fisheries topics: Review total allowable catch (TAC) limits for the 2011/12 crab season; NMFS Eastern Bering Sea survey overview; review status of Bristol Bay red king crab, Eastern Bering Sea Tanner crab, Bering Sea snow crab, Saint Matthew and Pribilof Islands king crab.

Special Accommodations

The meeting is physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aids should be directed to Gail Bendixen at (907) 271–2809 at least 7 working days prior to the meeting date.

Dated: September 16, 2011.

Tracey L. Thompson,

Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2011–24210 Filed 9–20–11; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XA691

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Seismic Survey in Cook Inlet, Alaska

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS received an application from Apache Alaska Corporation (Apache) for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to a proposed 3D seismic survey in Cook Inlet, Alaska, between November 2011 and November 2012. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS requests comments on its proposal to issue an IHA to Apache to take, by Level B harassment only, five species of marine mammals during the specified activity.

DATES: Comments and information must be received no later than October 21, 2011.

ADDRESSES: Comments on the application should be addressed to Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing e-mail comments is *ITA.Hopper@noaa.gov.* NMFS is not responsible for e-mail comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.nmfs.noaa.gov/pr/permits/incidental.htm* without change. All Personal Identifying Information (for example, name, address, *etc.*) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

A copy of the application used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or visiting the Internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm.* Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Brian D. Hopper, Office of Protected Resources, NMFS, (301) 427–8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking 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 and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined ''negligible impact'' in 50 CFR 216.103 as ''* * * an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.''

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as:

> any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [''Level A harassment'']; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [''Level B harassment''].

Summary of Request

NMFS received an application on June 15, 2011, from Apache for the taking, by harassment, of marine mammals incidental to a 3D seismic survey program in Cook Inlet, Alaska. After addressing comments from NMFS, Apache modified its application and submitted a revised application on July 19, 2011. The July 19, 2011, application is the one available for public comment (see **ADDRESSES**) and considered by NMFS for this proposed IHA.

The proposed 3D seismic surveys would employ the use of two source vessels. Each source vessel will be equipped with compressors and 2400 in^3 air gun arrays, as well as additional lower-powered and higher frequency survey equipment for collecting bathymetric and shallow sub-bottom data. In addition, one source vessel will be equipped with a 440 in^3 shallow water air gun array, which it can deploy at high tide in the intertidal area in less than 1.8 m of water. The proposed survey will take place on Apache's leases in Cook Inlet, and during the first year Apache anticipates completing ~829 km^2 of seismic acquisition along the west coast of Cook Inlet from the McArthur River up and to the south of the Beluga river, in water depths of 0–128 m (0–420 ft).

Apache intends to conduct offshore/transition (intertidal) zone marine surveys during November and December 2011 and March 2012. Nearshore areas adjacent to uplands and offshore areas will be acquired in open water periods

between April and September 2012. Impacts to marine mammals may occur from noise produced from active acoustic sources (primarily air guns) used in the surveys.

Description of the Specified Activity

In 2010, Apache acquired over 300,000 acres of oil and gas leases in Cook Inlet with the primary objective to explore for and develop oil fields. In the spring of 2011, Apache conducted a seismic test program to evaluate the feasibility of using new nodal (*i.e.,* no cables) technology seismic recording equipment for operations in the Cook Inlet environment and to test various seismic acquisition parameters to finalize the design for a 3D seismic program in Cook Inlet. The test program took place in late March 2011 and results indicated that the nodal technology was feasible in the Cook Inlet environment. Apache proposes to conduct a phased 3D seismic survey program throughout Cook Inlet over the course of the next three to five years. The first area proposed to be surveyed—and the subject of this proposed IHA—is located along the western coast of upper Cook Inlet.

The proposed operations will be performed from multiple vessels. Apache will employ the use of two source vessels. Each source vessel will be equipped with compressors and 2400 in^3 air gun arrays. In addition, one source vessel will be equipped with a 440 in^3 shallow water air gun array, which it can deploy at high tide in the intertidal area in less than 1.8 m of water. Three shallow draft vessels will support cable/nodal deployment and retrieval operations, and one mitigation/chase vessel will be used, which will also provide berthing for the Protected Species Observers (PSOs). Finally, two smaller jet boats will be used for personnel transport and node support in the extremely shallow water of the intertidal area. For additional information, such as vessel specifications, see Apache's application.

The actual survey duration to acquire ~829 km^2 will take approximately 160 days to complete over the course of 8–9 months. Apache anticipates conducting survey operations 24 hours per day. During each 24 hour period, seismic operations will be active; however, in-water air guns will only be used for approximately 2.5 hours during each of the slack tide periods. There are approximately four slack tide periods in a 24-hour day, therefore, air gun operations will be active during approximately 10–12 hours per day, if weather conditions allow.

3D Seismic Surveys

Seismic surveys are designed to collect bathymetric and sub-seafloor data that allow the evaluation of potential shallow faults, gas zones, and archeological features at prospective exploration drilling locations. Data are typically collected using multiple types of acoustic equipment. During the surveys, Apache proposes to use the following in-water acoustic sources: two 2400 in^3 air gun arrays; a single 440 in^3 air gun array; a 10 in^3 air gun; a Scout Ultra-Short Baseline (USBL) Transceiver; and a Lightweight Release (LR) USBL Transponder. In addition, Apache plans to detonate 4 kg of Orica OSX Pentolite explosives onshore to acquire data. Except for the explosives, the operating frequencies and estimated source levels of the survey equipment are provided below.

(1) Airguns

The 2400 in^3 air gun arrays and the 440 in^3 air gun array will be used to obtain geological data during the survey. The acoustic source level of the 2400 in^3 air gun array was predicted using an air gun array source model (AASM) developed by JASCO. The AASM simulates the expansion and oscillation of the air bubbles generated by each air gun within a seismic array, taking into account pressure interaction effects between bubbles from different air guns. It includes effects from surface-reflected pressure waves, heat transfer from the bubbles to the surrounding water, and the movements of bubbles due to their buoyancy. The model outputs high-resolution air gun pressure signatures for each air gun, which are superimposed with the appropriate time delays to yield the overall array source signature in any direction. The 190, 180, and 160 dB_{rms} re 1 μPa isopleths were estimated at three different water depths (5 m, 25 m, and 45 m) for nearshore surveys and at 80 m for channel surveys. The distances to these thresholds for the nearshore survey locations are provided in Table 1 and correspond to the three transects modeled at each site in the onshore, nearshore, and parallel to shore directions. The distances to the thresholds for the channel survey locations are provided in Table 2 and correspond to the broadside and endfire directions. The areas ensonified to the 160 dB isopleth for the nearshore survey are provided in Table 3. The area ensonifed to the 160 dB isopleth for the channel survey is 389 km^2.

TABLE 1—DISTANCES TO SOUND THRESHOLDS FOR THE NEARSHORE SURVEYS

Threshold (dB re 1 μPa)	Water depth at source location (m)	Distance in the onshore direction (km)	Distance in the offshore direction (km)	Distance in the parallel to shore direction (km
160	5	0.85	3.91	1.48
	25	4.70	6.41	6.34
	45	5.57	4.91	6.10
180	5	0.46	0.60	0.54
	25	1.06	1.07	1.42
	45	0.70	0.83	0.89
190	5	0.28	0.33	0.33
	25	0.35	0.36	0.44
	45	0.10	0.10	0.51

TABLE 2—DISTANCE TO SOUND THRESHOLDS FOR THE CHANNEL SURVEYS

Threshold (dB re 1 μPa)	Water depth at source location (m)	Distance in the broadside direction (km)	Distance in the endfire direction (km)
160	80	4.24	4.89

TABLE 2—DISTANCE TO SOUND THRESHOLDS FOR THE CHANNEL SURVEYS—Continued

Threshold (dB re 1 μPa)	Water depth at source location (m)	Distance in the broadside direction (km)	Distance in the endfire direction (km)
180	80	0.91	0.98
190	80	0.15	0.18

TABLE 3—AREAS ENSONIFIED TO 160 dB FOR NEARSHORE SURVEYS

Nearshore survey depth classification	Depth range (m)	Area ensonifed to 160 dB (km^2)
Shallow	5–21	346
Mid-Depth	21–38	458
Deep	38–54	455

(2) Pingers

These instruments will be operated during survey operations to determine the exact position of the nodes after they have been placed on the seafloor. One device, the Scout Ultra-Short Baseline Transceiver, operates at frequencies between 33 and 55 kHz with a source level of 188 dB re 1 μPa at 1 m. The other device, an LR Ultra-Short Baseline Transponder, operates at a frequency of 35–50 kHz at a source level of 185 dB re 1 μPa at 1 m. With respect to these two sources, Apache provided and NMFS will rely on the distances to the Level B harassment thresholds estimated for the ''louder'' of the two; therefore, assuming a simple spreading loss of 20 log R (where R is radius), with a source level of 188 dB the distance to the 190, 180, and 160 dB isopleths would be 1, 3, and 25 m, respectively. Another technique for locating the nodes in deeper water is called Ocean Bottom Receiver Location, which uses a small volume air gun (10 in^3) firing parallel to the node line.

(3) Detonations of Explosives

The onshore areas will be surveyed using explosives as the sound source. Seismic surveys on land use ''shot holes'' that are drilled every 50 m along source lines and are oriented perpendicular to the receiver lines and parallel to the coast. At each source location, Apache will drill to the prescribed hole depth of approximately 10 m and load it with 4 kg of explosives. The hole is then capped with a ''smart cap'' that makes it impossible to detonate the explosive without the proper detonator. During the 2D test program conducted in March 2011, Apache deployed acoustic recorders to measure underwater sound produced by land-based explosives; however, the resulting measurements were inconclusive and Apache has proposed a sound source verification study to characterize the underwater received sound levels and determine if marine mammal monitoring will be required for future onshore operations.

Apache successfully measured the sounds produced by the air guns and pingers during the 2D test program conducted in March 2011 and found levels to be consistent with the modeled mitigation threshold levels (180 dB for cetaceans, 190 dB for pinnipeds); therefore, except for the measurements of in-water sound produced by detonations of explosives on shore, a sound source verification study will not be included in the proposed 3D seismic survey.

Description of Marine Mammals in the Area of the Specified Activity

The marine mammal species under NMFS's jurisdiction that could occur near operations in Cook Inlet include three cetacean species: beluga whale (*Delphinapterus leucas*), killer whale (*Orcinus orca*), and harbor porpoise (*Phocoena phocoena*), and two pinniped species: harbor seal (*Phoca vitulina richardsi*) and Steller sea lions (*Eumetopias jubatus*). The marine mammal species that is likely to be encountered most widely (in space and time) throughout the period of the planned surveys is the harbor seal.

The Cook Inlet beluga whale and western population of Steller sea lion are listed as ''endangered'' under the Endangered Species Act (ESA) and as depleted under the MMPA. The site of the proposed survey is within designated critical habitat for Cook Inlet beluga whales.

Apache's application contains information on the status, distribution, seasonal distribution, and abundance of each of the species under NMFS jurisdiction mentioned in this document. Please refer to the application for that information (see **ADDRESSES**). Additional information can also be found in the NMFS Stock Assessment Reports (SAR). The Alaska 2010 SAR is available at: *http://www.nmfs.noaa.gov/pr/pdfs/sars/ak2010.pdf.*

Potential Effects of the Specified Activity on Marine Mammals

Operating active acoustic sources, such as air gun arrays, has the potential for adverse effects on marine mammals.

Potential Effects of Air Gun Sounds on Marine Mammals

The effects of sounds from air gun pulses might include one or more of the following: tolerance, masking of natural sounds, behavioral disturbance, and temporary or permanent hearing impairment or non-auditory effects (Richardson *et al.* 1995). As outlined in previous NMFS documents, the effects of noise on marine mammals are highly variable, and can be categorized as follows (based on Richardson *et al.* 1995):

(1) Tolerance

Numerous studies have shown that pulsed sounds from air guns are often readily detectable in the water at distances of many kilometers. Numerous studies have also shown that marine mammals at distances more than a few kilometers from operating survey vessels often show no apparent response. That is often true even in cases when the pulsed sounds must be readily audible to the animals based on measured received levels and the hearing sensitivity of that mammal group. Although various toothed whales, and (less frequently) pinnipeds have been shown to react behaviorally to air gun pulses under some conditions, at other times, mammals of both types have shown no overt reactions. In general, pinnipeds and

small odontocetes seem to be more tolerant of exposure to air gun pulses than baleen whales.

(2) Behavioral Disturbance

Marine mammals may behaviorally react to sound when exposed to anthropogenic noise. These behavioral reactions are often shown as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping); avoidance of areas where noise sources are located; and/or flight responses (*e.g.,* pinnipeds flushing into water from haulouts or rookeries).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification have the potential to be biologically significant if the change affects growth, survival, and reproduction. Examples of significant behavioral modifications include:

- Drastic change in diving/surfacing patterns (such as those thought to be causing beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cease feeding or social interaction.

For example, at the Guerreo Negro Lagoon in Baja California, Mexico, which is one of the important breeding grounds for Pacific gray whales, shipping and dredging associated with a salt works may have induced gray whales to abandon the area through most of the 1960s (Bryant *et al.* 1984). After these activities stopped, the lagoon was reoccupied, first by single whales and later by cow-calf pairs.

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography) and is also difficult to predict (Southall *et al.* 2007).

Currently NMFS uses a received level of 160 dB re 1 µPa for impulse noises (such as air gun pulses) as the onset threshold for marine mammal behavioral harassment.

(3) Masking

Chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions. Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, marine mammals that experience severe acoustic masking (*e.g.,* of a high-intensity level over a long period of time throughout a biologically important behavior) could experience biologically significant effects that could potentially adversely impact survival or reproductive success.

Masking occurs when noise and signals (that the animal utilizes) overlap at both spectral and temporal scales. For the air gun noise generated from the proposed seismic surveys, noise will consist of low frequency (under 500 Hz) pulses with extremely short durations (less than one second). Lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. There is little concern regarding masking near the noise source due to the brief duration of these pulses and relatively longer silence between air gun shots (approximately 12 seconds). However, at long distances (over tens of kilometers away), due to multipath propagation and reverberation, the durations of air gun pulses can be ''stretched'' to seconds with long decays (Madsen *et al.* 2006), although the intensity of the noise is greatly reduced.

This could affect communication signals used by low frequency mysticetes when they occur near the noise band and thus reduce the communication space of animals (*e.g.,* Clark *et al.* 2009) and cause increased stress levels (*e.g.,* Foote *et al.* 2004; Holt *et al.* 2009); however, no baleen whales are expected to occur within the action area. Marine mammals are thought to be able to compensate for masking by adjusting their acoustic behavior by shifting call frequencies, and/or increasing call volume and vocalization rates. For example, blue whales are found to increase call rates when exposed to seismic survey noise in the St. Lawrence Estuary (Di Iorio and Clark 2010). The North Atlantic right whales (*Eubalaena glacialis*) exposed to high shipping noise increase call frequency (Parks *et al.* 2007), while some humpback whales respond to low-frequency active sonar playbacks by increasing song length (Miller *el al.* 2000).

(4) Hearing Impairment

Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak *et al.* 1999; Schlundt *et al.* 2000; Finneran *et al.* 2002; 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall *et al.* 2007). Just like masking, marine mammals that suffer from PTS or TTS will have reduced fitness in survival and reproduction, either permanently or temporarily. Repeated noise exposure that leads to TTS could cause PTS. For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound.

Experiments on a bottlenose dolphin (*Tursiops truncatus*) and beluga whale showed that exposure to a single water gun impulse at a received level of 207 kPa (or 30 psi) peak-to-peak (p–p), which is equivalent to 228 dB re 1 µPa (p–p), resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within 4 minutes of the exposure (Finneran *et al.* 2002). No TTS was observed in the bottlenose dolphin. Although the source level of pile driving from one hammer strike is expected to be much lower than the single water gun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more noise exposure in terms of SEL than from the single water gun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran *et al.* 2002).

In pinnipeds, TTS thresholds associated with exposure to brief pulses (single or multiple) of underwater sound have not been measured. Initial evidence from prolonged exposures suggested that some pinnipeds may incur TTS at somewhat lower received levels than do small odontocetes exposed for similar durations (Kastak *et al.* 1999, 2005; Ketten *et al.* 2001). However, more recent indications are that TTS onset in the most sensitive pinniped species studied (harbor seal, which is closely related to the ringed seal) may occur at a similar SEL as in odontocetes (Kastak *et al.,* 2004).

NMFS (1995, 2000) concluded that cetaceans and pinnipeds should not be exposed to pulsed underwater noise at received levels exceeding 180 and 190 dB re 1 µPa rms, respectively. The

established 180- and 190-dB re 1 µPa rms criteria are not considered to be the levels above which TTS might occur. Rather, they are the received levels above which, in the view of a panel of bioacoustics specialists convened by NMFS before TTS measurements for marine mammals started to become available, one could not be certain that there would be no injurious effects, auditory or otherwise, to marine mammals. As summarized above, data that are now available imply that TTS is unlikely to occur unless bow-riding odontocetes are exposed to air gun pulses much stronger than 180 dB re 1 µPa rms (Southall *et al.* 2007).

No cases of TTS are expected as a result of Apache's proposed activities given the strong likelihood that marine mammals would avoid the approaching air guns (or vessel) before being exposed to levels high enough for there to be any possibility of TTS, and the mitigation measures proposed to be implemented during the survey described later in this document.

There is no empirical evidence that exposure to pulses of air gun sound can cause PTS in any marine mammal, even with large arrays of air guns (see Southall *et al.,* 2007). However, given the possibility that mammals close to an air gun array might incur TTS, there has been further speculation about the possibility that some individuals occurring very close to air guns might incur PTS. Single or occasional occurrences of mild TTS are not indicative of permanent auditory damage in terrestrial mammals. Relationships between TTS and PTS thresholds have not been studied in marine mammals, but are assumed to be similar to those in humans and other terrestrial mammals. That is, PTS might occur at a received sound level magnitudes higher than the level of onset TTS, or by repeated exposure to the levels that cause TTS. Therefore, by means of preventing the onset of TTS, it is highly unlikely that marine mammals could receive sounds strong enough (and over a sufficient duration) to cause permanent hearing impairment during the proposed marine surveys in Cook Inlet.

(5) Non-auditory Physical Effects

Non-auditory physical effects might occur in marine mammals exposed to strong underwater pulsed sound. Possible types of non-auditory physiological effects or injuries that theoretically might occur in mammals close to a strong sound source include stress, neurological effects, bubble formation, and other types of organ or tissue damage. Some marine mammal species (*i.e.,* beaked whales) may be especially susceptible to injury and/or stranding when exposed to strong pulsed sounds. However, there is no definitive evidence that any of these effects occur even for marine mammals in close proximity to large arrays of air guns, and beaked whales do not occur in the proposed project area. In addition, marine mammals that show behavioral avoidance of seismic vessels, including most baleen whales, some odontocetes (including belugas), and some pinnipeds, are especially unlikely to incur non-auditory impairment or other physical effects. The distances to the 180 and 190 dB thresholds for the air gun array proposed to be used by Apache are provided above in Tables 1 and 2.

Therefore, it is unlikely that such effects would occur during Apache's proposed surveys given the brief duration of exposure and the planned monitoring and mitigation measures described later in this document.

(6) Stranding and Mortality

Marine mammals close to underwater detonations of high explosive can be killed or severely injured, and the auditory organs are especially susceptible to injury (Ketten *et al.* 1993; Ketten 1995). Air gun pulses are less energetic and their peak amplitudes have slower rise times. To date, there is no evidence that serious injury, death, or stranding by marine mammals can occur from exposure to air gun pulses, even in the case of large air gun arrays.

However, in numerous past IHA notices for seismic surveys, commenters have referenced two stranding events allegedly associated with seismic activities, one off Baja California and a second off Brazil. NMFS has addressed this concern several times, and, without new information, does not believe that this issue warrants further discussion. For information relevant to strandings of marine mammals, readers are encouraged to review NMFS' response to comments on this matter found in 69 FR 74905 (December 14, 2004), 71 FR 43112 (July 31, 2006), 71 FR 50027 (August 24, 2006), and 71 FR 49418 (August 23, 2006). In addition, a May–June 2008, stranding of 100–200 melon-headed whales (*Peponocephala electra*) off Madagascar that appears to be associated with seismic surveys is currently under investigation (IWC 2009).

It should be noted that strandings related to sound exposure have not been recorded for marine mammal species in Cook Inlet. NMFS notes that beluga whale strandings in Cook Inlet are not uncommon; however, these events often coincide with extreme tidal fluctuations (''spring tides'') or killer whale sightings (Shelden *et al.,* 2003). No strandings or marine mammals in distress were observed during the 2D test survey conducted by Apache in March 2011 and none were reported by Cook Inlet inhabitants. As a result, NMFS does not expect any marine mammals will incur serious injury or mortality in Cook Inlet or strand as a result of the proposed seismic survey.

Potential Effects From Other Sound Sources on Marine Mammals

Active acoustic sources other than the air gun arrays have been proposed for Apache's seismic survey in Cook Inlet. The specifications for this equipment (source levels and frequency ranges) are provided above. In general, the potential effects of this equipment on marine mammals are similar to those from the air gun, except the magnitude of the impacts is expected to be much less due to the lower intensity and higher frequencies. Estimated source levels from these devices are discussed above.

Vessel Sounds

In addition to the noise generated from seismic air guns and active sonar systems, various types of vessels will be used in the operations, including source vessels and the vessel used for placing and retrieving the nodal recording system. Sounds from boats and vessels have been reported extensively (Greene and Moore 1995; Blackwell and Greene 2002; 2005; 2006). Measurements of underwater vessel sound have been performed in upper Cook Inlet. For example, Blackwell and Greene (2002) conducted a survey that measured in-water noise from various sources in Cook Inlet, including a tug boat docking a barge. The highest SPL recorded for the working tug under load was 149 dB re 1 µPa, at a distance of about 90 m, with an extrapolated SPL at 0.9 m of 178.9 dB re 1 µPa. Compared to air gun pulses, underwater sound from vessels is generally at relatively low frequencies.

The primary sources of sounds from all vessel classes are propeller cavitation, propeller singing, and propulsion or other machinery. Propeller cavitation is usually the dominant noise source for vessels (Ross 1976). Propeller cavitation and singing are produced outside the hull, whereas propulsion or other machinery noise originates inside the hull. There are additional sounds produced by vessel activity, such as pumps, generators, flow noise from water passing over the hull, and bubbles breaking in the wake.

Land-Based Explosives

The onshore component of the seismic survey involves the underground detonation of explosive devices to acquire seismic data on land. Because underwater sound levels associated with the land-based explosives are currently unknown, Apache proposes to conduct a sound source verification (SSV) study to ensure that marine mammals are not exposed to underwater sound levels that exceed the NMFS injury or harassment thresholds. This study is expected to take two days to complete and a report will be submitted to NMFS prior to making a final determination on whether to issue or deny the IHA. The study will include a robust marine mammal monitoring plan to ensure that marine mammals are not harassed or injured. For example, Apache proposes to conduct visual monitoring using vessel-based and aerial platforms. In addition, the SSV will only take place during daylight hours with good visibility. Following the completion of the study, a SSV report will be submitted to NMFS. The report will describe the operations that were conducted and the marine mammals that were observed. The report will provide full documentation of the methods, results, and interpretations pertaining to all monitoring and will contain information on the need to implement marine mammal monitoring during land-based operations.

Anticipated Effects on Marine Mammal Habitat

The primary potential impacts to marine mammal habitat and other marine species are associated with elevated sound levels produced by airguns and other active acoustic sources. However, other potential impacts to the surrounding habitat from physical disturbance are also possible and are discussed below.

Potential Impacts on Prey Species

With regard to fish as a prey source for cetaceans and pinnipeds, fish are known to hear and react to sounds and to use sound to communicate (Tavolga *et al.* 1981) and possibly avoid predators (Wilson and Dill 2002). Experiments have shown that fish can sense both the strength and direction of sound (Hawkins 1981). Primary factors determining whether a fish can sense a sound signal, and potentially react to it, are the frequency of the signal and the strength of the signal in relation to the natural background noise level.

The level of sound at which a fish will react or alter its behavior is usually well above the detection level. Fish have been found to react to sounds when the sound level increased to about 20 dB above the detection level of 120 dB (Ona 1988); however, the response threshold can depend on the time of year and the fish's physiological condition (Engas *et al.* 1993). In general, fish react more strongly to pulses of sound rather than a continuous signal (Blaxter *et al.* 1981), and a quicker alarm response is elicited when the sound signal intensity rises rapidly compared to sound rising more slowly to the same level.

Investigations of fish behavior in relation to vessel noise (Olsen *et al.* 1983; Ona 1988; Ona and Godo 1990) have shown that fish react when the sound from the engines and propeller exceeds a certain level. Avoidance reactions have been observed in fish such as cod and herring when vessels approached close enough that received sound levels are 110 dB to 130 dB (Nakken 1992; Olsen 1979; Ona and Godo 1990; Ona and Toresen 1988). However, other researchers have found that fish such as polar cod, herring, and capeline are often attracted to vessels (apparently by the noise) and swim toward the vessel (Rostad *et al.* 2006). Typical sound source levels of vessel noise in the audible range for fish are 150 dB to 170 dB (Richardson *et al.* 1995).

Potential Impacts to the Benthic Environment

Apache's seismic survey requires the deployment of a submersible recording system in the inter-tidal and marine zones. An autonomous ''nodal'' (*i.e.,* no cables) system will be placed on the seafloor by specific vessels in lines parallel to each other with a node line spacing of 402 m. Each nodal ''patch'' will have six to eight node lines parallel to each other. The lines generally run perpendicular to the shoreline. An entire patch will be placed on the seafloor prior to air gun activity. As the patches are surveyed, the node lines will be moved either side to side or inline to the next location. Placement and retrieval of the nodes may cause temporary and localized increases in turbidity on the seafloor. The substrate of Cook Inlet consists of glacial silt, clay, cobbles, pebbles, and sand (Sharma and Burrell, 1970). Sediments like sand and cobble dissipate quickly when suspended, but finer materials like clay and silt can create thicker plumes that may harm fish; however, the turbidity created by placing and removing nodes on the seafloor will settle to background levels within minutes after the cessation of activity.

Based on the preceding discussion, the proposed activity is not expected to have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or their populations.

Proposed Mitigation

In order to issue an incidental take authorization under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses.

For the proposed seismic survey in Cook Inlet, Apache worked with NMFS and proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity as a result of the survey activities.

Mitigation Measures Proposed in Apache's IHA Application

For the proposed mitigation measures, Apache listed the following protocols to be implemented during its seismic survey in Cook Inlet.

(1) Operation of Mitigation Air Gun at Night

Apache proposes to conduct both daytime and nighttime operations. Nighttime operations will only be initiated if a mitigation air gun (typically the 10 in^3) has been continuously operational from the time that PSO monitoring has ceased for the day. Seismic activity will not ramp up from an extended shut-down during nighttime operations because dedicated PSOs will not be on duty and any unseen animals may be exposed to injurious levels of sound from the full array. At night, the vessel captain and crew will maintain lookout for marine mammals and will order the air gun(s) to be shut down if marine mammals are observed in or about to enter the safety radii. If a shut-down occurs during nighttime operations, seismic survey activity will be suspended until the following day and will only be resumed if the full safety zone is visible.

(2) Safety and Disturbance Zones

Under current NMFS guidelines, ''safety radii'' for marine mammal exposure to impulse sources are customarily defined as the distances within which received sound levels are ≥180 dB_{rms} re 1 μPa for cetaceans and ≥190 dB_{rms} re 1 μPa for pinnipeds. These

safety criteria are based on an assumption that SPL received at levels lower than these will not injure these animals or impair their hearing abilities, but that SPL received at higher levels might have some such effects. Disturbance or behavioral effects to marine mammals from underwater sound may occur after exposure to sound at distances greater than the safety radii (Richardson *et al.* 1995).

The proposed surveys will use an air gun sources composed of two 2400 in^3 air guns, a single 440 in^3 air gun, and a single 10 in^3 air gun. Safety and disturbance radii for the sound levels produced by the planned airgun configurations have been estimated (Tables 1 and 2) and will be used for mitigation purposes during the seismic survey activities.

In addition to the marine mammal monitoring radii described above, pursuant to Alaska Department of Fish and Game restrictions, there will be a 1.6 km setback of sound source points from the mouths of any anadromous streams.

Apache also plans to use dedicated vessels to deploy and retrieve the nodal recording system. Sounds produced by the vessels are not expected to exceed 180 dB (rms). Therefore, mitigation related to acoustic impacts from these activities is not expected to be necessary.

An acoustics contractor will perform direct measurements of the received levels of underwater sound versus distance and direction from the detonation of explosives onshore using calibrated hydrophones. The acoustic data will be analyzed as quickly as reasonably practicable in the field and used to determine whether the detonation of explosives onshore exposes marine mammals to underwater sound levels that may result in Level B harassment. The field report will be made available to NMFS prior to the final determination on whether to issue or deny the IHA. If necessary, mitigation measures similar to those proposed for the other sound sources (*i.e.,* establishment of 160, 180, and 190 dB isopleths with dedicated monitoring and detonation delay procedures) will be implemented for this aspect of the seismic survey.

(3) Speed and Course Alterations

If a marine mammal is detected outside the applicable safety radius and, based on its position and the relative motion, is likely to enter the safety radius, changes of the vessel's speed and/or direct course will be considered if this does not compromise operational safety. For marine seismic surveys using large arrays, course alterations are not typically possible. However, for the smaller air gun arrays planned during the proposed site surveys, such changes may be possible. After any such speed and/or course alteration is begun, the marine mammal activities and movements relative to the survey vessel will be closely monitored to ensure that the marine mammal does not approach within the safety radius. If the mammal appears likely to enter the safety radius, further mitigative actions will be taken, including a power down or shut down of the airgun(s).

(4) Power-Downs

A power-down for mitigation purposes is the immediate reduction in the number of operating airguns such that the radii of the 190 dB rms and 180 dB rms zones are decreased to the extent that an observed marine mammal(s) are not in the applicable safety zone of the full array. During a power-down, one air gun, typically the 10 in^3, continues firing. Operation of the 10 in^3 air gun decreases the safety radii to 10 m, 33 m, and 330 m for the 190 dB, 180 dB, and 160 dB, respectively. The continued operation of one airgun is intended to (a) alert marine mammals to the presence of the survey vessel in the area, and (b) retain the option of initiating a ramp up to full operations under poor visibility conditions.

The array will be immediately powered down whenever a marine mammal is sighted approaching close to or within the applicable safety zone of the full array, but is outside the applicable safety zone of the single mitigation airgun. Likewise, if a mammal is already within the safety zone when first detected, the airguns will be powered down immediately. If a marine mammal is sighted within or about to enter the applicable safety zone of the single mitigation airgun, it too will be shut down (see following section).

Following a power-down, operation of the full airgun array will not resume until the marine mammal has cleared the safety zone. The animal will be considered to have cleared the safety zone if it

- Is visually observed to have left the safety zone of the full array, or
- Has not been seen within the zone for 15 min in the case of pinnipeds or small odontocetes, or
- Has not been seen within the zone for 30 min in the case of large odontocetes.

(5) Shut-Downs

The operating air gun(s) will be shut down completely if a marine mammal approaches or enters the safety radius and a power-down is not practical or adequate to reduce exposure to less than 190 or 180 dB rms, as appropriate. In most cases, this means the mitigation airgun will be shut down completely if a marine mammal approaches or enters the estimated safety radius around the single 10 in^3 air gun while it is operating during a power down. Air gun activity will not resume until the marine mammal has cleared the safety radius. The animal will be considered to have cleared the safety radius as described above under power down procedures.

(6) Ramp Ups

A ramp up of an air gun array provides a gradual increase in sound levels, and involves a step-wise increase in the number and total volume of air guns firing until the full volume is achieved. The purpose of a ramp-up (or ''soft start'') is to ''warn'' cetaceans and pinnipeds in the vicinity of the air guns and to provide the time for them to leave the area and thus avoid any potential injury or impairment of their hearing abilities.

During the proposed seismic survey, the seismic operator will ramp up the airgun cluster slowly. Full ramp-ups (*i.e.,* from a cold start after a shut-down, when no airguns have been firing) will begin by firing a single airgun in the array. The minimum duration of a shut-down period, *i.e.,* without air guns firing, which must be followed by a ramp-up is typically the amount of time it would take the source vessel to cover the 180-dB safety radius. Given the size of the planned air gun arrays, that period is estimated to be about 1–2 minutes based on the modeling results described above and a survey speed of 2–4 kts.

A full ramp up, after a shut down, will not begin until there has been a minimum of 30 minutes of observation of the safety zone by PSOs to assure that no marine mammals are present. The entire safety zone must be visible during the 30-minute lead-in to a full ramp up. If the entire safety zone is not visible, then ramp up from a cold start cannot begin. If a marine mammal(s) is sighted within the safety zone during the 30-minute watch prior to ramp up, ramp up will be delayed until the marine mammal(s) is sighted outside of the safety zone or the animal(s) is not sighted for at least 15–30 minutes: 15 minutes for small odontocetes and pinnipeds, or 30 minutes for large odontocetes.

Additional Mitigation Measures Proposed by NMFS

Besides Apache's proposed mitigation measures discussed above, NMFS proposes the following additional protective measures to address some uncertainties regarding the impacts of seismic surveys on beluga whale cow-calf pairs and aggregations of whales. Specifically, NMFS proposes that a 160-dB vessel monitoring zone will be established and monitored in Cook Inlet during all seismic surveys. Whenever an aggregation of beluga whales, killer whales, or harbor porpoises (five or more whales of any age/sex class that appear to be engaged in a non-migratory, significant biological behavior (*e.g.,* feeding, socializing)) are observed approaching the 160-dB safety zone around the survey operations, the survey activity will not commence or will shut down, until they are no longer present within the 160-dB safety zone of seismic surveying operations.

Furthermore, NMFS proposes the following measures be included in the IHA, if issued, in order to ensure the least practicable impact on the affected species or stocks:

(1) All vessels should reduce speed when within 300 yards (274 m) of whales, and those vessels capable of steering around such groups should do so. Vessels may not be operated in such a way as to separate members of a group of whales from other members of the group;

(2) Avoid multiple changes in direction and speed when within 300 yards (274 m) of whales; and

(3) When weather conditions require, such as when visibility drops, support vessels must adjust speed (increase or decrease) and direction accordingly to avoid the likelihood of injury to whales.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an ITA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth ''requirements pertaining to the monitoring and reporting of such taking''. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for ITAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area.

Monitoring Measures Proposed in Apache's IHA Application

The monitoring plan proposed by Apache can be found in section 13 of the IHA application. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period. A summary of the primary components of the plan follows.

(1) Visual Vessel-Based Monitoring

Vessel-based monitoring for marine mammals will be done by experienced PSOs throughout the period of marine survey activities. PSOs will monitor the occurrence and behavior of marine mammals near the survey vessel during all daylight periods during operation and during most daylight periods when airgun operations are not occurring. PSO duties will include watching for and identifying marine mammals, recording their numbers, distances, and reactions to the survey operations, and documenting ''take by harassment'' as defined by NMFS.

A sufficient number of PSOs will be required onboard the survey vessel to meet the following criteria: (1) 100 percent monitoring coverage during all periods of survey operations in daylight; (2) maximum of 4 consecutive hours on watch per PSO; and (3) maximum of 12 hours of watch time per day per PSO.

PSO teams will consist of experienced field biologists. An experienced field crew leader will supervise the PSO team onboard the survey vessel. Apache currently plans to have PSOs aboard the three vessels: the two source vessels (*M/V Peregrine Falcon* and *M/V Arctic Wolf*) and one support vessel (*M/V Dreamcatcher*). Two PSOs will be on the source vessels and two PSOs will be on the support vessel to observe the safety, power down, and shut down areas. When marine mammals are about to enter or are sighted within designated safety zones, air gun or pinger operations will be powered down (when applicable) or shut down immediately. The vessel-based observers will watch for marine mammals during all periods when sound sources are in operation and for a minimum of 30 minutes prior to the start of air gun or pinger operations after an extended shut down.

Crew leaders and most other biologists serving as observers will be individuals with experience as observers during seismic surveys in Alaska or other areas in recent years.

The observer(s) will watch for marine mammals from the best available vantage point on the source and support vessels, typically the flying bridge. The observer(s) will scan systematically with the unaided eye and 7×50 reticle binoculars. Laser range finders will be available to assist with estimating distance. Personnel on the bridge will assist the observer(s) in watching for marine mammals.

All observations will be recorded in a standardized format. Data will be entered into a custom database using a notebook computer. The accuracy of the data will be verified by computerized validity data checks as the data are entered and by subsequent manual checks of the database. These procedures will allow for initial summaries of the data to be prepared during and shortly after the completion of the field program, and will facilitate transfer of the data to statistical, geographical, or other programs for future processing and achieving. When a mammal sighting is made, the following information about the sighting will be recorded:

(A) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from the PSO, apparent reaction to activities (*e.g.,* none, avoidance, approach, paralleling, *etc.*), closest point of approach, and behavioral pace;

(B) Time, location, speed, activity of the vessel, sea state, ice cover, visibility, and sun glare; and

(C) The positions of other vessel(s) in the vicinity of the PSO location.

The ship's position, speed of support vessels, and water temperature, water depth, sea state, ice cover, visibility, and sun glare will also be recorded at the start and end of each observation watch, every 30 minutes during a watch, and whenever there is a change in any of those variables.

(2) Visual Shore-Based Monitoring

In addition to the vessel-based PSOs, Apache proposes to 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'' (20 × 110) binoculars. The shore-based PSOs would scan the area prior to, during, and after the air gun operations, and would be in contact with the vessel-based PSOs via radio to communicate sightings of marine mammals approaching or within the project area.

(3) Aerial-Based Monitoring

When practicable, Apache proposes to 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 will not be used every day, but will be used when survey operations occur near a river mouth. 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). By following these operational requirements, sound levels underwater are not expected to meet or exceed NMFS harassment thresholds (Richardson *et al.,* 1995; Blackwell *et al.,* 2002).

(4) Acoustic Monitoring

To further enhance detection of cetaceans, Apache proposes to deploy passive acoustic monitoring (PAM) devices during the seismic survey. According to Apache's IHA application, the actual PAM system has not been identified; however, Apache anticipates utilizing the same system that was deployed during the 2D test program in March 2011 in Cook Inlet. Apache expects to deploy two PAM devices that will send real-time acoustic data via digital UHF radio-broadcast systems to the PAM operators aboard the M/V Dreamcatcher. The PAM operators will use specialized real-time detection software and audio playback to detect marine mammal sounds. If the PAM operators detect marine mammals, Apache will initiate a temporary shut-down of the air gun arrays to avoid takes. Following a shut-down, the air guns may be restarted in accordance with the ramp-up procedure described earlier.

Reporting Measures

(1) SSV Report on In-Water Noise From Explosives Onshore

A report on the preliminary results of the acoustic verification measurements, including as a minimum the measured 190-, 180-, and 160-dB_{rms} re 1 μPa radii of the onshore explosive detonations, will be submitted prior to the publication of a **Federal Register** notice announcing the issuance or denial of the IHA. If applicable, this report will specify the distances of the safety zones that will be adopted and monitored for the marine survey activities.

(2) Field Reports

During the proposed survey program, the PSOs will prepare a report each day or at such other interval as the IHA (if issued), or Apache may require, summarizing the recent results of the monitoring program. The field reports will summarize the species and numbers of marine mammals sighted. These reports will be provided to NMFS and to the survey operators.

(3) Technical Report

The results of Apache's 2011 monitoring program, including estimates of ''take'' by harassment, will be presented in the ''90-day'' and Final Technical reports. The Technical Report will include:

(a) 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);

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

(c) 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;

(d) 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 harassment.

(4) Comprehensive Report

Following the survey season, a comprehensive report describing the vessel-based, shore-based, aerial-based, and acoustic monitoring programs will be prepared. The comprehensive report will describe the methods, results, conclusions and limitations of each of the individual data sets in detail. The report will also integrate (to the extent possible) the studies into a broad based assessment of industry activities, and other activities that occur in Cook Inlet, and their impacts on marine mammals. The report will help to establish long-term data sets that can assist with the evaluation of changes in the Cook Inlet ecosystem. The report will attempt to provide a regional synthesis of available data on industry activity in this part of Alaska that may influence marine mammal density, distribution and behavior.

(5) Notification of Injured or Dead Marine Mammals

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury or mortality (*e.g.,* ship-strike, gear interaction, and/or entanglement), Apache will immediately cease the specified activities and immediately report the incident to the Chief of the Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinators. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;

• Environmental conditions (*e.g.,* wind speed and direction, Beaufort sea state, cloud cover, and visibility);
• Description of all marine mammal observations in the 24 hours preceding the incident;
• Species identification or description of the animal(s) involved;
• Fate of the animal(s); and
• Photographs or video footage of the animal(s) (if equipment is available).

Activities will not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will 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, e-mail, 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, Conservation, and Education Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by e-mail to the Alaska Regional Stranding Coordinators. The report must include the same information identified in the paragraph 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 the IHA (*e.g.,* previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), Apache will report the incident to the Chief of the Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, and the NMFS Alaska Stranding Hotline and/or by e-mail to the Alaska Regional Stranding Coordinators, within 24 hours of the discovery. Apache will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]. Only take by Level B behavioral harassment is anticipated as a result of the proposed marine survey program. Anticipated impacts to marine mammals are associated with noise propagation from the airgun(s) used in the seismic survey; however, Level B harassment may also result from the detonation of explosives onshore if supported by the proposed SSV study.

The full suite of potential impacts to marine mammals was described in detail in the ''Potential Effects of the Specified Activity on Marine Mammals'' section found earlier in this document. The potential effects of sound from the proposed seismic survey might include one or more of the following: tolerance; masking of natural sounds; behavioral disturbance; non-auditory physical effects; and, at least in theory, temporary or permanent hearing impairment (Richardson *et al.* 1995). As discussed earlier in this document, the most common impact will likely be from behavioral disturbance, including avoidance of the ensonified area or changes in speed, direction, and/or diving profile of the animal. For reasons discussed previously in this document, hearing impairment (TTS and PTS) are highly unlikely to occur based on the proposed mitigation and monitoring measures that would preclude marine mammals being exposed to noise levels high enough to cause hearing impairment.

For impulse sounds, such as those produced by airgun(s) used in the seismic survey, NMFS uses the 160 dB_{rms} re 1 µPa isopleth to indicate the onset of Level B harassment. Apache provided calculations for the 160-dB isopleths and then used those isopleths to estimate takes by harassment. NMFS used the calculations to make the necessary MMPA preliminary findings. Apache provided a full description of the methodology used to estimate takes by harassment in its IHA application (see **ADDRESSES**), which is also provided in the following sections.

Apache requests authorization to take five marine mammal species by Level B harassment. These five marine mammal species are: Cook Inlet beluga whale (*Delphinapterus leucas*); killer whale (*Orcinus orca*); harbor porpoise (*Phocoena phocoena*); harbor seal (*Phoca vitulina richardsi*), and Steller sea lion (*Eumetopias jubatus*).

Basis for Estimating ''Take by Harassment''

As stated previously, it is current NMFS policy to estimate take by Level B harassment for impulse sounds at a received level of 160 dB_{rms} re 1 µPa. However, not all animals react to sounds at this low level, and many will not show strong reactions (and in some cases any reaction) until sounds are much stronger. Southall *et al.* (2007) provide a severity scale for ranking observed behavioral responses of both free-ranging marine mammals and laboratory subjects to various types of anthropogenic sound (see Table 4 in Southall *et al.* (2007)). Tables 7, 9, and 11 in Southall *et al.* (2007) outline the numbers of low-frequency cetaceans, mid-frequency cetaceans, and pinnipeds in water, respectively, reported as having behavioral responses to multi-pulses in 10-dB received level increments. These tables illustrate that for the studies summarized the more severe reactions did not occur until sounds were much higher than 160 dB_{rms} re 1 µPa.

As described earlier in the document, air gun arrays will be used to obtain geological data during the surveys. For use in estimating potential harassment takes in this application, as well as for mitigation radii to be implemented by PSOs, ranges to the 160 dB_{rms} re 1 µPa isopleths were estimated at three different water depths (5 m, 25 m, and 45 m) for nearshore surveys and at 80 m for channel surveys. The distances to this threshold for the nearshore survey locations are provided in Table 1 and correspond to the three transects modeled at each site in the onshore, nearshore, and parallel to shore directions. The distances to the thresholds for the channel survey locations are provided in Table 2 and correspond to the broadside and endfire directions. The areas ensonified to the 160 dB isopleth for the nearshore survey are provided in Table 3. The area ensonifed to the 160 dB isopleth for the channel survey is 389 km^2.

The following subsections describe the estimated densities of marine mammals that may occur in the areas where activities are planned, and areas of water that may be ensonified by pulsed sounds to ≥160 dB.

Marine mammal densities near the planned activities in Cook Inlet were estimated from the annual aerial surveys conducted by NMFS between 2000 and 2010 for Cook Inlet beluga whales (Rugh *et al.* 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007; Shelden *et al.* 2008,

2009, 2010). These surveys are flown in June to collect abundance data for beluga whales, but sightings of other marine mammals are also reported. Although these data are only collected in one month each year, these surveys provide the best available relatively long-term data set for sighting information in the proposed action area, but do not account for seasonal variations in distribution or habitat use of each species. Therefore, the use of these data to estimate density is considered to be extremely conservative with respect to the probability of observing these animals in the action area. The maximum and average densities over the course of the total survey years (2000–2010) are provided in Table 4. As discussed below, beluga whales are observed in higher concentrations near river mouths, particularly the Susitna River, due to feeding. Therefore, to account for the higher concentrations near river mouths, the highest number of beluga whales observed for each year was used to provide a density for river mouths. To account for the lower concentrations away from river mouths, the average number of beluga whales observed for each year was used to provide a density away from river mouths. A maximum and average density are provided to account for the inherent level of uncertainty in using aerial surveys conducted for a few days once a year in order to estimate density for the entire year. These densities will be used to estimate the number of Level B takes incidental to the proposed activity.

TABLE 4—SUMMARY OF MARINE MAMMAL DENSITIES

Species	Density (number/km^2)	
	Maximum	Average
Beluga whale (average number observed)	0.00103	0.00026
Beluga whale (maximum number observed—rivers)	0.00770	0.00154
Harbor seal (total number observed)	0.00776	0.00290
Harbor porpoise (total number observed)	0.00037	0.00004
Killer whale (total number observed)	0.00011	0.00001
Steller sea lion (total number observed)	0.00035	0.00007

Fifteen species of marine mammals are known to occur in Cook Inlet, but only five of these (Cook Inlet beluga whales, killer whales, harbor porpoises, harbor seals, and Steller sea lions) are likely to be encountered during the proposed survey activities in the upper inlet. Two of the five species (Cook Inlet beluga whales and western population of Steller sea lions) are listed as endangered under the ESA.

(1) Cetaceans

Beluga Whales—Cook Inlet beluga whales reside in Cook Inlet year-round although their distribution and density changes seasonally. Factors that are likely to influence beluga whale distribution within the inlet include prey availability, predation pressure, sea-ice cover, and other environmental factors, reproduction, sex and age class, and human activities (Rugh *et al.,* 2000; NMFS 2008). Seasonal movement and density patterns as well as site fidelity appear to be closely linked to prey availability, coinciding with seasonal salmon and eulachon concentrations (Moore *et al.,* 2000). For example, during spring and summer, beluga whales are generally concentrated near the warmer waters of river mouths where prey availability is high and predator occurrence in low (Huntington 2000; Moore *et al.,* 2000). Beluga whales use several areas of the upper Cook Inlet for repeated summer and fall feeding. The primary hotspots for beluga feeding include the Big and Little Susitna rivers, Eagle Bay to Eklutna River, Ivan Slough, Theodore River, Lewis River, and Chickaloon River and Bay (NMFS 2008). Availability of prey species appears to be the most influential environmental variable affecting Cook Inlet beluga whale distribution and relative abundance (Moore *et al.* 2000). The patterns and timing of eulachon and salmon runs have a strong influence on beluga whale feeding behavior and their seasonal movements (Nemeth *et al.,* 2007; NMFS 2008). The presence of prey species may account for the seasonal changes in beluga group size and composition (Moore *et al.,* 2000). Aerial and vessel-based monitoring conducted by Apache during the March 2011 2D test program in Cook Inlet reported 33 beluga sightings. One of the sightings was of a large group (~25 individuals on March 27, 2011) of feeding/milling belugas near the mouth of the Drift River. Also on March 27, 2011, PSOs onboard the M/V Dreamcatcher reported a group of seven beluga whales approximately 0.5 nm from the vessel. Land-based PSOs were able to observe this group of beluga whales for approximately 2.5 hrs. A single beluga whale was observed near the mouth of the Drift River by the aerial-based monitors on March 28, 2011, prior to the seismic ramp-up period. If belugas are present during the late summer/early fall, they are more likely to occur in shallow areas near river mouths in upper Cook Inlet. As discussed earlier, expected densities were calculated from the annual aerial surveys conducted by NMFS between 2000 and 2010 (Rugh *et al.* 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007; Shelden *et al.* 2008, 2009, 2010). Those densities are presented above in Table 4.

Killer Whales—In general, killer whales are rare in upper Cook Inlet, where transient killer whales are known to feed on beluga whales and resident killer whales are known to feed on anadromous fish (Shelden *et al.,* 2003). The availability of these prey species largely determines the likeliest times for killer whales to be in the area. Between 1993 and 2004, 23 sightings of killer whales were reported in the lower Cook Inlet during aerial surveys by Rugh *et al.* (2005). Surveys conducted over a span of 20 years by Shelden *et al.* (2003) reported 11 sightings in upper Cook Inlet between Turnagain Arm, Susitna Flats, and Knik Arm. No killer whales were spotted during recent surveys by Funk *et al.* (2005), Ireland *et al.* (2005), Brueggeman *et al.* (2007a, 2007b, 2008), or Prevel Ramos *et al.* (2006, 2008). Eleven killer whale strandings have been reported in Turnagain Arm, six in May 1991 and five in August 1993. Therefore, very few killer whales, if any, are expected to approach or be in the vicinity of the action area.

Harbor Porpoise—The most recent estimated density for harbor porpoises in Cook Inlet is 7.2 per 1,000 km^2 (Dahlheim *et al.,* 2000) indicating that only a small number use Cook Inlet. Harbor porpoise have been reported in lower Cook Inlet from Cape Douglas to the West Foreland, Kachemak Bay, and offshore (Rugh *et al.,* 2005). Small numbers of harbor porpoises have been

consistently reported in upper Cook Inlet between April and October, except for a recent survey that recorded higher than usual numbers. Prevel Ramos *et al.* (2008) reported 17 harbor porpoises from spring to fall 2006, while other studies reported 14 in the spring of 2007 (Brueggeman *et al.* 2007) and 12 in the fall (Brueggeman *et al.* 2008). During the spring and fall of 2007, 129 harbor porpoises were reported between Granite Point and the Susitna River; however, the reason for the increase in numbers of harbor porpoise in the upper Cook Inlet remains unclear and the disparity with the result of past sightings suggests that it may be an anomaly. The spike in reported sightings occurred in July, which was followed by sightings of 79 harbor porpoises in August, 78 in September, and 59 in October, 2007. It is important to note that the number of porpoises counted more than once was unknown, which suggests that the actual numbers are likely smaller than those reported. In addition, recent passive acoustic research in Cook Inlet by the Alaska Department of Fish and Game and the National Marine Mammal Laboratory have indicated that harbor porpoises occur in the area more frequently than previously thought, particularly in the West Foreland area in the spring (NMFS 2011); however overall numbers are still unknown at this time.

(2) Pinnipeds

Two species of pinnipeds may be encountered in Cook Inlet: Harbor seal and Steller sea lion.

Harbor Seals—Harbor seals inhabit the coastal and estuarine waters of Cook Inlet. In general, harbor seals are more abundant in lower Cook Inlet than in upper Cook Inlet, but they do occur in the upper inlet throughout most of the year (Rugh *et al.* 2005). Harbor seals are non-migratory; their movements are associated with tides, weather, season, food availability, and reproduction. The major haulout sites for harbor seals are located in lower Cook Inlet and their presence in the upper inlet coincides with seasonal runs of prey species. For example, harbor seals are commonly observed along the Susitna River and other tributaries along upper Cook Inlet during the eulachon and salmon migrations (NMFS 2003). During aerial surveys of upper Cook Inlet in 2001, 2002, and 2003, harbor seals were observed 24 to 96 km south-southwest of Anchorage at the Chickaloon, Little Susitna, Susitna, Ivan, McArthur, and Beluga Rivers (Rugh *et al.,* 2005). During the 2D test program in March 2011, two harbor seals were observed by vessel-based PSOs. On March 25, 2011, one harbor seal was observed approximately 400 m from the M/V *Miss Diane.* At the time of the observation, the vessel was operating the positioning pinger and PSOs instructed the operator to implement a shut-down. The pinger was shut down for 30 minutes while PSO monitored the area and re-started the device when the animal was not sighted again during the 30 minute site clearing protocol. No unusual behaviors were reported during the time the animal was observed. The second harbor seal was observed on March 26, 2011, by vessel-based PSO onboard the M/V *Dreamcatcher* approximately 4260 m from the source vessel, which was operating the 10 in^3 air gun at the time. The animal was well outside of the 160 dB zone (330 m for the 10 in^3 air gun) and no unusual behaviors were observed. The closest haulout site to the action area is located on Kalgin Island, which is approximately 22 km away from the McArthur River.

Steller Sea Lion—Two separate stocks of Steller sea lions are recognized within U.S. waters: an eastern U.S. stock, which includes animals east of Cape Suckling, Alaska; and a western U.S. stock, which includes animals west of Cape Suckling (NMFS 2008). Individuals in Cook Inlet are considered part of the western U.S. stock, which is listed as endangered under the ESA. Steller sea lions primarily occur in lower, rather than upper Cook Inlet and are rarely sighted north of Nikiski on the Kenai Peninsula. Haul-outs and rookeries are located near Cook Inlet at Gore Point, Elizabeth Island, Perl Island, and Chugach Island (NMFS 2008). No Steller seal lion haul-outs or rookeries are located in the vicinity of the proposed seismic survey. Furthermore, no sightings of Steller sea lions were reported by Apache during the 2D test program in March 2011. Although Apache has requested takes of Steller sea lions, it is unlikely that any Steller sea lions would occur in the action are during seismic survey operations.

Potential Number of Takes by Harassment

This subsection provides estimates of the number of individuals potentially exposed to sound levels ≥160 dB_{rms} re 1 µPa during seismic survey operations. The estimates were calculated by multiplying the expected densities by the anticipated area ensonified by levels ≥160 dB_{rms} re 1 µPa by the number of expected days that will be subject to seismic survey activities in the action area. According to section 2 in Apache's IHA application, a survey crew will collect seismic data 10–12 hours per day over approximately 160 days over the course of 8 to 9 months. Apache assumes that over the course of these 160 days, 100 days would be working in the offshore region and 60 days would be working in the shallow, intermediate, and deep nearshore region. Of those 60 days in the nearshore region, 20 days would be spent working in each of the three depths. Because operations would occur over 12 hours per day, the total number of days for each region was divided by two (or half a day) for purposes of calculating takes. It is important to note that environmental conditions (such as ice, wind, and fog) will play a significant role in the actual number of operating days; therefore, these estimates are conservative in order to provide a basis for the probability of encountering these marine mammal species in the action area.

The number of estimated takes by Level B harassment was calculated using the following assumptions:

- The number of nearshore and shallow water survey days is 10 (20 days/12 hours) and daily acoustic footprint is 356 km^2.
- The number of nearshore and intermediate water depth survey days is 10 (20 days/12 hours) and daily acoustic footprint is 468 km^2.
- The number of nearshore and deep water depth survey days is 10 (20 days/12 hours) and daily acoustic footprint is 455 km^2.
- The number of offshore survey days is 50 (100 days/12 hours) and daily acoustic footprint is 389 km^2.

Table 5 shows the estimated maximum and average takes by species for the first year of seismic surveys in Cook Inlet with the methods and assumptions outlined above. As noted earlier, the use of the NMML aerial survey data has inherent weaknesses that need to be discussed further. For example, the estimated number of takes by Level B harassment of harbor seals is higher than what is anticipated because there are no haul-out sites within the action area. Seals in some numbers are expected to be observed in the Susitna River delta, but not in the large numbers that are observed in lower Cook Inlet. These density estimates are skewed by the numbers observed in large haul outs during aerial surveys. Seals in the water usually travel in small groups or as single individuals; therefore, although Table 5 indicates an average of 102 and maximum of 207 seals exposed to sounds likely to result in Level B harassment, it is highly unlikely that those number of seals will actually be taken during the proposed seismic survey.

Similarly, and for many of the same reasons, the number of actual takes by

Level B harassment of Steller sea lions is expected to be much lower than the average of four and maximum of 11. During the NMFS aerial surveys, no Steller sea lions were observed in upper Cook Inlet. Less than five Steller sea lions have been observed by the Port of Anchorage monitoring program, and those observed have been juvenile animals (likely male). Apache anticipates that there will be less than five Steller sea lions in the proposed action area during the one-year effective period of the IHA, if issued.

The average and maximum take estimates for harbor porpoise and killer whales shown in Table 5 appear to be reasonable based on the NMFS aerial surveys, although the actual number of animals is expected to be low.

The average and maximum estimated number of takes by Level B harassment for Cook Inlet beluga whales away from river mouths is two and five, respectively. Given that beluga are usually transiting from one feeding area to another in lower concentrations, these estimates appear to be reasonable in assessing the probability for potentially observing beluga whales in the action area. However, it is important to note that a combination of visual and acoustic monitoring will be used extensively throughout this project, particularly for sighting beluga whales approaching the area, so the actual number of takes is expected to be lower than these estimates.

The average and maximum estimated number of takes by Level B harassment for Cook Inlet beluga whales near river mouths is 16 and 41 animals, respectively. The total number of days surveying will actually occur near river mouths is much lower than the 160 days used to estimate takes in the different water depths; therefore, this take estimate is likely to be extremely conservative. As a result, due to the actual number of days and hours Apache is likely to be operating air guns near river mouths and taking into account the monitoring and mitigation measures applicable when operating seismic survey equipment near rivers, Apache expects the actual number of takes by Level B harassment estimated for Cook Inlet beluga whales to be much lower than the numbers provided in Table 5.

TABLE 5—ESTIMATED TAKES PER SPECIES FOR YEAR 1

Species	Shallow		Mid-depth		Deep		Offshore		Total	
	max	avg	max	avg	max	avg	max	avg	max	avg
Beluga whales—away from river mouths	0.5	0.3	0.7	0.3	0.7	0.3	2.8	1.5	4.7	2.4
Beluga whales—near river mouths	4.5	1.8	5.8	2.3	5.8	2.3	24.8	9.9	41	16.3
Harbor seals	22.9	11.3	29.5	14.5	29.3	14.4	125.3	61.7	207	101.9
Harbor porpoises	1.3	0.2	1.7	0.3	1.7	0.3	7.2	1.2	11.9	2.0
Killer whales	0.4	0.1	0.5	0.1	0.5	0.1	2.2	0.3	3.6	0.5
Steller sea lions	1.2	0.4	1.6	0.5	1.6	0.5	6.8	2.2	11.3	3.7

Estimated Take Conclusions

Cetaceans—Effects on cetaceans are generally expected to be restricted to avoidance of an area around the seismic survey and short-term changes in behavior, falling within the MMPA definition of ''Level B harassment''.

Using the 160 dB criterion, the requested take numbers of individual cetaceans exposed to sounds ≥160 dB_{rms} re 1 μPa represent varying proportions of the populations of each species in Cook Inlet (Table 6). For species listed as ''Endangered'' under the ESA, the number of takes requested includes 30 Cook Inlet beluga whales. This number is approximately 8.5 percent of the population of approximately 355 animals (Allen and Angliss 2010). For other cetaceans that might occur in the vicinity of the seismic survey in Cook Inlet, the requested takes also represent a very small proportion of their respective populations. The requested takes of 10 killer whales and 20 harbor porpoises represent 0.89 percent and 0.06 percent of their respective populations in the proposed action area.

Pinnipeds—Two pinniped species may be encountered in the proposed action area, but the harbor seal is likely to be the more abundant species in this area. The number of takes requested for individuals exposed to sounds at received levels ≥160 dB_{rms} re 1 μPa during the proposed seismic survey are as follows: harbor seals (50) and Steller sea lions (20). These numbers represent 0.17 percent and 0.12 percent of their respective populations in the proposed action area.

TABLE 6—REQUESTED NUMBER OF TAKES

Species	Number of requested takes	Population abundance	Percent of population
Beluga whales	30	355	8.45
Harbor seals	50	29,175	0.17
Harbor porpoises	20	31,406	0.06
Killer whales	10	1,123	0.89
Steller sea lions	20	41,197	0.12

Negligible Impact and Small Numbers Analysis and Preliminary Determination

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as ''* * * an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.'' In making a negligible impact determination, NMFS considers a variety of factors, including but not limited to: (1) The number of anticipated mortalities; (2) the number and nature of anticipated injuries; (3) the number, nature, intensity, and duration of Level B harassment; and (4) the context in which the takes occur.

No injuries or mortalities are anticipated to occur as a result of Apache's proposed seismic survey in Cook Inlet, and none are proposed to be authorized. Additionally, animals in the

area are not expected to incur hearing impairment (*i.e.,* TTS or PTS) or non-auditory physiological effects. Takes will be limited to Level B behavioral harassment. Although it is possible that some individuals of marine mammals may be exposed to sounds from seismic survey activities more than once, the expanse of these multi-exposures are expected to be less extensive since both the animals and the survey vessels will be moving constantly in and out of the survey areas.

Odontocete reactions to seismic energy pulses are usually assumed to be limited to shorter distances from the airgun(s) than are those of mysticetes, probably in part because odontocete low-frequency hearing is assumed to be less sensitive than that of mysticetes. However, at least when in the Canadian Beaufort Sea in summer, belugas appear to be fairly responsive to seismic energy, with few being sighted within 6–12 mi (10–20 km) of seismic vessels during aerial surveys (Miller *et al.* 2005). Belugas will likely occur in small numbers in Cook Inlet during the survey period and few will likely be affected by the survey activity. In addition, due to the constant moving of the survey vessel, the duration of the noise exposure by cetaceans to seismic impulse would be brief. For the same reason, it is unlikely that any individual animal would be exposed to high received levels multiple times.

Taking into account the mitigation measures that are planned, effects on cetaceans are generally expected to be restricted to avoidance of a limited area around the survey operation and short-term changes in behavior, falling within the MMPA definition of ''Level B harassment''.

Furthermore, the estimated numbers of animals potentially exposed to sound levels sufficient to cause appreciable disturbance are very low percentages of the population sizes in Cook Inlet, as described above.

The many reported cases of apparent tolerance by cetaceans of seismic exploration, vessel traffic, and some other human activities show that co-existence is possible. Mitigation measures such as controlled vessel speed, dedicated marine mammal observers, non-pursuit, and shut downs or power downs when marine mammals are seen within defined ranges will further reduce short-term reactions and minimize any effects on hearing sensitivity. In all cases, the effects are expected to be short-term, with no lasting biological consequence.

Some individual pinnipeds may be exposed to sound from the proposed marine surveys more than once during the time frame of the project. However, as discussed previously, due to the constant moving of the survey vessel, the probability of an individual pinniped being exposed to sound multiple times is much lower than if the source is stationary. Therefore, NMFS has preliminarily determined that the exposure of pinnipeds to sounds produced by the proposed seismic survey in Cook Inlet is not expected to result in more than Level B harassment and is anticipated to have no more than a negligible impact on the animals.

Of the five marine mammal species likely to occur in the proposed marine survey area, only Cook Inlet beluga whales and Steller sea lions are listed as endangered under the ESA. These species are also designated as ''depleted'' under the MMPA. Despite these designations, Cook Inlet beluga whales and the western population of Steller sea lions have not made significant progress towards recovery. The Cook Inlet population of beluga whales has been decreasing at a rate of 1.5 percent annually for nearly a decade (Allen and Angliss 2010). With respect to Steller sea lions, results of aerial surveys conducted in 2008 (Fritz *et al.,* 2008) confirmed that the recent (2004–2008) overall trend in the western population of adult and juvenile Steller sea lions in Alaska is stable or possibly in decline; however, there continues to be considerable regional variability in recent trends. Pursuant to the ESA, critical habitat has been designated for Cook Inlet beluga whales and Steller sea lions. The proposed action falls within critical habitat designated in Cook Inlet for beluga whales, but is not within critical habitat designated for Steller sea lions. None of the other species that may occur in the project area are listed as threatened or endangered under the ESA or designated as depleted under the MMPA.

Potential impacts to marine mammal habitat were discussed previously in this document (see the ''Anticipated Effects on Habitat'' section). Although some disturbance is possible to food sources of marine mammals, the impacts are anticipated to be minor enough as to not affect rates of recruitment or survival of marine mammals in the area. Based on the size of Cook Inlet where feeding by marine mammals occurs versus the localized area of the marine survey activities, any missed feeding opportunities in the direct project area would be minor based on the fact that other feeding areas exist elsewhere.

The requested takes proposed to be authorized represent 8.5 percent of the Cook Inlet beluga whale population of approximately 355 animals (Allen and Angliss 2010), 0.89 percent of the combined Alaska resident stock and Gulf of Alaska, Aleutian Island and Bering Sea stock of killer whales (1,123 residents and 314 transients), and 0.06 percent of the Gulf of Alaska stock of approximately 31,046 harbor porpoises. The take requests presented for harbor seals represent 0.17 percent of the Gulf of Alaska stock of approximately 29,175 animals. Finally, the requested takes proposed for Steller sea lions represent 0.12 percent of the western stock of approximately 41,197 animals. These estimates represent the percentage of each species or stock that could be taken by Level B behavioral harassment if each animal is taken only once. In addition, the mitigation and monitoring measures (described previously in this document) proposed for inclusion in the IHA (if issued) are expected to reduce even further any potential disturbance to marine mammals.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS preliminarily finds that Apache's proposed seismic survey in Cook Inlet may result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the total taking from the marine surveys will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

Section 101(a)(5)(D) also requires NMFS to determine that the authorization will not have an unmitigable adverse effect on the availability of marine mammal species or stocks for subsistence use. NMFS has defined ''unmitigable adverse impact'' in 50 CFR 216.103 as:

> * * * an impact resulting from the specified activity: (1) That is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by: (i) Causing the marine mammals to abandon or avoid hunting areas; (ii) Directly displacing subsistence users; or (iii) Placing physical barriers between the marine mammals and the subsistence hunters; and (2) That cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

The subsistence harvest of beluga whales transcends the nutritional and economic value attributed to the whale and is an integral part of the cultural identity of the region's Alaska Native

communities. Inedible parts of the whale provide Native artisans with materials for cultural handicrafts, and the hunting itself perpetuates Native traditions by transmitting traditional skills and knowledge to younger generations (NOAA 2007). However, due to dramatic declines in the Cook Inlet beluga whale population, on May 21, 1999, a temporary moratorium on beluga whale harvest was established (Pub. L. 106–31, section 3022, 113 Statute (Stat.) 57,100) from 1999 until October 1, 2000. This moratorium was extended indefinitely on December 21, 2000 (Pub. L. 106–553, section 1(a)(2), 114 Stat. 2762). NMFS has entered into a co-management agreement for beluga whale subsistence harvest. Pursuant to that agreement, no hunt has been conducted since 2005 and on October 15, 2008, NMFS published a final rule establishing long-term limits on the maximum number of Cook Inlet beluga whales that may be taken by Alaska Natives for subsistence and handicraft purposes (73 FR 60976). These rules effectively state that no harvest will be conducted until 2012, at which time the possibility of a harvest will be re-evaluated based on beluga whale population trends.

With respect to the proposed action, Apache met with the Cook Inlet Marine Mammal Council (CIMMC)—a group of Native Alaskans with traditional subsistence hunting rights—on March 29, 2011, to discuss the proposed activities and discuss any subsistence concerns. In addition, Apache met with the Tyonek Native Corporation on November 9, 2010 and the Salamatof Native Corporation on November 22, 2010. During these meetings, no concerns were raised regarding potential conflict with subsistence harvest of marine mammals. Apache has identified the following features that are intended to reduce impacts to subsistence users:

- In-water seismic activities will follow mitigation procedures to minimize effects on the behavior of marine mammals and, therefore, opportunities for harvest by Alaska Native communities;
- Regional subsistence representatives may support recording marine mammal observations along with marine mammal biologists during the monitoring programs and will be provided with annual reports; and
- The size of the affected area, mitigation measures, and input from the CIMMC should result in the proposed action having no effect on the availability of marine mammals for subsistence uses.

NMFS anticipates that any harassment to marine mammals, including Cook Inlet beluga whales, would be short-term, site specific, and limited to inconsequential changes in behavior and mild stress responses. NMFS does not anticipate that the authorized taking of affected species or stocks will result in changes in reproduction, survival, or longevity rates, impact population levels, or result in changes in distribution. Therefore, NMFS has preliminarily determined that the proposed regulations will not have an unmitigable adverse impact on the availability of marine mammal stocks for subsistence uses.

Endangered Species Act (ESA)

There are two marine mammal species listed as endangered under the ESA with confirmed or possible occurrence in the proposed project area: the Cook Inlet beluga whale and Steller sea lion. NMFS' Permits, Conservation and Education Division has initiated consultation with NMFS' Protected Resources Division under section 7 of the ESA on the issuance of an IHA to Apache under section 101(a)(5)(D) of the MMPA for this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

National Environmental Policy Act (NEPA)

NMFS is currently preparing an Environmental Assessment, pursuant to NEPA, to determine whether or not this proposed activity may have a significant effect on the human environment. This analysis will be completed prior to the issuance or denial of the IHA.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to authorize the take of marine mammals incidental to Apache's seismic survey in Cook Inlet, Alaska, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: September 15, 2011.

James H. Lecky,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2011–24241 Filed 9–20–11; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Availability of Government-Owned Invention; Available for Licensing

AGENCY: Department of the Navy, DOD.

ACTION: Notice.

SUMMARY: The following invention is assigned to the United States Government as represented by the Secretary of the Navy and is made available for licensing by the Department of the Navy. U.S. Patent Application Serial Number 13/137521: Bulk HME Precursor Detection Kit.

ADDRESSES: Requests for copies of the Patent Application cited should be directed to the Naval Surface Warfare Center, Code CAB, 3824 Strauss Avenue, Indian Head, MD 20640–5152.

FOR FURTHER INFORMATION CONTACT: Dr. J. Scott Deiter, Head, Technology Transfer Office, Naval Surface Warfare Center Indian Head Division, Code CAB, 3824 Strauss Avenue, Indian Head, MD 20640–5152, telephone 301–744–6111.

Dated: September 13, 2011.

J. M. Beal,

Lieutenant Commander, Judge Advocate General's Corps, U.S. Navy, Federal Register Liaison Officer.

[FR Doc. 2011–24182 Filed 9–20–11; 8:45 am]

BILLING CODE 3810–FF–P

DEPARTMENT OF DEFENSE

Department of the Navy

Notice of Intent To Grant Partially Exclusive License; American Innovations, Inc.

AGENCY: Department of the Navy, DoD.

ACTION: Notice.

SUMMARY: The Department of the Navy hereby gives notice of its intent to grant American Innovations, Inc. a revocable, nonassignable, partially exclusive license, with exclusive fields of use in entry control points, route clearance, patrolling, site exploitation, cache finds, area surveillance, joint security stations/combat outposts, raids, SPECOPS, K–9 support, training, in the United States to practice the Government-owned invention, U.S. Patent Application Serial Number 13/137521, filed August 24, 2011, entitled ''Bulk Homemade Explosives (HME) Precursor Detection Kit.''

DATES: Anyone wishing to object to the grant of this license must file written objections along with supporting evidence, if any, not later than October 6, 2011.

ADDRESSES: Written objections are to be filed with the Indian Head Division, Naval Surface Warfare Center, Code OC4, Bldg. D–31, 3824 Strauss Avenue, Indian Head, MD 20640–5152.

FOR FURTHER INFORMATION CONTACT: Dr. J. Scott Deiter, Head, Technology