work to get these implementation activities underway in 2006. Given that salmon recovery efforts have been underway in the Yakima subbasin since the 1980s, much of the internal framework (policy, scientific, public support, and funding) needed to implement these actions is either in place or can be established quickly once the plan is adopted. Implementation schedules and estimated costs will be incorporated into the YSPB Plan.

Public Comments Solicited

NMFS solicits written comments on the draft YSPB Plan, consisting of both the Yakima Plan and the Supplement. The Supplement states NMFS' assessment of the YSPB Plan's relationship to ESA requirements for recovery plans. The Supplement also explains the agency's intent to use the revised YSPB Plan to guide and prioritize recovery actions and to ultimately incorporate the YSPB Plan into a final Federal ESA recovery plan for the Middle Columbia River Steelhead DPS. All comments received by the date specified above will be considered prior to NMFS' decision whether to endorse the revised YSPB Plan as an interim regional recovery plan and incorporate it into the DPS-level plan. Additionally, NMFS will provide a summary of the comments and responses through its regional web site and will provide a news release for the public announcing the availability of the response to comments. NMFS seeks comments particularly in the following areas: (1) The analysis of limiting factors and threats; (2) strategies and actions at the subbasin and population scale; (3) the criteria for removing the DPS from the Federal list of endangered and threatened wildlife and plants; (4) meeting the ESA requirement for estimates of time and cost to implement recovery actions by soliciting implementation schedules (see discussion in the Supplement); and (5) the process of developing ESU-wide recovery plans using management unit plans.

Authority: 16 U.S.C. 1531 *et seq.*

Dated: April 27, 2006.

Angela Somma,

Chief, Endangered Species Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. E6–6707 Filed 5–2–06; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 020306A]

Small Takes of Marine Mammals Incidental to Specified Activities; Seismic Surveys in the Beaufort and Chukchi Seas off Alaska

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

ACTION: Notice of receipt of application and proposed incidental take authorization; request for comments.

SUMMARY: NMFS has received two applications from Shell Offshore, Inc. and WesternGeco, Inc. (Shell) for Incidental Harassment Authorizations (IHAs) to take small numbers of marine mammals, by harassment, incidental to conducting a marine geophysical program, including deep seismic surveys, on oil and gas lease blocks located on Outer Continental Shelf (OCS) waters in the mid- and eastern-Beaufort Sea and on pre-lease areas in the Northern Chukchi Sea. Under the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue a single IHA to Shell to take, by Level B harassment, small numbers of several species of marine mammals between July and November, 2006 incidental to conducting seismic surveys.

DATES: Comments and information must be received no later than June 2, 2006.

ADDRESSES: Comments on the application should be addressed to the Chief of the Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225, or by telephoning one of the contacts listed here. The mailbox address for providing email comments is *PR1.020306A@noaa.gov*. Comments sent via e-mail, including all attachments, must not exceed a 10–megabyte file size. A copy of the application (containing a list of the references used in this document) may be obtained by writing to this address or by telephoning the contact listed here and are also available at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#iha.*

A copy of the Minerals Management Service's (MMS) Programmatic Environmental Assessment (PEA) is available on-line at: *http://www.mms.gov/alaska/ref/pea__be.htm* .

Documents cited in this document, that are not available through standard public library access, may be viewed, by appointment, during regular business hours at this address.

FOR FURTHER INFORMATION CONTACT: Kenneth Hollingshead or Jolie Harrison, Office of Protected Resources, NMFS, (301) 713–2289.

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.

An authorization shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses and that 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 United States can apply for an authorization to incidentally take small numbers of marine mammals by 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].

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 issuance of the authorization.

Summary of Request

On November 16, 2005, NMFS received two applications from Shell for the taking, by Level B harassment, of several species of marine mammals incidental to conducting a marine seismic survey program during 2006 in the mid- and eastern-Beaufort and northern Chukchi seas. The deep seismic survey component of the program will be conducted from WesternGeco's vessel the *M/V Gilavar*. Detailed specifications on this seismic survey vessel are provided in Shell's application (Attachment A - Seismic Survey, Overview/Description). These specifications include: (1) complete descriptions of the number and lengths of the streamers which form the airgun and hydrophone arrays; (2) airgun size and sound propagation properties; and (3) additional detailed data on the *M/V Gilavar*'s characteristics. In summary, the *M/V Gilavar* will tow two source arrays, comprising three identical subarrays each, which will be fired alternately as the ship sails downline in the survey area. *The M/V Gilavar* will tow up to 6 hydrophone streamer cables up to 5.4 kilometers (km) (3.4 mi) long. With this configuration each pass of the *Gilavar* can record 12 subsurface lines spanning a swath of up to 360 meters (m; 1181 ft). The seismic data acquisition vessel will be supported by the *M/V Alex Gordon*, which will serve to resupply and re-fuel the *M/V Gilavar*. The *M/V Alex Gordon* is also capable of ice management should that be required. The *M/V Alex Gordon* will not deploy seismic acquisition gear.

Plan for Seismic Operations

It is planned that the *M/V Gilavar* will be in the Chukchi Sea in early July to begin deploying the acquisition equipment. Seismic acquisition is planned to begin on or about July 10, 2006. The approximate areas of operations are shown in Appendix 4 in Shell's IHA application. Acquisition will continue in the Chukchi Sea until ice conditions permit a transit into the Beaufort Sea around early August. Seismic acquisition is planned to continue in the Beaufort at one of three 3–D areas until early October depending on ice conditions. These 3–D areas are shown in Appendix 5 in Shell's application. For each of the 3–D areas, the M/V Gilavar will traverse the area multiple times until data on the area of interest has been recorded. At the conclusion of seismic acquisition in the Beaufort Sea, the *M/V Gilavar* will return to the Chukchi Sea and resume recording data there until all seismic lines are completed or weather prevents data collection.

The proposed Beaufort Sea deep seismic, site clearance, shallow hazard surveys and geotechnical activities are proposed to commence in August and continue until weather precludes further seismic work. The timing is scheduled to avoid any conflict with the Beaufort Sea subsistence hunting conducted by the Alaska Eskimo Whaling Commission's (AEWC) villages.

In summary, the proposed Chukchi deep seismic survey will occur in two phases. Phase 1 will commence sometime after June 15, 2006, as sea ice coverage conditions allow and will continue through July to early August, 2006. Phase 2 of the Chukchi deep seismic survey will occur upon completion of the Beaufort Sea survey sometime after mid-October and continue until such time as sea ice and weather conditions preclude further work, probably sometime in mid- to late-November, 2006. Shell plans to run approximately 5556 km (3452 mi) of surveys in the Chukchi Sea and a similar survey length in the Beaufort Sea.

Alternatively, if ice conditions preclude seismic operations in the Beaufort Sea, Shell proposes to continue its seismic program in the Chukchi Sea through mid- to late-November, 2006, or approximately 5.5 months. This scenario takes into account that approximately twice as many seismic line miles would be completed during this time in the Chukchi Sea. Under this scenario approximately 6000 nm (6905 stat mi; 11,112 km) of seismic line miles could be completed in the Chukchi Sea.

A detailed description of the work proposed by Shell for 2006 is contained in the two applications which are available for review (see **ADDRESSES**).

Description of Marine 3–D Seismic Data Acquisition

In the seismic method, reflected sound energy produces graphic images of seafloor and sub-seafloor features. The seismic system consists of sources and detectors, the positions of which must be accurately measured at all times. The sound signal comes from arrays of towed energy sources. These energy sources store compressed air which is released on command from the towing vessel. The released air forms a bubble which expands and contracts in a predictable fashion, emitting sound waves as it does so. Individual sources are configured into arrays. These arrays have an output signal, which is more desirable than that of a single bubble, and also serve to focus the sound output primarily in the downward direction, which is useful for the seismic method. This array effect also minimizes the sound emitted in the horizontal direction.

The downward propagating sound travels to the seafloor and into the geologic strata below the seafloor. Changes in the acoustic properties between the various rock layers result in a portion of the sound being reflected back toward the surface at each layer. This reflected energy is received by detectors called hydrophones, which are housed within submerged streamer cables which are towed behind the seismic vessel. Data from these hydrophones are recorded to produce seismic records or profiles. Seismic profiles often resemble geologic cross-sections along the course traveled by the survey vessel.

Description of WesternGeco's Air-Gun Array

Shell proposes to use WesternGeco's 3147 in^3 Bolt-Gun Array for its 3–D seismic survey operations in the Chukchi and Beaufort Seas. WesternGeco's source arrays are composed of 3 identically tuned Bolt-gun sub-arrays operating at an air pressure of 2,000 psi. In general, the signature produced by an array composed of multiple sub-arrays has the same shape as that produced by a single sub-array while the overall acoustic output of the array is determined by the number of sub-arrays employed.

The gun arrangement for each of the three 1049–in^3 sub-array is detailed in Shell's application. As indicated in the application's diagram, each sub-array is composed of six tuning elements; two 2–gun clusters and four single guns. The standard configuration of a source array for 3D surveys consists of one or more 1049–in^3 sub-arrays. When more than one sub-array is used, as here, the strings are lined up parallel to each other with either 8 m or 10 m (26 or 33 ft) cross-line separation between them. This separation was chosen so as to minimize the areal dimensions of the array in order to approximate point source radiation characteristics for frequencies in the nominal seismic processing band. For the 3147 in^3 array the overall dimensions of the array are 15 m (49 ft) long by 16 m (52.5 ft) wide.

Shell's application provides illustrations of the time series and amplitude spectrum for the far-field signature and the computed acoustic emission pattern for the vertical inline and crossline planes for the 3147 in3 array with guns at a depth of 6 m (20

ft). The signature for this array was first computed using GSAP, WesternGeco's in house signature modelling software. Based on this model, Shell estimates the sound level output radii (root-mean-squared (rms)) for a 3147 in3 source array at a depth of 6 m (20 ft):

160 dB (rms) :: < 650 m/2133 ft
170 dB (rms) :: < 425 m/1394 ft
180 dB (rms) :: < 225 m/738 ft
190 dB (rms) :: < 120 m/394 ft.

Subsequent to submitting its application, Shell contracted with JASCO to model sound source characteristics using a different model. The JASCO parabolic equation model is believed by Shell and NMFS to be superior in these waters because it accounts for bathymetry effects, water properties, and the geoacoustic properties of seabed layers. The JASCO-modeled radii are based on the worst case model predictions. For this model, the proposed 180–dB and 190–dB radii are 1.5 km (0.9 mi) and 0.5 km (0.3mi), respectively. This model will be used by Shell and NMFS to estimate sound level isopleths and radii for rms sound level thresholds between 120 and 190 dB at six proposed survey locations for the proposed airgun arrays. In addition, these modeled radii estimates will be multiplied by a safety margin of 1.5 to obtain conservative exclusion radii for marine mammal safety until empirical sound field verification measurements are completed within the first few days of seismic shooting.

An explanation for the indicated sound pressure levels (SPLs) is provided later in this document (see Impacts to Marine Mammals).

Characteristics of Airgun Pulses

Discussion of the characteristics of airgun pulses was provided in several previous **Federal Register** documents (see 69 FR 31792 (June 7, 2004) or 69 FR 34996 (June 23, 2004)) and is not repeated here. Additional information can be found in the MMS PEA. Reviewers are encouraged to read these earlier documents for additional information.

Site Clearance Surveys

In addition to deep seismic surveys in the Beaufort Sea, Shell also plans to conduct site clearance and shallow hazards surveys of potential exploratory drilling locations within Shell's lease areas as required by MMS regulations. The site clearance surveys are confined to very small specific areas within defined OCS blocks. Shell is currently in the process of selecting site clearance/shallow hazards and geotechnical contractors and vessels for the site clearance/shallow hazards surveys, and geotechnical borings. As yet unidentified vessels will conduct these surveys contemporaneously with the deep seismic survey program. Very small and limited geophysical survey energy sources will be employed to measure bathymetry, topography, geo-hazards and other seabed characteristics. The actual locations of site clearance and shallow hazard surveys have not been definitively set as of the date of Shell's application. That information will be supplied to NMFS and MMS as it becomes available, but well before the commencement of operations. The vessels conducting the site clearance and shallow hazard surveys, and geotechnical borings will also operate in accordance with the provisions of a Conflict Avoidance Agreement (CAA), between the seismic industry and the AEWC and the Whaling Captains Associations regarding times and areas in order to avoid any possible conflict with the bowhead subsistence whale hunts by the Kaktovik and Nuiqsut.

Offshore site clearance surveys use various geophysical methods and tools to acquire graphic records of seafloor and sub-seafloor geologic conditions. The data acquired and the type of investigations outlined in this document are performed routinely for most exploratory drilling and production platforms, submarine pipelines, port facilities, and other offshore projects. High-resolution geophysical data such as two- dimensional, high-resolution multi-channel seismic, medium penetration seismic, subbottom profiler, side scan sonar, multibeam bathymetry, magnetometer and possibly piston core soil sampling are typical types of data acquired. These data are interpreted to define geologic and geotechnical conditions at the site and to assess the potential engineering significance of these conditions. The following section provides a brief description of those instruments used for site clearance that may impact marine mammals. Information on the data acquisition methodology planned by Shell can be found in the Shell application.

Geophysical Tools for Site Clearance

High-Resolution seismic profiling

Reflected sound energy, often called acoustic or seismic energy, produces graphic images of seafloor and sub-seafloor features. These systems transmit the acoustic energy from various sources called transducers that are attached to the hull of the vessel or towed astern. Part of this energy is reflected from the seafloor and from geologic strata below the seafloor. This reflected energy is received by the hydrophone or streamer and is recorded to produce seismic records or profiles. Seismic profiles often resemble geologic cross-sections along the course traveled by the survey vessel.

In most Beaufort Sea site surveys, Shell will operate several high-resolution profiling systems simultaneously to obtain detailed records of seafloor and near seafloor conditions. A typical survey would include data acquisition using a shallow penetration profiler or subbottom profiler (1 - 12.0 kHz, typically 3.5 kHz), medium penetration system or boomer/ sparker/ airgun (400–800 Hz) and a deep penetrating hi-res multi-channel seismic system (20–300 Hz) not to be confused with the deep seismic used for hydrocarbon exploration. These profiling systems complement each other since each system achieves different degrees of resolution and depths of sub-seafloor penetrations.

Side Scan Sonar

Unlike seismic profiling systems, which produce a vertical profile along the vessel's path, side scan sonar systems provide graphic records that show two-dimensional (map) views of seafloor topography and of objects on the seafloor. The sonar images provide a swath display/record covering an area on the seafloor up to several hundred feet on both sides of the survey trackline. The side scan sonar transmits very high-frequency acoustic signals (100 - 410 kHz) and records the reflected energy from the seafloor. Signals reflected from the seafloor are displayed on a continuous record produce by a two-channel recorder. Reflected signals normally appear as dark areas on the record whereas shadows behind objects appear as light or white areas. The intensity and distribution of reflections displayed on the sonar image depend on the composition and surface texture of the reflecting features, on their size, and on their orientation with respect to the transducers in the towfish. Line spacing and display range are designed to ensure 100 percent coverage of the proposed survey area in the prime survey line direction, with additional tie-lines acquired in an orthogonal direction.

Side scan sonar data are useful for mapping areas of boulders, rock outcrops, and other areas of rough seafloor, and for determining the location and trends of seafloor scarps and ice gouges. These data are also used to locate shipwrecks, pipelines, and other objects on the seafloor.

Multi-beam Bathymetry

Multi-beam bathymetric systems are either hull mounted or towed astern of the survey vessel. The system transmits acoustic signals (200–500 kHz) from multiple projectors propagating to either side of the vessel at angles that vary from vertical to near horizontal. The locations of the soundings cover a swath whose width may be equal to many times the waterdepth. By adjusting the spacing of the survey tracklines such that adjacent swaths are overlapping, Shell obtains depth information for 100 percent of the bottom in the survey area. The time it takes to receive the signals as well as signal intensity, position, and other characteristics for echoes received across the swath are used to calculate depth of each individual beam transmitted across the swath.

Acoustic systems similar to the ones proposed for use by Shell have been described in detail by NMFS previously (see 66 FR 40996, August 6, 2001; 70 FR 13466, March 21, 2005). NMFS encourages readers to refer to these documents for additional information on these systems.

Description of Habitat and Marine Mammals Affected by the Activity

A detailed description of the Beaufort and Chukchi sea ecosystems and their associated marine mammals can be found in several documents (Corps of Engineers, 1999; NMFS, 1999; Minerals Management Service (MMS), 2006, 1996 and 1992) and does not need to be repeated here.

Marine Mammals

The Beaufort/Chukchi Seas support a diverse assemblage of marine mammals, including bowhead whales (*Balaena mysticetus*), gray whales (*Eschrichtius robustus*), beluga whales (*Delphinapterus leucas*), killer whales (*Orcinus orca*), harbor porpoise (*Phocoena phocoena*), ringed seals (*Phoca hispida*), spotted seals (*Phoca largha*), bearded seals (*Erignathus barbatus*), walrus (*Odobenus rosmarus*) and polar bears (*Ursus maritimus*). These latter two species are under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and are not discussed further in this document. Descriptions of the biology and distribution of the marine mammal species under NMFS' jurisdiction can be found in Shell's application, MMS' PEA, and several other documents (Corps of Engineers, 1999; Lentfer, 1988; MMS, 1992, 1996; Hill *et al.*, 1999). Information on these species can be found in the NMFS Stock Assessment Reports. The Alaska Stock Assessment Report is available at: *http://www.nmfs.noaa.gov/pr/readingrm/MMSARS/sar2003akfinal.pdf*. Updated species reports are available at: *http://www.nmfs.noaa.gov/pr/readingrm/MMSARS/2005alaskasummarySARs.pdf*. Please refer to those documents for information on these species.

Potential Effects of Seismic Surveys on Marine Mammals

Disturbance by seismic noise is the principal means of taking by this activity. Support vessels and aircraft may provide a potential secondary source of noise. The physical presence of vessels and aircraft could also lead to non-acoustic effects on marine mammals involving visual or other cues.

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) The noise may be too weak to be heard at the location of the animal (i.e., lower than the prevailing ambient noise level, the hearing threshold of the animal at relevant frequencies, or both);

(2) The noise may be audible but not strong enough to elicit any overt behavioral response;

(3) The noise may elicit reactions of variable conspicuousness and variable relevance to the well being of the marine mammal; these can range from temporary alert responses to active avoidance reactions such as vacating an area at least until the noise event ceases;

(4) Upon repeated exposure, a marine mammal may exhibit diminishing responsiveness (habituation), or disturbance effects may persist; the latter is most likely with sounds that are highly variable in characteristics, infrequent and unpredictable in occurrence, and associated with situations that a marine mammal perceives as a threat;

(5) Any anthropogenic noise that is strong enough to be heard has the potential to reduce (mask) the ability of a marine mammal to hear natural sounds at similar frequencies, including calls from conspecifics, and underwater environmental sounds such as surf noise;

(6) If mammals remain in an area because it is important for feeding, breeding or some other biologically important purpose even though there is chronic exposure to noise, it is possible that there could be noise-induced physiological stress; this might in turn have negative effects on the well-being or reproduction of the animals involved; and

(7) Very strong sounds have the potential to cause temporary or permanent reduction in hearing sensitivity. In terrestrial mammals, and presumably marine mammals, received sound levels must far exceed the animal's hearing threshold for there to be any temporary threshold shift (TTS) in its hearing ability. For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound. Received sound levels must be even higher for there to be risk of permanent hearing impairment. In addition, intense acoustic or explosive events may cause trauma to tissues associated with organs vital for hearing, sound production, respiration and other functions. This trauma may include minor to severe hemorrhage.

Effects of Seismic Surveys on Marine Mammals

Shell (2005) states that the only anticipated impacts to marine mammals associated with noise propagation from vessel movement, seismic airgun operations, and seabed profiling and coring work would be the temporary and short term displacement of seals and whales from within ensonified zones produced by such noise sources. In the case of bowhead whales, that displacement might well take the form of a deflection of the swim paths of migrating bowheads away from (seaward of) received noise levels greater than 160 db (Richardson *et al.*, 1999). The cited and other studies conducted to test the hypothesis of the deflection response of bowheads have determined that bowheads return to the swim paths they were following at relatively short distances after their exposure to the received sounds. Shell believes that there is no evidence that bowheads so exposed have incurred injury to their auditory mechanisms. Additionally, Shell cites Richardson and Thomson [eds]. (2002) that there is no conclusive evidence that exposure to sounds exceeding 160 db have displaced bowheads from feeding activity.

NMFS notes that results from the 1996–1998 BP and Western Geophysical seismic monitoring programs in the Beaufort Sea indicate that most fall migrating bowheads deflected seaward to avoid an area within about 20 km (12.4 mi) of an active nearshore seismic operation, with the exception of a few closer sightings when there was an island or very shallow water between the seismic operations and the whales (Miller *et al.*, 1998, 1999). The available data do not provide an unequivocal estimate of the distance (and received

sound levels) at which approaching bowheads begin to deflect, but this may be on the order of 35 km (21.7 mi). It is also uncertain how far beyond (west of) the seismic operation the seaward deflection persists (Miller *et al.*, 1999). Although very few bowheads approached within 20 km (12.4 mi) of the operating seismic vessel, the number of bowheads sighted within that area returned to normal within 12–24 hours after the airgun operations ended (Miller *et al.*, 1999).

Although NMFS believes that some limited masking of low-frequency sounds (e.g., whale calls) is a possibility during seismic surveys, the intermittent nature of seismic source pulses (1 second in duration every 16 to 24 seconds (i.e., less than 7 percent duty cycle)) will limit the extent of masking. Bowhead whales are known to continue calling in the presence of seismic survey sounds, and their calls can be heard between seismic pulses (Greene *et al.*, 1999, Richardson *et al.*, 1986). Masking effects are expected to be absent in the case of belugas, given that sounds important to them are predominantly at much higher frequencies than are airgun sounds (Western Geophysical, 2000).

Hearing damage is not expected to occur during the Shell seismic survey project. It is not positively known whether the hearing systems of marine mammals very close to an airgun would be at risk of temporary or permanent hearing impairment, but TTS is a theoretical possibility for animals within a few hundred meters of the source (Richardson *et al.*, 1995). However, planned monitoring and mitigation measures (described later in this document) are designed to avoid sudden onsets of seismic pulses at full power, to detect marine mammals occurring near the array, and to avoid exposing them to sound pulses that have any possibility of causing hearing impairment. Moreover, as mentioned previously, bowhead whales avoid an area many kilometers in radius around ongoing seismic operations, precluding any possibility of hearing damage.

When the received levels of noise exceed some behavioral reaction threshold, cetaceans will show disturbance reactions. The levels, frequencies, and types of noise that will elicit a response vary between and within species, individuals, locations, and seasons. Behavioral changes may be subtle alterations in surface, respiration, and dive cycles. More conspicuous responses include changes in activity or aerial displays, movement away from the sound source, or complete avoidance of the area. The reaction threshold and degree of response are related to the activity of the animal at the time of the disturbance. Whales engaged in active behaviors, such as feeding, socializing, or mating, are less likely than resting animals to show overt behavioral reactions, unless the disturbance is directly threatening.

The following summaries are provided by NMFS to facilitate understanding of our knowledge of impulsive noise impacts on the principal marine mammal species that are expected to be affected.

Bowhead Whales

Seismic pulses are known to cause strong avoidance reactions by many of the bowhead whales occurring within a distance of a few kilometers, including changes in surfacing, respiration and dive cycles, and may sometimes cause avoidance or other changes in bowhead behavior at considerably greater distances (Richardson *et al.*, 1995; Rexford, 1996; MMS, 1997). Studies conducted prior to 1996 (Reeves *et al.*, 1984, Fraker *et al.*, 1985, Richardson *et al.*, 1986, Ljungblad *et al.*, 1988) have reported that, when an operating seismic vessel approaches within a few kilometers, most bowhead whales exhibit strong avoidance behavior and changes in surfacing, respiration, and dive cycles. In these studies, bowheads exposed to seismic pulses from vessels more than 7.5 km (4.7 mi) away rarely showed observable avoidance of the vessel, but their surface, respiration, and dive cycles appeared altered in a manner similar to that observed in whales exposed at a closer distance (Western Geophysical, 2000). In three studies of bowhead whales and one of gray whales during this period, surfacing-dive cycles were unusually rapid in the presence of seismic noise, with fewer breaths per surfacing and longer intervals between breaths (Richardson *et al.*, 1986; Koski and Johnson, 1987; Ljungblad *et al.*, 1988; Malme *et al.*, 1988). This pattern of subtle effects was evident among bowheads 6 km to at least 73 km (3.7 to 45.3 mi) from seismic vessels. However, in the pre–1996 studies, active avoidance usually was not apparent unless the seismic vessel was closer than about 6 to 8 km (3.7 to 5.0 mi)(Western Geophysical, 2000).

Results from the 1996–1998 BP and Western Geophysical seismic program monitoring in the Beaufort Sea indicate that most migrating bowheads deflected seaward to avoid an area within about 20 km (12.4 mi) of an active nearshore seismic operation, with the exception of a few closer sightings when there was an island or very shallow water between the seismic operations and the whales (Miller *et al.*, 1998, 1999). The available data do not provide an unequivocal estimate of the distance at which approaching bowheads begin to deflect, but this may be on the order of 35 km (21.7 mi). It is also uncertain how far beyond (west of) the seismic operation the seaward deflection persists (Miller *et al.*, 1999). Although very few bowheads approached within 20 km (12.4 mi) of the operating seismic vessel, the number of bowheads sighted within that area returned to normal within 12–24 hours after the airgun operations ended (Miller *et al.*, 1999).

Inupiat whalers believe that migrating bowheads are sometimes displaced at distances considerably greater than suggested by pre–1996 scientific studies (Rexford, 1996) previously mentioned in this document. Also, whalers believe that avoidance effects can extend out to distances on the order of 30 miles (48.3 km), and that bowheads exposed to seismic also are ''skittish'' and more difficult to approach. The ''skittish'' behavior may be related to the observed subtle changes in the behavior of bowheads exposed to seismic pulses from distant seismic vessels (Richardson *et al.*, 1986).

Gray Whales

The reactions of gray whales to seismic pulses are similar to those documented for bowheads during the 1980s. Migrating gray whales along the California coast were noted to slow their speed of swimming, turn away from seismic noise sources, and increase their respiration rates. Malme *et al.* (1983, 1984, 1988) concluded that approximately 50 percent of the migrating gray whales showed avoidance when the average received pulse level was 170 dB (re 1 μPa). By some behavioral measures, clear effects were evident at average pulse levels of 160+dB; less consistent results were suspected at levels of 140–160 dB. Recent research on migrating gray whales showed responses similar to those observed in the earlier research when the source was moored in the migration corridor 2 km (1.2 mi) from shore. However, when the source was placed offshore (4 km (2.5 mi) from shore) of the migration corridor, the avoidance response was not evident on track plots (Tyack and Clark, 1998).

Beluga

The beluga is the only species of toothed whale (Odontoceti) expected to be encountered in the Beaufort Sea. Belugas have poor hearing thresholds at frequencies below 200 Hz, where most of the energy from airgun arrays is concentrated. Their thresholds at these

frequencies (as measured in a captive situation), are 125 dB re 1 µPa or more depending upon frequency (Johnson *et al.*, 1989). Although not expected to be significantly affected by the noise, given the high source levels of seismic pulses, airgun sounds sometimes may be audible to beluga at distances of 100 km (62.1 mi)(Richardson and Wursig, 1997), and perhaps further if actual low-frequency hearing thresholds in the open sea are better than those measured in captivity (Western Geophysical, 2000). The reaction distance for beluga, although presently unknown, is expected to be less than that for bowheads, given the presumed poorer sensitivity of belugas than that of bowheads for low-frequency sounds (Western Geophysical, 2000).

Ringed, Largha and Bearded Seals

No detailed studies of reactions by seals to noise from open water seismic exploration have been published (Richardson *et al.*, 1995). However, there are some data on the reactions of seals to various types of impulsive sounds (LGL and Greeneridge, 1997, 1998, 1999a; J. Parsons as quoted in Greene, *et al.* 1985; Anon., 1975; Mate and Harvey, 1985). These studies indicate that ice seals typically either tolerate or habituate to seismic noise produced from open water sources.

Underwater audiograms have been obtained using behavioral methods for three species of phocinid seals, ringed, harbor, and harp seals (*Pagophilus groenlandicus*). These audiograms were reviewed in Richardson *et al.* (1995) and Kastak and Schusterman (1998). Below 30–50 kHz, the hearing threshold of phocinids is essentially flat, down to at least 1 kHz, and ranges between 60 and 85 dB (re 1 microPa @ 1 m). There are few data on hearing sensitivity of phocinid seals below 1 kHz. NMFS considers harbor seals to have a hearing threshold of 70–85 dB at 1 kHz (60 FR 53753, October 17, 1995), and recent measurements for a harbor seal indicate that, below 1 kHz, its thresholds deteriorate gradually to 97 dB (re 1 microPa @ 1 m) at 100 Hz (Kastak and Schusterman, 1998).

While no detailed studies of reactions of seals from open-water seismic exploration have been published (Richardson *et al.*, 1991, 1995), some data are available on the reactions of seals to various types of impulsive sounds (see LGL and Greeneridge, 1997, 1998, 1999a; Thompson *et al.* 1998). These references indicate that it is unlikely that pinnipeds would be harassed or injured by low frequency sounds from a seismic source unless they were within relatively close proximity of the seismic array. For permanent injury, pinnipeds would likely need to remain in the high-noise field for extended periods of time. Existing evidence also suggests that, while seals may be capable of hearing sounds from seismic arrays, they appear to tolerate intense pulsatile sounds without known effect once they learn that there is no danger associated with the noise (see, for example, NMFS/Washington Department of Wildlife, 1995). In addition, they will apparently not abandon feeding or breeding areas due to exposure to these noise sources (Richardson *et al.*, 1991) and may habituate to certain noises over time.

Numbers of Marine Mammals Expected to Be Exposed to Seismic Noise

The methodology used by Shell to estimate incidental take by Level B harassment, at sound pressure levels at 160 dB or above, by seismic and the numbers of marine mammals that might be affected during the proposed seismic acquisition area in the Chukchi and Beaufort seas are presented in the application. Subsequent to submission of that application, Shell decided to provide more conservative estimates of potential marine mammal exposures by using the JASCO model. Therefore, Tables 1 and 2 provide exposure calculations for both sets of calculations. NMFS proposes to use the more conservative estimates of noise exposure to determine impacts to marine mammals.

Table 1. Beaufort Sea Revised Noise Exposure Estimates ≥160 dB

	Average Density	Maximum Density	Original Estimate-Average Density	Original Estimate-Maximum Density	Revised Estimate-Average Density	Revised Estimate-Maximum Density
Cetaceans						
bowhead whales	0.0064	0.0256	46	185	395	1579
gray whale	0.0045	0.0179	33	129	278	1104
beluga	0.0034	0.0135	25	98	210	833
Pinnipeds						
ringed seal	0.251	0.444	1185	2097	7335	12976
spotted seal	0.0001	0.0005	0	2	3	15
bearded seal	0.0128	0.0226	60	107	374	660

Table 2. Revised Noise Exposure Estimates at ≥160 dB in the Chukchi Sea

	Average Density	Maximum Density	Original Estimate-Average Density	Original Estimate-Maximum Density	Revised Estimate-Average Density	Revised Estimate-Maximum Density	Revised Estimate-Scenario 2 Average	Revised Estimate-Chukchi Scenario 2 Maximum
Cetaceans								
bowhead whales	0.0064	0.0256	46	185	403	1613	806	3226
gray whale	0.0045	0.0179	33	129	284	1128	568	2256
beluga	0.0034	0.0135	25	98	214	851	428	1702
killer whale	0	0	0	5	10	10	20	20
harbor porpoise	0	0.0002	0	5	10	13	26	26
Pinnipeds								
ringed seal	0.251	0.444	1185	2097	6805	12038	13610	24076
spotted seal	0.0001	0.0005	0	2	3	14	6	28
bearded seal	0.0128	0.0226	60	107	347	613	694	1226

The density estimates for the species covered under this IHA are based on the estimates developed by LGL (2005). The LGL density estimates are based on the original data from Moore *et al.* (2000) on summering bowhead, gray, and beluga

whales in the Beaufort and Chukchi Seas, and relevant studies on ringed seal estimates, including Stirling *et al.* (1982) and Kingsley (1986).

In its application, Shell provides estimates of the number of potential ''exposures'' to sound levels greater than 160 dB re 1 microPa (rms) and greater than 170 dB. Shell states that while the 160–dB criterion is applied for estimating Level B harassment of all species of cetaceans and pinnipeds, Shell believes that a 170–dB criterion should be considered appropriate for estimating Level B harassment of delphinid cetaceans and pinnipeds, which tend to be less responsive, whereas the 160–dB criterion is considered appropriate for other cetaceans (LGL, 2005). However, NMFS has noted in the past that there is no empirical evidence to indicate that some delphinid species do not respond at the lower level (i.e., 160 dB). As a result, NMFS proposes to use the 160–dB isopleth to estimate the numbers of marine mammals that may be taken by Level B harassment.

The estimates in Tables 1 and 2 are based on marine mammal exposures to 160 dB (and greater) from either approximately 5,556 km (3452 mi) of seismic surveys in three distinct areas of the eastern- and mid-Beaufort Sea and a similar level of effort in the Chukchi Sea or approximately 11,112 km (6905 mi) only in the Chukchi Sea if seismic work in the Beaufort Sea is not undertaken. These latter calculations are provided in the last column of Table 2.

There will be no site clearance work performed for the seismic activities in the Chukchi Sea, therefore, potential taking estimates only include noise disturbance from the use of airguns. It is assumed that, during simultaneous operations of those additional sound sources and the airgun(s), any marine mammals close enough to be affected by the sonars or pinger would already be affected by the airgun(s).

Exposure Calculations for Cetaceans and Pinnipeds

The number of exposures of a particular species to sound levels between 160 dB and 180 dB re 1 microPa (rms) was calculated by multiplying: (1) the expected species density (i.e., average and maximum), as shown in Tables 1 and 2; (2) the anticipated total line-kilometers of operations with the three 1,049–in^3 subarrays (*i.e.*, 5556 km (3452 mi)); and (3) the cross-track distances within which received sound levels are predicted to be between 160 and 180 dB (Figure 6–1 and Table 6–3 in the Shell application).

Chukchi Sea

Shell estimates that the average and maximum numbers of bowhead whales that may be exposed to noise levels of 160 dB or greater are 808 and 3226, respectively. However, according to Shell, the proposed seismic activities would occur when bowheads are widely distributed and would be expected to occur in very low numbers within the seismic activity area. Therefore, based on the 160–dB threshold criterion, the number of bowhead whales that may be exposed to sounds at or greater than 160 dB re 1 microPa (rms) represent a small percent of the estimated population within the Beaufort and Chukchi Seas.

Gray and beluga whales also have the potential for exposure, particularly near Area 3. The average and maximum estimates of the number of exposures at or greater than 160 dB are revised as 284 and 1128 for gray whales, 214 and 851 for beluga whales, 10 for killer whales, and 10 and 13 for harbor porpoises.

While no reliable abundance numbers currently exist for ringed, spotted, and bearded seals for the Chukchi Sea, however, the potential number of exposures would be a very small fraction of earlier abundance estimates as shown in Table 2.

For both cetaceans and pinnipeds likely to be encountered within the Chukchi and Beaufort Sea activity areas, the short-term exposures to airgun sounds are not expected to result in any long-term negative consequences for the individuals or their populations. Furthermore, the estimated number of animals potentially exposed and requested under an IHA, will be likely be much less for some species (e.g., bowhead whale) because of the period of seismic acquisition, and the survey and mitigation plan which contains efforts to further avoid take.

Beaufort Sea

As indicated in Table 1 in this document, the estimated average and maximum numbers for bowhead whales at 160 dB or greater are 395 and 1579, respectively. However, as stated earlier, proposed activities would occur mainly when bowheads are not present in the area or in very low numbers.

Gray and beluga whales also have the potential for exposure, particularly near seismic survey area 3. The average and maximum estimates of the number of exposures for gray whales are 278 and 1104, and 210 and 833 for beluga whales.

Ringed seals would be the most prevalent marine mammal species encountered at each of the three proposed seismic acquisition areas, and would account for most of the marine mammals that might be exposed to seismic sounds equal to or greater than 160 dB. Potential exposure estimates for pinnipeds in the Beaufort Sea are shown in Table 1. However, as Moulton and Lawson (2002) indicated that most pinnipeds exposed to seismic sounds lower than 170 dB do not visibly react, pinnipeds are not likely to react to seismic sounds unless they are greater than 170 dB re 1 microPa (rms). As a result, NMFS believes that these exposure estimates are very conservative. Spotted and bearded seals may be encountered in much small numbers than ringed seals, but also have the potential for some minor exposure.

Finally, if Shell does not conduct seismic survey work in the Beaufort Sea in 2006, and implements scenario 2 as mentioned previously, Shell estimates that additional sound exposures would occur in the Chukchi Sea. These estimates are provided in the last column of Table 2.

Potential Impact of the Activity on the Affected Species or Stocks

According to Shell, the only anticipated impacts to marine mammals associated with noise propagation from vessel movement, seismic airgun operations and seabed profiling and coring work (in the Beaufort Sea) would be the temporary and short term displacement of seals and whales from within ensonified zones produced by such noise sources. Any impacts on the whale and seal populations of the Chukchi Sea seismic acquisition activity area are believed to be short term and transitory arising from the temporary displacement of individuals or small groups from locations they may occupy at the times they are exposed to seismic sounds at the 160–190 db received levels. In the case of bowhead whales that displacement might well take the form of a deflection of the swim paths of migrating bowheads away from (seaward of) received noise levels less than 160 db (Richardson *et al.*, 1999). The cited and other studies conducted to test the hypothesis of the deflection response of bowheads have determined that bowheads return to the swim paths they were following at relatively short distances after their exposure to the received sounds. There is no evidence that bowheads so exposed have incurred injury to their auditory mechanisms. Additionally, there is no conclusive evidence that exposure to sounds exceeding 160 db have displaced bowheads from feeding activity (Richardson and Thomson [eds], 2002). As noted previously, it is highly unlikely that animals will be exposed to

sounds of such intensity and duration as to physically damage their auditory mechanisms.

There is no evidence that seals are more than temporarily displaced from ensonified zones and no evidence that seals have experienced physical damage to their auditory mechanisms even within ensonified zones.

Potential Impact On Habitat

Shell states that the proposed seismic activities will not result in any permanent impact on habitats used by marine mammals, or to their prey sources. Seismic activities will occur during the time of year when bowhead whales are widely distributed and would be expected to occur in very low numbers within the seismic activity area (mid- to late-June through July and again from mid-October through November). The northeastern-most of the recurring feeding areas is in the northeastern Chukchi Sea southwest of Barrow. Any effects would be temporary and of short duration at any one place. The primary potential impacts to marine mammals associated with elevated sound levels from the proposed airguns were discussed previously in this document.

A broad discussion on the various types of potential effects of exposure to seismic on fish and invertebrates can be found in LGL (2005; University of Alaska-Fairbanks Seismic Survey across Arctic Ocean at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#iha*), and includes a summary of direct mortality (pathological/ physiological) and indirect (behavioral) effects.

Mortality to fish, fish eggs and larvae from seismic energy sources would be expected within a few meters (0.5 to 3 m (1.6 to 9.8 ft)) from the seismic source. Direct mortality within 48 hours has been observed in cod and plaice that were subjected to seismic pulses two meters from the source (Matishov, 1992), however other studies did not report any fish kills from seismic source exposure (La Bella *et al.*, 1996; IMG, 2002; Hassel *et al.*, 2003). To date, fish mortalities associated with normal seismic operations are thought to be slight. Saetre and Ona (1996) modeled a worst-case mathematical approach on the effects of seismic energy on fish eggs and larvae, and concluded that mortality rates caused by exposure to seismic are so low compared to natural mortality that issues relating to stock recruitment should be regarded as insignificant.

Limited studies on physiological effects on marine fish and invertebrates to acoustic stress have been conducted. No significant increases in physiological stress from seismic energy were detected for various fish, squid, and cuttlefish (McCauley *et al.*, 2000) or in male snow crabs (Christian *et al.*, 2003). Behavioral changes in fish associated with seismic exposures are expected to be minor at best. Because only a small portion of the available foraging habitat would be subjected to seismic pulses at a given time, fish would be expected to return to the area of disturbance anywhere from 15–30 minutes (McCauley *et al.*, 2000) to several days (Engas *et al.*, 1996).

Available data indicate that mortality and behavioral changes do occur within very close range to the seismic source, however, the proposed seismic acquisition activities in the Chukchi and Beaufort seas are predicted by Shell to have a negligible effect to the prey resource of the various life stages of fish and invertebrates available to marine mammals occurring during the project's duration.

The total footprint of the proposed seismic survey area covers approximately 378,000 acres in the Chukchi Sea and 717,000 acres in the Beaufort Sea. The effects of the planned seismic activity at each of the seismic locations on marine mammal habitats and food resources are expected to be negligible, as described. It is estimated that only a small portion of the animals utilizing the areas of the proposed activities would be temporarily displaced.

During the period of seismic acquisition in the Chukchi Sea (mid-June through July, and again in early- to mid-October through November, 2006), most marine mammals would be dispersed throughout the area. The peak of the west- and south-bound bowhead whale migration through the Chukchi Sea typically occurs in October, and efforts to reduce potential impacts to subsistence hunting during this time will be addressed with the actual start of the migration and with the whaling communities. The timing of seismic activities in the Chukchi Sea will take place when the whales are widely distributed and would be expected to occur in very low numbers within the seismic activity area. Starting in late August bowheads may travel in proximity to the aforementioned activity area and hear sounds from vessel traffic and seismic activities, of which some might be displaced seaward by the planned activities. The numbers of cetaceans and pinnipeds subject to displacement are small in relation to abundance estimates for the mammals covered under this proposed IHA.

In addition, feeding does not appear to be an important activity by bowheads migrating through the Chukchi Sea or the eastern and central part of the Alaskan Beaufort Sea in most years (Shell, 2005). Sightings of bowhead whales occur in the summer near Barrow (Moore and DeMaster, 2000) and there are suggestions that certain areas near Barrow are important feeding grounds. In addition, a few bowheads can be found in the Chukchi and Bering Seas during the summer and Rugh *et al.* (2003) suggest that this may be an expansion of the western Arctic stock, although more research is needed. In the absence of important feeding areas, the potential diversion of a small number of bowheads away from seismic activities is not expected to have any significant or long-term consequences for individual bowheads or their population. As a result, Shell believes the proposed activities are not expected to have any habitat-related effects that would produce long-term effects to marine mammals or their habitat due to the limited extent of the acquisition areas and timing of the activities.

Effects of Seismic Noise and Other Activities on the Availability of Marine Mammals for Subsistence Uses

The disturbance and potential displacement of marine mammals by sounds from seismic activities are the principal concerns related to subsistence use of the area. The harvest of marine mammals (mainly bowhead whales, but also ringed and bearded seals) is central to the culture and subsistence economies of the coastal North Slope and Western Alaskan communities. In particular, if migrating bowhead whales are displaced farther offshore by elevated noise levels, the harvest of these whales could be more difficult and dangerous for hunters. The harvest could also be affected if bowheads become more skittish when exposed to seismic noise. Hunters related how whales also appear ''angry'' due to seismic noise, making whaling more dangerous.

In the Chukchi Sea, Shell seismic work should not have significant adverse impacts on the availability of the whale species for subsistence uses. The whale species normally taken by Inupiat hunters are the bowhead and belugas. Shell's Chukchi seismic operations will not begin until after July 1, 2006 at which time the majority of bowheads will have migrated to their summer feeding areas in Canada. In the event any bowheads remain in the northeastern Chukchi Sea after July 1, they are not normally hunted after this date until the return migration occurs

around late September when a fall hunt by Barrow whalers takes place. In the past few years, a small number of bowheads have also been taken by coastal villages along the Chukchi coast. Seismic operations for phase two of the Chukchi program will be timed and located so as to avoid any possible conflict with the Barrow fall whaling, and specific provisions governing the timing and location matters addressed here will be incorporated in the CAA established between Shell and WesternGeco, the AEWC, and the Barrow Whaling Captains Association.

Beluga whales may also be taken sporadically for subsistence needs by coastal villages, but traditionally are taken in small numbers very near the coast. As the seismic surveys will be conducted at least 12 miles (25 km) offshore, impacts to subsistence uses of bowheads are not anticipated. However, Shell plans to establish ''communication stations'' in the villages to monitoring impacts. Gray whales, which will be abundant in the northern Chukchi Sea from spring through autumn, are not taken by subsistence hunters.

The various pinniped species, including walrus, are all taken by subsistence hunters of the Chukchi villages (Barrow, Wainwright, Pt Lay, Pt Hope). The planned seismic operations will not adversely affect the usual open-water locations of these species and no haul-out areas will be encountered (with the possible exception of the polar ice front used by walrus, which is under the jurisdiction of the USFWS). However, most seismic operations will take place sufficiently distant from nearshore traditional beluga, seal, and walrus hunting areas such that no unmitigable adverse impacts are anticipated.

In the Beaufort Sea, there could be an adverse impact on the Inupiat bowhead subsistence hunt if the whales were deflected seaward (further from shore) in traditional hunting areas. The impact would be that whaling crews would necessarily be forced to travel greater distances to intercept westward migrating whales thereby creating a safety hazard for whaling crews and/or limiting chances of successfully striking and landing bowheads. This potential impact will be mitigated by application of the procedures established in the CAA between the seismic operators and the AEWC and the whaling captains' associations of Kaktovik, Nuiqsut and Barrow. The times and locations of seismic and other noise producing sources will be curtailed during times of active scouting and whaling within the traditional subsistence hunting areas of the three potentially affected communities. (Shell, 2005).

Plan of Cooperation

Regulations at 50 CFR 216.104(a)(12) require IHA applicants for activities that take place in Arctic waters to provide a plan of cooperation (POC) or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses. Shell's POC notes that negotiations were initiated beginning in summer of 2005 with the AEWC to create a CAA between Shell and WesternGeco for 2006, and the subsistence hunting communities of Barrow, Nuiqsut, and Kaktovik. The CAA will cover both the proposed Beaufort Sea seismic program (including deep seismic, site clearance, shallow hazard surveys and a geotechnical seabed coring program) and the Chukchi Sea deep seismic survey. Meetings between Shell and the AEWC began in October, 2005 with representatives of the North Slope Borough also present in Fairbanks during the annual meeting of the Alaska Federation of Natives. Additional meetings were held this spring.

Shell anticipates signing the CAA sometime this spring. The CAA will incorporate all appropriate measures and procedures regarding the timing and areas of Shell's planned activities (i.e., times and places where seismic operations will be curtailed or moved in order to avoid potential conflicts with active subsistence whaling and sealing); communications system between operator's vessels and whaling and hunting crews (i.e., the communications center will be located in Deadhorse with links to Kaktovik, Nuiqsut, Cross Island, and Barrow); provision for marine mammal observers/Inupiat communicators aboard all project vessels; conflict resolution procedures; and provisions for rendering emergency assistance to subsistence hunting crews.

If requested, post-season meetings will also be held to assess the effectiveness of the 2006 CAA, to address how well conflicts (if any) were resolved; and to receive recommendations on any changes (if any) might be needed in the implementation of future CAAs. It is anticipated that a final draft of the 2006 CAA for the Beaufort and Chukchi Seas will be available for consideration and review by NMFS and the MMS by late spring.

Proposed Mitigation Measures

Shell has proposed five main mitigation measures: (1) The timing and locations for active seismic acquisition work will be scheduled to curtail operations when whaling captains inform the operator that they are scouting or hunting within traditional hunting areas; (2) the configuration of airguns in a manner that directs energy primarily down to the seabed thus decreasing the range of horizontal spreading of seismic noise; (3) the use of a seismic energy source which is as small as possible while still accomplishing the geophysical objectives; (4) the use of ramp-up and soft start methods of initiating seismic operations which is intended to alert any marine mammals either within or approaching an operating airgun array so that they may swim away from the source; and (5) the curtailment of active seismic work when the marine mammal observers (MMOs) visually sight (from shipboard or aerially) the presence of marine mammals within identified ensonified zones. Details of the proposed mitigation measures follow:

Seasonal Restrictions: Shell has proposed to take all practicable measures to complete seismic operations as early as possible and to vacate areas within close proximity of subsistence bowhead hunting areas during periods of hunting activity. During periods of hunting activity, seismic operations will be moved to areas remote from hunting operations or ceased for a period. From August 15 until the end of the bowhead hunting season (or until the end of seismic operations in the Beaufort Sea) special monitoring and mitigation/mitigation measures will be adopted (*i.e.*, aerial surveys). Given the potential for diversion offshore, re-initiation of seismic operations within identified hunting areas will proceed only after the affected village(s) has acquired at least two whales or ceased hunting activities and only with close coordination with representatives of the whaling captains. All reasonable efforts will be made to avoid disruption of the hunt or deflection of migrating bowheads in hunting areas.

Aerial Surveys: Shell proposes to conduct aerial surveys of the Beaufort Sea regional distribution and abundance of marine mammals with special attention to bowhead whales in 2006 prior to the initiation of the seismic survey starts and periodically during and after the survey. The objectives of the Beaufort Sea aerial surveys are to:

(a) Provide real-time or near real-time information that can be used (if appropriate) to alter the survey's starting point and survey line sequence based on the actual distribution of whales in the

area immediately prior to and during surveys (see below),

(b) Document the numbers of whales in the general area and, at least theoretically, exposed to noise from seismic survey and their responses to the surveys (if detectable), and

(c) Conduct aerial surveys only when they can be carried out in a safe manner and during periods of good visibility where there is sufficient probability of detecting bowhead whales and other marine mammals.

Beginning at least 3 days prior to the beginning of seismic surveys in the Beaufort Sea, aerial surveys will be conducted on a daily basis, when practicable given weather and visibility conditions.

Aerial surveys conducted during the bowhead whaling season will be coordinated with whaling efforts, such that airplanes operating in close proximity to whalers can take action, e.g. flying at higher altitudes, to reduce the potential to impact the hunt.

Generally, the flight plan and coverage of the aerial survey will be conducted following established standards and methodologies, as described above, with particular reference to MMS Bowhead Whale Aerial Survey Program (BWASP) procedures. Specific details of the flight pattern and coverage will be fully developed in an aerial flight operations plan but will be subject to operation changes as needed to provide effective coverage during field operations.

Airgun Arrays: For the proposed seismic survey, Shell proposes to:

(a) Configure the airgun array to maximize the proportion of the energy that is directed downward and to minimize horizontal sound propagation. In particular, closely spaced airguns whose overall radiation pattern is nearly omni-directional will be avoided. The size of the airgun arrays, as measured by the source level, will not be any larger than required to meet the technical objectives for the seismic survey.

(b) Utilize pre-initiation modeling, based upon anticipated sound propagation characteristics of the array, to establish anticipated impact zones of 180 dB and 190 dB.

(c) Conduct field sound propagation assessments at the initiation of the field season and 180 dB and 190 dB zones adjusted accordingly.

Ramp-up (soft-start): For the proposed seismic survey, Shell proposes to implement the following 'soft start' procedures:

(a) The seismic operator will ramp-up airguns slowly over a period of 20 minutes each time shooting begins or whenever the, shut-down period has been greater than 10 minutes. 'Soft starts' will follow every interruption of the airgun array firing that is greater than 10 minutes, most importantly if the survey is discontinued until marine mammals leave the safety zone. The seismic operator and MMOs will maintain records of the times when ramp-ups start, and when the airgun array reaches full power.

(b) During periods of turn around and transit between seismic transects, one airgun will remain operational. Through use of this approach, seismic operations can resume upon entry to a new transect without full ramp up. While it is routine to ramp up from a single gun firing to full array operation, operation of a single gun allows starting during poor visibility and ramp up without a period of static visual observation.

(c) If shut down occurs, ramp-up will begin only following a minimum of a 30–min period of observation of the prescribed safety zone to assure that no marine mammals are present. However, if the MMOs were on-duty prior to the shut-down, and continued their observations during the shut-down, then an additional 30–min period of observation prior to ramp-up is not necessary. Ramp-up procedures will be followed until full operating intensity is achieved.

Safety Zones: For the proposed seismic survey, Shell proposes to implement the following measures:

(a) Initial safety zones will be established prior to the survey based on available data and modelling concerning sound output and on the assumption that seismic pulses at broadband received levels above 190 dB re 1 microPa (rms over duration of pulse) for pinnipeds, or above 180 dB re 1 microPa rms for cetaceans, should be avoided whenever possible because those levels might affect hearing abilities at least temporarily. The sound levels are based on frequencies between 10 Hz and 120 Hz, the typical peak spectrum of sound emitted for seismic surveys.

(b) The safety distances will be verified (and if necessary adjusted) during the first week of the seismic survey, based on direct measurements via calibrated hydrophones of the received levels of underwater sound versus distance and direction from the airgun array. The acoustic data will be analyzed as quickly as reasonably practicable in the field and used to adjust safety distance. The same acoustic data will be useful in interpreting observations of marine mammals during analysis of sighting data after the programs completion (see below).

Biological Observers: For the proposed seismic survey, Shell proposes to implement the following measures:

(a) Trained marine mammal observers on the seismic ship will be on watch for marine mammals during all daylight hours when seismic operations are in progress. This will require at least three and preferably four observers on the vessel, given that observer efficiency deteriorates after approximately 4 hours, and that having two observers on watch simultaneously increases the probability of sighting the marine mammals present near the vessel. In selecting seismic vessels for the program, Shell has accounted for the requirement to accommodate 3 to 4 marine mammal observers on each vessel.

(b) The purpose of the observers on the seismic vessel will primarily be to document the occurrence and responses of marine mammals visible from the vessel, and to initiate airgun shutdown requirements whenever a marine mammal is observed within the safety zone. Furthermore, the observers will attempt to confirm the absence of marine mammals in the safety zones prior to 'soft start'.

(c) When a marine mammal is sighted within, or approaching, the safety zone around the airgun array, the observers will notify the seismic contractor who will shut down the airguns. After completion of the survey, a technical report and a scientific research paper will be prepared to summarize the observations, results, and conclusions of the marine mammal monitoring program.

Operations at Night and in Poor Visibility: For the proposed seismic programs in the Beaufort and Chukchi seas, Shell proposes the following measures:

(a) When operating under conditions of reduced visibility attributable to darkness or to adverse weather conditions, infra-red or night-vision binoculars will be available for use. It is recognized, however, that their effectiveness for this application is very limited even in clear night time conditions.

(b) Seismic activities will not be initiated during darkness or during conditions when visibility is reduced to less than the radius of the safety zone. Shell proposes that if a single small airgun remains firing during a shut-down, the rest of the array can be ramped up during darkness or in periods of low visibility. Seismic operations may continue under conditions of darkness or reduced visibility unless, in the judgement of the senior MMO, densities of endangered cetaceans in the general area are high

enough to warrant concern that an endangered cetacean is likely to enter the safety zone undetected. In that case, observers will advise the ship's captain or his designee to halt airgun operations or to move to a part of the survey area where visibility is adequate or where the likelihood of encountering an endangered cetacean is low based on aerial and vessel based surveys that would be part of the real-time monitoring program.

Mitigation for Subsistence Needs

Although not discussed in detail by Shell, NMFS must make a determination that an activity would not have an unmitigable adverse impact on the availability of marine mammals for taking for subsistence uses. While this includes both cetaceans and pinnipeds, the primary impact by seismic activities on subsistence hunting is expected to be impacts from noise on bowhead whales during its westward fall feeding and migration period in the Beaufort Sea. NMFS has defined unmitigable adverse impact 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 (50 CFR 216.103). Discussions between the AEWC, the whaling captains and Shell continue at this time and results of those discussions will be reported in the final IHA notice.

A signed CAA allows NMFS to make a determination that the activity will not have an unmitigable adverse impact on the subsistence use of marine mammals. If one or both parties fail to sign the CAA, then NMFS will make the necessary determinations that the activity will or will not have an unmitigable adverse impact on subsistence use of marine mammals and NMFS may require that the IHA contain additional mitigation measures in order for this decision to be made.

Proposed Monitoring

As part of its application, Shell provided a monitoring plan for assessing impacts to marine mammals from seismic surveys in the Beaufort and Chukchi seas. Shell proposes to conduct the following monitoring:

Vessel-based Visual Monitoring

Shell proposes that one or two marine mammal observers aboard the operating seismic vessel will search for and observe marine mammals whenever seismic operations are in progress and for at least 30 minutes before the planned start of seismic transmissions or whenever the seismic array's operations have been suspended for more than 10 minutes. These observers will scan the area immediately around the vessels with reticle binoculars during the daytime. Laser rangefinding equipment will be available to assist with distance estimation. After mid-August, when the duration of darkness increases, image intensifiers will be used by observers and additional light sources may be used to illuminate the safety zone.

A total of four observers (three trained biologists and one Inupiat observer/communicator) will be based aboard the seismic vessel. The use of four observers allows two observers to be on duty simultaneously for up to 50 percent of the active airgun hours. The use of two observers increases the probability of detecting marine mammals, and two observers will be required to be on duty whenever the seismic array is ramped up. Individual watches will be limited to no more than 4 consecutive hours to avoid observer fatigue (and no more than 12 hours on watch per 24 hour day). When mammals are detected within or about to enter the safety zone designated to prevent injury to the animals (see Proposed Mitigation), the geophysical crew leader will be notified so that shutdown procedures can be implemented immediately.

Aerial Surveys

Shell proposes to conduct aerial surveys bi-weekly from the middle to the end of August, and daily (when possible due to weather) after September 1st in the Beaufort Sea. At this time Shell does not propose to conduct aerial surveys in the Chukchi Sea. Aerial surveys in the Beaufort Sea are proposed to continue for three days after the cessation of seismic operations.

Aerial surveys are typically conducted by teams of four observers (a pilot, two dedicated observers, and an observer/data recorder) in twin-engine airplanes. Observations are made at an altitude of 900 to 1,500 ft (274 to 457 m)and a ground speed of 120 knots (120 nm/hr; 138 statute mi (mi)/hr; 222 km/hr). Similar to previous Beaufort Sea aerial surveys, the survey plane will traverse a survey grid, centered on the seismic operations, which extends 50 to 75 km (31 to 46.6 mi) both east and west of the seismic operations and to 75 km (46.6 mi) offshore. Shell suggests that periodic flights that range further to the east may be utilized prior to the onset of migration to provide an early warning of the approach of migrating bowhead whales.

However, NMFS proposes that if seismic work is suspended during the bowhead subsistence hunting season, but resumes later in the autumn, aerial surveys will commence (or resume) when the seismic work resumes. In addition, MMS expects to conduct its broad-scale BWASP aerial survey work from approximately August 31st until the end of the bowhead migration in October. NMFS believes that this combined aerial survey data will provide good information to estimate the number of bowheads taken by Level B harassment.

The primary objective of the aerial surveys will be to document the occurrence, distribution, and movements of bowhead, as well as beluga and gray, whales in and near the area where they might be affected by the seismic pulses. These observations will be used to estimate the level of harassment takes and to assess the possibility that seismic operations affect the accessibility of bowhead whales for subsistence hunting. Pinnipeds will be recorded when seen, although survey altitude will be too high for systematic surveys of seals.

Passive Acoustic Monitoring

Shell is considering the possibility of using a towed hydrophone array or other passive acoustic technique to detect and perhaps locate marine mammals during this seismic project. Towed hydrophones that are part of the seismic array have the ability to detect marine mammals within close proximity of the array but generally do not provide accurate location information. Hydrophone technology utilizing fixed position hydrophones has been useful in locating bowhead whales through their vocalizations around the fixed BP NorthStar facility (Richardson, 2005), however, the proposed seismic operation will be far ranging and would require either an extensive array of fixed sonobuoys, or multiple ''listening'' vessels. The presence of ''listening'' vessels within the seismic project area would add significantly to the number of noise sources present and broaden the potential impact area.

The use of aerial monitoring has demonstrated that bowheads avoid areas where active seismic operations are being conducted and is effective at documenting the extent of this impact.

Aerial surveys can also provide early, near-real time, reconnaissance information as to presence or approach of marine mammals to areas of seismic operation. According to Shell, the use of real-time acoustic monitoring would, therefore, not add significantly to the information available to seismic operators but would add significantly to the complexity and potential area of impact of the project. As a result, while Shell's original application did not propose to use passive acoustical monitoring during either the Beaufort or Chukchi Sea seismic operations, the value of implementing a passive acoustic program was discussed at the recent Anchorage meeting. Accordingly, Shell is presently reviewing its earlier determination. NMFS scientists believe that incorporating either a towed passive array from the seismic vessel or one of the support vessels or installing a passive net array along the Chukchi Sea coast would add valuable information on the marine mammals in the area.

Additional Proposed Mitigation and Monitoring Measures

As part of NMFS' week-long open-water peer review meeting in Anchorage, on April 19–20, 2006, participants had a discussion on appropriate mitigation and monitoring measures for Arctic Ocean seismic activities in 2006. In addition to previously mentioned mitigation and monitoring measures proposed by Shell, the workshop participants recommended several monitoring measures to increase our knowledge of marine mammal distribution and abundance in the Chukchi Sea. These included use of passive acoustics, either towed from a vessel or set out in a series of arrays along the Chukchi Sea coast. As of the publication date of this notice, Shell is studying these recommendations and will inform NMFS prior to the close of the comment period on this document on any additional monitoring that would be conducted.

In addition, NMFS proposes to impose additional mitigation and monitoring measures, such as expanded safety zones for bowhead and gray whales, and having those zones monitored effectively, in order to remain within the scope of the PEA and to increase the likelihood for NMFS and MMS to make a Finding of No Significant Impact (FONSI) under the National Environmental Policy Act (NEPA).

Research

Shell proposes to develop and implement a research component to its marine mammal monitoring program that would further improve the understanding of bowhead whale deflection related to industrial sound sources, most specifically the operation of seismic operations. A detailed study plan is being developed that will utilize data from aerial surveys, possibly combined with acoustic monitoring. That research plan will include:

Vessel-based Surveys: Three MMOs will conduct observations onboard a dedicated vessel conducting three individual 2–3 day surveys early in the seismic season, in the middle of the season and late in the season, as well as opportunistic surveys while the vessel is being used for crew changes/supply runs. The survey will systematically cover broad areas of the Chukchi planning area in order to obtain adequate coverage across multiple habitat types (subject to vessel operational limitations near ice pack). The surveys will provide: (1) quantitative data on distribution and densities for each marine mammal species by habitat (depth and ice); (2) sighting data to compute densities during seismic and non seismic periods; (3) density information during non-seismic periods to be used to estimate numbers of marine mammals that would have been exposed to various sound levels (160, 180, 190 dB re 1 microPa), if they had not moved away from the seismic vessel; and (4) sighting and density information from operating seismic vessel will provide data on numbers that did not avoid the vessel and were exposed to the same sound levels.

Reporting

Shell proposes to submit a report to NMFS approximately 90 days after completion of the 2006 season and a final technical report approximately 240 days after completion of the 2006 season. The 90–day report will: (1) present the results of the 2006 shipboard marine mammal monitoring; (2) estimate exposure of marine mammals to industry sounds; (3) provide data on marine mammal sightings (e.g., species, numbers, locations, age/size/gender, environmental correlates); (4) analyze the effects of seismic operations (e.g., on sighting rates, sighting distances, behaviors, movement patterns); (5) provide summaries of power downs, shut downs, and ramp up delays; (6) provide an analysis of factors influencing detectability of marine mammals; and (7) provide summaries on communications with hunters and potential effects on subsistence activities.

NMFS proposes that the Final Technical Report will contain a cumulative analysis of the data and information of the 90–day report with similar data and information from other seismic activities in the Beaufort and Chukchi seas in 2006.

Endangered Species Act (ESA)

Under section 7 of the ESA, the MMS has begun consultation on the proposed seismic survey activities in the Beaufort and Chukchi seas during 2006. NMFS will also consult on the issuance of the IHA under section 101(a)(5)(D) of the MMPA to Shell for this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

NEPA

The MMS has prepared a Draft PEA for the 2006 Arctic Outer Continental Shelf (OCS) Seismic Surveys. NMFS is a cooperating agency in the preparation of the Draft PEA. NMFS is reviewing this PEA and will either adopt it or prepare its own NEPA document before making a determination on the issuance of Arctic Ocean OCS seismic surveys in 2006. A copy of the MMS Draft PEA for this activity is available upon request and is available online (see **ADDRESSES**).

Preliminary Conclusions

Summary

Based on the information provided in Shell's application and the MMS PEA, NMFS has preliminarily determined that the impact of Shell conducting seismic surveys in the northern Chukchi Sea and eastern and central Beaufort Sea in 2006 will have no more than a negligible impact on marine mammals and that there will not be any unmitigable adverse impacts to subsistence communities, provided the mitigation measures required under the authorization are implemented and a CAA is implemented.

Potential Impacts on Marine Mammals

NMFS has preliminarily determined that the relatively short-term impact of conducting seismic surveys in the U.S. Chukchi and Beaufort seas may result, at worst, in a temporary modification in behavior by certain species of marine mammals. While behavioral and avoidance reactions may be made by these species in response to the resultant noise, this behavioral change is expected to have a negligible impact on the affected species and stocks of marine mammals.

While the number of potential incidental harassment takes will depend on the distribution and abundance of marine mammals in the area of seismic operations (as shown in Table 4–1 in the applications), which will vary annually due to variable ice conditions and other factors, the number of potential harassment takings is estimated to be small (see Tables 1 and 2 in this document).

In addition, no take by death or serious injury is anticipated, and the potential for temporary or permanent hearing impairment will be avoided through the incorporation of the mitigation measures proposed for Shell's IHA. This preliminary determination is supported by: (1) the likelihood that, given sufficient notice through slow ship speed and ramp-up of the seismic array, marine mammals are expected to move away from a noise source that is annoying prior to its becoming potentially injurious; (2) recent research that indicates that TTS is unlikely at SPLs as low as 180 dB re 1 microPa;(at least in delphinids); (3) the fact that injurious levels would be very close to the vessel; and (4) the likelihood that marine mammal detection ability by trained observers is close to 100 percent during daytime and remains high at night close to the seismic vessel. Finally, no known rookeries, mating grounds, areas of concentrated feeding, or other areas of special significance for marine mammals are known to occur within or near the planned areas of operations during the season of operations.

Potential Impacts on Subsistence Uses of Marine Mammals

Preliminarily, NMFS believes that the proposed seismic activity by Shell in the northern Chukchi Sea and central and eastern Beaufort Sea in 2006, in combination with other seismic and oil and gas programs in these areas, will not have an unmitigable adverse impact on the subsistence uses of bowhead whales and other marine mammals. This preliminary determination is supported by the following: (1) Seismic activities in the Chukchi Sea will not begin until after July 10 by which time the spring bowhead hunt is expected to have ended; (2) NMFS' understanding that the fall bowhead whale hunt in the Beaufort Sea will be governed by a CAA between Shell and the AEWC and village whaling captains; (3) although unknown at this time to NMFS, the CAA conditions will significantly reduce impacts on subsistence hunters; (4) while it is possible that accessibility to belugas during the spring subsistence beluga hunt could be impaired by the survey, it is unlikely because very little of the proposed survey is within 25 km (15.5 mi) of the Chukchi coast, meaning the vessel will usually be well offshore and away from areas where seismic surveys would influence beluga hunting by communities; and (5) because seals (ringed, spotted, bearded) are hunted in nearshore waters and the seismic survey will remain offshore of the coastal and nearshore areas of these seals where natives would harvest these seals, it should not conflict with harvest activities.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Shell for conducting a seismic survey in the northern Chukchi Sea and central and eastern Beaufort Sea in 2006, provided the previously proposed mitigation, monitoring, and reporting requirements are incorporated.

Information Solicited

NMFS requests interested persons to submit comments and information concerning this request (see **ADDRESSES**).

Dated: April 28, 2006.

James H. Lecky,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. O42506E]

Small Takes of Marine Mammals Incidental to Specified Activities; Harbor Activities Related to the Delta IV/Evolved Expendable Launch Vehicle at Vandenberg Air Force Base, CA

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

ACTION: Notice; receipt of application and proposed authorization for incidental harassment of marine mammals; request for comments.

SUMMARY: NMFS received a request from The Boeing Company (Boeing) for a reauthorization to take small numbers of marine mammals by harassment incidental to harbor activities related to the Delta IV/Evolved Expendable Launch Vehicle (EELV) at south Vandenberg Air Force Base, CA (VAFB). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS requests comments on its proposal to authorize Boeing to take, by Level B harassment, small numbers of several species of pinnipeds at south VAFB beginning in June 2006.

DATES: Comments and information must be received no later than June 2, 2006.

ADDRESSES: Comments on the application should be addressed to Steve Leathery, Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910–3225. The mailbox address for providing email comments is *PR1.042506E@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.

A copy of the application containing a list of the references 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 be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Jolie Harrison, (301) 713–2289, ext. 166 or Monica DeAngelis, (562) 980–3232.

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, notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings may be granted if NMFS finds that the taking will have no more than 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, and that the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such taking are set forth.

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as: