

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 18****RIN 1018-AU41****Marine Mammals; Incidental Take During Specified Activities**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule; notice of proposed incidental harassment authorization; request for comments.

**SUMMARY:** The Fish and Wildlife Service (Service) proposes regulations that would authorize the nonlethal, incidental, unintentional take of small numbers of Pacific walrus (walrus) and polar bears during year-round oil and gas industry (Industry) exploration activities in the Chukchi Sea and adjacent western coast of Alaska. We are proposing that this rule be effective for 5 years from date of issuance. We propose a finding that the total expected takings of walrus and polar bears during oil and gas industry exploration activities will have a negligible impact on these species and will not have an unmitigable adverse impact on the availability of these species for subsistence use by Alaska Natives. The regulations that we propose to issue include permissible methods of nonlethal taking, measures to ensure the least practicable adverse impact on the species and the availability of these species for subsistence uses, and requirements for monitoring and reporting. If the proposed regulations are issued, we can issue Letters of Authorization to conduct activities under the provisions of these regulations when requested by citizens of the United States. We are seeking public comments on this proposed rule.

In addition, the Service proposes to issue authorizations to take small numbers of marine mammals by harassment incidental to conducting exploration activities during the 2007 open-water season for oil and gas operators (Incidental Harassment Authorization). These activities will be carried out from approximately July 1 through November 30, 2007. The authorizations we propose to issue will also include permissible methods of nonlethal taking, measures to ensure the least practicable adverse impact on the species and the availability of these species for subsistence uses, and requirements for monitoring and reporting. We are seeking public comments on this proposal.

**DATES:** Comments on this proposed rule, the proposed issuance of incidental harassment authorization, and the draft Environmental Assessment, must be received by July 2, 2007. Comments on the information collection requirements must be submitted on or before July 31, 2007.

**ADDRESSES:** You may submit comments by any of the following methods for the proposed rule, identified by RIN 1018-AU41, or for the incidental harassment authorization:

- *Mail:* Craig Perham, Office of Marine Mammals Management, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, AK 99503.
- *Fax:* 907-786-3816.
- *Hand Delivery/Courier:* Office of Marine Mammals Management, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, Alaska 99503.
- *E-mail:*

*R7\_MMM\_Comment@fws.gov.* Please submit Internet comments as an ASCII file avoiding the use of special characters and any form of encryption. Please also include "Attn: RIN 1018-AU41" in the subject line and your name and return address in your Internet message. If you do not receive a confirmation from the system that we have received your Internet message, contact us directly at U.S. Fish and Wildlife Service, Office of Marine Mammals Management, 907-786-3810 or 1-800-362-5148.

Comments on the proposed rule, identified by RIN 1018-AU41, may also be submitted by the following method:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

Please indicate to which action, RIN 1018-AU41 or incidental harassment authorization, your comments apply.

**FOR FURTHER INFORMATION CONTACT:**

Craig Perham, Office of Marine Mammals Management, U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, AK 99503, telephone 907-786-3810 or 1-800-362-5148, or e-mail *R7\_MMM\_Comment@fws.gov*.

**SUPPLEMENTARY INFORMATION:****Background**

Section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1371(a)(5)(A)) gives the Secretary of the Interior (Secretary) through the Director of the Service (we) the authority to allow the incidental, but not intentional, taking of small numbers of marine mammals, in response to requests by U.S. citizens (you) [as defined in 50 CFR 18.27(c)] engaged in a specified activity (other than commercial fishing) in a specified

geographic region. According to the MMPA, we shall allow this incidental taking if (1) we make a finding that the total of such taking for the 5-year regulatory period will have no more than a negligible impact on these species and will not have an unmitigable adverse impact on the availability of these species for taking for subsistence use by Alaska Natives, and (2) we issue regulations that set forth (i) permissible methods of taking, (ii) means of effecting the least practicable adverse impact on the species and their habitat and on the availability of the species for subsistence uses, and (iii) requirements for monitoring and reporting. If regulations allowing such incidental taking are issued, we can issue Letters of Authorization (LOA) to conduct activities under the provisions of these regulations when requested by citizens of the United States.

The term "take," as defined by the MMPA, means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. Harassment, as defined by the MMPA, for activities other than military readiness activities or scientific research conducted by or on behalf of the federal government, means "any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild" (the MMPA calls this 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" (the MMPA calls this Level B harassment).

The terms "small numbers," "negligible impact," and "unmitigable adverse impact" are defined in 50 CFR 18.27 (i.e., regulations governing small takes of marine mammals incidental to specified activities) as follows. "Small numbers" is defined as "a portion of a marine mammal species or stock whose taking would have a negligible impact on that species or stock." "Negligible impact" is "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."

"Unmitigable adverse impact" means "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.”

Industry conducts activities such as oil and gas exploration in marine mammal habitat that could result in the taking of marine mammals. Although Industry is under no legal requirement to obtain incidental take authorization, since 1991, Industry has requested, and we have issued regulations for, incidental take authorization for conducting activities in areas of walrus and polar bear habitat. Incidental take regulations for walruses and polar bears in the Chukchi Sea were issued previously for the period 1991–1996 (56 FR 27443; June 14, 1991). In the Beaufort Sea, incidental take regulations have been issued previously from 1993 to present: November 16, 1993 (58 FR 60402); August 17, 1995 (60 FR 42805); January 28, 1999 (64 FR 4328); February 3, 2000 (65 FR 5275); March 30, 2000 (65 FR 16828); November 28, 2003 (68 FR 66744); and August 2, 2006 (71 FR 43926).

#### Summary of Current Request

On August 5, 2005, the Alaska Oil and Gas Association (AOGA), on behalf of its members, (Agrium Kenai Nitrogen Operations, Alyeska Pipeline Service Company, Anadarko Petroleum Corporation, BP Exploration (Alaska) Inc., Chevron, Eni Petroleum, ExxonMobil Production Company, Flint Hills Resources, Alaska, Forest Oil Corporation, Marathon Oil Company, Petro-Canada (Alaska) Inc., Petro Star Inc., Pioneer Natural Resources Alaska, Inc., Shell Exploration & Production Company, Tesoro Alaska Company, and XTO Energy, Inc.) requested that the Service promulgate regulations to allow the nonlethal, incidental take of small numbers of walruses and polar bears in the Chukchi Sea for a period of 5 years. The Service requested additional information from AOGA regarding the nature, scope, and location of proposed activities for its analysis of potential impacts on walruses, polar bears, and subsistence harvests of these resources. On November 22, 2006, Shell Offshore Inc. (SOI) provided an addendum to the AOGA petition describing SOI's projected activities for 2007–2012.

On January 2, 2007, AOGA, on behalf of its members, also provided an addendum to its original petition referencing a Draft Environmental Impact Statement prepared by the MMS for the Chukchi Sea Planning Area: Oil and Gas Lease Sale 193 and Seismic

Surveying Activities in the Chukchi Sea (Chukchi Sea DEIS). The Chukchi Sea DEIS includes estimates of all reasonably foreseeable oil and gas activities associated with proposed Outer Continental Shelf (OCS) lease sales in the Chukchi Sea Planning Area. The AOGA petition requested that the Service consider activities described in the Chukchi Sea DEIS for the period 2007–2012. On January 2, 2007, ConocoPhillips Alaska, Inc. (CPAI), also provided an addendum to the original AOGA petition describing CPAI's projected activities from 2007–2012. The petition and addendums are available at: ([Alaska.fws.gov/fisheries/mmm/itr.htm](http://Alaska.fws.gov/fisheries/mmm/itr.htm)). The Chukchi Sea DEIS, referenced in the AOGA petition, is available at: <http://www.mms.gov/alaska> (OCS EIS/EA MMS 2006–060).

The combined requests are for regulations to allow the incidental, nonlethal take of small numbers of walruses and polar bears in association with oil and gas activities in the Chukchi Sea and adjacent coastline projected out to the year 2012. The information provided by the petitioners indicates that projected oil and gas activities over this timeframe will be limited to offshore and onshore exploration activities. Development and production activities were not considered in the requests. The petitioners have also specifically requested that these regulations be issued for nonlethal take. Industry has indicated that, through implementation of the mitigation measures, it is confident a lethal take will not occur.

Prior to issuing regulations at 50 CFR part 18, subpart I in response to this request, we must evaluate the level of industrial activities, their associated potential impacts to walruses and polar bears, and their effects on the availability of these species for subsistence use. All projected exploration activities described by SOI, CPAI, and AOGA (on behalf of its members) in their petitions, as well as projections of reasonably foreseeable activities for the period 2007–2012 described in the Chukchi Sea DEIS were considered in our analysis. The activities and geographic region specified in the requests, and considered in these regulations are described in the ensuing sections titled “Description of Geographic Region” and “Description of Activities.”

This proposed rule also serves as the proposed incidental harassment authorization (IHA) under section 101(a)(5)(D) of the MMPA. If this proposed rule is finalized, incidental take of small numbers of polar bears and walrus resulting from oil and gas

exploration activities in the Chukchi Sea will be authorized under LOAs issued pursuant to section 101(a)(5)(A) of the MMPA. However, operators are proposing to begin oil and gas exploration activities in July of 2007, which will likely be before the Service makes a final determination under the section 101(a)(5)(A) regulatory process. Therefore, this proposed rule also serves as the proposed IHA that, if finalized, will authorize the incidental take by harassment of small numbers of walruses and polar bears from oil and gas exploration activities in the Chukchi Sea during the 2007 exploration season.

The proposed rule can serve as both the proposed rule under section 101(a)(5)(A) and the proposed IHA under section 101(a)(5)(D) because the standards are the same and the procedures are compatible. Incidental take authorization is available under both provisions if the Service finds that the anticipated take will have a negligible impact on the species or stock and will not have an unmitigable adverse impact on the availability of the species or stock for subsistence uses. Both types of authorization would include permissible methods of taking and other means of effecting the least practicable impact on the species or stock and its habitat and on the availability of the species or stock for taking for subsistence uses, any measures necessary to ensure no unmitigable adverse impact on the availability of the species or stock for taking for subsistence uses, and requirements for monitoring and reporting of any taking that does occur.

The differences between the two provisions are procedural. A final IHA would be issued without further notice in the **Federal Register**, following consideration of all comments received during the public comment period, if the Service finds that the anticipated level of take meets the statutory standards. An IHA can only be issued for up to one year, compared to the five-year period of the regulatory process. Also, an IHA can only be issued if the Service finds that no lethal take is likely to occur as a result of the anticipated oil and gas exploration activities. Here the Service would be issuing an IHA for the 2007 exploration season. If a final rule is published in the **Federal Register** finding that the anticipated take during the full five-year period meets the statutory standards, Letters of Authorization will replace the one-year IHA that will be issued to operators if the Service makes final determinations that the take that is anticipated to result from the 2007 activities meets the statutory standards.

The Description of Activities section of the proposed rule describes the oil and gas exploration activities that will occur during the 2007 season, as well as during the consecutive years of the regulatory period. The Description of Geographic Region section describes the geographic area in which exploration activities will be conducted in 2007, as well as during the other years of the regulatory period. The Mitigation Measures for Oil and Gas Exploration Activities section describes the mitigating measures and monitoring and reporting requirements that will be required in 2007 as conditions of the IHA. The potential Effects of Oil and Gas Industry Activities on Pacific Walruses and Polar Bears section, the Potential Effects of Oil and Gas Industry Activities on Subsistence Uses of Pacific Walruses and Polar Bears section, and the Summary of Take Estimated for Pacific Walruses and Polar Bears section analyze the type and level of take of polar bears and walrus that is anticipated to occur during the 2007 exploration season, as well as during the other years of the regulatory period. The public comment period announced with this proposed rule also serves as the public comment period for the proposed IHA. If the Service makes a final determination that the anticipated level of take meets the standards under section 101(a)(5)(D) of the MMPA, it will issue an IHA with all required conditions to oil and gas operators for the 2007 exploration season no later than 45 days after the close of the comment period.

### Description of Regulations

The proposed regulations are limited to the nonlethal, incidental take of small numbers of walruses and polar bears associated with oil and gas exploration activities (geophysical seismic surveys, exploratory drilling, and associated support activities) in the Chukchi Sea and adjacent coast of Alaska and would be effective for a period of up to 5 years from the date of issuance. The geographic region, as outlined in the "Description of Geographic Region," and the type of industrial activities, as outlined in the "Description of Activities" section were assessed in these regulations. No development or production activities are anticipated over this timeframe, or considered in the proposed regulations.

The total estimated level of activity covered by these regulations, as outlined in the "Description of Activities" section, was based on all projected exploration activities described by SOI, CPAI, and AOGA (on behalf of its members) in their petitions,

as well as projections of reasonably foreseeable activities for the period 2007–2012 described in the Chukchi Sea DEIS referenced by the petitioners. If the level of activity is more than anticipated, such as additional support vessels or aircraft, more drilling units, or more miles of geophysical surveys, the Service would reevaluate its findings to determine if they continue to be appropriate.

It is important to note that these regulations would not authorize, or "permit," the actual activities associated with oil and gas exploration in the Chukchi Sea. Rather, they would authorize the nonlethal incidental, unintentional take of small numbers of walruses and polar bears associated with those activities based on standards set forth in the MMPA. The petition does not request promulgation of regulations for the incidental taking from development or production activities in the Chukchi Sea. The MMS, the U.S. Army Corps of Engineers, and the Bureau of Land Management (BLM) are responsible for permitting activities associated with oil and gas activities in Federal waters and on Federal lands. The State of Alaska is responsible for permitting activities on State lands and in State waters.

The regulations that we propose to issue include permissible methods of nonlethal taking, measures to ensure the least practicable adverse impact on the species and the availability of these species for subsistence uses, and requirements for monitoring and reporting. If we issue final nonlethal incidental take regulations, persons seeking taking authorization for particular projects must apply for an LOA to cover nonlethal take associated with specified exploration activities pursuant to the regulations. Each group or individual conducting an oil and gas industry-related activity within the area covered by these regulations may request an LOA.

A separate LOA will be required for each geophysical survey or seismic activity and each exploratory drilling operation. Applications for LOAs must be received at least 90 days before the activity is to begin. Applicants for LOAs must submit an Operations Plan for the activity, a polar bear interaction plan, and a site-specific marine mammal monitoring and mitigation plan to monitor the effects of authorized activities on walruses and polar bears. A report on all exploration and monitoring activities must be submitted to the Service within 90 days after the completed activity. Details of monitoring and reporting requirements are further described in "Potential

Effects of Oil and Gas Industry Activities on Pacific Walruses and Polar Bears."

Depending upon the nature, timing, and location of a proposed activity, applicants may also be required to develop a Plan of Cooperation (POC) with potentially affected subsistence communities to minimize interactions with subsistence users. The POC is further described in "Potential Effects of Oil and Gas Industry Activities on Subsistence Uses of Pacific Walruses and Polar Bears."

Each request for an LOA will be evaluated based upon the specific activity and the specific location, and each authorization will identify allowable methods or conditions specific to that activity and location. For example, we will consider seasonal or location-specific restrictions to limit interactions between exploration activities and walrus aggregations, or interference with subsistence hunting activities. Individual LOAs will include monitoring and reporting requirements specific to each activity, as well as any measures necessary for mitigating impacts to these species and the subsistence use of these species. The granting of each LOA will be based on a determination that the total level of taking by all applicants in any one year is consistent with the estimated level used to make a finding of negligible impact and a finding of no unmitigable adverse impacts on the availability of the species or the stock for subsistence uses. Notice of issuance of LOAs will be published in the **Federal Register**. More information on applying for and receiving an LOA can be found at 50 CFR 18.27(f).

### Description of Geographic Region

These regulations would allow industry to incidentally take small numbers of Pacific walruses and polar bears within the same area, hereafter referred to as the Chukchi Sea Region (Figure 1). The geographic area covered by the request is the continental shelf of the Arctic Ocean adjacent to western Alaska. This area includes the waters (State of Alaska and OCS waters) and seabed of the Chukchi Sea, which encompasses all waters north and west of Point Hope (68°20'20" N, – 166°50'40" W, BGN 1947) to the U.S.-Russia Convention Line of 1867, west of a north-south line through Point Barrow (71°23'29" N, – 156°28'30" W, BGN 1944), and up to 200 miles north of Point Barrow. The region also includes the terrestrial coastal land 25 miles inland between the western boundary of the south National Petroleum Reserve—Alaska (NPR-A) near Icy Cape

(70°20'00", -148°12'00) and the north-south line from Point Barrow. The geographic region encompasses an area of approximately 5,850 square miles. This terrestrial region encompasses a portion of the Northwest and South Planning Areas of the NPR-A. The north-south line at Point Barrow is the western border of the geographic region in the Beaufort Sea incidental take regulations (71 FR 43926; August 2, 2006).

### Description of Activities

This section reviews the types and scale of oil and gas activities projected to occur in the Chukchi Sea Region over the specified time period (2007–2012). This information is based upon information provided by the petitioners and referenced in the Chukchi Sea DEIS. The Service has used these estimated levels of activity as a basis for its findings. If requests for LOAs exceed the highest estimated level of activity, the Service would reevaluate its findings to determine if they continue to be appropriate before further LOAs are issued. Specific locations where oil and gas activity may occur over the proposed regulatory period are largely speculative, but are within the geographic region identified and analyzed in these regulations. They will be determined, in part, on the outcome of future Federal and State oil and gas lease sales. The specific dates and durations of the individual operations and their geographic locations will be provided to the Service in detail when requests for LOAs are submitted.

Oil and gas activities anticipated and considered in our analysis of proposed incidental take regulations include: (1) Marine-streamer 3D and 2D seismic surveys; (2) high-resolution site-clearance surveys; (3) offshore exploration drilling; and (4) onshore seismic exploration and drilling.

#### *Marine-Streamer 3D and 2D Seismic Surveys*

Marine seismic surveys are conducted to locate geological structures potentially capable of containing petroleum accumulations. Air guns are the typical acoustic (sound) source for 2-dimensional and 3-dimensional (2D and 3D) seismic surveys. An outgoing sound signal is created by venting high-pressure air from the air guns into the water to produce an air-filled cavity (bubble) that expands and contracts. The size of individual air guns can range from tens to several hundred cubic inches (in<sup>3</sup>). A group of air guns is usually deployed in an array to produce a downward-focused sound signal. Air gun array volumes for both

2D and 3D seismic surveys are expected to range from 1,800–6,000 in<sup>3</sup>. The air guns are fired at short, regular intervals, so the arrays emit pulsed rather than continuous sound. While most of the energy is focused downward and the short duration of each pulse limits the total energy into the water column, the sound can propagate horizontally for several kilometers.

A 3D source array typically consists of two to three sub-arrays of six to nine air guns each, and is about 12.5–18 meters (m) long and 16–36 m wide. The size of the source-array can vary during the seismic survey to optimize the resolution of the geophysical data collected at any particular site. Vessels usually tow up to three source arrays, depending on the survey-design specifications. Most 3D operations use a single source vessel; however, in a few instances, more than one source vessel may be used. The sound-source level (zero-to-peak) associated with typical 3D seismic surveys ranges between 233 and 240 decibels at 1 meter (re 1  $\mu$ Pa at 1 m).

The vessels conducting 3D surveys are generally 70–90 m long. Surveys are typically acquired at a vessel speed of approximately 4.5 knots (k) (8.3 km/hour). Source arrays are activated approximately every 10–15 seconds, depending on vessel speed. The timing between outgoing sound signals can vary for different surveys to achieve the desired “shot point” spacing to meet the geological objectives of the survey; typical spacing is either 25 or 37.5 m. The receiving arrays could include multiple (4–16) streamer-receiver cables towed behind the source array. Streamer cables contain numerous hydrophone elements at fixed distances within each cable. Each streamer can be 3–8 km long with an overall array width of up to 1,500 m between outermost streamer cables. Biodegradable liquid paraffin is used to fill the streamer and provide buoyancy. Solid/gel streamer cables also are used. The wide extent of this towed equipment limits both the turning speed and the area a vessel covers with a single pass over a geologic target. It is, therefore, common practice to acquire data using an offset racetrack pattern. Adjacent transit lines for a survey generally are spaced several hundred meters apart and are parallel to each other across the survey area. Seismic surveys are conducted day and night when ocean conditions are favorable, and one survey effort may continue for weeks or months, depending on the size of the survey. Data-acquisition is affected by the arrays towed by the survey vessel and weather conditions. Typically, data are only collected

between 25 and 30 percent of the time (or 6–8 hours a day) because of equipment or weather problems. In addition to downtime due to weather, sea conditions, turning between lines, and equipment maintenance, surveys could be suspended to avoid interactions with biological resources. The MMS estimates that individual surveys could last between 20–30 days (with downtime) to cover a 200 square mile (mi<sup>2</sup>) area.

Marine-streamer 2D surveys use similar geophysical-survey techniques as 3D surveys, but both the mode of operation and general vessel type used are different. The 2D surveys provide a less-detailed subsurface image because the survey lines are spaced farther apart, but they cover wider areas to image geologic structure on more of a regional basis. Large prospects are easily identified on 2D seismic data, but detailed images of the prospective areas within a large prospect can only be seen using 3D data. The 2D seismic-survey vessels generally are smaller than 3D-survey vessels, although larger 3D-survey vessels are also capable of conducting 2D surveys. The 2D source array typically consists of three or more sub-arrays of six to eight air gun sources each. The sound-source level (zero-to-peak) associated with 2D marine seismic surveys are the same as 3D marine seismic surveys (233–240 dB re 1  $\mu$ Pa at 1 m). Typically, a single hydrophone streamer cable approximately 8–12 km long is towed behind the survey vessel. The 2D surveys acquire data along single track lines that are spread more widely apart (usually several miles) than are track lines for 3D surveys (usually several hundred meters).

Both 3D and 2D marine-streamer surveys require a largely ice-free environment to allow effective operation and maneuvering of the air gun arrays and long streamers. In the Chukchi Sea Region, the timing and areas of the surveys will be dictated by ice conditions. The data-acquisition season in the Chukchi Sea could start sometime in July and end sometime in early November. Even during the short summer season, there are periodic incursions of sea ice, so there is no guarantee that any given location will be ice free throughout the survey.

Marine seismic-exploration work is expected to occur in the Chukchi Sea Region in the summer of 2007 in anticipation of OCS lease sale 193. This work is likely to include 3D seismic surveys, but will not include exploration drilling. Approximately 100,000 line-miles of 2D seismic surveys already have been collected in the Chukchi Sea program area, so the

MMS assumes that additional geophysical surveys will be primarily 3D surveys focusing on specific leasing targets. The 3D surveys are likely to continue during the early phase of exploration when wells are drilled; however, the number of surveys is expected to decrease over time as data is collected over the prime prospects and these prospects are tested by drilling.

Based upon information provided by the petitioners, and estimates prepared by the MMS in the Chukchi Sea DEIS, the Service estimates that, in any given year during the specified timeframe (2007–2012), up to four seismic survey vessels could be operating simultaneously in the Chukchi Sea Region during the open water season. Each seismic vessel is expected to collect between 3,200–14,500 linear kilometers of seismic survey data. Seismic surveys are expected to occur in open water conditions between July 1 and November 30 each year. We estimate that each seismic survey vessel will be accompanied or serviced by 1–3 support vessels. Helicopters may also be used, when available, for vessel support and crew changes.

#### *High-Resolution Site-Clearance Surveys*

Based on mapping of the subsurface structures using 2D and 3D seismic data, several well locations may be proposed. Prior to drilling deep test wells, high-resolution site clearance seismic surveys and geotechnical studies will be necessary to examine the proposed exploration drilling locations for geologic hazards, archeological features, and biological populations. Site clearance and studies required for exploration will be conducted during the open water season before a drill rig is mobilized to the site. A typical operation consists of a vessel towing an acoustic source (air gun) about 25 m behind the ship and a 600-m streamer cable with a tail buoy. The source array usually is a single array composed of one or more air guns. A 2D high-resolution site-clearance survey usually has a single air gun, while a 3D high-resolution site survey usually tows an array of air guns. The ships travel at 3–3.5 knots (5.6–6.5 km/hour), and the source is activated every 7–8 seconds (or about every 12.5 m). All vessel operations are designed to be ultra-quiet, as the higher frequencies used in high-resolution work are easily masked by the vessel noise. Typical surveys cover one OCS block at a time. MMS regulations require information be gathered on a 300 by 900 m grid, which amounts to about 129 line kilometers of data per lease block. If there is a high

probability of archeological resources, the north–south lines are 50 m apart and the 900 m remains the same. Including line turns, the time to survey a lease block is approximately 36 hours. Air gun volumes for high-resolution surveys typically are 90–150 in<sup>3</sup>, and the output of a 90-in<sup>3</sup> air gun ranges from 229–233 dB high-resolution re 1  $\mu$ Pa at 1m. Air gun pressures typically are 2,000 psi (pounds per square inch), although they can be used at 3,000 psi for higher signal strength to collect data from deep in the subsurface.

Based upon information provided by the petitioners, and estimates prepared by the MMS in the Chukchi Sea DEIS, we estimate that during the specified timeframe (2007–2012), as many as six high-resolution site surveys may be carried out in any given year.

#### *Offshore Drilling Operations*

Considering water depth and the remoteness of this area, drilling operations are most likely to employ drill-ships with ice-breaker support vessels. Water depths greater than 100 feet and possible pack-ice incursions during the open-water season will preclude the use of bottom-founded platforms as exploration drilling rigs. Using drill-ships allows the operator to temporarily move off the drill-site if sea or ice conditions require it, and the suspended well is controlled by blowout-prevention equipment installed on wellheads on the seabed. Drilling operations are expected to range between 30 and 90 days at different well sites, depending on the depth to the target formation, difficulties during drilling, and logging/testing operations. Drill-ships operate only during the open-water season, and drifting ice can prevent their operation.

A drill-ship is secured over the drill-site by deploying anchors on as many as ten to twelve mooring lines. The drill pipe is encased in a riser that compensates for the vertical wave motion. The blowout preventer (BOP) is typically located at the seabed in a hole dug below the ice-scour depth. BOP placement is an important safety feature enabling the drill-ship to shut down operations and get underway rapidly without exposing the well. One or more ice management vessels (icebreakers) generally support drill-ships to ensure ice does not encroach on operations. A barge and tug typically accompany the vessels to provide a standby safety vessel, oil spill response capabilities, and refueling support. Most supplies (including fuel) necessary to complete drilling activities are stored on the drill-ship and support vessels. Helicopter servicing of drill-ships can occur as

frequently as 1–2 times/day. The abandonment phase is initiated if exploratory wells are not successful. In a typical situation, wells are permanently plugged (with cement) and wellhead equipment removed. The seafloor site is restored to some practicable, pre-exploration condition. Post-abandonment surveys are conducted to confirm that no debris remains following abandonment or those materials remain at the lease tract. The casings for delineation wells are either cut mechanically or with explosives during the process of well abandonment. The MMS estimates that exploration wells will average 8,000 ft, will use approximately 475 tons (ton = 2,000 pounds) of dry mud, and produce 600 tons of dry rock cuttings. Considering the cost of synthetic drilling fluids now commonly used, the MMS assumes that most of the drilling mud will be reconditioned and reused. All of the rock cuttings will be discharged at the exploration site.

Considering the relatively short open-water season in the Chukchi Sea (July–November), the MMS estimates that up to four wells could be started by one rig each drilling season. However, it is more likely that only one to two wells could be drilled, tested, and abandoned by one drill ship in any given season, leaving work on the other wells to the next summer season. A total of 5 exploration wells have been drilled on the Chukchi shelf, and the MMS estimates that 7–14 additional wells will be needed to discover and delineate a commercial field.

Based upon information provided by the petitioners, and estimates prepared by the MMS in the Chukchi Sea DEIS, we estimate that as many as five drill-ships could be operating in the Chukchi Sea Region in any given year during the specified timeframe (2007–2012). Each drill-ship is expected to drill up to four exploratory or delineation wells per season. Each drill-ship is likely to be supported by 1–2 ice breakers, a barge and tug, 1–2 helicopter flights per day, and 1–2 supply ships per week. The operating season is expected to be limited to the open-water season July 1–November 30.

#### *Onshore Seismic Exploration and Drilling*

The CPAI petition also describes conducting onshore seismic exploration and drilling over the next five years, including geotechnical site investigations, vibroseis, construction of ice pads, roads, and islands, and exploratory drilling.

Geotechnical site investigations include shallow cores and soil borings

to investigate soil conditions and stratigraphy. Geotechnical properties at select points may be integrated with seismic data to develop a regional model for predicting soil conditions in areas of interest.

Vibroseis seismic operations are conducted both onshore and on nearshore ice using large trucks with vibrators that systematically put variable frequency energy into the earth. A minimum of 1.2 m (4 ft) of sea ice is required to support heavy vehicles used to transport equipment offshore for exploration activities. These ice conditions generally exist from 1 January until 31 May. The exploration techniques are most commonly used on landfast ice, but they can be used in areas of stable offshore pack ice. Several vehicles are normally associated with a typical vibroseis operation. One or two vehicles with survey crews move ahead of the operation and mark the source receiver points. Occasionally, bulldozers are needed to build snow ramps on the steep terrain or to smooth offshore rough ice within the site.

A typical wintertime exploration seismic crew consists of 40–140 personnel. Roughly 75 percent of the personnel routinely work on the active seismic crew, with approximately 50 percent of those working in vehicles and the remainder outside laying and retrieving geophones and cables.

With the vibroseis technique, activity on the surveyed seismic line begins with the placement of sensors. All sensors are connected to the recording vehicle by multi-pair cable sections. The vibrators move to the beginning of the line, and recording begins. The vibrators move along a source line, which is at some angle to the sensor line. The vibrators begin vibrating in synchrony via a simultaneous radio signal to all vehicles. In a typical survey, each vibrator will vibrate four times at each location. The entire formation of vibrators subsequently moves forward to the next energy input point (67 m (220 ft) in most applications) and repeats the process. In a typical 16- to 18-hour day, a survey will complete 6 to 16 linear km (4–10 mi) in a 2D seismic operation and 24 to 64 linear km (15–40 mi) in a 3D seismic operation. CPAI anticipates conducting between one and five vibroseis seismic programs onshore within the northwest NPR–A over the next 5 years.

CPAI also anticipates developing vertical seismic profiles (VSPs) to calibrate seismic and well data. VSP operations are usually staffed by less than eight people. Four or five of the operators remain in the vehicles (vibrators) within 1.6 to 3.2 km (1–2 mi)

of the rig, while the others are located at the rig.

CPAI proposes to drill up to three onshore exploration wells on private lands south of Barrow near the North Slope Boroughs Walakpa gas field in the winter of 2007. It is estimated that another 3 to 5 wells could be drilled in this area within the next 5 years. In support of these activities, CPAI estimates that the following associated infrastructure would be required: 20–100 miles of ice roads; 20–300 miles of rolligon trails; 1 to 2 airfields of approximately 5,000 feet in size; storage of rigs and/or support equipment in Barrow; and barging of equipment to and from Barrow from existing facilities.

On Federal lands, CPAI estimates drilling 3 to 6 onshore wells within the next 5 years. Drilling will likely include both well testing and VSPs. Three onshore wells are proposed for 2007. Drilling operations will require an estimated 20 to 100 miles of ice roads, 20 to 300 miles of rolligon trails, 1 to 4 airfields approximately 5,000 ft in length on lakes or tundra, rig storage on gravel, possibly at new sites in the Northwest NPR–A, 1 to 5 camps, and 1 to 3 rigs operating in a given year.

#### **Mitigation Measures for Oil and Gas Exploration Activities in the Chukchi Sea**

Measures to mitigate potential effects of oil and gas exploration activities on marine mammal resources and subsistence use of those resources have been identified and developed through previous MMS lease sale National Environmental Policy Act (NEPA) review and analysis processes. The Chukchi Sea DEIS ([http://www.mms.gov/alaska/ref/EIS%20EA/draft\\_arctic\\_peis/draft\\_peis.htm](http://www.mms.gov/alaska/ref/EIS%20EA/draft_arctic_peis/draft_peis.htm)) identifies several existing measures designed to mitigate potential effects of oil and gas exploration activities on marine mammal resources and subsistence use of those resources (II.B.3.; II–B.5–24). All plans for OCS exploration activities will go through an MMS review and approval to ensure compliance with established laws and regulations. Operational compliance is enforced through the MMS on-site inspection program. The following MMS lease sale stipulations and mitigation measures will be applied to all exploration activities in the Chukchi Lease Sale Planning Area and the geographic region of the incidental take regulations. The Service has incorporated these MMS Lease sale mitigation measures into their analysis of impacts to Pacific walrus and polar bears in the Chukchi Sea.

MMS lease sale stipulations that will help minimize Industry impacts to Pacific walruses and polar bears include:

#### *Pre-Booming Requirements for Fuel Transfers*

Fuel transfers of 100 barrels or more will require pre-booming of fuel barges. A fuel barge must be surrounded by an oil-spill-containment boom during the entire transfer operation to help reduce any adverse effects from a fuel spill. Pre-booming requirements are intended to lower the potential effects to water quality, lower trophic-level organisms, marine mammals, subsistence resources and hunting, and sociocultural systems by providing additional protection from potential fuel spills.

By containing any spill within the boom area, this stipulation will reduce the risk of fuel spills contacting walruses and polar bears, and the risk that harvested animals may become tainted from a potential spill.

#### *Site-Specific Monitoring Program for Marine Mammal Subsistence Resources*

A lessee proposing to conduct exploration operations within traditional subsistence use areas will be required to conduct a site-specific monitoring program designed to assess when walruses and polar bears are present in the vicinity of lease operations and the extent of behavioral effects on these marine mammals due to their operations. This stipulation applies specifically to the communities of Barrow, Wainwright, Point Lay, and Point Hope.

Site-specific monitoring programs will provide information about the seasonal distributions of walruses and polar bears. The information can be used to evaluate the threat of harm to the species and provides immediate information about their activities, and their response to specific events. This stipulation is expected to reduce the potential effects of exploration activities on walruses, polar bears, and the subsistence use of these resources. This stipulation also contributes incremental and important information to ongoing walrus and polar bear research and monitoring efforts.

#### *Conflict Avoidance Mechanisms To Protect Subsistence-Harvesting Activities*

Through consultation with potentially affected communities, the lessee shall make every reasonable effort to assure that their proposed activities are compatible with marine mammal subsistence hunting activities and will not result in unreasonable interference

with subsistence harvests. In the event that no agreement is reached between the parties, the lessee, the appropriate management agencies and co-management organizations, and any communities that could be directly affected by the proposed activity may request that the MMS assemble a group consisting of representatives from the parties specifically to address the conflict and attempt to resolve the issues before the MMS makes a final determination on the adequacy of the measures taken to prevent unreasonable conflicts with subsistence harvests.

This lease stipulation will help reduce potential conflicts between subsistence hunters and proposed oil and gas exploration activities. This stipulation will help reduce noise and disturbance conflicts from oil and gas operations during specific periods, such as peak hunting seasons. It requires that the lessee meet with local communities and subsistence groups to resolve potential conflicts. The consultations required by this stipulation ensure that the lessee, including contractors, consult and coordinate both the timing and sighting of events with subsistence users. This stipulation has proven to be effective in the Beaufort Sea Planning Area in mitigating offshore exploration activities through the development of annual agreements between the Alaska Eskimo Whaling Commission and participating oil companies.

#### *Measures To Mitigate Seismic-Surveying Effects*

The measures summarized below are based on the protective measures in MMS' most recent marine seismic survey exploration permits and the recently completed *Programmatic Environmental Assessment of Arctic Ocean Outer Continental Shelf Seismic Surveys—2006* ([http://www.mms.gov/alaska/ref/pea\\_be.htm](http://www.mms.gov/alaska/ref/pea_be.htm)). As stated in the MMS Programmatic Environmental Assessment, these protective measures would be incorporated in all MMS-permitted seismic activities.

1. Spacing of Seismic Surveys—Operators must maintain a minimum spacing of 15 miles between the seismic-source vessels for separate simultaneous operations.

2. Exclusion Zone—A 180/190-decibel (dB) isopleth-exclusion zone (also called a safety zone) from the seismic-survey-sound source shall be free of marine mammals, including walrus and polar bears, before the survey can begin and must remain free of mammals during the survey. The purpose of the exclusion zone is to protect marine mammals from Level A harassment. The 180-dB (Level A

harassment injury) applies to cetaceans and walrus, and the 190-dB (Level A harassment-injury) applies to pinnipeds other than walrus and polar bears.

3. Monitoring of the Exclusion Zone—Trained marine mammal observers (MMOs) shall monitor the area around the survey for the presence of marine mammals to maintain a marine mammal-free exclusion zone and monitor for avoidance or take behaviors. Visual observers monitor the exclusion zone to ensure that marine mammals do not enter the exclusion zone for at least 30 minutes prior to ramp up, during the conduct of the survey, or before resuming seismic survey work after a shut down.

Shut Down—The survey shall be suspended until the exclusion/safety zone is free of marine mammals. All observers shall have the authority to, and shall instruct the vessel operators to immediately stop or de-energize the airgun array whenever a marine mammal is seen within the zone. If the airgun array is completely shut-down for any reason during nighttime or poor sighting conditions, it shall not be re-energized until daylight or whenever sighting conditions allow for the zone to be effectively monitored from the source vessel and/or through other passive acoustic, aerial, or vessel-based monitoring.

Ramp Up—Ramp up is the gradual introduction of sound from airguns to deter marine mammals from potentially damaging sound intensities and from approaching the specified zone. This technique involves the gradual increase (usually 5–6 dB per 5-minute increment) in emitted sound levels, beginning with firing a single airgun and gradually adding airguns over a period of at least 20–40 minutes, until the desired operating level of the full array is obtained. Ramp-up procedures may begin after observers ensure the absence of marine mammals for at least 30 minutes. Ramp up procedures shall not be initiated at night or when monitoring the zone is not possible. A single airgun operating at a minimum source level can be maintained for routine activities, such as making a turn between line transects, for maintenance needs or during periods of impaired visibility (e.g., darkness, fog, high sea states), and does not require a 30-minute clearance of the zone before the airgun array is again ramped up to full output.

Field Verification—Before conducting the survey, the operator shall verify the radii of the exclusion/safety zones within real-time conditions in the field. This provides for more accurate radii rather than relying on modeling techniques before entering the field.

Field-verification techniques must use valid techniques for determining propagation loss. When moving a seismic-survey operation into a new area, the operator shall verify the new radii of the zones by applying a sound-propagation series.

4. Monitoring of the Seismic-Survey Area—Aerial-monitoring surveys or an equivalent monitoring program acceptable to the Service will be required through the LOA authorization process. Field verification of the effectiveness of any monitoring techniques may be required by the Service.

5. Reporting Requirements—Reporting requirements provide regulatory agencies with specific information on the monitoring techniques to be implemented and how any observed impacts to marine mammals will be recorded. In addition, operators must report immediately any shutdowns due to a marine mammal entering the exclusion zones and provide the regulating agencies with information on the frequency of occurrence and the types and behaviors of marine mammals (if possible to ascertain) entering the exclusion zones.

6. Temporal/Spatial/Operational Restrictions—Seismic-survey and associated support vessels shall observe a 0.5-mile (~800-meter) safety radius around walrus hauled-out onto land or ice. Aircraft shall be required to maintain a 1,000-foot minimum altitude within 0.5 miles of hauled-out walrus.

7. Seismic-survey operators shall notify MMS in the event of any loss of cable, streamer, or other equipment that could pose a danger to marine mammals.

These seismic mitigation measures will help reduce the potential for Level A Harassment of walrus and polar bears during seismic operations. The spatial separation of seismic operations will also reduce potential cumulative effects of simultaneous operations. The monitoring and reporting requirements will provide location-specific information about the seasonal distributions of walrus and polar bears. The additional information can be used to evaluate the future threat of harm to the species and also provides immediate information about their activities, and their response to specific events.

#### **Biological Information**

##### *Pacific Walrus*

##### 1. Stock Definition and Range

Pacific walrus (*Odobenus rosmarus divergens*) are represented by a single stock of animals that inhabit the shallow



continental shelf waters of the Bering and Chukchi seas. The population ranges across the international boundaries of the United States and Russia, and both nations share common interests with respect to the conservation and management of this species.

Several decades of intense commercial exploitation in the late 1800s and early 1900s left the population severely depleted. The population is believed to have increased substantially in size and range during the 1960s–1980s due to hunting restrictions enacted in the United States and Russia that reduced the size of the commercial harvest and provided protection to female walrus and calves. Information concerning population size and trend after 1985 is less certain. An aerial survey flown in 1990 produced a population estimate of 201,039 animals; however, large confidence intervals associated with that estimate precluded any conclusions concerning population trend. The current size and trend of the Pacific walrus population are unknown. Projected ecosystem changes across the Arctic further underscore the need for detailed population studies from which sound management decisions can be made.

The distribution of Pacific walrus varies markedly with the seasons. During the late winter breeding season, walrus are found in areas of the Bering Sea where open leads, polynas, or areas of broken pack-ice occur. Significant winter concentrations are normally found in the Gulf of Anadyr, the St. Lawrence Island Polyna, and in an area south of Nunivak Island. In the spring and early summer, most of the population follows the retreating pack-ice northward into the Chukchi Sea; however, several thousand animals, primarily adult males, remain in the Bering Sea, utilizing coastal haulouts during the ice-free season. During the summer months, walrus are widely distributed across the shallow continental shelf waters of the Chukchi Sea. Significant summer concentrations are normally found in the unconsolidated pack-ice west of Point Barrow, and along the northern coastline of Chukotka in the vicinity of Wrangel Island. As the ice edge advances southward in the fall, walrus reverse their migration and re-group on the Bering Sea pack-ice.

## 2. Habitat

Walrus rely on floating pack-ice as a substrate for resting and giving birth. Walrus generally require ice thicknesses of 50 centimeters (cm) or

more to support their weight. Although walrus can break through ice up to 20 cm thick, they usually occupy areas with natural openings and are not found in areas of extensive, unbroken ice. Thus, their concentrations in winter tend to be in areas of divergent ice flow or along the margins of persistent polynas. Concentrations in summer tend to be in areas of unconsolidated pack-ice, usually within 100 km of the leading edge of the ice pack. When suitable pack-ice is not available, walrus haul out to rest on land. Isolated sites, such as barrier islands, points, and headlands, are most frequently occupied. Social factors, learned behavior, and proximity to their prey base are also thought to influence the location of haulout sites. Traditional walrus haulout sites in the eastern Chukchi Sea include Cape Thompson, Cape Lisburne, and Icy Cape. In recent years, the Cape Lisburne haulout site has seen regular use in late summer. Numerous haulouts also exist along the northern coastline of Chukotka, and on Wrangel and Herald islands, which are considered important hauling grounds in September, especially in years when the pack-ice retreats far to the north.

Although capable of diving to deeper depths, walrus are for the most part found in shallow waters of 100 m or less, possibly because of higher productivity of their benthic foods in shallower water. They feed almost exclusively on benthic invertebrates although Native hunters have also reported incidences of walrus preying on seals. Prey densities are thought to vary across the continental shelf according to sediment type and structure. Preferred feeding areas are typically composed of sediments of soft, fine sands. The juxtaposition of ice over appropriate depths for feeding is especially important for females with dependent calves that are not capable of deep diving or long exposure in the water. The mobility of the pack ice is thought to help prevent walrus from overexploiting their prey resource. Foraging trips may last for several days, during which time they dive to the bottom nearly continuously. Most foraging dives to the bottom last between 5 and 10 minutes, with a relatively short (1–2 minute) surface interval. The intensive tilling of the sea floor by foraging walrus is thought to have significant influence on the ecology of the Bering and Chukchi Seas. Foraging activity recycles large quantities of nutrients from the sea floor back into the water column, provides food for scavenger organisms, and

contributes greatly to the diversity of the benthic community.

## 3. Life History

Walrus are long-lived animals with low rates of reproduction. Females reach sexual maturity at 4–9 years of age. Males become fertile at 5–7 years of age; however, they are usually unable to compete for mates until they reach full physical maturity at 15–16 years of age. Breeding occurs between January and March in the pack-ice of the Bering Sea. Calves are usually born in late April or May the following year during the northward migration from the Bering Sea to the Chukchi Sea. Calving areas in the Chukchi Sea extend from the Bering Strait to latitude 70°N. Calves are capable of entering the water shortly after birth, but tend to haulout frequently, until their swimming ability and blubber layer are well developed. Newborn calves are tended closely. They accompany their mother from birth and are usually not weaned for 2 years or more. Cows brood neonates to aid in their thermoregulation, and carry them on their back or under their flipper while in the water. Females with newborns often join together to form large “nursery herds”. Summer distribution of females and young walrus is closely tied to the movements of the pack-ice relative to feeding areas. Females give birth to one calf every two or more years. This reproductive rate is much lower than other pinniped species; however, some walrus live to age 35–40, and remain reproductively active until relatively late in life.

Walrus are extremely social and gregarious animals. They tend to travel in groups and haul-out onto ice or land in groups. Walrus spend approximately one-third of their time hauled out onto land or ice. Hauled-out walrus tend to lie in close physical contact with each other. Youngsters often lie on top of the adults. The size of the hauled-out groups can range from a few animals up to several thousand individuals.

## 4. Mortality

Polar bears (*Ursus maritimus*) are known to prey on walrus calves, and killer whales (*Orcinus orca*) have been known to take all age classes of animals. Predation levels are thought to be highest near terrestrial haulout sites where large aggregations of walrus can be found; however, few observations exist for off-shore environs.

Pacific walrus have been hunted by coastal Natives in Alaska and Chukotka for thousands of years. Exploitation of the Pacific walrus population by



Europeans has also occurred in varying degrees since first contact. Presently, walrus hunting in Alaska and Chukotka is restricted to meet the subsistence needs of aboriginal peoples. The combined harvest of the United States and Russia averages approximately 5,500 walrus per year. This mortality estimate includes corrections for under-reported harvest and struck and lost animals.

Intraspecific trauma is also a known source of injury and mortality. Disturbance events can cause walrus to stampede into the water and have been known to result in injuries and mortalities. The risk of stampede-related injuries increases with the number of animals hauled out. Calves and young animals at the perimeter of these herds are particularly vulnerable to trampling injuries.

#### 5. Distributions and Abundance of Pacific Walrus in the Chukchi Sea

Walrus are seasonably abundant in the Chukchi Sea. Their distribution is thought to be influenced primarily by the extent of the seasonal pack-ice, although habitat use patterns are poorly known. In May and June, most of the Pacific walrus population migrates through the Bering Strait into the Chukchi Sea. Walrus tend to migrate into the Chukchi Sea along lead systems that develop along the northwest coast of Alaska. Walrus are expected to be closely associated with the southern edge of the seasonal pack-ice during the open water season. By July, large groups of walrus, up to several thousand animals, can be found along the edge of the pack ice between Icy Cape and Point Barrow. During August, the edge of the pack-ice generally retreats northward to about 71°N, but in light ice years, the ice edge can retreat beyond 76°N. The sea ice normally reaches its minimum (northern) extent in September. It is unclear how walrus respond in years when the sea ice retreats beyond the relatively shallow continental shelf waters. At least some animals are thought to migrate west towards Chukotka, while others have been observed hauling out along the shoreline between Point Barrow and Cape Lisburne. The pack-ice rapidly advances southward in October, and most animals are thought to have returned to the Bering Sea by early November.

A recent abundance estimate for the number of walrus present in the Chukchi Sea during the proposed operating season is lacking. Previous aerial surveys of the region carried out in the 1980s resulted in abundance estimates ranging from 62,177–101,213.

A 1990 aerial survey reported 16,489 walrus distributed in the Chukchi Sea pack-ice between Wrangel Island and Point Barrow; however, the sea-ice was distributed well beyond the continental shelf at the time of the survey. These abundance estimates are all considered conservative because no corrections were made for walrus in water (not visible) at the time of the surveys.

#### Polar Bears

##### 1. Alaska Stock Definition and Range

Polar bears occur throughout the Arctic. The world population estimate of polar bears ranges from 20,000–25,000 individuals. In Alaska, they have been observed as far south in the eastern Bering Sea as St. Matthew Island and the Pribilof Islands. However, they are most commonly found within 180 miles of the Alaskan coast of the Chukchi and Beaufort Seas, from the Bering Strait to the Canadian border. Two stocks occur in Alaska: (1) The Chukchi-Bering Seas stock (CS); and (2) the Southern Beaufort Sea stock (SBS). A summary of the Chukchi and Southern Beaufort Sea polar bear stocks are described below. A detailed description of the Chukchi Sea and Southern Beaufort Sea polar bear stocks can be found in the “Range-Wide Status Review of the Polar Bear (*Ursus Maritimus*)” (<http://alaska.fws.gov/fisheries/mmm/polarbear/issues.htm>).

##### A. Chukchi/Bering Sea Stock (CS)

The CS is defined as polar bears inhabiting the area as far west as the eastern portion of the Eastern Siberian Sea, as far east as Point Barrow, and extending into the Bering Sea, with its southern boundary determined by the extent of annual ice. Based upon these telemetry studies, the western boundary of the population was set near Chaunskaya Bay in northeastern Russia. The eastern boundary was set at Icy Cape, Alaska, which also is the previous western boundary of the SBS. This eastern boundary constitutes a large overlap zone with bears in the SBS population. The CS population is estimated to comprise 2,000 animals based on extrapolation of aerial den surveys; however, these estimates have wide ranges (ca. 2,000–5,000) and are considered to be of little value for management. Reliable estimates of population size based upon mark and recapture are not available for this region. The status of the CS population, which was believed to have increased after the level of harvest was reduced in 1972, is now thought to be uncertain or declining. Measuring the population size remains a research challenge and recent reports of substantial levels of

illegal harvest in Russia are cause for concern. Legal harvesting activities are currently restricted to Inuit in western Alaska. In Alaska, average annual harvest levels declined by approximately 50 percent between the 1980s and the 1990s and have remained at low levels in recent years. There are several factors potentially affecting the harvest level in western Alaska. The factor of greatest direct relevance is the substantial illegal harvest in Chukotka. In addition, other factors such as climatic change and its effects on pack ice distribution, as well as changing demographics and hunting effort in native communities could influence the declining take. Recent measures undertaken by regional authorities in Chukotka may have reduced the illegal hunt. The unknown rate of illegal take makes the stable designation uncertain and tentative.

##### B. Southern Beaufort Sea (SBS)

The SBS polar bear population is shared between Canada and Alaska. Radio-telemetry data, combined with earlier tag returns from harvested bears, suggested that the SBS region comprised a single population with a western boundary near Icy Cape, Alaska, and an eastern boundary near Pearce Point, Northwest Territories, Canada. Early estimates suggested the size of the SBS population was approximately 1,800 polar bears, although uneven sampling was known to compromise the accuracy of that estimate. A preliminary population analysis of the SBS stock was completed in June 2006 through joint research coordinated between the United States and Canada. That analysis indicated the population of the region between Icy Cape and Pearce Point is now approximately 1,500 polar bears (95 percent confidence intervals approximately 1,000–2,000). Further analyses are likely to tighten the confidence intervals, but not likely to change the point estimate appreciably. Although the confidence intervals of the current population estimate overlap the previous population estimate of 1,800, other statistical and ecological evidence (e.g., high recapture rates encountered in the field) suggest that the current population is actually smaller than has been estimated for this area in the past. Although the new SBS population estimate is preliminary, we believe it should be used for current status assessments.

Recent analyses of radio-telemetry data of spatio-temporal use patterns of bears of the SBS stock using new spatial modelling techniques suggest realignment of the boundaries of the Southern Beaufort Sea area. We now

know that nearly all bears in the central coastal region of the Beaufort Sea are from the SBS population, and that proportional representation of SBS bears decreases to both the west and east. For example, only 50 percent of the bears occurring in Barrow, Alaska, and Tuktoyaktuk, Northwest Territories, are SBS bears, with the remainder being from the CS and northern Beaufort Sea populations, respectively. The recent radio-telemetry data indicate that bears from the SBS population seldom reach Pearce Point, which is currently on the eastern management boundary for the SBS population. Conversely, SBS bears can also be found in the western regions of their range in the Chukchi Sea (i.e., Wainwright and Point Lay) in lower proportions than the central portion of their range.

Management and conservation concerns for polar bears include: climate change, which continues to increase both the expanse and duration of open water in summer and fall; human activities within the near-shore environment, including hydrocarbon development and production; atmospheric and oceanic transport of contaminants into the Arctic; and the potential for inadvertent over-harvest, should polar bear stocks become nutritionally-stressed or decline due to some combination of the aforementioned threats.

On January 9, 2007 (72 FR 1064), the Service proposed to list the polar bear as a threatened species under the U.S. Endangered Species Act of 1973, as amended, based on a comprehensive scientific review to assess the current status and future of the species. The Service will gather more information, undertake additional analyses, and assess the reliability of relevant scientific models before making a final decision whether to list the species. More information can be found at: <http://www.fws.gov/> and <http://www.fws.gov/home/feature/2006/010907FRproposedrule.pdf>.

## 2. Habitat

Polar bears of the Chukchi Sea are subject to the movements and coverage of the pack-ice. The most extensive north-south movements of polar bears are associated with the spring and fall ice movement. For example, during the 2006 ice-covered season, six bears radio-collared in the Beaufort Sea were located in the Chukchi and Bering Seas as far south as 59° latitude. Summer movements tend to be less dramatic due to the reduction of ice habitat. Summer distribution is somewhat dependent upon the location of the ice front; however, polar bears are accomplished

swimmers and are often seen on floes separated from the main pack-ice. Therefore, bears can appear at any time in what can be called "open water." The summer ice pack can be quite disjunct and segments can be driven by wind great distances carrying polar bears with them. Bears from both stocks overlap in their distribution around Point Barrow and can move into surrounding areas depending on ice conditions.

Polar bears spend most of their time in near-shore, shallow waters over the productive continental shelf associated with the shear zone and the active ice adjacent to the shear zone. Sea ice and food availability are two important factors affecting the distribution of polar bears. In the near-shore environment, Beaufort Sea polar bears are generally widely distributed in low numbers across the Beaufort Sea area; however, polar bears have been observed congregating on the barrier islands in the fall and winter, resting, moving, and feeding on available food. Polar bears will occasionally feed on bowhead whale (*Balaena mysticetus*) carcasses at Point Barrow, Cross, and Barter islands, areas where bowhead whales are harvested for subsistence purposes. An increased trend by polar bears to use coastal habitats in the fall during open-water and freeze-up conditions has been noted since 1992.

## 3. Denning and Reproduction

Although insufficient data exist to accurately quantify polar bear denning along the Alaskan Chukchi Sea coast, dens in the area are less concentrated than for other areas in the Arctic. The majority of denning of Chukchi Sea polar bears occurs on Wrangel Island, Herald Island, and certain locations on the northern Chukotka coast. Females without dependent cubs breed in the spring. Females can initiate breeding at 5 to 6 years of age. Females with cubs do not mate. Pregnant females enter maternity dens by late November, and the young are usually born in late December or early January. Only pregnant females den for an extended period during the winter; other polar bears may excavate temporary dens to escape harsh winter winds. An average of two cubs are usually born, and after giving birth, the female and her cubs remain in the den where the cubs are nurtured until they can walk. Reproductive potential (intrinsic rate of increase) is low. The average reproductive interval for a polar bear is 3 to 4 years, and a female polar bear can produce about 8 to 10 cubs in her lifetime; in healthy populations, 50 to 60 percent of the cubs will survive. Female bears can be quite sensitive to

disturbances during this denning period.

In late March or early April, the female and cubs emerge from the den. If the mother moves young cubs from the den before they can walk or withstand the cold, mortality to the cubs may increase. Therefore, it is thought that successful denning, birthing, and rearing activities require a relatively undisturbed environment. Radio and satellite telemetry studies elsewhere indicate that denning can occur in multi-year pack-ice and on land.

Both fur and fat are important to polar bears for insulation in air and water. Cubs-of-the-year must accumulate a sufficient layer of fat in order to maintain their body temperature when immersed in water. It is unknown to what extent young cubs can withstand exposure in water before they are threatened by hypothermia. Polar bears groom their fur to maintain its insulative value.

## 4. Prey

Ringed seals (*Phoca hispida*) are the primary prey of polar bears in most areas. Bearded seals (*Erignathus barbatus*) and walrus calves are hunted occasionally. Polar bears opportunistically scavenge marine mammal carcasses, and there are reports of polar bears killing beluga whales (*Delphinapterus leucas*) trapped in the ice. Polar bears are also known to eat nonfood items including styrofoam, plastic, antifreeze, and hydraulic and lubricating fluids.

Polar bears hunt seals along leads and other areas of open water or by waiting at a breathing hole, or by breaking through the roof of a seal's lair. Lairs are excavated in snow drifts on top of the ice. Bears also stalk seals in the spring when they haul out on the ice in warm weather. The relationship between ice type and bear distribution is as yet unknown, but it is suspected to be related to seal availability.

## 5. Mortality

Polar bears are long-lived (up to 30 years) and have no natural predators, and they do not appear to be prone to death by diseases or parasites. Cannibalism by adult males on cubs and occasionally on other bears is known to occur. The most significant source of mortality is man. Before the MMPA was passed in 1972, polar bears were taken by sport hunters and residents. Between 1925 and 1972, the mean reported kill was 186 bears per year. Seventy-five percent of these were males, as cubs and females with cubs were protected. Since 1972, only Alaska Natives from coastal Alaskan villages have been allowed to

hunt polar bears in the United States for their subsistence uses or for handicraft and clothing items for sale. The Native hunt occurs without restrictions on sex, age, or number provided that the population is not determined to be depleted. From 1980 to 2005, the total annual harvest for Alaska averaged 101 bears: 64 percent from the Chukchi Sea and 36 percent from the Beaufort Sea. Other sources of mortality related to human activities include bears killed during research activities, euthanasia of sick or injured bears, and defense of life kills by non-Natives.

#### 6. Distributions and Abundance of Polar Bears in the Chukchi Sea

Polar bears are seasonably abundant in the Chukchi Sea and Lease Sale Area 193 and their distribution is influenced by the movement of the seasonal pack ice. Polar bears in the Chukchi and Bering Seas move south with the advancing ice during fall and winter and move north in advance of the receding ice in late spring and early summer. The distance between the northern and southern extremes of the seasonal pack ice is approximately 800 miles. In May and June, polar bears are likely to be encountered in the Lease Sale Area 193 as they move northward from the northern Bering Sea through the Bering Strait into the southern Chukchi Sea. During the fall/early winter period, polar bears are likely to be encountered in the Lease Sale Area 193 during their southward migration in late October and November. Furthermore, bears from the Southern Beaufort Sea population can be encountered in the Chukchi Sea as they travel with the pack ice in search of food. Polar bears are dependent upon the sea ice for foraging and the most productive areas seem to be near the ice edge, leads, or polynas where the ocean depth is minimal. In addition, polar bears could be present along the shoreline in this area as they will opportunistically scavenge on marine mammal carcasses washed up along the shoreline.

#### Subsistence Use and Harvest Patterns of Pacific Walruses and Polar Bears

Walruses and polar bears have been traditionally harvested by Alaska Natives for subsistence purposes. The harvest of these species plays an important role in the culture and economy of many coastal communities in Alaska and Chukotka. Walrus meat is consumed by humans and dogs, and the ivory is used to manufacture traditional arts and crafts. Polar bears are primarily hunted for their fur, which is used to manufacture cold weather gear;

however, their meat is also occasionally consumed. The communities most likely to be impacted by the proposed activities are Point Hope, Point Lay, Wainwright, and Barrow.

An exemption under section 101(b) of the MMPA allows Alaska Natives who reside in Alaska and dwell on the coast of the North Pacific Ocean or the Arctic Ocean to take walruses and polar bears if such taking is for subsistence purposes or occurs for purposes of creating and selling authentic native articles of handicrafts and clothing, as long as the take is not done in a wasteful manner. Under the terms of the MMPA, there are no restrictions on the number, season, or ages of walruses or polar bears that can be harvested in Alaska. A more restrictive Native to Native agreement between the Inupiat from Alaska and the Inuvialuit in Canada was created for the Southern Beaufort Sea stock of polar bears in 1988. Polar bears harvested from the communities of Barrow and Wainwright are currently considered part of the Southern Beaufort Sea stock and thus are subject to the terms of the Inuvialuit-Inupiat Polar Bear Management Agreement (Agreement). The Agreement establishes quotas and recommendations concerning protection of denning females, family groups, and methods of take. Quotas are based on estimates of population size and age-specific estimates of survival and recruitment. The polar bears harvested by the communities of Point Hope and Point Lay are thought to come primarily from the Chukchi/Bering sea stock. Neither Point Hope nor Point Lay hunters are parties to the Agreement.

The Service collects information on the subsistence harvest of walruses and polar bears in Alaska through the Marking, Tagging and Reporting Program (MTRP). The program is administered through a network of MTRP "taggers" employed in subsistence hunting communities. The marking and tagging rule requires that hunters report harvested walruses and polar bears to MTRP taggers within 30 days of kill. Taggers also certify (tag) specified parts (ivory tusks for walruses, hide and skull for polar bears) to help control illegal take and trade. It is unknown what proportion of the total U.S. walrus harvest is reported through the MTRP, although some estimates are as low as 30 percent. Polar bear harvests reported by the MTRP are believed to be as high as 80 percent of the actual subsistence harvest.

Harvest levels of polar bears and walruses in these communities vary considerably between years, presumably in response to differences in animal

distributions and ice conditions. Descriptive information on subsistence harvests of walruses and polar bears in each community is presented below.

#### Point Hope

Between 1990 and 2005, the average annual walrus harvest recorded through the MTRP at Point Hope was  $5.6 (\pm 5.8, \text{SD})$  animals per year. Point Hope hunters typically begin their walrus hunt in late May and June as walruses migrate into the Chukchi Sea. The sea ice is usually well off shore of Point Hope by July and does not bring animals back into the range of hunters until late August and September. Most (70.8 percent) of the reported walrus harvest at Point Hope occurred in the months of June and September. Most of the walruses recorded through the MTRP at Point Hope were taken within five miles of the coast, or near coastal haulout sites at Cape Lisburne and Cape Thompson.

Between 1990 and 2005, the average reported polar bear harvest at Point Hope was  $12.1 \pm 4.1$  animals per year. Polar bear harvests typically occur from January to April. Most of the polar bears reported through the MTRP program were harvested within 10 miles of the community; however, residents also reported taking polar bears as far away as Cape Thompson and Cape Lisburne.

#### Point Lay

Point Lay hunters reported an average of  $4.4 \pm 3.4$  walruses per year between 1990 and 2005. Based on MTRP data, walrus hunting in Point Lay peaks in June-July with 84.4 percent of all walruses being harvested during these months. Historically, harvests have occurred primarily within 40 miles north and south along the coast from Point Lay and approximately 30 miles offshore.

Between 1990 and 2005, the average reported polar bear harvest at Point Lay was  $2.2 \pm 1.8$  animals per year. The only information on harvest locations comes from the MTRP database; all reported harvest occurred within 25 miles of Point Lay.

#### Wainwright

Wainwright hunters have consistently harvested more walruses than any other subsistence community on the North Slope. Between 1990 and 2005, the average reported walrus harvest in Wainwright was  $50.8 \pm 30.0$  animals per year. A discrepancy between MTRP data and other sources of harvest information is noted. Walruses are thought to represent approximately 40 percent of the communities' annual subsistence diet of marine mammals. Wainwright residents hunt walruses from June

through August as the ice retreats northward. Walrus are plentiful in the pack-ice near the village this time of year. Most (85.2 percent) of the harvest occurs in June and July. Most walrus hunting is thought to occur within 20 miles of the community, in all directions.

Between 1990 and 2005, the average reported polar bear harvest at Wainwright was  $6.8 \pm 4.0$  animals per year. Polar bears are harvested throughout much of the year, with peak harvests reported in May and December. Polar bear are often harvested coincidentally with beluga and bowhead whale harvests. MTRP data indicates that most hunting occurs within 10 miles of the community.

#### *Barrow*

Barrow is the northernmost community within the geographical region being considered. Most (88.6 percent) walrus hunting occurs in June and July when the land-fast ice breaks up and hunters can access the walrus by boat as they migrate north on the retreating pack-ice. Walrus hunters from Barrow sometimes range up to 60 miles from shore; however, most harvests reported through the MTRP have occurred within 30 miles of the community. Between 1990 and 2005, the average reported walrus harvest in Barrow was  $26.0 \pm 15.2$  animals per year.

Between 1990 and 2005, the average reported polar bear harvest at Barrow was 20.9 (+8.0 animals per year). The number of polar bears harvested in Barrow is thought to be influenced by ice conditions and the number of people out on the ice. Most (74 percent) of all polar bear harvests reported by Barrow residents occurred in February and March. Although relatively few people are thought to hunt specifically for polar bears, those that do hunt primarily between October and March. Hunting areas for polar bears overlap strongly with areas of bowhead subsistence hunting; particularly the area from Point Barrow South to Walakpa where walrus and whale carcasses are known to concentrate polar bears.

### **Potential Effects of Oil and Gas Industry Activities on Pacific Walrus and Polar Bears**

#### *Pacific Walrus*

##### 1. Disturbance

Proposed oil and gas exploration activities in the Chukchi Sea Region include the operation of seismic survey vessels, drill-ships, icebreakers, supply boats, fixed-winged aircrafts, and helicopters. Operating this equipment

near walrus could result in disturbances. Potential effects of disturbances on walrus include insufficient rest, increased stress and energy expenditure, interference with feeding, masking of communication, and impaired thermoregulation of calves spending too much time in the water. Prolonged or repeated disturbances could displace individuals or herds from preferred feeding or resting areas. Disturbance events frequently cause walrus groups to abandon land or ice haulouts. Severe disturbance events occasionally result in trampling injuries or cow-calf separations, both of which are potentially fatal. Calves and young animals at the perimeter of the herds appear particularly vulnerable to trampling injuries. Under certain ice conditions, noise generated from exploration activities could potentially obstruct migratory pathways and interfere with the free movements of animals.

The response of walrus to disturbance stimuli is highly variable. Anecdotal observations by walrus hunters and researchers suggest that males tend to be more tolerant of disturbances than females and individuals tend to be more tolerant than groups. Females with dependent calves are considered least tolerant of disturbances. Hearing sensitivity is assumed to be within the 13 Hz and 1,200 Hz range of their own vocalizations. Walrus hunters and researchers have noted that walrus tend to react to the presence of humans and machines at greater distances from upwind approaches than from downwind approaches, suggesting that odor is also a stimulus for a flight response. The visual acuity of walrus is thought to be less than for other species of pinnipeds.

Seismic operations are expected to add significant levels of noise into the marine environment. There are relatively few data available to evaluate the potential response of walrus to seismic operations. Although the hearing sensitivity of walrus is poorly known, source levels associated with Marine 3D and 2D seismic surveys are thought to be high enough to cause temporary hearing loss in other pinniped species. Therefore, walrus within the 180-decibel (dB re 1  $\mu$ Pa) safety radius for seismic activities could potentially suffer shifts in hearing thresholds and temporary hearing loss.

The reaction of walrus to vessel traffic appears to be dependent upon vessel type, distance, speed, and previous exposure to disturbances. Underwater noise from vessel traffic in the Chukchi Sea could "mask" ordinary

communication between individuals. Ice management operations are expected to have the greatest potential for disturbances since these operations typically require vessels to accelerate, reverse direction, and turn rapidly, activities that maximize propeller cavitations and resulting noise levels. Previous monitoring efforts suggest that icebreaking activities can displace some walrus groups up to several kilometers away; however, most groups of hauled out walrus showed little reaction beyond 1/2 mile. Environmental variables such as wind speed and direction are also thought to contribute to variability in detection and response.

Reactions of walrus to aircraft are thought to vary with aircraft type, range, flight pattern, and environmental conditions as well as the age, sex, and group size of exposed individuals. Fixed-winged aircraft appear less likely to elicit a response than helicopter overflights. Walrus are particularly sensitive to changes in engine noise and are more likely to stampede when planes turn or fly low overhead. Researchers conducting aerial surveys for walrus in fixed-winged aircrafts over sea ice habitats have observed little reaction to aircrafts above 1,000 ft (305 m).

A lack of information concerning the distribution and abundance of walrus in the Chukchi Sea precludes a meaningful assessment of the numbers of animals likely to be impacted by proposed exploration activities. Based upon previous aerial survey efforts and exploration monitoring programs, walrus are expected to be closely associated with seasonal pack ice during the proposed operating season. Therefore, in evaluating potential impacts of exploration activities, broken pack ice may serve as a reasonable predictor of walrus abundance. Activities occurring in or near sea ice habitats are presumed to have the greatest potential for impacting walrus.

Geotechnical seismic surveys and high-resolution site clearance seismic surveys are expected to occur primarily in open water conditions, at a sufficient distance from the pack ice and large concentrations of walrus to avoid most disturbances. Based upon previous seismic monitoring programs, seismic surveys can be expected to interact with relatively small numbers of walrus swimming in open water. Industry will adopt standard seismic mitigation measures including the monitoring of a 180-dB ensoufflement exclusion zone, which will reduce the potential for air-gun pulses to injure walrus during seismic operations. Although the

hearing sensitivity of walrus is poorly known, walrus swimming in open water will likely be able to detect air-gun pulses well beyond the 180-dB safety radius. The most likely response of walrus in open water to acoustic and visual cues will be for animals to move away from the source of the disturbance. Because of the transitory nature of the proposed seismic surveys, impacts to walrus exposed to seismic survey operations are expected to be temporary in nature and have little or no effects on survival or recruitment. Marine mammal monitoring programs are expected to provide insight into the response of walrus to various seismic operations from which future mitigative conditions can be developed.

Although seismic surveys are expected to occur in areas of open water some distance from the pack ice, support vessels and/or aircraft supporting seismic operations (1 every 2 weeks) may encounter aggregations of walrus hauled out onto sea ice. The sight, sound, or smell of humans and machines could potentially displace these animals from ice haulouts. Because seismic operations are expected to move throughout the Chukchi Sea, impacts associated with support vessels and aircrafts are likely to be distributed in time and space. Therefore, noise and disturbance from aircraft and vessel traffic associated with seismic surveys are expected to have relatively localized, short-term effects. The potential for disturbance events resulting in injuries, mortalities, or mother-calf separations is of concern. The potential for injuries is expected to increase with the size of affected walrus aggregations. Mitigation measures designed to separate Industry activities from walrus aggregations are expected to reduce the potential for animal injuries, mortalities, and mother-calf separations. Restricting offshore exploration activities to the open-water season (July 1–November 30) is expected to reduce the number of potential interactions between walrus and industry operations occurring in or near sea ice habitats. Adaptive operational restrictions, including a 0.5-mile (800-m) operational exclusion zone for marine vessels, and a 1,000-ft altitude restriction for aircraft flying near walrus groups hauled-out onto sea ice, are expected to reduce the intensity of disturbance events and minimize the potential for injuries, mortalities, and mother-calf separations.

Drilling operations are expected to occur at several offshore locations. Although drilling activities are expected to occur primarily during open water conditions, the dynamic movements of

sea ice could transport walrus within range of drilling operations. Drilling operations are expected to involve drill ships attended by icebreaking vessels to manage incursions of sea ice.

Monitoring programs associated with exploratory drilling operations in the Chukchi Sea in 1990 noted that 25 percent of walrus groups encountered in the pack ice during icebreaking operations responded by diving into the water, with most reactions occurring within 1 km of the ship.

Drilling operations will also be supported by supply vessels (1–3 trips per week) and/or helicopters (1–3 trips per day) depending upon the distance from shore. Support missions could encounter aggregations of walrus on sea ice along their transportation route. Because drilling operations are expected to last from 30–90 days at a single location, walrus in the vicinity of drilling operations could be subjected to prolonged or repeated disturbances. The most likely response of walrus subjected to prolonged or repeated disturbances will be for them to abandon the area.

The distribution and abundance of walrus in the Chukchi Sea is poorly understood. Without knowledge of the relative importance of various habitat areas, or the likely locations of drilling operations, it is difficult to predict the number of animals likely to be impacted by drilling operations. Additional monitoring and mitigation measures will be required in the event that a prospective drill-site occurs in important habitat areas. The MMS permit stipulation identifying a 0.5-mile operational exclusion zone around groups of hauled-out walrus is expected to help mitigate disturbances to walrus near prospective drill sites. Mitigation measures specified in an LOA including requirements for ice-scouting, surveys for walrus and polar bears in the vicinity of active drilling operations and ice breaking activities, requirements for marine mammal observers onboard drill-ships and ice breakers, and operational restrictions near walrus and polar bear aggregations are expected to further reduce the potential for interactions between walrus and drilling operations.

## 2. Waste Discharge and Oil Spills

The potential exists for fuel and oil spills to occur from seismic and support vessels, fuel barges, and drilling operations. Little is known about the effects of fuel and oil on walrus; however, walrus may react to fuel and oil much like other pinniped species. Damage to the skin of pinnipeds can occur from contact with oil because

some of the oil penetrates into the skin, causing inflammation and ulcers. Exposure to oil can quickly cause permanent eye damage. In studies conducted on other species of pinnipeds, pulmonary hemorrhage, inflammation, congestion, and nerve damage resulted after exposure to concentrated hydrocarbon fumes for a period of 24 hours. Walrus are extremely gregarious animals and normally associate in large groups; therefore, any contact with spilled oil or fuel could impact several individuals.

Exposure to oil could also impact benthic prey species. Bivalve mollusks, a favorite prey species of the walrus, are not effective at processing hydrocarbon compounds, resulting in highly concentrated accumulations and long-term retention of contamination within the organism. Exposure to oil may kill prey organisms or result in slower growth and productivity. Because walrus feed primarily on mollusks, they may be more vulnerable to a loss of this prey species than other pinnipeds that feed on a larger variety of prey.

Although fuel and oil spills has the potential to cause adverse impacts to walrus and prey species, operational spills associated with the proposed exploration activities are not considered a major threat. Operational spills would likely be of a relatively small volume, and occur in areas of open water where walrus densities are expected to be relatively low. MMS operating stipulations, including oil spill prevention and response plans, reduce both the risk and scale of potential spills. Any impacts associated with an operational spill are expected to be limited to a small number of animals.

A potentially more serious type of oil spill is the blowout, an uncontrolled release of oil or gas from an exploratory well. Blowout prevention technology and well control procedures have been designed to minimize the risk of a blowout. Blowout prevention technology will be required for all exploratory drilling operations in the Chukchi Sea, and the MMS considers the likelihood of a blowout occurring during exploratory drilling in the Chukchi Sea as negligible (MMS DEIS).

## 3. Results of Previous Monitoring Studies

Oil and gas related activities have been conducted in the Beaufort and Chukchi Seas since the late 1960's. Much more oil and gas related activity has occurred in the Beaufort Sea OCS than in the Chukchi Sea OCS. Many offshore activities required ice management (icebreaking), helicopter traffic, fixed-wing aircraft monitoring,

other support vessels and stand-by barges. Though no studies have examined the impacts of these activities on the Pacific walrus population, some information exists on encounter rates and behavioral responses of individual walruses to previous oil and gas related activities.

Pacific walruses do not normally range into the Beaufort Sea, although individuals and small groups are occasionally observed. From 1994 to 2004, Industry monitoring programs recorded a total of nine walrus sightings involving a total of 10 animals. Three of the reported sightings involved potential disturbances to walruses; two sightings were of individual animals hauled-out onto the armor of Northstar Island, and one sighting occurred at the McCovey prospect, where a walrus appeared to react to helicopter noise. Physical effects or impacts to individual walruses were not noted. Because of the small numbers of walruses encountered by past and present oil and gas activity in the Beaufort Sea, impacts to the Pacific walrus population appear to have been minimal.

Three pre-lease seismic surveys were carried out in the Chukchi Sea OCS planning area in 2006. Marine mammal observers onboard the seismic and support vessels recorded a total of 1,186 walrus sightings during their operations. Most of the walrus sightings were reported by seismic support vessels during ice-scouting missions. Three hundred and eighteen of the walruses sighted (27 percent) exhibited some form of behavioral response to the vessels, primarily dispersal or diving. Seismic vessels, operating in open water conditions, recorded a total of 33 walrus sightings. Marine mammal observers reported 19 incidents in which walruses were observed within a predetermined safety zone of ensonification, requiring the shutdown of airgun arrays to prevent potential injuries. Based upon the transitory nature of the survey vessels, and the monitoring reports that noted behavioral reactions of the animals to the passage of the vessels, our best assessment is that most of these interactions resulted in no more than temporary changes in animal behavior.

Aerial surveys and vessel-based observations of walruses were carried out in 1989 and 1990 to examine the responses of walruses to drilling operations at three Chukchi Sea drill prospects. Aerial surveys documented several thousand walruses in the vicinity of the drilling prospects; most of the animals (>90 percent) were closely associated with sea ice. Vessel-based observations indicated that walrus response to drilling operations

was greatest during ice management activities. The 1990 survey effort noted that 25 percent of walrus groups encountered in the pack ice during icebreaking responded by diving into the water, with most reactions occurring within 1 km of the ship. The monitoring report, noting that: (1) Walrus distributions were closely linked with pack ice; (2) pack ice was near active drill prospects for relatively short time periods; and (3) ice passing near active prospects contained relatively few animals, concluded that effects of the drilling operations on walruses were limited in time, geographical scale, and proportion of the affected population.

#### 4. Cumulative Effects

The following types of past, present, and reasonably foreseeable actions and factors have contributed to the environmental baseline conditions in the Chukchi Sea and could contribute to potential cumulative effects on the Pacific walrus population:

*Commercial and Subsistence Harvest*—Walruses have an intrinsically low rate of reproduction and, therefore, are limited in their capacity to respond to exploitation. In the late 19th century, American whalers intensively harvested walruses in the northern Bering and southern Chukchi seas. Between 1869 and 1879, catches averaged more than 10,000 per year, with many more animals struck and lost. The population was substantially depleted by the end of the century, and the industry collapsed in the early 1900s. Since 1930, the combined walrus harvests of the United States and Russia have ranged from 2,300–9,500 animals per year. Notable harvest peaks occurred during 1930–1960 (4,500–9,500 per year) and in the 1980's (5,000–9,000 per year). Commercial hunting continued in Russia until 1991 under a quota system of up to 3,000 animals per year. Since 1992, the harvest of Pacific walruses has been limited to the subsistence catch of coastal communities in Alaska and Chukotka. Harvest levels through the 1990s ranged from approximately 2,400–4,700 animals per year. Although recent harvest levels are lower than historic highs, the lack of information on population size or trend precludes an assessment of sustainable harvest rates.

*Climate Change*—Analysis of long-term environmental data sets indicate that substantial reductions in both the extent and thickness of the arctic sea-ice cover have occurred over the past 20–40 years, with record minimum extent in 2002 and again in 2005, and extreme minimal in 2003 and 2004. The Chukchi Sea DEIS provides a comprehensive literature review regarding potential

impacts of diminishing sea ice on Arctic marine mammals (V.C.8.b.). Walruses rely on suitable sea ice as a substrate for resting between foraging bouts, calving, molting, isolation from predators, and protection from storm events. Reasonably foreseeable impacts to walruses as a result of diminishing sea ice cover include: Shifts in range and abundance; population declines in prey species; increased mortalities resulting from storm events; and premature separation of females and dependent calves. The juxtaposition of sea ice over shallow-shelf habitat suitable for benthic feeding is critical to walruses. Recent trends in the Chukchi Sea have resulted in seasonal sea-ice retreating off the continental shelf and over deep Arctic Ocean waters, presenting significant adaptive challenges to walruses in the region. Future studies investigating walrus distributions, population status and trends, and habitat use patterns in the Chukchi Sea are required to understand and respond to walrus conservation and management issues associated with changes in the sea ice environment.

*Commercial Fishing and Marine Vessel Traffic*—Based on available data, walruses rarely interact with commercial fishing and marine vessel traffic. Walruses are normally closely associated with sea ice, which limits their interactions with fishing vessels and barge traffic. However, as previously noted, the temporal and seasonal extent of the sea ice is projected to diminish in the future. There has been speculation recently that commercial shipping through the Northwest Passage is likely to increase in the coming decades. Commercial fishing opportunities may also expand should the sea ice continue to diminish. The result could be increased temporal and spatial overlap between fishing and shipping operations and walrus habitat use and increased interactions between walruses and marine vessels.

*Past Offshore Oil and Gas Related Activities*—Oil and gas related activities have been conducted in the Chukchi and Beaufort Seas since the late 1960's. Much more oil and gas related activity has occurred in the Beaufort Sea than in the Chukchi Sea OCS. Pacific walruses do not normally range into the Beaufort Sea, and documented interactions between oil and gas activities and walruses have been minimal (see Results of Previous Monitoring Studies). The Chukchi Sea OCS has previously experienced some oil and gas exploration activity, but no development or production. Because of the transitory nature of past oil and gas activities in any given region, we do not

expect that any of these encounters had lasting effects on individuals or groups (see Results of Previous Monitoring Studies).

*Contribution of Proposed Activities to Cumulative Impacts*—The proposed seismic surveys and exploratory drilling operations identified by the petitioners are likely to result in some incremental cumulative effects to walrus through the potential exclusion or avoidance of walrus from feeding or resting areas and disruption of important associated biological behaviors. However, relatively few walrus are likely to interact with exploration activities in open sea conditions where most of the proposed activities are expected to occur. Required mitigation measures are also expected to limit the severity of any behavioral responses. Therefore, we conclude that the proposed exploration activities, especially as mitigated through the regulatory process, are not expected to add significantly to the cumulative impacts on the Pacific walrus population from past, present, and future activities that are reasonably likely to occur within the 5-year period covered by the regulations if adopted.

#### 5. Evaluation

Based on our review of the proposed activities; existing operating conditions and mitigation measures; information on the biology, ecology, and habitat use patterns of walrus in the Chukchi Sea; information on potential effects of oil and gas activities on walrus; and the results of previous monitoring efforts associated with Industry activity in the Beaufort and Chukchi Seas, we conclude that, while the incidental take (by harassment) of walrus is reasonably likely to or reasonably expected to occur as a result of the proposed activities, most anticipated takes will be limited to temporary, nonlethal disturbances impacting a relatively small proportion of the Pacific walrus population. It is unlikely that there will be any lethal take due to Industry activities.

We propose a finding that the total expected takings of walrus associated with the proposed activities will have a negligible impact on this species. This proposed finding is based on the supposition that most of the Pacific walrus population will be associated with sea ice during the operating season; that relatively few animals will be found in areas of open water where proposed activities will occur; and, that required mitigation measures will reduce the intensity of disturbance events to short-term behavioral responses. Site-specific monitoring programs and adaptive mitigation

measures will be used to ensure that impacts associated with the proposed activities are not greater than anticipated. Additional mitigation measures described in the proposed rule will help reduce the level of Industry impacts to walrus during exploration activities through the promulgation of incidental take regulations and the issuance of LOAs with site-specific operating restrictions and monitoring requirements, which will provide an additional level of mitigation and protection for walrus.

#### *Polar Bears*

##### 1. Disturbance

In the Chukchi Sea, polar bears will have a limited presence during the open-water season during Industry operations. It is assumed they generally move to the northwestern portion of the Chukchi Sea and distribute along the pack ice during this time, which is outside of the geographic region. This limits the chances of impacts on polar bears from Industry activities. Although polar bears have been documented in open-water, miles from the ice edge or ice floes, this has been a relatively rare occurrence.

##### A. Offshore Activities

In the open-water season, Industry activities will be generally limited to vessel-based exploration activities, such as seismic surveys and site clearance surveys. These activities avoid ice floes and the multi-year ice edge; however, they could contact a limited number of bears in open water.

Seismic exploration activities in the Chukchi Sea could affect polar bears in a number of ways. Seismic ships and icebreakers may be physical obstructions to polar bear movements, although these impacts are of short term and localized effect. Noise, sights, and smells produced by exploration activities could repel or attract bears, either disrupting their natural behavior or endangering them by threatening the safety of seismic personnel.

Little research has been conducted on the effects of noise on polar bears. Polar bears are curious and tend to investigate novel sights, smells, and possibly noises. Noise produced by seismic activities could elicit several different responses in polar bears. Noise may act as a deterrent to bears entering the area of operation, or the noise could potentially attract curious bears.

In general, little is known about the potential for seismic survey sounds to cause auditory impairment or other physical effects in polar bears. Available data suggest that such effects, if they

occur at all, would be limited to short distances and probably to projects involving large airgun arrays. There is no evidence that airgun pulses can cause serious injury, or death, even in the case of large airgun arrays. Also, the planned monitoring and mitigation measures include shut-downs of the airguns, which will reduce any such effects that might otherwise occur. Polar bears normally swim with their heads above the surface, where underwater noises are weak or undetectable. Thus, it is doubtful that any single bear would be exposed to strong underwater seismic sounds long enough for significant disturbance to develop.

Polar bears are known to run from sources of noise and the sight of vessels or icebreakers, aircraft, and helicopters. The effects of fleeing from aircraft may be minimal if the event is short and the animal is otherwise unstressed. On a warm spring or summer day, a short run may be enough to overheat a well-insulated polar bear; however, fleeing from a working icebreaker may have minimal effects for a healthy animal on a cool day.

As already stated, it is assumed that polar bears spend the majority of their time on pack ice during the open-water season in the Chukchi Sea, which limits the chance of impacts from human and industry activities. In recent years, the Chukchi Sea pack ice has receded over the Continental Shelf during the open water season. Although this poses potential foraging ramifications, by its nature the exposed open water creates a barrier between the majority of the ice pack-bound bear population and human activity occurring in open water.

Researchers have observed that in some cases bears swim long distances during the open-water period seeking either ice or land. In 2005, researchers monitored one radio-collared individual as it swam through ice-free waters from Kotzebue north to the pack ice 350 miles away. The bear began swimming on June 16, 2005, rested twice in open water, presumably on icebergs and eventually reached the pack ice on July 2, 2005. Researchers suspected that the bear was not swimming constantly, but found solitary icebergs or remnants to haul-out on and rest. The movement is unusual, but highlights the ice-free environment that bears are being increasingly exposed to that requires increased energy demands.

In addition, swimming bears could become vulnerable to exhaustion and storm events with large waves because ice floes dissipate and become unavailable or unsuitable for use as haulouts or resting platforms. In the fall of 2004, four drowned polar bears were



observed in the Beaufort Sea during an MMS coastal aerial survey program.

Seismic activities avoid ice floes and the pack-ice edge; however, they may contact bears in open water. It is unlikely that seismic exploration activities would result in more than temporary behavioral disturbance to polar bears.

Vessel traffic could result in short-term behavioral disturbance to polar bears. If a ship is surrounded by ice, it is more likely that curious bears will approach. Any on-ice activities required by exploration activities create the opportunity for bear-human interactions. In relatively ice-free waters, polar bears are less likely to approach ships, although they could be encountered on ice floes. For example, during the late 1980s, at the Belcher exploration drilling site in the Beaufort Sea, in a period of little ice, a large floe threatened the drill rig at the site. After the floe was moved by an icebreaker, workers noticed a female bear with a cub-of-the-year and a lone adult swimming nearby. It was assumed these bears had been disturbed from the ice floe.

Ships and ice breakers may act as physical obstructions, altering or intercepting bear movements in the spring during the start-up period for exploration if they transit through a restricted lead system, such as the Chukchi Polyna. Polynas are important habitat for polar bears and other marine mammals, which makes them important hunting areas for polar bears. A similar situation could occur in the fall when the pack-ice begins to expand. Separation of polar bears, whether on land or ice or in water, and marine vessels by creating an operational exclusion zone would limit potential impact of marine vessels to polar bears.

Routine aircraft traffic should have little to no effect on polar bears; however, extensive or repeated over-flights of fixed-wing aircraft or helicopters could disturb polar bears. Behavioral reactions of polar bears are expected to be limited to short-term changes in behavior that would have no long-term impact on individuals and no impacts on the polar bear population.

Monitoring and mitigation measures required for open water, offshore activities will include, but will not be limited to (1) a 0.5-mile operational exclusion zone around polar bear(s) on land, ice or swimming; (2) MMOs on board all vessels; (3) requirements for ice-scouting, (4) surveys for polar bears in the vicinity of active operations and ice breaking activities; and (5) operational restrictions near polar bear aggregations. These mitigation measures

are expected to further reduce the potential for interactions between polar bears and offshore operations.

#### B. Onshore Activities

Onshore activities will have the potential to interact with polar bears mainly during the fall and ice-covered season when bears come ashore to feed, den, or travel. Noise produced by Industry activities during the open-water and ice-covered seasons could potentially result in takes of polar bears at onshore activities. During the ice-covered season, denning female bears, as well as mobile, non-denning bears, could be exposed to oil and gas activities, such as seismic exploration or exploratory drilling facilities, and could potentially be affected in different ways.

Noise disturbance can originate from either stationary or mobile sources. Stationary sources include exploratory drilling operations and their associated facilities. Mobile sources include ice road construction and associated vehicle traffic, including: tracked vehicles and snowmobiles, aircraft traffic, and vibroseis programs.

Noise produced by stationary Industry activities could elicit several different responses in polar bears. The noise may act as a deterrent to bears entering the area, or the noise could potentially attract bears. Attracting bears to these facilities, especially exploration facilities in the coastal or nearshore environment, could result in human-bear encounters, which could result in unintentional harassment, lethal take, or intentional hazing (under separate authorization) of the bear.

During the ice-covered season, noise and vibration from exploratory drilling facilities could deter females from denning in the surrounding area, although polar bears have been known to den in close proximity to industrial activities without any perceived impacts. For example, in 1991, two maternity dens were located on the south shore of a barrier island within 2.8 km (1.7 mi) of a production facility. In addition, during the ice-covered season of 2001–2002, two known polar bear dens were located within approximately 0.4 km and 0.8 km (0.25 mi and 0.5 mi) of remediation activities on Flaxman Island in the Beaufort Sea without any observed impact to denning success or the polar bears.

In contrast, information exists indicating that polar bears may have abandoned dens in the past due to exposure to human disturbance. For example, in January 1985, a female polar bear may have abandoned her den due to rolligon traffic, which occurred between 250 and 500 meters from the

den site. Researcher disturbance created by camp proximity and associated noise, which occurred during a den emergence study in 2002 on the North Slope, may have caused a female bear and her cub(s) to abandon their den and move to the ice sooner than necessary. The female was observed later without the cub(s). While such events may have occurred, information indicates they have been infrequent and isolated.

In addition, polar bears exposed to routine industrial noises may acclimate to those noises and show less vigilance than bears not exposed to such stimuli. This implication came from a study that occurred in conjunction with industrial activities performed on Flaxman Island in 2002 and a study of undisturbed dens in 2002 and 2003 (N = 8). Researchers assessed vigilant behavior with two potential measures of disturbance: proportion of time scanning their surroundings and the frequency of observable vigilant behaviors. Bears exposed to industrial activity spent less time scanning their surroundings than bears in undisturbed areas and engaged in vigilant behavior significantly less often.

As with offshore activities, routine aircraft traffic should have little to no effect on polar bears; however, extensive or repeated over-flights of fixed-wing aircraft for monitoring purposes or helicopters used for re-supply of Industry operations could disturb polar bears. Behavioral reactions of non-denning polar bears are expected to be limited to short-term changes in behavior and would have no long-term impact on individuals and no impacts on the polar bear population. In contrast, denning bears could abandon or depart their dens early in response to repeated noise such as that produced by extensive aircraft over-flights. Mitigation measures, such as minimum flight elevations over polar bears or areas of concern and flight restrictions around known polar bear dens, will be required, as appropriate, to reduce the likelihood that bears are disturbed by aircraft.

Noise and vibrations produced by vibroseis activities during the ice-covered season could potentially result in impacts on polar bears. During this time of year, denning female bears as well as mobile, non-denning bears could be exposed to and affected differently by potential impacts from seismic activities. The best available scientific information indicates that female polar bears entering dens, or females in dens with cubs, are more sensitive than other age and sex groups to noises. Standardized mitigation measures will be implemented to limit or minimize

disturbance impacts to denning females. These Industry mitigation measures are currently in place in the Beaufort Sea and are implemented when necessary through LOAs and will be implemented in the Chukchi Sea.

In the case of exploratory seismic or drilling activities occurring around a known bear den, each LOA will require Industry to have developed a polar bear interaction plan and will require Industry to maintain a 1-mile buffer between industry activities and known denning sites to limit disturbance to the bear. In addition, we may require Industry to avoid working in known denning habitat depending on the type of activity, the location of activity and the timing of the activity. To further reduce the potential for disturbance to denning females, we have conducted research, in cooperation with Industry, to enable us to accurately detect active polar bear dens through the use of Forward Looking Infrared (FLIR) imagery.

FLIR imagery, as a mitigation tool, is used in cooperation with coastal polar bear denning habitat maps and scent-trained dogs. Industry activity areas, such as coastal ice roads, are compared to polar bear denning habitat and transects are then created to survey the specific habitat within the industry area. FLIR heat signatures within a standardized den protocol are noted and further mitigation measures are placed around these locations. These measures include the 1-mile operational exclusion zone or increased monitoring of the site. FLIR surveys are more effective at detecting polar bear dens than visual observations. The effectiveness increases when FLIR surveys are combined with site-specific, scent-trained dog surveys.

Based on these evaluations, the use of FLIR technology, coupled with trained dogs, to locate or verify occupied polar bear dens, is a viable technique that helps to minimize impacts of oil and gas industry activities on denning polar bears. These techniques will continue to be required as conditions of LOAs when appropriate.

In addition, Industry has sponsored cooperative research evaluating transmission of noise and vibration through the ground, snow, ice, and air and the received levels of noise and vibration in polar bear dens. This information has been useful to refine site-specific mitigation measures and placement of facilities.

Furthermore, as part of the LOA application for seismic surveys during denning season, Industry provides us with the proposed seismic survey routes. To minimize the likelihood of

disturbance to denning females, we evaluate these routes along with information about known polar bear dens, historic denning sites, and delineated denning habitat. Should a potential denning site be identified along the survey route, FLIR or polar bear scent-trained dogs, or both, will be used to determine whether the den is occupied, in which case a 1-mile buffer surrounding the den will be required.

There is the potential for Industry activities other than seismic, such as transport activities and ice road construction, to contact polar bear dens as well. Known polar bear dens around the oil and gas activities are monitored by the Service, when practicable. Only a small percentage of the total active den locations are known in any year. Industry routinely coordinates with the Service to determine the location of Industry's activities relative to known dens. General LOA provisions will be similar to those imposed on seismic activities and will require Industry operations to avoid known polar bear dens by 1 mile. There is the possibility that an unknown den may be encountered during Industry activities. Industry is required to contact the Service, if a previously unknown den is identified. Communication between Industry and the Service and the implementation of mitigation measures, such as the 1-mile operational exclusion area around known dens, would ensure that disturbance is minimized.

Human encounters can be dangerous for both the polar bear and the human. These can occur during an onshore vibroseis program or at a drilling facility. Whenever humans work in the habitat of the animal, there is a chance of an encounter, even though, historically, such encounters have been uncommon in association with Industry.

Encounters are more likely to occur during fall and winter periods when greater numbers of the bears are found in the coastal environment searching for food and possibly den sites later in the season. Potentially dangerous encounters are most likely to occur at coastal exploratory sites. In the Beaufort Sea, Industry has developed and uses devices to aid in detecting polar bears, including bear monitors, motion, and infrared detection systems. Industry also takes steps to actively prevent bears from accessing facilities using safety gates and fences. The types of detection and exclusion systems are implemented on a case-by-case basis with guidance from the Service and depend on the location and needs of the facility. Industry will implement these same mitigative measures in the Chukchi Sea

region to minimize disturbance of polar bears.

Onshore drilling sites near the coastline could potentially attract polar bears. Polar bears use the coastline as a travel corridor. In the Beaufort Sea, the majority of polar bear observations have occurred along the coastline. Most bears were observed as passing through the area; however, nearshore facilities could potentially increase the rate of human-bear encounters, which could result in increased incident of harassment of bears. Employee training and company policies through interaction plans will be implemented to reduce and mitigate such encounters. Based on the history of effective application of interaction plans that has resulted in reduced interactions between polar bear and humans, no injuries or deaths to humans since the implementation of incidental take regulations, the Service concludes that interaction plans are an effective means of reducing Industry impacts to polar bears.

Depending upon the circumstances, bears can be either repelled from or attracted to sounds, smells, or sights associated with onshore Industry activities. In the past, such interactions have been mitigated through conditions on the LOA, which require the applicant to develop a polar bear interaction plan for each operation. These plans outline the steps the applicant will take, such as garbage disposal and snow management procedures, to minimize impacts to polar bears by reducing the attraction of Industry activities to polar bears. Interaction plans also outline the chain of command for responding to a polar bear sighting. In addition to interaction plans, Industry personnel participate in polar bear interaction training while on site.

Employee training programs are designed to educate field personnel about the dangers of bear encounters and to implement safety procedures in the event of a bear sighting. The result of these polar bear interaction plans and training allows personnel on site to detect bears and respond safely and appropriately. Often, personnel are instructed to leave an area where bears are seen. Many times polar bears are monitored until they move out of the area. Sometimes, this response involves deterring the bear from the site. If it is not possible to leave, in most cases bears can be displaced by using forms of deterrents, such as vehicles, vehicle horn, vehicle siren, vehicle lights, spot lights, or, if necessary, pyrotechnics (e.g., cracker shells). The purpose of these plans and training is to eliminate the potential for injury to personnel or lethal take of bears in defense of human

life. Since 1993, when the incidental take regulations became effective in the Beaufort Sea, there has been no known instance of a bear being killed or Industry personnel being injured by a bear as a result of Industry activities. The mitigation measures associated with the Beaufort Sea incidental take regulations have proven to minimize human-bear interactions and will be part of the requirements of future LOAs associated with the Chukchi Sea incidental take regulations.

### C. Effect on Prey Species

Ringed seals are the primary prey of polar bears. Bearded seals are also a prey source. Industry will mainly have an effect on seals through the potential for contamination (oil spills) or industrial noise disturbance. Oil and gas activities in the Chukchi Sea are anticipated to have the same effects of contamination from oil discharges for seals as those described in the current Beaufort Sea incidental take regulations (71 FR 43926; August 2, 2006) in the section "Potential Impacts of Waste Product Discharge and Oil Spills on Pacific Walruses and Polar Bears" and the "Pacific Walruses" subsection of this document). Studies have shown that seals can be displaced from certain areas, such as pupping lairs or haulouts, and abandon breathing holes near Industry activity. However, these disturbances appear to have minor effects and are short term. In the Chukchi Sea, offshore operations have the highest potential to impact seals; however, due to the seasonal aspect (occurring only during the open-water season) of offshore operations, the Service anticipates minimal disturbance to ringed and bearded seals. In addition, the National Marine Fisheries Service, having jurisdiction over the conservation and management of ringed and bearded seals, is evaluating the potential impacts of oil and gas exploration activities in the Chukchi Sea and will identify appropriate mitigation measures for those species, if a negligible finding is appropriate. The Service does not expect prey availability to be significantly changed due to Industry activities. Mitigation measures for pinnipeds required by MMS and NMFS will reduce the impact of Industry activities on ringed and bearded seals.

### 2. Waste Discharge and Potential Oil Spills

Individual polar bears can potentially be affected by Industry activities through waste product discharge and oil spills. Spills are unintentional releases of oil or petroleum products. In

accordance with the National Pollutant Discharge Elimination System Permit Program, all North Slope oil companies must submit an oil spill contingency plan with their projects. It is illegal to discharge oil into the environment, and a reporting system requires operators to report spills. According to MMS, on the Beaufort and Chukchi OCS, the oil industry has drilled 35 exploratory wells. During the time of this drilling, industry has had 35 small spills totaling 26.7 bbl or 1,120 gallons (gal). Of the 26.7 bbl spilled, approximately 24 bbl were recovered or cleaned up. Larger spills (>1,000 bbl) accounted for much of the annual volume. Six large spills occurred between 1985 and 2006 on the North Slope. These spills were terrestrial in nature and posed minimal harm to walruses and polar bears. Based on the history of effective application of oil spill plans, to date, no major exploratory offshore oil spills have occurred on the North Slope in either the Beaufort or Chukchi Seas.

Historical large spills associated with Alaskan oil and gas activities on the North Slope have been production-related, and have occurred at production facilities or pipeline connecting wells to the Trans-Alaska Pipeline System. MMS estimates the chance of a large ( $\geq 1,000$  bbl) oil spill from exploratory activities in the Chukchi Sea to be low based on the types of spills recorded in the Beaufort Sea. For this rule, potential oil spills for exploration activities will likely occur with the marine vessels. From past experiences, MMS believes these will most likely be localized and relatively small. Spills in the offshore or onshore environments classified as small could occur during normal operations (e.g., transfer of fuel, handling of lubricants and liquid products, and general maintenance of equipment). Potential large spills in the Chukchi Sea region will likely be the result of drilling platforms. Drilling platforms have containment ability in case of a blowout, and the amount of release is expected to be minimal.

The possibility of oil and waste product spills from Industry activities in the Chukchi Sea and the subsequent impacts on polar bears is a concern; however, due to the type of Industry activity planned for the area, the potential for spills would be limited to the open-water season in the offshore. Hence, polar bears could encounter oil spills during the open-water and ice-covered seasons in offshore or onshore habitat. Although the majority of the Chukchi Sea polar bear population spends a large amount of their time offshore on the pack ice, some bears are

likely to encounter oil from a spill regardless of the season and location.

Small spills of oil or waste products throughout the year by Industry activities on land could potentially impact small numbers of bears. The effects of fouling fur or ingesting oil or wastes, depending on the amount of oil or wastes involved, could be short term or result in death. For example, in April 1988, a dead polar bear was found on Leavitt Island, in the Beaufort Sea, approximately 9.3 km (5 nautical miles) northeast of Oliktok Point. The cause of death was determined to be poisoning by a mixture that included ethylene glycol and Rhodamine B dye; however, the source of the mixture was unknown.

During the ice-covered season, mobile, non-denning bears would have a higher probability of encountering oil or other Industry wastes in the onshore environment than non-mobile, denning females as terrestrial and ocean habitats are available. Current management practices by Industry, such as requiring the proper use, storage, and disposal of hazardous materials, minimize the potential occurrence of such incidents. In the event of an oil spill, it is also likely that polar bears would be intentionally hazed to keep them away from the area, further reducing the likelihood of impacting individuals or the population.

Oil exposure by polar bears could occur through the consumption of contaminated prey, and by grooming or nursing affecting motility, digestion, and absorption. Death could occur if a large amount of oil were ingested. Oiling can also cause thermoregulatory problems and damage to various systems, such as the respiratory and the central nervous systems, depending on the amount of exposure. Oil may also affect the prey base of polar bears where possible impacts from the loss of a food source could reduce recruitment or survival; however, because no production activities are planned for the Chukchi Sea during the duration of these proposed regulations, the Service does not expect prey availability to be significantly changed due to Industry activities. A detailed description of potential effects of exposure to oil by polar bears can be found in the Beaufort Sea Incidental Take Regulations (71 FR 43926; August 2, 2006).

### 3. Results of Previous Monitoring Studies

There is limited information regarding interactions between oil and gas activities and polar bears in the Chukchi Sea. In 1990, in conjunction with the Shell Western E&P, Inc. walrus monitoring program, 25 polar bears

were observed in the pack ice between June 29, and August 11, 1990. Seventeen bears were encountered by the *Robert LeMeur* during ice reconnaissance survey before drilling began at the prospects. During drilling operations, four bears occurred near (<9 km or 5 n mi) active prospects, and the remainder were considerably beyond (15–40 km or 8–22 n mi.). These bears responded to the drilling or icebreaking operations by approaching (2), watching (9), slowly moving away (7), or ignoring (5) the activities; response was not evaluated for two bears. The period of exposure to the operations was generally short because precautions were taken to minimize disturbances, including adjusting cruise courses away from bears. Similar precautions were followed in 1989 when 18 bears were sighted in the pack ice during the monitoring program. The results of the 1990 monitoring program concluded that (1) polar bear distributions were closely linked to the pack ice; (2) the pack ice was near the active prospects for a relatively brief time; and (3) the ice passing near active prospects contained relatively few animals.

In 2006, four polar bears were sighted during three oil and gas seismic surveys. All the bears were observed by seismic support vessels. Three of the four bears were observed walking on ice, and one animal was observed swimming. Two of the four reacted to the vessel. All four sightings occurred between September 2 and October 3, 2006.

Five polar bear observations (11 individuals) were recorded during the University of Texas at Austin's marine geophysical survey performed by the USCG Healy in 2006. This survey was located in the northern Chukchi Sea and Arctic Ocean. All bears were observed on the ice between July 21 and August 19. No polar bears were in the water where they could have received appreciable levels from operating airguns. The closest point of approach distances of bears from the USCG Healy ranged from 780 m to 2.5 km. One bear was observed approximately 575 m from a helicopter conducting ice reconnaissance. Four of the groups exhibited possible reactions to the helicopter or vessel, suggesting that disturbances from seismic operations can be short-term and limited to minor changes in behavior.

Documented impacts on polar bears by the oil and gas industry in the Beaufort Sea during the past 30 years appear minimal. Polar bears spend time on land, coming ashore to feed, den, or move to other areas. Recently, a change in distribution of polar bears brought about by changing climatic conditions

has observed more bears than what has occurred historically on land. At times, fall storms deposit bears along the coastline where bears remain until the ice returns. For this reason, polar bears have mainly been encountered at or near most coastal and offshore production facilities, or along the roads and causeways that link these facilities to the mainland. During those periods, the likelihood of interactions between polar bears and Industry activities increases. Most bears are observed within a mile from the coastline. We expect that this use of habitat will occur along the Chukchi Sea coastline as well.

The majority of actual impacts on polar bears in the Beaufort Sea have resulted from direct human-bear encounters. Monitoring efforts by Industry required under Beaufort Sea regulations for the incidental take of polar bears documented various types of interactions between polar bears and Industry. A total of 269 LOAs have been issued for incidental (unintentional) take of polar bears in regard to oil and gas activities between 1993 to 2005: Approximately 76 percent were for exploration activities.

In 2004, the oil and gas industry reported 89 polar bear sightings involving 113 individual bears. Polar bears were more frequently sighted during the months of August to January. Seventy-four sightings were of single bears and 15 sightings consisted of family groups. Offshore oil facilities, Northstar and Endicott, accounted for 63 percent of all polar bear sightings, 42 percent and 21 percent, respectively; documenting Industry activities that occur on or near the Beaufort Sea coast have a greater possibility for encountering polar bears than Industry activities occurring inland. Fifty-nine percent ( $n = 53$ ) of polar bear sightings consisted of observations of polar bears traveling through or resting near the monitored areas without a perceived reaction to human presence. Forty-one percent ( $n = 36$ ) of polar bear sightings involved Level B harassment, where bears were deterred from industrial areas with no injury.

We expect the same trends we have seen in the Beaufort Sea to continue in the Chukchi Sea. A higher frequency of polar bears will be observed during the fall and early winter months; single bears will be seen more than family groups; offshore facilities will encounter more bears than onshore facilities; and a higher percentage of bears will be observed passing through Industry areas than the percentage of bears involved in deterrence activities.

Prior to issuance of regulations, lethal takes by Industry were rare. Since 1968,

there have been two documented cases of lethal take of polar bears associated with oil and gas activities. In both instances, the lethal take was reported to be in defense of human life. In winter 1968–1969, an Industry employee shot and killed a polar bear. In 1990, a female polar bear was killed at a drill site on the west side of Camden Bay. In contrast, 33 polar bears were killed in the Canadian Northwest Territories from 1976 to 1986 due to encounters with Industry. Since the beginning of the incidental take program, which includes measures that minimize impacts to the species, no polar bears have been killed due to encounters associated with current Industry activities on the North Slope. For this reason, Industry has requested that these regulations cover only nonlethal, incidental take. We anticipate this trend to continue in the Chukchi Sea.

#### 4. Cumulative Effects

The Polar Bear Status Review describes cumulative effects of oil and gas development on polar bears in Alaska. This document can be found at: <http://alaska.fws.gov/fisheries/mmm/polarbear/issues.htm>. The status review concentrated on oil and gas development in the Beaufort Sea because of the established presence of the Industry in the Beaufort Sea. The Service believes the conclusions of the status review will apply to Industry activities in the Chukchi Sea during the regulatory period as well.

In 2003, NRC published a description of cumulative effects oil and gas development would have on polar bears and seals in Alaska. They concluded that:

(1) "Industrial activity in the marine waters of the Beaufort Sea has been limited and sporadic and likely has not caused serious cumulative effects to ringed seals or polar bears." Industry activity in the Chukchi Sea will be limited to exploration activities, such as seismic, drilling, and support vessels.

(2) "Careful mitigation can help to reduce the effects of oil and gas development and their accumulation, especially if there is no major oil spill." The Service will be using mitigation measures similar to those established in the Beaufort Sea to limit impacts of polar bears in the Chukchi Sea. "However, the effects of full-scale industrial development off the North Slope would accumulate through the displacement of polar bears and ringed seals from their habitats, increased mortality, and decreased reproductive success." Full-scale development of this nature will not occur during the

proposed regulatory period in the Chukchi Sea.

(3) "A major Beaufort Sea oil spill would have major effects on polar bears and ringed seals." One of the concerns for future oil and gas development is for those activities that occur in the marine environment due to the chance for oil spills to impact polar bears or their habitats. No production activities are planned for the Chukchi Sea during the duration of these proposed regulations. Oil spills as a result of exploratory seismic activity could occur in the Chukchi Sea; however, the probability of a large spill is expected to be minimal.

(4) "Climatic warming at predicted rates in the Beaufort and Chukchi sea regions is likely to have serious consequences for ringed seals and polar bears, and those effects will accumulate with the effects of oil and gas activities in the region." A detailed description of climate change and its potential effects on polar bears can be found at: <http://alaska.fws.gov/fisheries/mmm/polarbear/issues.htm> and <http://www.fws.gov/>. Climate change could alter polar bear habitat because seasonal changes, such as extended duration of open water, may preclude sea ice habitat use by restricting some bears to coastal areas. The reduction of sea ice extent, caused by climate change, may also affect the timing of polar bear seasonal movements between the coastal regions and the pack ice. If the sea ice continues to recede as predicted, it is hypothesized that polar bears may spend more time on land rather than on sea ice; similar to what has been recorded in the Hudson Bay. As with the Beaufort Sea, the challenge in the Chukchi Sea will be predicting changes in ice habitat, and coastal habitats in relation to changes in polar bear distribution and use of habitat.

Due to changes in sea ice conditions, the Service anticipates that there may be an increased use of terrestrial habitat in the fall period by polar bears on the western coast of Alaska and an increased use of terrestrial habitat by denning bears in the same area, which may expose bears to Industry activity. The mitigation measures will be effective in minimizing any additional effects attributed to seasonal shifts in distributions of walrus or denning polar bears during the five-year timeframe of the regulations. It is likely that, due to potential seasonal changes in abundance and distribution of polar bears during the fall, more frequent encounters may occur and that Industry may have to implement mitigation measures more often, for example, increasing polar bear deterrence events.

In addition, if additional polar bear den locations are detected within industrial activity areas, spatial and temporal mitigation measures, including cessation of activities, may be instituted more frequently during the five-year period of the rule.

(5) "Unless studies to address the potential accumulation of effects on North Slope polar bears or ringed seals are designed, funded, and conducted over long periods of time, it will be impossible to verify whether such effects occur, to measure them, or to explain their causes." Future studies in the Chukchi Sea will examine polar bear habitat use and distribution, reproduction, and survival relative to a changing sea ice environment.

The proposed seismic surveys and exploratory drilling operations identified by the petitioners are likely to result in some incremental cumulative effects to polar bears through the potential exclusion or avoidance of polar bears from feeding, resting, or denning areas and disruption of associated biological behaviors. However, the impact analysis of the likely range of effects and the likelihood of exposures resulting in individual behavioral effects supports a conclusion that the activities would result in no more than temporary disturbance effects and less than negligible effects on the population.

#### 5. Evaluation

The Service anticipates that potential impacts of seismic noise, physical obstructions, human encounters, prey species, oil spills, and cumulative effects on polar bears would be limited to short-term changes in behavior that would have no long-term impact on individuals nor impacts to the polar bear population. Individual polar bears may be observed in the open water during offshore activities, but the majority of the population will be found on the pack ice during this time of year. It is unlikely that there will be any lethal take due to Industry activities.

Potential impacts will be mitigated through various requirements stipulated within LOAs. Mitigation measures that will be required for all projects include a polar bear interaction plan, and a record of communication with affected villages that may serve as the precursor to a Plan of Cooperation with the village to mitigate effects of the project on subsistence activities. Mitigation measures that will be used on a case-by-case basis include the use of trained marine mammal observers associated with offshore, marine activities, the use of den habitat maps (where appropriate), the use of FLIR or polar

bear scent-trained dogs to determine the presence or absence of dens, timing of the activity to limit disturbance around dens, the 1-mile buffer surrounding known dens, and suggested work actions around known dens. The Service implements certain mitigation measures based on need and effectiveness for specific activities based largely on timing and location. For example, the Service will implement different mitigation measures for a 2-month-long onshore exploration project 20 miles inland, than for a drilling project on the coastline. Based on past monitoring information, bears are more prevalent in the coastal areas than 20 miles inland. Therefore, the monitoring and mitigation measures that the Service deems must be implemented to limit the disturbance to bears and the measures deemed necessary to limit human-bear interactions may differ.

Potential impacts of Industry waste products and oil spills suggest that individual bears could be impacted by this type of disturbance were it to occur. Depending on the amount of oil or wastes involved, the timing and location of a spill, impacts could be short-term, chronic, or lethal. In order for bear population reproduction or survival to be impacted, a large-volume oil spill would have to take place. The probability of a large oil spill occurring throughout the duration of these proposed regulations (5 years) is small to the point that a large oil spill is not expected to occur.

Mitigation measures imposed through MMS lease stipulations are designed to avoid Level A harassment (injury), reduce Level B harassment, reduce the potential for population-level significant adverse effects on polar bears, and avoid an unmitigable adverse impact on their availability for subsistence purposes. Additional mitigation measures described in the proposed rule will help reduce the level of Industry impacts to polar bears during the exploration activities through the promulgation of incidental take regulations and the issuance of LOAs with site-specific operating restrictions and monitoring requirements, which will provide mitigation and protection for polar bears. Therefore, we conclude that the proposed exploration activities, especially as mitigated through the regulatory process, are not expected to have more than negligible impacts on polar bears in the Chukchi Sea and will not have an unmitigable adverse impact on the availability of polar bears for subsistence uses.

### Potential Effects of Oil and Gas Industry Activities on Subsistence Uses of Pacific Walruses and Polar Bears

Walruses and polar bear have cultural and subsistence significance to the Inupiat Eskimos inhabiting the north coast of Alaska. Four North Slope communities are considered within the potentially affected area: Point Hope, Point Lay, Wainwright, and Barrow. The open-water season for oil and gas exploration activities coincides with peak walrus hunting activities in these communities. The subsistence harvest of polar bears can occur year round in the Chukchi Sea, depending on ice conditions, with peaks usually occurring in spring and fall.

Noise and disturbances associated with oil and gas exploration activities have the potential to adversely impact subsistence harvests of walruses and polar bears by displacing animals beyond the hunting range of these communities. Disturbances associated with exploration activities could also heighten the sensitivity of animals to humans with potential impacts to hunting success. Little information is available to predict the effects of exploration activities on the subsistence harvest of walruses and polar bears. Hunting success varies considerably from year to year because of variable ice and weather conditions.

The MMS and the petitioners believe that exploration activities can be conducted in a manner that will not result in an adverse impact on subsistence hunting of marine mammals in the Chukchi Sea. Lease Sale Area 193 includes a 25-mile coastal deferral zone, *i.e.*, no lease sales will be offered within 25 miles of the coast, which is expected to reduce the impacts of exploration activities on subsistence hunting. Offshore seismic exploration will be restricted prior to July 1 to allow migrating marine mammals the opportunity to disperse from the coastal zone. It is noted that support vessels and aircrafts are expected to regularly transit the coastal deferral zone and have the potential to disturb marine mammals in coastal hunting areas. MMS Lease stipulations will require lessees to consult with the subsistence communities of Barrow, Wainwright, Point Lay, and Point Hope prior to submitting an Operational Plan to MMS for exploration activities. The intent of these consultations is to identify any potential conflicts between proposed exploration activities and subsistence hunting opportunities in the coastal communities. Where potential conflicts are identified, MMS may require additional mitigation measures as

identified by NMFS and USFWS through MMPA authorizations.

In addition to the existing lease stipulations and mitigation measures described above, the Service would also develop additional mitigation measures through the proposed incidental take regulations. The following LOA stipulations, which will mitigate potential impacts to subsistence walrus and polar bear hunting from the proposed activities, would apply to incidental take authorizations:

1. Prior to receipt of an LOA, applicants will be required to contact and consult with the communities of Point Hope, Point Lay, Wainwright, and Barrow to identify any additional measures to be taken to minimize adverse impacts to subsistence hunters in these communities. A Plan of Cooperation (POC) will be developed if there is concern from community members that the proposed activities will impact subsistence uses of Pacific walruses or polar bears. The POC must address how applicants will work with the affected Native communities and what actions will be taken to avoid interference with subsistence hunting of walruses and polar bears. The Service will review the POC prior to issuance of the LOA to ensure that any potential adverse effects on the availability of the animals are minimized.

2. Take authorization will not be granted for activities occurring within a 40-mile radius of Barrow, Wainwright, Point Hope, or Point Lay, unless expressly authorized by these communities through consultations or through a POC. This condition is intended to limit potential interactions between industry activities and subsistence hunting in near-shore environments.

3. Offshore seismic exploration activities will be authorized only during the open-water season, which will not exceed the period of July 1 to November 30. This condition is intended to allow communities the opportunity to participate in subsistence hunts for polar bears without interference and to minimize impacts to walruses during the spring migration.

4. A 15-mile separation must be maintained between all active seismic surveys and/or exploratory drilling operations to mitigate cumulative impacts to resting, feeding, and migrating walruses.

#### Evaluation

Based on the best scientific information available and the results of harvest data, including affected villages, the number of animals harvested, the season of the harvests, and the location

of hunting areas, we find that the effects of the proposed exploration activities in the Chukchi Sea region would not have an unmitigable adverse impact on the availability of walruses and polar bears for taking for subsistence uses during the period of the rule. In making this finding, we considered the following: (1) Historical data regarding the timing and location of harvests; (2) effectiveness of mitigation measures stipulated by MMS-issued operational permits; (3) Service regulations for obtaining an LOA at 50 CFR 18.118), which includes requirements for community consultations and POCs, as appropriate, between the applicants and affected Native communities; (4) effectiveness of mitigation measures stipulated by Service issued LOAs; and (5) anticipated effects of the applicants' proposed activities on the distribution and abundance of walruses and polar bears.

### Summary of Take Estimates for Pacific Walruses and Polar Bears

#### *Pacific Walruses*

Based upon previous survey efforts in the region, we expect walrus densities to be relatively low in areas of open water where most of the proposed activities are expected to occur. Based upon our review of the proposed activities, previous monitoring studies, as well as existing and proposed mitigation measures, we conclude that, while incidental take of walruses is reasonably likely to or reasonably expected to occur as a result of the proposed activities, the anticipated takes will be limited to nonlethal disturbances, affecting a relatively small number of animals and that most disturbances will be relatively short-term in duration. Furthermore, we do not expect the anticipated level of take from the proposed activities to affect the rates of recruitment or survival of the Pacific walrus population.

#### *Polar Bears*

Industry exploration activities have the potential to incidentally take polar bears. These disturbances are expected to be nonlethal, short-term behavioral reactions resulting in displacement, and are not expected to have more than a minimal impact on individuals. Polar bears could be displaced from the immediate area of activity due to noise and vibrations. Alternatively, they could be attracted to sources of noise and vibrations out of curiosity, which could result in human-bear encounters. It is also possible that noise and human activity from stationary sources, such as a drill rig, could keep females from

denning in the vicinity of the source if activities occur in the late fall season when females initiate denning. Furthermore, there is a low chance of injury to a bear during a take and it is unlikely that lethal takes will occur. Contact with, or ingestion of, oil could also potentially affect polar bears. Small oil spills are likely to be cleaned up immediately and should have little chance of affecting polar bears. The probability of a large spill occurring is small and the impact of a large spill would depend on the distribution of the bears at the time of the spill, the location and size of the spill, and the success of clean-up measures. We do not expect the sum total of these disturbances to affect the rates of recruitment or survival of the Chukchi-Bering Sea polar bear population.

### Conclusions

We conclude that any take reasonably likely to or reasonably expected to occur as a result of projected activities will have no more than a negligible impact on the Pacific walrus population or polar bears inhabiting the specified geographic region from the (Chukchi/Bering seas or Southern Beaufort Sea polar bear stocks) and will not have an unmitigable adverse impact on the availability of Pacific walruses and polar bears for subsistence uses. Based on the previous discussion, we propose the following findings regarding this action:

#### *Impact on Species*

The Service finds that any incidental take reasonably likely to result from the effects of oil and gas related exploration activities during the period of the rule, in the Chukchi Sea and adjacent western coast of Alaska will have no more than a negligible impact on polar bears and Pacific walruses in the Chukchi Sea Region. In making this finding, we considered the best scientific information available, such as: (1) The distribution of the species; (2) the biological characteristics of the species; (3) the nature of proposed oil and gas industry activities; (4) the potential effects of industry activities on the species; (5) the documented impacts of industry activities on the species; (6) mitigation measures that will minimize effects; and (7) other data provided by monitoring programs in the Beaufort Sea (1993–2006) and historically in the Chukchi Sea (1991–1996). We also considered the specific Congressional direction in balancing the potential for a significant impact with the likelihood of that event occurring. The specific Congressional direction that justifies

balancing probabilities with impacts follows:

If potential effects of a specified activity are conjectural or speculative, a finding of negligible impact may be appropriate. A finding of negligible impact may also be appropriate if the probability of occurrence is low but the potential effects may be significant. In this case, the probability of occurrence of impacts must be balanced with the potential severity of harm to the species or stock when determining negligible impact. In applying this balancing test, the Service will thoroughly evaluate the risks involved and the potential impacts on marine mammal populations. Such determination will be made based on the best available scientific information [53 FR 8474, March 15, 1988; 132 Cong. Rec. S 16305 (October, 15, 1986)].

We reviewed the effects of the oil and gas industry activities on Pacific walruses and polar bears, which included impacts from noise, physical obstructions, human encounters, and small operational oil spills. Based on our review of these potential impacts, past LOA monitoring reports, and the biology and natural history of Pacific walruses and polar bears, we conclude that any incidental take reasonably likely to or reasonably expected to occur as a result of projected activities will have a negligible impact on Pacific walrus and polar bear populations. Furthermore, we do not expect these disturbances to affect the rates of recruitment or survival for the Pacific walrus and polar bear populations. These regulations do not authorize lethal take and we do not anticipate any lethal take will occur.

Our finding of "negligible impact" applies to oil and gas exploration activities. Generic conditions are attached to each LOA. These conditions minimize interference with normal breeding, feeding, and possible migration patterns to ensure that the effects to the species remain negligible. Generic conditions include: (1) These regulations do not authorize intentional taking of Pacific walruses or polar bears, or lethal incidental take; (2) For the protection of pregnant polar bears during denning activities (den selection, birthing, and maturation of cubs) in known and confirmed denning areas, Industry activities will be restricted in specific locations during specified times of the year; (3) Each activity covered by an LOA requires a site-specific plan of operation and a site-specific polar bear interaction plan. We may also add additional measures depending upon site-specific and species-specific concerns. For example, restrictions in denning areas will be applied on a case-by-case basis after assessing each LOA request and could require pre-activity surveys (e.g., aerial surveys, FLIR

surveys, or polar bear scent-trained dogs) to determine the presence or absence of denning activity and, in known denning areas, may require enhanced monitoring or flight restrictions, such as minimum flight elevations, if necessary. Monitoring requirements and operating restrictions associated with offshore drilling operations will include requirements for ice-scouting, surveys for walruses and polar bears in the vicinity of active drilling operations, requirements for marine mammal observers onboard drill ships and ice breakers, and operational restrictions near polar bear and walrus aggregations. The Service expects no significant impact to these species as a result of these anticipated Industry activities.

We will analyze the required operation and polar bear interaction plans to ensure that the level of activity and possible take will be consistent with our finding that total incidental takes will have a negligible impact on Pacific walruses and polar bears and, where relevant, will not have an unmitigable adverse impact on the availability of these species for subsistence uses.

As we have stated, changes in the sea ice due to climate change could alter polar bear habitat. Extended duration of open water may preclude sea ice habitat use by restricting some bears to coastal areas. The reduction of sea ice extent, caused by climate change, may also affect the timing of polar bear seasonal movements between the coastal regions and the pack ice. If the sea ice continues to recede as predicted, it is hypothesized that polar bears may spend more time on land rather than on sea ice. As with the Beaufort Sea, the challenge in the Chukchi Sea will be predicting changes in ice habitat, barrier islands, and coastal habitats in relation to changes in polar bear distribution and use of habitat.

Climate change over time is a major concern to the Service, and we are currently involved in the collection of baseline data to help us understand how the effects of climate change will be manifested in bears inhabiting the Chukchi Sea region, such as the Chukchi/Bering Sea polar bear population (<http://alaska.fws.gov/fisheries/mmm/polarbear/issues.htm>). As we gain a better understanding of climate change effects on walruses and polar bears, we will incorporate the information in future actions. Ongoing studies include those led by the USGS Alaska Science Center, in cooperation with the Service, to examine polar bear habitat use, reproduction, and survival relative to a changing sea-ice



environment. Specific objectives of the project include: polar bear habitat availability and quality influenced by ongoing climate changes and the response by polar bears; the effects of polar bear responses to climate-induced changes to the sea-ice environment on body condition of adults, numbers and sizes of offspring, and survival of offspring to weaning (recruitment); and population age structure. The USGS Alaska Science Center is also proposing to investigate changes in walrus distributions and habitat use patterns in the Chukchi Sea in response to diminishing sea-ice cover over the Outer Continental Shelf.

#### *Impact on Subsistence Take*

Based on the best scientific information available and the results of harvest data, including affected villages, the number of animals harvested, the season of the harvests, and the location of hunting areas, we find that the effects of the proposed seismic activities in the Chukchi Sea region would not have an unmitigable adverse impact on the availability of walrus and polar bears for taking for subsistence uses during the period of the rule. In making this finding, we considered the following: (1) Historical data regarding the timing and location of harvests; (2) effectiveness of mitigation measures stipulated by Service regulations for obtaining an LOA at 50 CFR 18.118, which includes requirements for community consultations and Plans of Cooperation, as appropriate, between the applicants and affected Native communities; (3) by MMS-issued operational permits; and (4) anticipated 5-year effects of Industry proposed activities on subsistence hunting.

Applicants must use methods and conduct activities identified in their LOAs in a manner that minimizes to the greatest extent practicable adverse impacts on Pacific walrus and polar bears, their habitat, and on the availability of these marine mammals for subsistence uses. Prior to receipt of an LOA, applicants will be required to consult with the Eskimo Walrus Commission and the communities of Point Hope, Point Lay, Wainwright, and Barrow to discuss potential conflicts with subsistence walrus and polar bear hunting caused by the location, timing, and methods of proposed operations. Documentation of all consultations must be included in LOA applications. Documentation must include meeting minutes, a summary of any concerns identified by community members, and the applicant's responses to identified concerns. If community concerns suggest that the proposed activities

could have an adverse impact on the subsistence uses of these species, conflict avoidance issues must be addressed through a POC.

Where prescribed, holders of LOAs will be required to have a POC on file with the Service and on-site. The POC must address how applicants will work with potentially affected Native communities and what actions will be taken to avoid interference with subsistence hunting opportunities for walrus and polar bears. The POC must include:

1. A description of the procedures by which the holder of the LOA will work and consult with potentially affected subsistence hunters.

2. A description of specific measures that have been, or will be taken to avoid or minimize interference with subsistence hunting of walrus and polar bears, and to ensure continued availability of the species for subsistence use.

The Service will review the POC to ensure any potential adverse effects on the availability of the animals are minimized. The Service will reject POCs if they do not provide adequate safeguards to ensure that marine mammals will remain available for subsistence use.

If there is evidence during the five-year period of the regulations that oil and gas activities are affecting the availability of walrus or polar bears for take for subsistence uses, we will reevaluate our findings regarding permissible limits of take and the measures required to ensure continued subsistence hunting opportunities.

#### *Monitoring and Reporting*

The purpose of monitoring requirements is to assess the effects of industrial activities on walrus and polar bears to ensure that take is consistent with that anticipated in the negligible-impact and subsistence use analyses, and to detect any unanticipated effects on the species. Holders of LOAs will be required to have an approved, site-specific marine mammal monitoring and mitigation plan on file with the Service and on site. Marine mammal monitoring and mitigation plans must be designed to enumerate the number of walrus and polar bears encountered during authorized activities, estimate the number of incidental takes which occurred during authorized activities, and evaluate the effectiveness of prescribed mitigation measures.

Monitoring activities are summarized and reported in a formal report each year. The applicant must submit an annual monitoring and reporting plan at

least 90 days prior to the initiation of a proposed activity, and the applicant must submit a final monitoring report to us no later than 90 days after the completion of the activity. We base each year's monitoring objective on the previous year's monitoring results.

We require an approved plan for monitoring and reporting the effects of oil and gas industry exploration activities on walrus and polar bears prior to issuance of an LOA. We require approval of the monitoring results for continued authorization under the LOA.

#### *Specific Stipulations for 2007 Shell Offshore Inc. IHA*

For the 2007 open-water season, the IHA for Shell Offshore Inc. (SOI), which is the only applicant for an incidental harassment authorization under section 101(a)(5)(D) of the MMPA for the 2007 season, and whose activities are described in Shell's application at <http://alaska.fws.gov/fisheries/mmm/itr.htm>, would include all of the prohibitions listed in section 18.117 of this proposed rule and notice, as well as any additional prohibitions and restrictions identified through (1) a peer review of the marine mammal monitoring and mitigation plan as required under section 18.118(a) of this proposed rule and notice, and (2) a Plan of Cooperation developed through consultations with the communities of Point Hope, Point Lay, Wainwright, and Barrow as required under section 18.118(d) of this proposed rule and notice. All of the monitoring, mitigation, and reporting requirements in sections 18.118(a) through (h) of this proposed rule and notice would also be included in the 2007 IHA for SOI except for the mitigation measures listed under section 18.118(g)(4), (5), and (6), and reporting requirements listed under section 18.118(h)(4). The mitigation measures listed in section 18.118(g)(4) and (5) are not necessary because proposed activities are limited to open-water seismic exploration after July 1, with no possibility of encountering denning polar bears. The mitigation measure identified in section 18.118(g)(6) would not be required because no offshore drilling has been proposed. The reporting requirements identified in 18.118(g)(4) would not be required because no on-shore activity has been proposed.

#### **Public Comments Solicited**

We intend that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, we solicit comments or suggestions from the public, other concerned governmental agencies, the

scientific community, industry, or any other interested party concerning this proposed rule.

If you wish to comment, you may submit your comments and materials concerning this proposal by any one of several methods, as listed above in **ADDRESSES**. If you submit comments by e-mail, please submit them as an ASCII file format and avoid the use of special characters and encryption. Please include “*Attn:* [RIN 1018–AU41]” and your name and return address in your e-mail message. Please note that this e-mail address will be closed out at the termination of the public comment period. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public view, we cannot guarantee that we will be able to do so.

#### *Clarity of the Rule*

Executive Order 12866 requires each agency to write regulations that are easy to understand. We invite your comments on how to make this rule easier to understand, including answers to questions such as the following:

- (1) Are the requirements in the rule clearly stated?
- (2) Does the rule contain technical language or jargon that interferes with its clarity?
- (3) Does the format of the rule (grouping and order of sections, use of headings, paragraphing, etc.) aid or reduce its clarity?
- (4) Would the rule be easier to understand if it were divided into more (but shorter) sections? (A “section” appears in bold type and is preceded by the symbol “Sec.” and a numbered heading; for example, Sec. 18.113. When is this subpart effective?)

(5) Is the description of the rule in the “Supplementary Information” section of the preamble helpful in understanding the proposed rule?

(6) What else could we do to make the rule easier to understand?

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public view, we

cannot guarantee that we will be able to do so.

#### **Required Determinations**

##### *NEPA Considerations*

We have prepared a draft Environmental Assessment (EA) in conjunction with this proposed rulemaking. Subsequent to closure of the comment period for this proposed rule, we will decide whether this is a major Federal action significantly affecting the quality of the human environment within the meaning of Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969. For a copy of the draft Environmental Assessment, contact the individual identified above in the section **FOR FURTHER INFORMATION CONTACT**.

##### *Endangered Species Act*

In light of the Service’s recent proposed rule to list polar bears as a threatened species under the Endangered Species Act (ESA) (72 FR 1064, January 9, 2007), additional regulatory requirements may be necessary for any agency actions affecting polar bears. Currently, since polar bears are proposed for listing but not actually listed, conferencing under section 7(a)(4) of the ESA is required if an agency action is “likely to jeopardize the continued existence of any species proposed to be listed under section 4 [of the ESA] or result in the destruction or adverse modification of critical habitat proposed to be designated for such species.” Because this proposed rule does not pose any likelihood of jeopardy, conferencing is not required.

##### *Regulatory Planning and Review*

This document has not been reviewed by the Office of Management and Budget under Executive Order 12866 (Regulatory Planning and Review). This rule, if adopted, will not have an effect of \$100 million or more on the economy; will not adversely affect in a material way the economy, productivity, competition, jobs, environment, public health or safety, of State, local, or tribal governments or communities; will not create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; does not alter the budgetary effects of entitlements, grants, user fees, or loan programs or the rights or obligations of their recipients; and does not raise novel legal or policy issues.

Expenses will be related to, but not necessarily limited to, the development of applications for regulations and LOAs, monitoring, recordkeeping, and

reporting activities conducted during Industry oil and gas operations, development of polar bear interaction plans, and coordination with Alaska Natives to minimize effects of operations on subsistence hunting. Compliance with the rule is not expected to result in additional costs to Industry that it has not already been subjected to for the previous 6 years. Realistically, these costs are minimal in comparison to those related to actual oil and gas exploration operations. The actual costs to Industry to develop the petition for promulgation of regulations (originally developed in 2005) and LOA requests do not exceed \$500,000 per year, short of the “major rule” threshold that would require preparation of a regulatory impact analysis. As is presently the case, profits would accrue to Industry; royalties and taxes would accrue to the Government; and the rule would have little or no impact on decisions by Industry to relinquish tracts and write off bonus payments.

##### *Small Business Regulatory Enforcement Fairness Act*

We have determined that this rule, if adopted, would not be a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. The rule, if adopted, is also not likely to result in a major increase in costs or prices for consumers, individual industries, or government agencies or have significant adverse effects on competition, employment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

##### *Regulatory Flexibility Act*

We have also determined that this rule, if adopted, will not have a significant economic effect on a substantial number of small entities under the Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.* Oil companies and their contractors conducting exploration, development, and production activities in Alaska have been identified as the only likely applicants under the regulations. Therefore, a Regulatory Flexibility Analysis is not required. In addition, these potential applicants have not been identified as small businesses and, therefore, a Small Entity Compliance Guide is not required. The analysis for this proposed rule is available from the individual identified above in the section **FOR FURTHER INFORMATION CONTACT**.

### *Takings Implications*

This rule, if adopted, would not have takings implications under Executive Order 12630 because it authorizes the nonlethal, incidental, but not intentional, take of walruses and polar bears by oil and gas industry companies and thereby exempts these companies from civil and criminal liability as long as they operate in compliance with the terms of their LOAs. Therefore, a takings implications assessment is not required.

### *Federalism Effects*

This proposed rule does not contain policies with Federalism implications sufficient to warrant preparation of a Federalism Assessment under Executive Order 13132. The MMPA gives the Service the authority and responsibility to protect walruses and polar bears.

### *Unfunded Mandates Reform Act*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501, *et seq.*), this rule, if adopted, would not "significantly or uniquely" affect small governments. A Small Government Agency Plan is not required. The Service has determined and certifies pursuant to the Unfunded Mandates Reform Act that this rulemaking will not impose a cost of \$100 million or more in any given year on local or State governments or private entities. This rule will not produce a Federal mandate of \$100 million or greater in any year, i.e., it is not a "significant regulatory action" under the Unfunded Mandates Reform Act.

### *Government-to-Government Relationship With Tribes*

In accordance with the President's memorandum of April 29, 1994, "Government-to-Government Relations with Native American Tribal Governments" (59 FR 22951), Executive Order 13175, Secretarial Order 3225, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a Government-to-Government basis. We have evaluated possible effects on federally recognized Alaska Native tribes. Through the LOA process identified in the regulations, Industry presents a Plan of Cooperation with the Native Communities most likely to be affected and engages these communities in numerous informational meetings.

### *Civil Justice Reform*

The Departmental Solicitor's Office has determined that these regulations do not unduly burden the judicial system and meet the applicable standards

provided in Sections 3(a) and 3(b)(2) of Executive Order 12988.

### *Paperwork Reduction Act*

This proposed rule contains information collection requirements. We may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid Office of Management and Budget (OMB) control number.

OMB has approved our collection of information for incidental take of marine mammals during specified activities in the Beaufort Sea and assigned OMB Control No. 1018-0070, which expires October 31, 2007. We are revising this collection to include similar collections of information for incidental take of marine mammals in the Chukchi Sea. We are submitting a request to OMB to approve this revised collection for a 3-year term. We will use the information that we collect to evaluate applications for specific incidental take regulations from the oil and gas industry to determine whether such regulations, and subsequent LOAs, should be issued; the information is needed to establish the scope of specific incidental take regulations. The information is also required to evaluate impacts of activities on species or stocks of marine mammals and on their availability for subsistence uses by Alaska Natives. It will ensure that applicants considered all available means for minimizing the incidental take associated with a specific activity.

We estimate that up to 20 companies will request LOAs and submit monitoring reports annually for the Beaufort and Chukchi Seas regions covered by the specific regulations. We estimate that the total annual burden associated with the request will be 1,625 hours during years when applications for regulations are required and 1,025 hours when regulatory applications are not required. This represents an average annual estimated burden taken over a 3-year period, which includes the initial 300 hours required to complete the request for specific procedural regulations. We estimate that there will be an annual average of six on-site observation reports per LOA. For each LOA expected to be requested and issued subsequent to issuance of specific procedural regulations, we estimate that 33.5 hours per project will be invested (24 hours will be required to complete each request for an LOA, approximately 1.5 hours will be required for onsite observation reporting, and 8 hours will be required to complete each final monitoring report). The public burden associated

with the 3-year period covered by this request for information collection authority is estimated at 3,675 hours.

*Title:* Marine Mammals: Incidental Take of Marine Mammals During Specified Activities Applications, 50 CFR 18, Subparts I and J.

*OMB Number:* 1018-0070.

*Bureau form number:* None.

*Frequency of collection:* Semiannual.

*Description of respondents:* Oil and gas industry companies.

*Total Annual Responses:* 202.

*Total Annual Burden Hours:* 1,625.

We invite interested members of the public and affected agencies to comment on these proposed information collection and recordkeeping activities. Comments are invited on: (1) Whether or not the collection of information is necessary for the proper performance of the functions of the Service, including whether or not the information will have practical utility; (2) the accuracy of our estimate of the burden for this collection; (3) ways to enhance the quality, utility, and clarity of the information to be collected; and (4) ways to minimize the burden of the collection of information on respondents.

Send your comments and suggestions on this information collection to the Desk Officer for the Department of the Interior at OMB-OIRA at (202) 395-6566 (fax) or [OIRA\\_DOCKET@OMB.eop.gov](mailto:OIRA_DOCKET@OMB.eop.gov) (e-mail). Please provide a copy of your comments to Hope Grey, Information Collection Clearance Officer, Fish and Wildlife Service, MS 222-ARLSQ, 4401 North Fairfax Drive, Arlington, VA 22203 (mail); (703) 358-2269 (fax); or [hope\\_grey@fws.gov](mailto:hope_grey@fws.gov) (e-mail).

### *Energy Effects*

Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This proposed rule would provide exceptions from the taking prohibitions of the MMPA for entities engaged in the exploration of oil and gas in the Chukchi Sea and adjacent western coast of Alaska. By providing certainty regarding compliance with the MMPA, this rule will have a positive effect on Industry and its activities. Although the rule requires Industry to take a number of actions, these actions have been undertaken by Industry for many years as part of similar past regulations. Therefore, this rule is not expected to significantly affect energy supplies, distribution, or use and does not constitute a significant energy action. No Statement of Energy Effects is required.

**List of Subjects in 50 CFR Part 18**

Administrative practice and procedure, Alaska, Imports, Indians, Marine mammals, Oil and gas exploration, Reporting and recordkeeping requirements, Transportation.

**Proposed Regulation Promulgation**

For the reasons set forth in the preamble, the Service proposes to amend part 18, subchapter B of chapter 1, title 50 of the Code of Federal Regulations as set forth below.

**PART 18—MARINE MAMMALS**

1. The authority citation of 50 CFR part 18 continues to read as follows:

*Authority:* 16 U.S.C. 1361 *et seq.*

2. Amend part 18 by adding a new subpart I to read as follows:

**Subpart I—Nonlethal Taking of Pacific Walruses and Polar Bears Incidental to Oil and Gas Exploration Activities in the Chukchi Sea and Adjacent Coast of Alaska**

Sec.

18.111 What specified activities does this subpart cover?

18.112 In what specified geographic region does this subpart apply?

18.113 When is this subpart effective?

18.114 How do I obtain a Letter of Authorization?

18.115 What criteria does the Service use to evaluate Letter of Authorization requests?

18.116 What does a Letter of Authorization allow?

18.117 What activities are prohibited?

18.118 What are the monitoring, mitigation, and reporting requirements?

18.119 What are the information collection requirements?

**§ 18.111 What specified activities does this subpart cover?**

Regulations in this subpart apply to the nonlethal incidental, but not intentional, take of small numbers of Pacific walruses and polar bears by you (U.S. citizens as defined in § 18.27(c)) while engaged in oil and gas exploration activities in the Chukchi Sea and adjacent western coast of Alaska.

**§ 18.112 In what specified geographic region does this subpart apply?**

This subpart applies to the specified geographic region defined as the continental shelf of the Arctic Ocean adjacent to western Alaska. This area includes the waters (State of Alaska and Outer Continental Shelf waters) and seabed of the Chukchi Sea, which encompasses all waters north and west of Point Hope (68°20'20" N, –166°50'40" W, BGN 1947) to the U.S.-Russia Convention Line of 1867, west of a north-south line through Point Barrow (71°23'29" N, –156°28'30" W, BGN 1944), and up to 200 miles north of Point Barrow. The region also includes the terrestrial coastal land 25 miles inland between the western boundary of the south National Petroleum Reserve—Alaska (NPR–A) near Icy Cape (70°20'00", –148°12'00") and the north-south line from Point Barrow. This terrestrial region encompasses a portion of the Northwest and South Planning Areas of the NPR–A. Figure 1 shows the area where this subpart applies.

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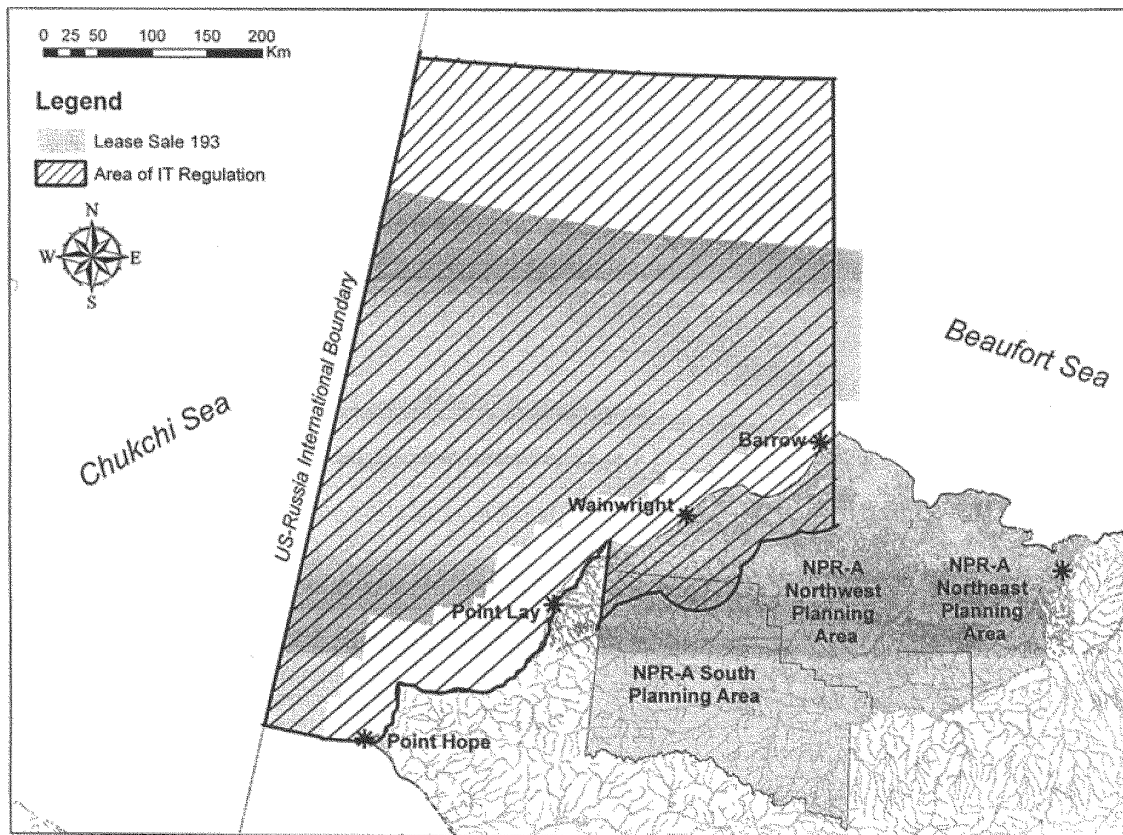


Figure 1: The geographic area of the Chukchi Sea and onshore coastal areas covered by the incidental take regulations.

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**§ 18.113 When is this subpart effective?**

Regulations in this subpart are effective from [effective date of the final rule] through [date 5 years from the effective date of the final rule] for year-round oil and gas exploration activities.

**§ 18.114 How do I obtain a Letter of Authorization?**

(a) You must be a U.S. citizen as defined in § 18.27(c).

(b) If you are conducting an oil and gas exploration activity in the specified geographic region described in § 18.112 that may cause the taking of Pacific walrus or polar bears and you want nonlethal incidental take authorization under this rule, you must apply for a Letter of Authorization for each exploration activity. You must submit the application for authorization to our Alaska Regional Director (see 50 CFR 2.2 for address) at least 90 days prior to the start of the proposed activity.

(c) Your application for a Letter of Authorization must include the following information:

(1) A description of the activity, the dates and duration of the activity, the specific location, and the estimated area affected by that activity, *i.e.*, a Plan of Operation.

(2) A site-specific plan to monitor the effects of the activity on the behavior of Pacific walrus and polar bears encountered during the ongoing activities, *i.e.*, marine mammal monitoring and mitigation plan. Your monitoring program must document the effects to these marine mammals and estimate the actual level and type of take. The monitoring requirements will vary depending on the activity, the location, and the time of year.

(3) A site-specific polar bear awareness and interaction plan, *i.e.*, polar bear interaction plan.

(4) A Plan of Cooperation to mitigate potential conflicts between the proposed activity and subsistence

hunting, where relevant. This Plan of Cooperation must identify measures to minimize adverse effects on the availability of Pacific walrus and polar bears for subsistence uses if the activity takes place in or near a traditional subsistence hunting area. Some of these measures could include, but are not limited to, mitigation measures described in § 18.118.

**§ 18.115 What criteria does the Service use to evaluate Letter of Authorization requests?**

(a) We will evaluate each request for a Letter of Authorization based on the specific activity and the specific geographic location. We will determine whether the level of activity identified in the request exceeds that analyzed by us in making a finding of negligible impact on the species and a finding of no unmitigable adverse impact on the availability of the species for take for subsistence uses. If the level of activity is greater, we will reevaluate our

findings to determine if those findings continue to be appropriate based on the greater level of activity that you have requested. Depending on the results of the evaluation, we may grant the authorization, add further conditions, or deny the authorization.

(b) In accordance with § 18.27(f)(5), we will make decisions concerning withdrawals of Letters of Authorization, either on an individual or class basis, only after notice and opportunity for public comment.

(c) The requirement for notice and public comment in paragraph (b) of this section will not apply if we determine that an emergency exists that poses a significant risk to the well-being of species or stocks of Pacific walrus or polar bears.

**§ 18.116 What does a Letter of Authorization allow?**

(a) Your Letter of Authorization may allow the nonlethal incidental, but not intentional, take of Pacific walrus and polar bears when you are carrying out one or more of the following activities:

(1) Conducting geological and geophysical surveys and associated activities;

(2) Drilling exploratory wells and associated activities; or

(3) Conducting environmental monitoring activities associated with exploration activities to determine specific impacts of each activity.

(b) You must use methods and conduct activities identified in your Letter of Authorization in a manner that minimizes to the greatest extent practicable adverse impacts on Pacific walrus and polar bears, their habitat, and on the availability of these marine mammals for subsistence uses.

(c) Each Letter of Authorization will identify conditions or methods that are specific to the activity and location.

**§ 18.117 What activities are prohibited?**

(a) Intentional take and lethal incidental take of Pacific walrus or polar bears; and

(b) Any take that fails to comply with this part or with the terms and conditions of your Letter of Authorization.

**§ 18.118 What are the monitoring, mitigation, and reporting requirements?**

We require holders of Letters of Authorization to cooperate with us and other designated Federal, State, and local agencies to monitor the impacts of oil and gas exploration activities on Pacific walrus or polar bears.

(a) *Marine mammal monitoring and mitigation plan.* (1) Holders of Letters of Authorization will be required to have

a Service-approved, site-specific marine mammal monitoring and mitigation plan on file with the Service and on site. Marine mammal monitoring and mitigation plans must enumerate the number of walrus and polar bears encountered during specified exploration activities, estimate the number of incidental takes that occurred during specified exploration activities, and evaluate the effectiveness of prescribed mitigation measures.

(2) Applicants must fund an independent peer review of proposed monitoring plans and draft reports of monitoring results. This peer review will consist of independent reviewers who have knowledge and experience in statistics, marine mammal behavior, and the type and extent of the proposed operations. The applicant will provide the results of these peer reviews to the Service for consideration in final approval of marine mammal monitoring and mitigation plans and final reports. The Service will distribute copies of marine mammal monitoring and mitigation plans and reports to appropriate resource management agencies and co-management organizations.

(b) *Marine mammal observer.* Holders of Letters of Authorization must designate a qualified individual or individuals to observe, record, and report on the effects of their activities on Pacific walrus or polar bears. The person or persons designated to observe and record the effects of exploration activities must be approved by the Service.

(c) *Polar bear interaction plan.* Holders of Letters of Authorization are required to have a polar bear interaction plan on file with the Service and on site, and polar bear awareness training will also be required of certain personnel. Polar bear interaction plans will include:

(1) The type of activity and where and when the activity will occur, *i.e.*, a plan of operation;

(2) A food and waste management plan;

(3) Personnel training materials and procedures;

(4) Site at-risk locations and situations;

(5) A snow management plan;

(6) Polar bear observation and reporting procedures; and

(7) Polar bear avoidance and encounter procedures.

(d) *Minimizing effects on subsistence uses.* Applicants must use methods and conduct activities identified in their Letter of Authorization in a manner that, to the greatest extent practicable, minimizes adverse impacts on Pacific

walrus and polar bears, their habitat, and on the availability of these marine mammals for subsistence uses.

(1) Prior to receipt of a Letter of Authorization, applicants must consult with affected communities and appropriate marine mammal management groups to discuss potential conflicts with subsistence walrus and polar bear hunting caused by the location, timing, and methods of proposed operations. These communities and groups are the Eskimo Walrus Commission and the Alaska Nanuq Commission and the communities of Point Hope, Point Lay, Wainwright, and Barrow.

(2) In the application for a Letter of Authorization, applicants must include documentation of all consultations. Documentation can include meeting minutes, a summary of any concerns identified by community members, and the applicant's responses to identified concerns.

(3) If community concerns suggest that the proposed activities may have an adverse impact on the subsistence uses of these species, the applicant must address conflict avoidance issues through a Plan of Cooperation as described in paragraph (e) of this section.

(e) *Plan of Cooperation.* Where prescribed, holders of Letters of Authorization will be required to have a Plan of Cooperation on file with the Service and on site. The Plan of Cooperation must address how applicants will work with potentially affected Native communities and what actions will be taken to avoid interference with subsistence hunting opportunities for walrus and polar bears beyond those stipulations in the incidental take regulations and individual Letters of Authorization.

(1) The Plan of Cooperation must include:

(i) A description of the procedures by which the holder of the Letter of Authorization will work and consult with potentially affected subsistence hunters; and

(ii) A description of specific measures that have been or will be taken to avoid or minimize interference with subsistence hunting of walrus and polar bears and to ensure continued availability of the species for subsistence use.

(2) The Service will review the Plan of Cooperation to ensure that any potential adverse effects on the availability of the animals are minimized. The Service will reject Plans of Cooperation if they do not provide adequate safeguards to ensure the least practicable adverse impact on the

availability of walrus and polar bears for subsistence use.

(f) *Required mitigation measures.*

Mitigation measures that will be required for all projects include:

(1) A Service-approved marine mammal monitoring and mitigation plan as described in paragraph (a) of this section.

(2) A Service-approved polar bear interaction plan as described in paragraph (c) of this section.

(3) A record of communication with potentially affected villages to mitigate adverse effects of the project on subsistence activities. This record may be the precursor to a Plan of Cooperation as described in paragraph (e) of this section.

(4) For marine vessels, a 1/2-mile operational exclusion zone around any walrus or polar bears observed on land or ice.

(5) For aircraft, a 1,000-foot minimum altitude within 1/2 mile of hauled out Pacific walrus.

(6) Polar bear monitors under the marine mammal monitoring and mitigation plan if polar bears are known to frequent the area or known polar bear dens are present in the area. Monitors will act as an early detection system in regard to proximate bear activity to Industry facilities.

(g) *Possible additional mitigation measures.* Mitigation measures that we may require on a case-by-case basis as appropriate include:

(1) The use of marine mammal observers associated with all offshore exploration activities.

(i) Marine mammal observers must have completed a marine mammal observer training course approved by the Service. Operators may use observers trained by third parties, may send crew for training conducted by third parties, or may develop their own training program. To obtain Service approval, all training programs must:

(A) Furnish to the Service a course information packet that includes the name and qualifications (i.e., experience, training completed, and educational background) of the instructor(s), the course outline or syllabus, and course reference material;

(B) Furnish each trainee with a document verifying successful completion of the course; and

(C) Provide the Service with names, affiliations, and dates of course completion of trainees.

(ii) The training course must include the following elements:

(A) Overview of the Marine Mammal Protection Act as it relates to seismic acquisition and protection of marine mammals;

(B) Overview of seismic acquisition operations;

(C) Overview of mitigation measures and the marine mammal monitoring program; and

(D) Discussion of the role and responsibilities of the marine mammal observer, including:

(1) Regulatory requirements (why the observer is here and what that person does);

(2) Authority of the marine mammal observer to call for shut-down of seismic acquisition operations;

(3) Assigned duties;

(4) Reporting of violations and coercion;

(5) Identification of arctic marine mammal species, including various age and sex classes of Pacific walrus;

(6) Cues and search methods for locating marine mammals; and

(7) Data collection and reporting requirements.

(2) *Mitigation measures for offshore seismic exploration activities.* Such mitigation measures will include:

(i) *Spacing of activities.* Operators must maintain a minimum spacing of 15 miles between all seismic-source vessels and/or exploratory drilling operations to mitigate cumulative impacts to resting, feeding, and migrating walrus.

(ii) *Exclusion zone.* An exclusion zone at and below the sea surface within a radius defined by a 180-decibel (dB) isopleth (for walrus) and a 190-dB isopleth (for polar bears) from the center of the sound source must be free of walrus and polar bears before the survey can begin and must remain free of walrus and polar bears during the seismic survey.

(iii) *Monitoring of the exclusion zone.* Trained marine mammal observers will monitor the area around the survey for the presence of walrus and polar bears to maintain a marine mammal-free exclusion zone and monitor for avoidance or take behaviors.

(iv) *Ramp-up procedures.* For all seismic surveys, including airgun testing, use the following ramp-up procedures to allow marine mammals to depart the exclusion zone before seismic surveying begins:

(A) Visually monitor the exclusion zone and adjacent waters for the absence of polar bears and walrus for at least 30 minutes before initiating ramp-up procedures. If no polar bears or walrus are detected, you may initiate ramp-up procedures. Do not initiate ramp-up procedures at night or when you cannot visually monitor the exclusion zone for marine mammals.

(B) Initiate ramp-up procedures by firing a single airgun. The preferred airgun to begin with should be the

smallest airgun, in terms of energy output (dB) and volume (in<sup>3</sup>).

(C) Continue ramp-up by gradually activating additional airguns over a period of at least 20 minutes, but no longer than 40 minutes, until the desired operating level of the airgun array is obtained.

(D) Immediately shut down all airguns and cease seismic operations at any time a polar bear or walrus mammal is detected entering or within the exclusion zone. You may recommence seismic operations and ramp-up of airguns only when the exclusion zone has been visually inspected for at least 30 minutes to ensure the absence of walrus and polar bears.

(E) You may reduce the source level of the airgun array, using the same shot interval as the seismic survey, to maintain a minimum source level of 160 dB re 1  $\mu$ Pa-m (rms) for the duration of certain activities. By maintaining the minimum source level, you will not be required to conduct the 30-minute visual clearance of the exclusion zone before ramping back up to full output.

(1) Activities that are appropriate for maintaining the minimum source level include turns between transect lines, when a survey using the full array is being conducted immediately prior to the turn and will be resumed immediately after the turn, and unscheduled, unavoidable maintenance of the airgun array that requires the interruption of a survey to shut down the array. The survey should be resumed immediately after the repairs are completed.

(2) There may be other occasions when reducing the source level of the airgun array is appropriate, but use of the minimum source level to avoid the 30-minute visual clearance of the exclusion zone is only for events that occur during a survey using the full power array. The minimum sound source level is not to be used to allow a later ramp-up after dark or in conditions when ramp-up would not otherwise be allowed.

(v) *Field verification.* Before conducting the survey, the operator must verify the radii of the exclusion/safety zones within real-time conditions in the field. Field-verification techniques must use valid techniques for determining propagation loss. When moving a seismic-survey operation into a new area, the operator must verify the new radii of the zones by applying a sound-propagation series.

(3) *Limits on take authorization.* (i) We will not issue take authorization for seismic surveys or exploratory drilling activities within a 40-mile radius of Barrow, Wainwright, Point Hope, or



Point Lay, unless expressly authorized by the community through consultation or a Plan of Cooperation as described in paragraph (e) of this section.

(ii) We will limit authorization of offshore exploration activities to the open-water season, which will not exceed the period of July 1 to November 30.

(4) *Efforts to locate dens.* Industry must use Forward Looking Infrared (FLIR) imagery, polar bear scent-trained dogs, or both to determine presence or absence of maternal polar bear dens in areas of activity.

(5) *Efforts to minimize disturbance around dens.* Industry must restrict the timing of the activity to limit disturbance around polar bear dens. If known occupied dens are located within an operator's area of activity, we will require a 1-mile operational exclusion buffer around the den to limit disturbance or require that the operator conduct activities after the female bears emerge from their dens. We will review these requirements for extenuating circumstances on a case-by-case basis.

(6) Mitigation measures for offshore drilling operations. Such mitigation measures will include requirements for ice-scouting, surveys for walrus and polar bears in the vicinity of active drilling operations, marine mammal observers onboard drill-ships and ice breakers, and operational restrictions near walrus and polar bear aggregations.

(h) *Reporting requirements.* Reporting requirements for exploratory activities will include:

(1) *Offshore seismic monitoring reports.* In order to accommodate various vessels' bridge practices and preferences, vessel operators and observers may design data reporting forms in whatever format they deem convenient and appropriate. At a minimum, the following items must be recorded and included in reports to the Service:

(i) *Observer effort report.* The operator must prepare an observer effort report for each day during which seismic acquisition operations are conducted. On a weekly basis, provide the Service an observer effort report that includes:

(A) Vessel name.  
 (B) Observers' names and affiliations.  
 (C) Survey type (e.g., site, 2D, 3D).  
 (D) Minerals Management Service Permit Number (for "off-lease seismic surveys") or Outer Continental Shelf Lease Number (for "on-lease seismic surveys").

(E) Date.  
 (F) Time and latitude/longitude when daily visual survey began.

(G) Time and latitude/longitude when daily visual survey ended.

(H) Average environmental conditions while on visual survey, including:

(1) Wind speed and direction;  
 (2) Sea state (glassy, slight, choppy, rough or Beaufort scale);  
 (3) Swell (low, medium, high or swell height in meters);  
 (4) Overall visibility (poor, moderate, good); and  
 (5) Sea ice concentrations (None, Scattered flows <10%, >10%).

(ii) *Survey report.* The operator must prepare a survey report for each day during which seismic acquisition operations are conducted and the airguns are being discharged. On a weekly basis, provide the Service a survey report that includes:

(A) Vessel name.  
 (B) Survey type (e.g., site, 2D, 3D).  
 (C) Date and time.  
 (D) Time pre-ramp-up survey begins.  
 (E) Whether walrus or polar bears were seen during pre-ramp-up survey.  
 (F) Time ramp-up begins.  
 (G) Whether walrus or polar bears were seen during ramp-up.  
 (H) Time airgun array is operating at the desired intensity.

(I) Radius of 180- and 190-dB exclusion zones.

(J) Whether walrus or polar bears were seen during the survey.

(K) If walrus or polar bears were seen, whether any action taken (i.e., survey delayed, guns shut down).

(L) Reason that walrus or polar bears might not have been seen (e.g., swell, glare, fog).

(M) Time airgun array stops firing.

(2) *Walrus observation report.* The operator must prepare a walrus observation report for each walrus sighting made by marine mammal observers and submit these reports to the Service on a weekly basis. Information within the observation report will include, but is not limited to:

(A) Vessel/aircraft name.  
 (B) Survey type (e.g., 2D, 3D).  
 (C) Date and time.  
 (D) Water depth (in meters).  
 (E) Ice conditions (none, <10% concentration, >10% concentration).

(F) Watch status (Were you on watch or was this sighting made opportunistically by you or someone else?).

(G) Observer or person who made the sighting.

(H) Latitude/longitude of vessel.

(I) Bearing of vessel.

(J) Bearing and estimated range to animal(s) at first sighting.

(K) Species sighted.

(L) Estimated certainty of identification (whether the identification is certain, most likely, or a best guess).

(M) Total number of animals.

(N) Substrate (hauled out on ice, swimming in water, both).

(O) Estimated age and sex class of observed animals.

(P) General description of the animals.

(Q) Compass direction of the animal's travel.

(R) Direction of the animal's travel related to the vessel (drawing preferably).

(S) Behavior (as explicit and detailed as possible; note any observed changes in behavior).

(T) Whether airguns were firing.

(U) Closest distance (in meters) to animals from center of airgun or airgun array (whether firing or not).

(3) *Polar bear observation report.* The operator must report, within 24 hours, all observations of polar bears during any Industry operation. Information within the observation report will include, but is not limited to:

(i) Date of observation.

(ii) Time of observation.

(iii) Observer name.

(iv) Contact telephone number and e-mail address.

(v) Location, with latitude, longitude, and datum.

(vi) Weather conditions at the time of observation.

(vii) Visibility.

(viii) Number of bears: sex and age.

(ix) Estimated closest point of approach for bears from personnel and facilities.

(x) Possible attractants present.

(xi) Bear behavior.

(xii) A description of the encounter.

(xiii) Duration of the encounter.

(xiv) Agency contacts.

(4) *Watch logs.* Observers may incorporate activities within the coast of the geographic region into daily polar bear watch logs.

(5) *Notification of incident report.* The operator must report any violation of conditions of the Letter of Authorization, incidental lethal take, or observations of walrus or polar bears within the prescribed zone of ensonification within 24 hours.

(i) For vessel operations, the notification of incident report must include:

(A) Company conducting the seismic work.

(B) Vessel name.

(C) Name of the Marine Mammal Observer (MMO).

(D) MMO employer.

(E) Type of vessel (support or seismic).

(F) Whether airguns were firing, and if so, how many.

(G) Zone of ensonification used (in meters).

(H) Visibility distance (in kilometers).  
 (I) General weather.  
 (J) Whether ice was present, and if so, the estimated percent of ice cover.  
 (K) Date and time (Alaska standard time).  
 (L) GPS location (decimal degrees in WGS84).  
 (M) Distance when first observed from vessel (in meters) and behavior.  
 (N) Distance when last observed from vessel (in meters) and behavior.  
 (O) Minimum distance during encounter.  
 (P) Duration of encounter.  
 (Q) Whether the animal responded or reacted to the vessel.  
 (R) A description of the encounter.  
 (S) Whether shutdown occurred.  
 (T) Time elapsed before ramp up (in minutes).  
 (U) Number and composition of animals involved.  
 (ii) For fixed-winged aircraft and helicopter operations, the notification of incident report must include:  
 (A) Aircraft identification.  
 (B) Aircraft type.  
 (C) Name of pilot or observer.  
 (D) Altitude and direction of aircraft.  
 (E) Number and composition of animals involved.  
 (F) Minimum distance during encounter.

(G) Whether the animal responded or reacted to the aircraft.  
 (H) Date and time (Alaska standard time) of incident.  
 (I) GPS location (decimal degrees in WGS84).  
 (J) A description of the encounter.  
 (K) Whether ice was present, and if so, the estimated percent of ice cover.  
 (L) General weather.  
 (M) Visibility distance (in kilometers).  
 (6) *After-action monitoring report.*  
 Holders of a Letter of Authorization must submit a report to our Alaska Regional Director (Attn: Marine Mammals Management Office) within 90 days after completion of activities. Reports must include, at a minimum, the following information:  
 (i) Dates, times, and types of activity.  
 (ii) Dates, times, and locations of activity as related to the monitoring activity.  
 (iii) Results of the monitoring activities, including an estimated level of take.  
 (iv) Dates and locations of all Pacific walrus and polar bear observations as related to the operation activity when the sighting occurred.  
 (v) A weekly summary of the hours and distance traveled during observation periods.

**§ 18.119 What are the information collection requirements?**

(a) The Office of Management and Budget has approved the collection of information contained in this subpart and assigned control number 1018-0070. You must respond to this information collection request to obtain a benefit pursuant to section 101(a)(5) of the Marine Mammal Protection Act. We will use the information to

(1) Evaluate the application and determine whether or not to issue specific Letters of Authorization and

(2) Monitor impacts of activities conducted under the Letters of Authorization.

(b) You should direct comments regarding the burden estimate or any other aspect of this requirement to the Information Collection Clearance Officer, U.S. Fish and Wildlife Service, Department of the Interior, Mail Stop 222 ARLSQ, 1849 C Street, NW., Washington, DC 20240.

Dated: May 25, 2007.

**Todd Willens,**

*Acting Assistant Secretary for Fish and Wildlife and Parks.*

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