NMFS' Permits and Conservation Division for all months during which in-water seismic survey activities take place. These reports must contain and summarize the following information:

(i) Dates, times, locations, heading, speed, weather, sea conditions (including Beaufort sea state and wind force), and associated activities during all seismic operations and marine mammal sightings;

(ii) Species, number, location, distance from the vessel, and behavior of any marine mammals, as well as associated seismic activity (number of power-downs and shut-downs), observed throughout all monitoring activities.

(iii) An estimate of the number (by species) of: (A) pinnipeds that have been exposed to the seismic activity (based on visual observation) at received levels greater than or equal to 160 dB re 1  $\mu$ Pa (rms) and/or 190 dB re 1  $\mu$ Pa (rms) with a discussion of any specific behaviors those individuals exhibited; and (B) cetaceans that have been exposed to the seismic activity (based on visual observation) at received levels greater than or equal to 160 dB re 1  $\mu$ Pa (rms) and/or 180 dB re 1  $\mu$ Pa (rms) with a discussion of any specific behaviors those individuals exhibited.

(iv) A description of the implementation and effectiveness of the: (A) terms and conditions of the Biological Opinion's Incidental Take Statement (ITS); and (B) mitigation measures of the Incidental Harassment Authorization. For the Biological Opinion, the report shall confirm the implementation of each Term and Condition, as well as any conservation recommendations, and describe their effectiveness, for minimizing the adverse effects of the action on Endangered Species Act-listed marine mammals.

(c) Submit a draft Technical Report on all activities and monitoring results to NMFS' Permits and Conservation Division within 90 days of the completion of the Apache survey. The Technical Report will include:

(i) summaries of monitoring effort (e.g., total hours, total distances, and marine mammal distribution through the study period, accounting for sea state and other factors affecting visibility and detectability of marine mammals);

(ii) analyses of the effects of various factors influencing detectability of marine mammals (e.g., sea state, number of observers, and fog/glare);

(iii) species composition, occurrence, and distribution of marine mammal sightings, including date, water depth, numbers, age/size/gender categories (if determinable), group sizes, and ice cover;

- (iv) analyses of the effects of survey operations;
- sighting rates of marine mammals during periods with and without seismic survey activities (and other variables that could affect detectability), such as:
  - initial sighting distances versus survey activity state;
  - closest point of approach versus survey activity state;
  - observed behaviors and types of movements versus survey activity state;
  - numbers of sightings/individuals seen versus survey activity state;
  - distribution around the source vessels versus survey activity state; and
  - estimates of take by Level B harassment based on presence in the 160 dB disturbance zone.

(d) Submit a final report to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, within 30 days after receiving comments from NMFS on the draft report. If NMFS decides that the draft report needs no comments, the draft report shall be considered to be the final report.

9. In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), Apache shall immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to [Jolie.Harrison@noaa.gov](mailto:Jolie.Harrison@noaa.gov) and [Brian.D.Hopper@noaa.gov](mailto:Brian.D.Hopper@noaa.gov), and the Alaska Regional Stranding Coordinators ([Aleria.Jensen@noaa.gov](mailto:Aleria.Jensen@noaa.gov) and [Barabara.Mahoney@noaa.gov](mailto:Barabara.Mahoney@noaa.gov)). The report must include the following information:

- (a) time, date, and location (latitude/longitude) of the incident;
- (b) the name and type of vessel involved;
- (c) the vessel's speed during and leading up to the incident;
- (d) description of the incident;
- (e) status of all sound source use in the 24 hours preceding the incident;
- (f) water depth;
- (g) environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- (h) description of marine mammal observations in the 24 hours preceding the incident;
- (i) species identification or description of the animal(s) involved;
- (j) the fate of the animal(s); and
- (k) photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with Apache to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Apache may not resume their activities until notified by NMFS via letter or email, or telephone.

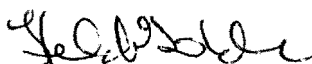
In the event that Apache discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), Apache will immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and the NMFS Alaska Stranding Hotline (1-877-925-7773) and/or by email to the Alaska Regional Stranding Coordinators ([Aleria.Jensen@noaa.gov](mailto:Aleria.Jensen@noaa.gov) and [Barabara.Mahoney@noaa.gov](mailto:Barabara.Mahoney@noaa.gov)). The report must include the same information identified in the Condition 9(a) above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with Apache to determine whether modifications in the activities are appropriate.

In the event that Apache discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in Condition 2 of this Authorization (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Apache shall report the incident to the Acting Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and the NMFS Alaska Stranding Hotline (1-877-925-7773) and/or by email to the Alaska Regional Stranding Coordinators ([Aleria.Jensen@noaa.gov](mailto:Aleria.Jensen@noaa.gov) and [Barbara.Mahoney@noaa.gov](mailto:Barbara.Mahoney@noaa.gov)), within 24 hours of the discovery. Apache shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

10. Apache is required to comply with the Terms and Conditions of the ITS corresponding to NMFS's Biological Opinion issued to both U.S. Army Corps of Engineers and NMFS's Office of Protected Resources.

11. A copy of this Authorization and the ITS must be in the possession of all contractors and PSOs operating under the authority of this Incidental Harassment Authorization.

**APR 3 0 2012**

  
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Helen M. Golde  
Acting Director  
Office of Protected Resources  
National Marine Fisheries Service

\_\_\_\_\_  
Date

Attachment



**Attachment**

**Table 1: Estimated Distances to Sound Thresholds (Apache will conduct a sound source verification study to determine the actual distances to these threshold zones)**

Source	190 dB	180 dB	160 dB
Pinger	1 m	3 m	25 m
10 cui Air gun	10 m	33 m	330 m
440 cui Air gun	NA	NA	NA
2,400 cui air gun (nearshore)	0.51 km	1.42 km	6.41 km
2,400 cui air gun (offshore)	1.18 km	0.98 km	4.89 km

**Table 2. Authorized Take Numbers for Each Marine Mammal Species in Cook Inlet.**

Species	Authorized Take in the Cook Inlet Action Area
<b>Odontocetes</b>	
Beluga whale ( <i>Delphinapterus leucas</i> )	30
Killer whale ( <i>Orcinus orca</i> )	10
Harbor porpoise ( <i>Phocoena phocoena</i> )	20
<b>Pinnipeds</b>	
Steller sea lion ( <i>Eumetopias jubatus</i> )	20
Harbor seal ( <i>Phoca vitulina richardsi</i> )	50