



# Federal Register

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**Wednesday,  
August 2, 2006**

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**Part V**

## **Department of the Interior**

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**Fish and Wildlife Service**

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**50 CFR Part 18  
Marine Mammals; Incidental Take During  
Specified Activities; Final Rule**

**DEPARTMENT OF THE INTERIOR****Fish and Wildlife Service****50 CFR Part 18**

RIN 1018-AT82

**Marine Mammals; Incidental Take During Specified Activities****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.

**SUMMARY:** The Fish and Wildlife Service (Service) has developed regulations that would authorize the nonlethal, incidental, unintentional take of small numbers of polar bears and Pacific walrus during year-round oil and gas industry (Industry) exploration, development, and production operations in the Beaufort Sea and adjacent northern coast of Alaska. Industry operations for the covered period are similar to, and include all activities covered by the previous 16-month Beaufort Sea incidental take regulations that were effective from November 28, 2003, through March 28, 2005 (68 FR 66744, November 28, 2003). This rule is effective for 5 years from date of issuance.

We find that the total expected takings of polar bear and Pacific walrus during oil and gas industry exploration, development, and production 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. We base this finding on the results of 12 years of data on the encounters and interactions between polar bears, Pacific walrus, and Industry; recent studies of potential effects of Industry on these species; and oil spill risk assessments using oil spill trajectory models, polar bear density models, potential and documented Industry impacts on these species, and models to determine the likelihood of impacts to polar bears should an accidental oil release occur.

**DATES:** This rule is effective August 2, 2006, and remains effective through August 2, 2011.

**ADDRESSES:** Comments and materials received in response to this action are available for public inspection during normal working hours of 8 a.m. to 4:30 p.m., Monday through Friday, at the Office of Marine Mammals Management, U.S. Fish and Wildlife Service, 1011 E. Tudor Road, Anchorage, AK 99503.

**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 Internet [craig\\_perham@fws.gov](mailto:craig_perham@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 (a) permissible methods of taking, (b) 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 (c) requirements for monitoring and reporting. If regulations allowing such incidental taking are issued, we 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, 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, development, and production in marine mammal habitat that may result in the taking of marine mammals. Although Industry is under no legal requirement to obtain incidental take authorization, since 1993, Industry has requested, and we have issued a series of regulations for, incidental take authorization for conducting activities in areas of polar bear and walrus habitat. Since the inception of these incidental take regulations, polar bear/walrus monitoring observations associated with the regulations have recorded over 700 polar bear observations associated with Industry activities. The large majority of reported encounters have been passive observations of bears moving through the oil fields. Monitoring of Industry activities indicates that encounters with walrus are insignificant with only nine walrus observations during the same period.

A detailed history of our past regulations can be found in our most recent regulation, published on November 28, 2003 (68 FR 66744). In summary, these past regulations were published on: 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); and November 28, 2003 (68 FR 66744).

The most recent regulations were issued in response to a request submitted by the Alaska Oil and Gas Association (AOGA) on August 23, 2002. AOGA, on behalf of its members, requested that we promulgate regulations for nonlethal incidental take of small numbers of Pacific walrus and polar bears for a period of 5 years, originally projected to be from March

31, 2003, through March 31, 2008. To ensure that we had adequate time to thoroughly assess effects of Industry activities over the requested 5-year period, and to minimize disruptions related to a lapse in the regulations, we published a 16-month rule (68 FR 66744), on November 28, 2003, that expired on March 28, 2005. A lapse in authorization occurred from March 29, 2005, until publication of this rule, during which industry was liable for take of any polar bear and walrus.

From 1993 to 2004, under this series of regulations, 262 LOAs were issued for oil and as seismic surveys and drilling; development activities, such as construction and remediation; and production activities for operational fields. During this time period, 78 percent of LOAs issued were for exploratory activities, 12 percent for development, and 10 percent for production activities. Twenty one percent (55/262) of these activities actually observed a total of 726 polar bear sightings, and approximately 41 percent of these sightings occurred during production activities. In addition, seven activities observed walrus during the same time period.

#### Summary of Current Request

These regulations respond to the AOGA request of August 23, 2002, and to an August 2004 addendum to that request. These regulations also respond to a July 2004 request from BP Exploration (Alaska), Inc. (BPXA) for regulations to cover only their operations. The BPXA request is encompassed by the scope of the AOGA request. The combined requests are for regulations to allow the incidental nonlethal take of a small number of polar bear and Pacific walrus in association with oil and gas activities on the North Slope of Alaska. Industry has 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. The requests encompass the entire North Slope-wide oil and gas activities projected out to 2011.

AOGA's application indicates that they request regulations that will be applicable to any company conducting oil and gas exploration activities as described within the request. Members of AOGA include: Alyeska Pipeline Service Company; Marathon Oil Company; Anadarko Petroleum Corporation Petro Star, Inc.; BP Exploration (Alaska), Inc.; Phillips Alaska, Inc.; ChevronTexaco Corporation; Shell Western E&P, Inc.; Cook Inlet Pipe Line Company; Tesoro

Alaska Company; Cook Inlet Region, Inc.; Total E&P USA; EnCana Oil & Gas (USA), Inc.; UNOCAL; Evergreen Resources, Inc.; Williams Alaska Petroleum, Inc.; ExxonMobil Production Company; XTO Energy, Inc.; and Forest Oil Corporation. The activities and geographic region specified in AOGA's request, and considered in these regulations, are described in the ensuing sections titled "Description of Geographic Region" and "Description of Activities."

Prior to issuing regulations at 50 CFR part 18, subpart J in response to this request, we must evaluate the level of industrial activities, their associated potential impacts to polar bears and Pacific walrus, and their effects on the availability of these species for subsistence use. The recent petition and discussions with Industry regarding the petition addendum indicate that industrial activities during the 5-year period will be similar to the level of activities covered in the previous 16-month regulations discussed above (November 28, 2003, to March 28, 2005); however, the area of activity is expanding into the National Petroleum Reserve—Alaska (NPR—A).

#### Description of Regulations

The regulations that we are issuing 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. The geographic region and the type of industrial activities, as outlined in the "Description of Activities" section and assessed in these regulations, are similar to those in the regulations we issued on November 28, 2003.

These regulations do not authorize the actual activities associated with oil and gas exploration, development, and production. Rather, they authorize the nonlethal incidental, unintentional take of small numbers of polar bears and Pacific walrus associated with those activities. The Minerals Management Service (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.

With final nonlethal incidental take regulations, persons seeking taking authorization for particular projects will apply for an LOA to cover nonlethal take associated with exploration, development, or production 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. Applicants for LOAs must submit a plan to monitor the effects of authorized activities on polar bears and walrus. Applicants for LOAs must also include a Plan of Cooperation describing the availability of these species for subsistence use by Alaska Native communities and how they may be affected by Industry operations. The purpose of the Plan is to ensure that oil and gas activities will not have an unmitigable adverse impact on the availability of the species or the stock for subsistence uses. The Plan must provide the procedures on how Industry will work with the affected Native communities, including a description of the necessary actions that will be taken to: (1) Avoid or minimize interference with subsistence hunting of polar bears and Pacific walrus; and (2) ensure continued availability of the species for subsistence use. The Plan of Cooperation is further described in "Effects of Oil and Gas Industry Activities on Subsistence Uses of Marine Mammals."

We will evaluate each request for an LOA for a specific activity and specific location, and may condition the LOA depending on specific circumstances for that activity and location. For example, an LOA issued in response to a request to conduct activities in areas with known, active bear dens or a history of polar bear denning, may be conditioned to require one or more of the following: forward Looking Infrared (FLIR) imagery flights to determine the location of active polar bear dens; avoiding all denning activity by 1 mile; intensified monitoring in a 1-mile buffer around the den; or avoiding the area during the denning period. More information on applying for and receiving an LOA can be found at 50 CFR 18.27(f).

#### Description of Geographic Region

These regulations allow Industry to incidentally take small numbers of polar bear and Pacific walrus within the same area, referred to as the Beaufort Sea Region, as covered by our previous regulations. This region is defined by a north-south line through Point Barrow, Alaska, and includes all Alaska coastal areas, State waters, and all Outer Continental Shelf (OCS) waters east of that line to the Canadian border. The onshore region is the same north-south line at Point Barrow, 25 miles inland, and extending east to the Canning River. The Arctic National Wildlife Refuge is not included in the area covered by these regulations.

### Description of Activities

Activities covered in these regulations include Industry exploration, development, and production operations of oil and gas reserves, as well as environmental monitoring associated with these activities, on the northern coast of Alaska. Listed below are Industry-identified activities to be covered under the regulations.

Alaska's North Slope encompasses an area of 88,280 square miles and currently contains 11 oil and gas field units associated with Industry. These include the Greater Prudhoe Bay, Duck Island, Badami, Northstar, Kuparuk River, Colville River, Oooguruk, Tuvaq, Nikaitchuq, Milne Point, and Point Thomson. These units can encompass exploration, development, and production activities. In addition, some of these fields include associated satellite oilfields: Sag Delta North, Eider, North Prudhoe Bay, Lisburne, Niakuk, Niakuk-Ivashak, Aurora, Midnight Sun, Borealis, West Beach, Polaris, Orion, Tarn, Tabasco, Palm, West Sak, Meltwater, Cascade, Schrader Bluff, Sag River, and Alpine. Additional proposed satellite prospects identified within or near existing oil and gas field units, such as Pioneer Natural Resource's Gwydyr Bay leases and Kerr McGee's Two Bits Prospect are also analyzed in this rule.

### Exploration Activities

Exploration activities may occur onshore or offshore and include: geological surveys; geotechnical site investigations; reflective seismic exploration; vibrator seismic data collection; airgun and water gun seismic data collection; explosive seismic data collection; vertical seismic profiles; sub-sea sediment sampling; construction and use of drilling structures such as caisson-retained islands, ice islands, bottom-founded structures [steel drilling caisson (SDC)], ice pads and ice roads; oil spill prevention, response, and cleanup; and site restoration and remediation. Exploration activities could also include the development of staging facilities. The level of exploration activities is expected to be similar to the level during the past regulatory periods, although exploration projects may shift to different locations, particularly NPR-A.

The location of new exploration activities within the geographic region of the rule will, in part, be determined by the following State and Federal oil and gas lease sales:

#### State of Alaska Lease Sales

The State of Alaska practices area-wide leasing in which the State

annually offers all available State acreage not currently under lease within areas that are already subjected to leasing. North Slope Area-wide Lease Sales are held annually in October. Five lease sales have been held to date. As of July 2004, there are 777 active leases in this area, encompassing 2.4 million acres. Beaufort Sea Area-wide Lease Sales are held annually in October. Four lease sales have been held to date. As of July 2004, there are 194 active leases in this area, encompassing 440,000 acres. Future State of Alaska lease sales will continue.

#### Northeast Planning Area of NPR-A

Two lease sales have been held in the Northeast Planning Area of NPR-A. The 1999 lease sale resulted in the sale of 133 tracts, and the 2002 sale resulted in the sale of 60 tracts. Acreage awarded under these two lease sales totals 1.4 million acres. Thirteen exploratory wells have been drilled to date. In June 2004, the BLM issued a Draft Environmental Impact Statement (DEIS) for the northeast planning area, proposing to expand the acreage available for leasing within this area. A Final EIS was published in January 2005, and in January 2006, BLM approved a new plan that amended the 1998 Record of Decision and expanded the lease areas around Teshekpuk Lake. Lease sales will occur at 2- and 3-year intervals. Production from new leases issued from these sales is not projected to occur during the regulatory period.

#### OCS Lease Sales

In February 2003, the MMS issued the FEIS for three lease sales planned for the Beaufort Sea Planning Area in the OCS. Sale 186 was held in September 2003, resulting in the leasing of 34 tracts. Sale 195 was held in March 2005. Sale 202 is scheduled for March 2007. While the disposition of the leases purchased is highly speculative at this time, it is probable that at least some seismic exploration and possibly some exploratory drilling could take place during the 5-year period of the regulations.

Exploratory drilling for oil is an aspect of exploration activities. Exploratory drilling and associated support activities and features include: Transportation to site; setup of up to 100-person camps and support camps (lights, generators, snow removal, water plants, wastewater plants, dining halls, sleeping quarters, mechanical shops, fuel storage, camp moves, landing strips, aircraft support, health and safety facilities, data recording facility and communication equipment); building gravel pads; building gravel islands with

sandbag and concrete block protection; ice islands; ice roads; gravel hauling; gravel mine sites; road building; pipelines; electrical lines; water lines; road maintenance; buildings and facilities; operating heavy equipment; digging trenches; burying and covering pipelines; sea lift; water flood; security operations; dredging; moving floating drill units; helicopter support; and drill ships such as the SDC, CANMAR Explorer III, and the Kulluk.

During the regulatory period, exploration activities are anticipated to continue in the current oil field units, including those projects identified by Industry below.

#### Oooguruk Unit

The Oooguruk Unit is located adjacent to and immediately northwest of the Kuparuk River Unit in shallow waters of the Beaufort Sea, near Thetis Island. The unit operator, Pioneer Natural Resources, is currently conducting a feasibility study for the potential development of reservoirs encountered in previous exploration drilling. Pioneer may conclude the study and move forward with development and, ultimately, production activities during the regulatory period if results from the feasibility study prove favorable. Facilities would include an offshore production island between Thetis Island and the Colville River Delta, a 5.7-mile underground pipeline, where landfall will occur near the mouth of the Kalubik Creek.

#### Nikaitchuq Unit

The Nikaitchuq Unit is located near Spy Island, north of Oliktok Point and the Kuparuk River Unit, and northwest of the Milne Point Unit. Operator Kerr-McGee Oil and Gas Corporation drilled three exploratory wells on and immediately adjacent to Spy Island, 4 miles north of Oliktok Point in the ice-covered season of 2004-2005. Kerr-McGee is moving to develop this site as a future production area. Facilities will include three offshore production islands south of the Jones Island group and approximately 13 miles of underground pipeline connecting the sites to a mainland landfall near Oliktok Point.

#### Two Bits Prospect

Armstrong Oil and Gas filed a plan of operation with the State of Alaska to drill one to three onshore exploratory wells west of the Kuparuk River unit in 2005. Operations at the "Two Bits" prospect will occur either from an existing gravel pad (West Sak 18) or from an ice pad constructed

immediately adjacent to that pad. Kerr-McGee Oil and Gas Corporation is currently the operating company for this project.

Exploration activities will also occur beyond the current oil field units, including the Industry projects below.

*Nearshore Stratigraphic Test Well, Eastern Beaufort Sea*

The State of Alaska plans to drill a stratigraphic test well at one of two potential locations in State waters offshore of the 1002 area of the Arctic National Wildlife Refuge. One location is approximately 20 miles southwest of Kaktovik near Anderson Point; the second is approximately 30 miles southeast of Kaktovik near Angun Point. The locations are in water depths of 25–30 feet (ft), and drilling operations will be conducted in winter utilizing the SDC, a mobile offshore drilling unit. The test well drilling was originally planned to take place during the 2004–2005 drilling season; however, a decision to move forward has not yet been made.

*Shell Exploration and Production Company's Beaufort Sea Program*

Shell Exploration and Production Company is planning an open water seismic program, which will consist of an estimated 3,000 miles of 3D seismic line acquisition and site clearance surveys in the eastern Beaufort Sea. The open water seismic program will consist of two vessels, one active in seismic acquisition and the second providing logistical support. The open water program will involve a geotechnical investigation supported by a soil-boring vessel. The offshore open water seismic program is proposed to occur between August and October 2006, depending on ice and whaling activities.

An onshore/on-ice geotechnical program will acquire soil borings from approximately 200 ft onshore seaward to 10 kilometers (km) offshore. The work will be conducted on offshore ice over waters approximately 10 to 15 meters in depth. Shell will drill approximately 60 borings ranging from 35 to 75 ft in depth. Thermister strings will be placed in 2 or 3 borings and recovered a month later. The onshore/on-ice geotechnical program activities are proposed to occur in 2006.

*Cape Simpson Support Program; Ukpavik Inupiat Corporation (UIC)*

UIC has entered into lease agreements with the North Slope Borough to operate North Slope facilities between Prudhoe Bay and Barrow in support of oil and gas exploration activities. UIC is developing a staging area at Cape

Simpson, between Smith Bay and Dease Inlet, on the Beaufort Sea coast. The following activities are likely to occur during their operations on the North Slope: Marine Transportation and Barging, Fixed and Temporary Camp Operations, Equipment and Materials Staging and Storage, Flight Operations, Ice Road Construction, and Exploration Site Support.

*Development Activities*

Development activities associated with oil and gas industry operations include: Road construction; pipeline construction; waterline construction; gravel pad construction; camp construction (personnel, dining, lodging, maintenance shops, water plants, wastewater plants); transportation (automobile, airplane, and helicopter traffic); runway construction; installation of electronic equipment; well drilling; drill rig transport; personnel support; and demobilization, restoration, and remediation.

In the recent petition, the Alpine West Development has been identified as an Industry development activity. The development and construction of five Alpine satellite drill sites (identified as CD-3 through CD-7), gravel roads, an airstrip, and pipelines is currently in its second year (2006). Two of the drill sites, CD-3 (also known as Fiord prospect or CD-North), and CD-4, (also known as the Nanuq prospect or CD-South), are in the Colville River Delta. The CD-3 drillsite is located north of CD-1 (Alpine facility) and is proposed to be a roadless development. The remaining drill sites are proposed to be connected to CD-1 by road. Three of the drill sites, CD-5 (also known as Alpine West prospect), CD-6 (Lookout prospect) and CD-7 (Spark prospect), are in the National Petroleum Reserve-Alaska (NPR-A). Construction of CD-3 and CD-4 drill sites began in winter 2004/2005, with production startup for both drill sites in late summer 2006. The three NPR-A drill sites are scheduled for construction from the winter 2007 through winter 2010. All drill sites are scheduled to be in production by summer 2010.

*Liberty*

BPXA is planning to develop the Liberty oil field in the Beaufort Sea using extended reach drilling (ERD) technology from onshore. The Liberty prospect is located approximately 5.5 miles offshore in 20 ft of water, approximately 8 miles east of the Endicott development. The development of Liberty was first proposed in 1998 when BPXA

submitted a plan to the MMS for a production facility on an artificial island in Foggy Island Bay. In 2002, BPXA put the project on hold to review project design and economics after the completion of BPXA's Northstar project. In August 2005, BPXA moved the project onshore to take advantage of advances in extended reach drilling. Liberty wells will extend as much as 8 miles offshore.

*Production Activities*

Production activities encompass activities in support of oil and gas production within the oil and gas field units. These include: Personnel transportation (automobiles, airplanes, helicopters, boats, rolligons, cat trains, and snowmobiles); and unit operations (building operations, oil production, oil transport, restoration, remediation, and improvement of oil field operations). Production activities are permanent, year-round activities, whereas exploration and development activities are usually temporary and seasonal.

Apart from the production units and facilities, operated by BP Exploration Alaska, Inc. and ConocoPhillips Alaska, Inc., that have been covered under previous incidental take regulations (Greater Prudhoe Bay, Endicott, Milne Point, Badami, Northstar, Kuparuk River, Alpine), there are three developments that could possibly be in the oil production phase within the next 5 years. The Alpine West Development, operated by ConocoPhillips Alaska, Inc., is scheduled to begin oil production in 2006. NEPA assessment has been completed for this program.

Two other production projects are in earlier stages of development and have the potential to be producing oil within the timeframe of the regulations. They are the Oooguruk Development, operated by Pioneer Natural Resources Alaska, Inc. and the Nikaitchuq Development, operated by Kerr-McGee Oil and Gas Corporation. An Environmental Information Document was developed for Oooguruk and an Environmental Evaluation Document was developed for Nikaitchuq. We conducted our analysis of the potential for future production and the potential effects from these sites during the 5-year period of regulations using these environmental documents. The Service will review final NEPA documentation when it becomes available for Oooguruk and Nikaitchuq to determine whether the anticipated effects from production at each facility are within the scope of effects analyzed in this rule. If the activities and potential impacts are within the scope of activities and

impacts analyzed in this rule, LOAs may be issued for the activity.

Proposed production activities will increase the total area of the Industrial footprint by the addition of new facilities, such as drill pads, pipelines, and support facilities, in the geographic region; however, oil production volume is expected to decrease during the 5-year regulatory period, despite new fields initiating production. This is due to current producing fields reducing output and new fields not maintaining the loss of that output. Current monitoring and mitigation measures, described later, will be kept in place.

#### Evaluation

During the period covered by the regulations, we anticipate the level of activity per year at existing production facilities, as well as levels of new annual exploration and development activities, will be similar to that which occurred under the previous regulations, although exploration and development may shift to different locations and new production facilities will add to the overall Industry footprint. Additional onshore and offshore production facilities are being considered within the timeframe of these regulations, potentially adding to the total permanent activities in the area.

#### Biological Information

##### *Pacific Walrus*

The Pacific walrus (*Odobenus rosmarus divirgens*), which includes about 80 percent of the world's walrus population, occurs primarily in the Bering and Chukchi seas. The most recent reported survey estimate (1990) for the Pacific walrus population was approximately 200,000 animals. Currently, the size and trend of the walrus population is unknown.

Walrus distribution is closely tied to the movements of sea ice in the Chukchi and Bering seas. In winter and early spring, the entire walrus population congregates on the pack ice in the Bering Sea, south of St. Lawrence Island. As the ice edge retreats northward, females with dependent young move north into the Chukchi Sea. A few walrus may move east into the Beaufort Sea, but the majority of the population occurs south and west of Barrow, Alaska, which is outside the area covered by these regulations. Adult and subadult males remain to the south, where they come ashore at terrestrial "haulouts" in Bristol Bay, Alaska, or along the Russian coast. There are no known haulout sites from Point Barrow to Demarcation Point. As the ice edge

advances southward in the fall, walrus reverse their migration, where they regroup on the Bering Sea pack ice.

Pacific walrus mainly feed on bivalve mollusks obtained from bottom sediments along the shallow continental shelf, typically at depths of 80 meters (262 ft) or less. Walrus are also known to feed on a variety of benthic invertebrates such as worms, snails, and shrimp and some slow-moving fish; some walrus feed on seals and seabirds. Mating usually occurs between January and March. Implantation of a fertilized egg is delayed until June or July. Gestation lasts 11 months (a total of 15 months after mating) and birth occurs between April and June during the annual northward migration. Calves weigh about 63 kilograms (139 pounds) at birth and are usually weaned by age two. Females give birth to one calf every 2 or more years. This reproductive rate is much lower than other pinnipeds; however, some walrus may live to age 40 and remain reproductively active until late in life.

Walrus sightings in the Beaufort Sea have consisted solely of widely scattered individuals and small groups. For example, while walrus have been encountered and are present in the Beaufort Sea, there were only five sightings of walrus between 146° and 150° W. during annual aerial surveys conducted from 1979 to 1995. In addition, since 1993, nine walrus sightings have been reported during Industry monitoring efforts.

##### *Polar Bear*

Polar bears (*Ursus maritimus*) occur throughout the Arctic. In Alaska, they have been observed as far south in the eastern Bering Sea as St. Matthew Island and the Pribilof Islands, but 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) Bering-Chukchi Seas stock; and (2) the Southern Beaufort Sea stock. A reliable population estimate is not available for the Bering-Chukchi Sea stock. The Southern Beaufort Sea population (from Point Hope, Alaska, to Banks Island, Northwest Territories) was estimated at 2,200 bears in 2002. The most recent population growth rate was estimated at 2.4 percent annually based on data from 1982 through 1992, although the population is believed to have slowed its growth rate or stabilized since 1992.

Polar bear distribution and use of coastal areas during the fall open water period has increased in recent years in the Beaufort Sea. The increase in use of coastal areas by polar bears has been

shown to be related to environmental conditions that affect the position of the pack ice at that time of year. In years when the pack ice has retreated to a maximum extent, greater numbers of bears are encountered on shore. Based on the increasing trend of retreating ice during summer months, we anticipate that increased numbers of polar bears will be using terrestrial areas during the fall period. In addition during the last 10 years a higher proportion of radio-collared female polar bears have denned on land, 60 percent, versus sea ice, 40 percent. In the previous 15 years approximately 40 percent of the dens were located on land and 60 percent were on sea ice. The geographic distribution of land denning also appears to have shifted westerly in recent years. Although the total numbers of dens that occur annually is relatively small, we expect a greater likelihood that dens will be located in suitable terrestrial habitats in the future based on trends. Generalized terrestrial denning habitat has been delineated within the area and is useful in planning and evaluating industrial projects.

The changes in fall coastal polar bear distributions and denning do not occur as a steady constant and fluctuate annually. The recent changes in fall distribution and den site selection are believed to be associated with climatic changes and corresponding effects on sea ice habitat.

To monitor potential changes from 2000 to 2005, the Service conducted systematic coastal aerial surveys for polar bears from Point Barrow to the Alaska-Canada border. During these surveys, up to 15 polar bears at Cross Island and 80 polar bears on Barter Island were observed within a 2-mile radius of subsistence-harvested bowhead whale carcasses. During one survey in October 2002, the Service observed 114 polar bears on barrier islands and the coastal mainland from Cape Halkett to Barter Island, a distance of approximately 1,370 km. An additional estimated 100 bears were in the Barrow vicinity, outside of the survey area during 2002.

During these surveys, an average of 43 polar bears per survey year (range: 16 to 74 bears/survey year) were observed in the portion of the North Slope coastline where the North Slope oil and gas facilities are located. This portion, from Atigaru Point to Brownlow Point, contained approximately 600 km of main coastline and 300 km of barrier island coastline. The average density of bears per survey-year in this area was 20.0 km per bear. The average density of bears per survey-year in the region

around Kaktovik, where bears fed on subsistence-harvested carcasses, was 1.94 km per bear.

Polar bears spend most of their time in nearshore, shallow waters over the 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. Although opportunistic feeders, polar bears feed primarily on ringed seals (*Phoca hispida*) and to a much lesser extent on bearded seals (*Erignathus barbatus*). Polar bears may also come onshore to feed on human refuse or marine mammal carcasses found on coastal beaches and barrier islands.

Nearshore, Alaskan Southern 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 because of available food and favorable environmental conditions. Polar bears will occasionally feed on bowhead whale (*Balaena mysticetus*) carcasses on Cross and Barter Islands and Point Barrow areas where bowhead whales are harvested for subsistence purposes.

Although insufficient data exist to accurately quantify polar bear denning along the Alaskan Beaufort Sea coast, dens in the area are less concentrated than for other areas in the Arctic. Females without dependent cubs breed in the spring. 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; however, other polar bears may excavate temporary dens to escape harsh winter winds. An average of two cubs is usually born, and after giving birth, the female and her cubs remain in the den where the cubs are nurtured until they can walk and stay close to the female. 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 may produce about 8 to 10 cubs in her lifetime; 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 indicate that

denning in multi-year pack ice in the Alaskan Beaufort Sea is common. Between 1981 and 1991, of the 90 dens found in the Beaufort Sea, 48 (53 percent) were on pack ice. Terrestrial denning accounted for 47 percent in the same study. The highest density of land dens occur along the coastal barrier islands of the eastern Beaufort Sea and within the Arctic National Wildlife Refuge. Researchers also suggested that females exhibit fidelity to den substrates (e.g., sea ice or terrestrial) rather than geographic locations.

#### **Effects of Oil and Gas Industry Activities on Subsistence Uses of Marine Mammals**

Pacific walrus 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 villages throughout coastal Alaska. Walrus meat is often consumed, 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 consumed. Although walrus and polar bears are a part of the annual subsistence harvest of most rural communities on the North Slope of Alaska, these species are not as significant a food resource as bowhead whales, seals, caribou, and fish.

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 polar bears and walrus 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. Sport hunting of both species has been prohibited in the United States since enactment of the MMPA in 1972.

#### **Pacific Walrus—Harvest Information**

Few walrus are harvested in the Beaufort Sea along the northern coast of Alaska as the primary range of Pacific walrus is west and south of the Beaufort Sea. Walrus constitute a small portion of the total marine mammal harvest for the village of Barrow. According to records from the Service's Marking, Tagging and Reporting Program; from 1994 to 2004, 322 walrus were reported taken by Barrow hunters. Reports indicate that up to four animals were taken east of Point Barrow, within the limits of the incidental take regulations. Hunters from Nuiqsut and Kaktovik do not normally hunt walrus unless the opportunity arises. They have reported

taking only three walrus since the inception of the regulations. Two percent of the walrus harvest for Barrow, Nuiqsut, and Kaktovik has occurred within the geographic range of the incidental take regulations since 1994.

#### **Polar Bear—Harvest Information**

Based on movements, the Southern Beaufort Sea polar bear stock inhabits areas of Alaska and Canada. Alaska Natives from coastal villages are permitted to harvest polar bears. There are no restrictions on the number, season, or age of polar bears that can be harvested in Alaska unless the population is declared depleted under the MMPA and harvest is contributing to depletion. Presently, it is thought that the current levels of harvest are sustainable for the Southern Beaufort Sea population. Although there are no restrictions under the MMPA, a more restrictive Native-to-Native agreement between the Inupiat from Alaska and the Inuvialuit in Canada was created in 1988. This agreement, referred to as the Inuvialuit-Inupiat Polar Bear Management Agreement, established quotas and recommendations concerning protection of denning females, family groups, and methods of take. Although this Agreement does not have the force of law from either the Canadian or the U. S. governments, the users have abided by the terms set forth by the Inuvialuit-Inupiat Agreement. In Canada, users are subject to provincial regulations consistent with the Agreement. Commissioners for the Inuvialuit-Inupiat Agreement set the original quota at 76 bears in 1988, and it was later increased to 80. The quota was based on estimates of the population size and age specific estimates of survival and recruitment. One estimate suggests that harvest up to 1.5 percent of the adult females was sustainable. Combining this estimate and a 2:1 sex ratio (male:female) of the harvest ratio, 4.5 percent of the total population could be harvested each year.

The Service has monitored the Alaska polar bear harvest since 1980. The Native subsistence harvest from the Southern Beaufort Sea has remained relatively consistent since 1980 and averages 36 bears per year. The combined harvest from Alaska and Canada from the Southern Beaufort Sea appears sustainable and equitable. During the last 5 years (2000–2004), 97 bears were harvested by residents of Barrow, 15 for Kaktovik, 13 for Nuiqsut, 30 for Wainwright, and 2 for Atkasuk. The Native subsistence harvest is the greatest source of mortality related to

human activities, although several bears have been killed during research activities, through euthanasia of sick or injured bears, accidental drownings, or in defense of human life by non-Natives.

#### *Plan of Cooperation*

As a condition of incidental take authorization, any applicant requesting an LOA is required to present a record of communication that reflects their discussions with the Native Communities most likely affected by the activity. The North Slope native communities involved include Barrow, Nuiqsut, and Kaktovik. Polar bear and Pacific walrus inhabiting the Beaufort Sea represent a small portion, in terms of the number of animals, of the total subsistence harvest of fish and wildlife for the villages of Barrow, Nuiqsut, and Kaktovik. Despite this, harvest of these species is important to Alaska Natives. An important aspect of the LOA process, therefore, is that, prior to issuance of an LOA, Industry must provide evidence to us that an adequate Plan of Cooperation has been coordinated with any affected subsistence community or, as appropriate, with the Eskimo Walrus Commission, the Alaska Nanuq Borough. Where relevant, a Plan of Cooperation will describe measures to be taken to mitigate potential conflicts between the proposed activity and subsistence hunting. If requested by Industry or the affected subsistence community, the Service will review these plans and provide guidance. The Service will reject Plans of Cooperation if they do not provide adequate safeguards to ensure that any taking by Industry will not have an unmitigable adverse impact on the availability of polar bears and walrus for taking for subsistence uses.

Included as part of the Plan of Cooperation and the overall State and Federal permitting process of Industry activities, Industry engages the Native communities in numerous informational meetings. During these community meetings, Industry must ascertain if community responses indicate that impact to subsistence uses will occur as a result of activities in the requested LOA. If community concerns suggest that industry activities may have an impact on the subsistence uses of these species, the Plan of Cooperation must provide the procedures on how Industry will work with the affected Native communities and what actions will be taken to avoid interfering with the availability of polar bear and walrus for subsistence harvest.

#### *Evaluation*

Subsistence use data regarding polar bears and Pacific walrus supporting Industry Plans of Cooperation, which were gathered to supplement Industry LOA requests in 2003 and 2004 (a total of 39 LOA requests), indicated that there were no unmitigable concerns from the potentially affected communities regarding the availability of these species for subsistence uses based on the specified activity and location of these projects. This information was based on public meeting testimonies, phone conversations, and written statements Industry operators received from the public and community representatives. This suggests that recent Industry activities have had little impact on subsistence uses by Barrow, Nuiqsut, and Kaktovik in the geographic region.

Although all three communities (Barrow, Nuiqsut, and Kaktovik) are located in the geographic area of the rule, Nuiqsut is the community most likely affected by Industry activities due to its close proximity to Industry activities. For this rule, we determined that the total taking of polar bears and walrus will not have an unmitigable adverse impact on the availability of these species for subsistence uses to Nuiqsut residents during the duration of the regulation. We base this conclusion on: The results of coastal aerial surveys conducted within the area during the past 3 years; direct observations of polar bears occurring on Cross Island during Nuiqsut's annual fall bowhead whaling efforts; and anecdotal reports and recent sightings of polar bears by Nuiqsut residents. In addition, we have received no evidence or reports that bears are being deflected (*i.e.*, altering habitat use patterns by avoiding certain areas) or being impacted in other ways by the existing level of oil and gas activity near communities or traditional hunting areas that would diminish their availability for subsistence use, and we do not expect any change in the impact of future activities during the regulatory period.

Barrow and Kaktovik are expected to be affected to a lesser degree by oil and gas activities than Nuiqsut, due to their distance from known Industry activities during the 5-year period of the regulations. Through aerial surveys, direct observations, and personal communication with hunters, it appears that subsistence opportunities for bears and walrus have not been impacted by Industry and we do not anticipate any change from the impact of future activities during the regulatory period.

Industry activity locations will change during the 5-year regulatory period and community concerns regarding the effect on subsistence uses by Industry may arise due to these potential changes in activity location. Industry Plans of Cooperation will need to remain proactive in order to address potential impacts on the subsistence uses by affected communities. Open communication through venues such as public meetings, which allow communities to express feedback prior to the initiation of operations, is necessary. If community subsistence use concerns arise from new activities, appropriate mitigation measures are available and will be applied, such as a cessation of certain activities at certain locations and during certain times of the year, *i.e.*, hunting seasons. Hence, we find that any take will not have an unmitigable adverse impact on the availability of polar bears or walrus for subsistence uses by residents of the affected communities.

#### **Potential Effects of Oil and Gas Industry Activities—Noise, Obstructions, and Encounters—on Pacific Walrus and Polar Bears and Their Prey Species**

Individual walrus and polar bears can be affected by Industry activities in numerous ways. These include: (1) Noise disturbance; (2) physical obstructions; (3) human encounters; and (4) effects on prey.

##### *Pacific Walrus*

Walrus are not present in the region of activity during the ice-covered season and occur infrequently in the region during the open-water season. Certain activities, described below, associated with oil and gas activities during the open-water season can potentially disturb walrus. Despite the potential for disturbance, there is no indication that walrus have been injured during an encounter by industry activities on the North Slope, and there has been no evidence of lethal takes to date.

##### 1. Noise Disturbance

Industry activities that generate noise include air and vessel traffic, seismic surveys, ice breakers, supply ships, and drilling. Noise may disturb or displace Pacific walrus by preventing sufficient rest, increasing stress, increasing energy expenditure, interfering with feeding, masking communication, or impairing thermoregulation of calves that spend too much time in the water. Any impact of Industry noise on walrus is likely to be limited to a few individuals rather than the population due to their geographic range and seasonal



distribution within the geographic region. For example, Pacific walrus generally inhabit the pack ice of the Bering Sea and do not normally range into the Beaufort Sea, although individuals and small groups are occasionally observed. In addition, the winter range of the Pacific walrus is well beyond the geographic area covered by these regulations (as defined above).

Reactions of marine mammals to noise sources, particularly mobile sources such as marine vessels, vary. Reactions depend on the individuals' prior exposure to the disturbance source and their need or desire to be in the particular habitat or area where they are exposed to the noise and visual presence of the disturbance sources. Walrus are typically more sensitive to disturbance when hauled out on land or ice than when they are in the water. In addition, females and young are generally more sensitive to disturbance than adult males.

Noise generated by Industry activities, whether stationary or mobile, has the potential to disturb small numbers of walrus. The response of walrus to sound sources may be either avoidance or tolerance.

#### A. Stationary Sources

Currently, Endicott, the BP's Saltwater Treatment Plant (located on the West Dock Causeway), and Northstar, are the only offshore facilities that could produce noise that has the potential to disturb walrus. Walrus are rarely in the vicinity of these facilities, although three walrus have hauled out on Northstar Island since its construction in 2000 and a walrus was observed swimming near the Saltwater Treatment Plant in 2004. In instances where walrus have been seen near these facilities, they have appeared to be attracted to them, possibly as a resting area or haulout.

#### B. Mobile Sources

Open-water seismic exploration produces underwater sounds, typically with airgun arrays that may be audible numerous kilometers from the source. Such exploration activities could potentially disturb walrus at varying ranges. In addition, source levels are thought to be high enough to cause hearing damage in pinnipeds in proximity to the sound. Therefore, it is possible that walrus within the 190-decibel (dB re 1  $\mu$ Pa) safety radius sound cone of seismic activities (Industry standard) could suffer temporary threshold shift; however, the use of acoustic safety radii and monitoring programs are designed to

ensure that marine mammals are not exposed to potentially harmful noise levels. Previous open-water seismic exploration has been conducted in nearshore ice-free areas. This is the area where any future open-water seismic exploration will occur during the duration of this rule. It is highly unlikely that walrus will be present in these areas, and therefore, it is not expected that seismic exploration would disturb walrus.

#### C. Vessel Traffic

Walrus react variably to noise from vessel traffic; however, it appears that low-frequency diesel engines cause less of a disturbance than high-frequency outboard engines. In addition, walrus densities within their normal distribution are highest along the edge of the pack ice, and Industry vessel traffic typically avoids these areas. The reaction of walrus to vessel traffic is highly dependent on distance, vessel speed, as well as previous exposure to hunting. Walrus in the water appear to be less readily disturbed by vessels than walrus hauled out on land or ice. Furthermore, barges and vessels associated with Industry activities travel in open-water and avoid large ice floes or land where walrus are likely to be found.

When walrus are present, underwater noise from vessel traffic in the Beaufort Sea may "mask" ordinary communication between individuals by preventing them from locating one another. It may also prevent walrus from using potential habitats in the Beaufort Sea and may have the potential to impede movement. Vessel traffic will likely increase if offshore Industry expands and may increase if warming waters and seasonally reduced sea ice cover alter northern shipping lanes.

#### D. Aircraft Traffic

Aircraft overflights may disturb walrus. Reactions to aircraft vary with range, aircraft type, and flight pattern, as well as walrus age, sex, and group size. Adult females, calves, and immature walrus tend to be more sensitive to aircraft disturbance. Although the intensity of the reaction to noise is variable, walrus are probably most susceptible to disturbance by fast-moving aircraft. In 2002, a walrus hauled out near the SDC on the McCovey prospect was disturbed when a helicopter landed on the SDC. However, most aircraft traffic is in nearshore areas, where there are typically few to no walrus.

#### 2. Physical Obstructions

Based on known walrus distribution and the very low numbers found in the Beaufort Sea near Prudhoe Bay, it is unlikely that walrus movements would be displaced by offshore stationary facilities, such as the Northstar Island or causeway-linked Endicott, or vessel traffic. There is no indication that the few walrus that used Northstar Island as a haulout in 2001 were displaced from their movements. Vessel traffic could temporarily interrupt the movement of walrus, or displace some animals when vessels pass through an area. This displacement would probably have minimal or no effect on animals and would last no more than a few hours.

#### 3. Human Encounters

Human encounters with walrus could occur in the course of Industry activities, although such encounters would be rare due to the limited distribution of Pacific walrus in the Beaufort Sea. These encounters may occur within certain cohorts of the population, such as calves or animals under stress. In 2004, a suspected orphaned calf hauled-out on the armor of Northstar Island numerous times over a 48-hour period, causing Industry to cease certain activities and alter work patterns before it disappeared in stormy seas.

#### 4. Effect on Prey Species

Walrus feed primarily on immobile benthic invertebrates. The effect of Industry activities on benthic invertebrates most likely would be from oil discharged into the environment. Oil has the potential to impact walrus prey species in a variety of ways including, but not limited to, mortality due to smothering or toxicity, perturbations in the composition of the benthic community, as well as altered metabolic and growth rates. Relatively few walrus have been present in the central Beaufort Sea. It is important to note the although the status of walrus prey species within the Beaufort Sea are poorly known, it is unclear to what extent, if any, prey abundance plays in limiting the use of the Beaufort Sea by walrus. Further studies of the Beaufort Sea benthic community as it relates to walrus is warranted. The low likelihood of an oil spill large enough to effect prey populations (see analysis in the section titled Potential Impacts of Waste Products Discharge and Oil Spills on Pacific Walrus and Polar Bears—Pacific Walrus) combined with the fact that walrus are not present in the region during the ice-covered season and occur only infrequently during the open-water

season indicates that Industry activities will have limited indirect effects on walrus through effects on prey species.

#### Evaluation

Industry noise disturbance and associated vessel traffic may have a more pronounced impact than physical obstructions or human encounters on walrus in the Beaufort Sea. However, due to the limited number of walrus inhabiting the geographic region during the open-water season and lack of walrus during the ice-covered season, the Service expects minimal impact to individual walrus and that any take will have a negligible impact on this stock during the 5-year regulatory period.

#### Polar Bear

Polar bears are present in the region of activity and, therefore, oil and gas activities could impact polar bears in various ways during both open-water and ice-covered seasons. Impacts from: (1) Noise disturbance; (2) physical obstructions; (3) human encounters; and (4) effects on prey species are described below.

##### 1. Noise Disturbance

Noise produced by Industry activities during the open-water and ice-covered seasons could potentially result in takes of polar bears. During the ice-covered season, denning female bears, as well as mobile, non-denning bears, could be exposed to oil and gas activities and potentially affected in different ways. 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.

Noise disturbance can originate from either stationary or mobile sources. Stationary sources include: Construction, maintenance, repair, and remediation activities; operations at production facilities; flaring excess gas; and drilling operations from either onshore or offshore facilities. Mobile sources include: Vessel and aircraft traffic; open-water seismic exploration; winter vibroseis programs; geotechnical surveys; ice road construction and associated vehicle traffic, including tracked vehicles and snowmobiles; drilling; dredging; and ice-breaking vessels.

##### A. Stationary Sources

All production facilities on the North Slope in the area to be covered by this rulemaking are currently located within the landfast ice zone. Typically, most polar bears occur in the active ice zone, far offshore, hunting throughout the year; although some bears also spend a

limited amount of time on land, coming ashore to feed, den, or move to other areas. At times, usually during the fall season when fall storms and ocean currents may deposit ice-bound bears on land, bears may remain along the coast or on barrier islands for several weeks until the ice returns.

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 Industry facilities may deter females from denning in the surrounding area, even though polar bears have been known to den in close proximity to industrial activities. 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. Recently, industrial activities were initiated while two polar bears denned near those activities. During the ice-covered seasons of 2000–2001 and 2001–2002, dens known to be active were located within approximately 0.4 km and 0.8 km (0.25 mi and 0.5 mi) of remediation activities on Flaxman Island without any observed impact to the polar bears.

In contrast, information exists indicating that polar bears within the geographic area of these regulations 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 normal. The female was observed later without the cub(s). While such events may have occurred, information indicates they have been infrequent and isolated, and will continue to be so in the future.

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.

##### B. Mobile Sources

In the Southern Beaufort Sea, during the open-water season, polar bears spend the majority of their lives on the pack ice, which 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. In the open-water season, Industry activities are generally limited to vessel-based exploration activities, such as ocean-bottom cable (OBC) and shallow hazards surveys. These activities avoid ice floes and the multi-year ice edge; however, they may contact bears in open water and the effects of such encounters will be short-term behavior disturbance.

##### C. Vessel Traffic

During the open-water season, most polar bears remain offshore in the pack ice and are not typically present in the area of vessel traffic. Barges and vessels associated with Industry activities travel in open-water and avoid large ice floes. If there is any encounter between a vessel and a bear, it would most likely result in short-term behavioral disturbance only.

##### D. Aircraft Traffic

Routine aircraft traffic should have little to no effect on polar bears; however, extensive or repeated overflights of fixed-wing aircraft or helicopters could disturb polar bears. Behavioral reactions of non-denning polar bears should 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 may abandon or depart their dens early in response to repeated noise produced by extensive aircraft overflights. 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.

## E. Seismic Exploration

Although polar bears are typically associated with the pack ice during summer and fall, open-water seismic exploration activities can encounter polar bears in the central Beaufort Sea in late summer or fall. It is unlikely that seismic exploration activities or other geophysical surveys during the open-water season would result in more than temporary behavioral disturbance to polar bears. Polar bears normally swim with their heads above the surface, where underwater noises are weak or undetectable.

Noise and vibrations produced by oil and gas 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. As stated earlier, disturbances to denning females, either on land or on ice are of particular concern.

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.

## 2. Physical Obstructions

There is little chance that Industry facilities would act as physical barriers to movements of polar bears. Most facilities are located onshore where polar bears are only occasionally found. The offshore and coastal facilities are most likely to be approached by polar bears. The Endicott Causeway and West Dock Causeway and facilities have the greatest potential to act as barriers to movements of polar bears because they extend continuously from the coastline to the offshore facility. Yet, because polar bears appear to have little or no fear of man-made structures and can easily climb and cross gravel roads and causeways, bears have frequently been observed crossing existing roads and causeways in the Prudhoe Bay oilfields. Offshore production facilities, such as Northstar, may be approached by polar bears, but due to their layout (i.e., continuous sheet pile walls around the perimeter) and monitoring plan the bears may not gain access to the facility itself. This situation may present a small-scale, local obstruction to the bears' movement, but also minimizes the likelihood of human-bear encounters.

## 3. Human Encounters

Human encounters can be dangerous for both the polar bear and the human. 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.

Although bears may be found along the coast during open-water periods, most of the Southern Beaufort Sea bear stock inhabits the multi-year pack ice during this time of year. 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 gravel islands or on-ice exploratory sites. These sites are at ice level and are easily accessible by polar bears. Industry has developed and uses devices to aid in detecting polar bears, including bear monitors and motion detection systems. Industry takes steps to actively prevent bears from accessing facilities using safety gates and fences.

Offshore production islands, such as the Northstar production facility, could potentially attract polar bears. Indeed, in 2004, Northstar accounted for 41 percent of all polar bear observations Industry-wide. They reported 37 sightings in which 54 polar bears were observed. Most bears were observed as passing through the area. Such offshore 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 reduce and mitigate such encounters.

Depending upon the circumstances, bears can be either repelled from or attracted to sounds, smells, or sights associated with 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 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 pyrotechnics (e.g., cracker shells) or other forms of deterrents (e.g., the vehicle itself, vehicle horn, vehicle siren, vehicle lights, spot lights, etc.). 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 the regulations went into effect in 1993, 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 these regulations have been proven to minimize human-bear interactions and will continue to be requirements of future LOAs, as appropriate.

There is the potential for human activity to contact polar bear dens as well. Known polar bear dens, found as a result of radio-collared, pregnant females or verification by scent-trained dogs, around the oilfield are monitored by the Service. These are only a small percentage of the total active polar bear den locations for the Southern Beaufort Sea stock in any given year. Industry routinely coordinates with the Service to determine the location of Industry's activities relative to known dens and denning habitat. General LOA provisions 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 as well. In the past five years (2002–2006), four previously unknown maternal polar bears dens have been encountered by Industry during the course of project activities. Once a previously unknown den is identified by Industry, the Service requires the den be reported. Communication between Industry and the Service and the implementation of mitigation measures, such as the 1-mile exclusion area around the now known den, will ensure that disturbance is minimized.

## 4. Effect on Prey Species

Ringed seals are the primary prey of polar bears and inhabit the nearshore waters where offshore Industry activities occur. Industry will mainly

have an effect on seals through the potential for contamination (oil spills) or industrial noise disturbance. Some effects of contamination from oil discharges for seals are described in the following section, "Potential Impacts of Waste Product Discharge and Oil Spills on Pacific Walrus and Polar Bears," under the "Pacific Walrus" subsection.

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 one study, no slope-wide effects of Industry activity on ringed seals could be measured.

#### *Evaluation*

The Service anticipates that potential impacts of Industry noise, physical obstructions, and human encounters on polar bears would be limited to short-term changes in behavior and should have no long-term impact on individuals and no impacts on the polar bear population.

Potential impacts will be mitigated through various requirements stipulated within LOAs. Mitigation measures that will be required for all projects include a polar bear and/or walrus 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 may be used on a case-by-case basis include the use of trained marine mammal monitors associated with marine activities, the use of den habitat maps developed by USGS, 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 exploration project, 20 miles inland from the coast, than for an annual nearshore development project in shallow waters. 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 to limit human/bear interactions may differ.

In the case of Industry activities occurring around a known bear den, a standard condition of LOAs requires Industry projects to have developed a polar bear interaction plan and requires Industry to maintain a 1-mile buffer between industry activities and known denning sites to limit disturbance of the bear. In addition, we may require Industry to avoid working in known denning habitat until bears have left their dens. 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 remote sensing techniques, such as maps of denning habitat along the Beaufort Sea coast, and FLIR imagery.

FLIR imagery, as a mitigation tool, is used in cooperation with coastal polar bear denning habitat maps. 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. This can include the 1-mile buffer 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 minimizes 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. Using current mitigation measures, Industry activities have had no known effects on the polar bear population during the period of previous regulations. We anticipate that, with continued mitigation measures, the impacts to denning and non-denning polar bears will be at the same low level as in previous regulations.

Monitoring data suggests that polar bear encounters in the oil fields can fluctuate. Polar bear observations by Industry have increased between 2000

and 2004 (34 observations in 2000 and 89 bear observations in 2004). These include bears observed from a distance and passively moving through the area to aggressive bears that pose a threat to personnel and are hazed for their safety and the safety of Industry personnel. This increase in observations is believed to be due to an increased number of companies requesting incidental take authorizations and an increase in the number of people monitoring bear activities around the facilities. Although bear observations appear to have increased, human-bear encounters remain uncommon events. We anticipate that human-bear encounters during the 5-year period of these regulations will remain as uncommon events.

#### **Potential Impacts of Waste Product Discharge and Oil Spills on Pacific Walrus and Polar Bears**

Individual walrus and polar bears can potentially be affected by Industry activities through waste product discharge and oil spills. These potential impacts are described below in the following sections.

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. It is illegal to discharge oil into the environment, and a reporting system requires operators to report spills. Between 1977 and 1999, an average of 70 oil and 234 waste product spills occurred annually on the North Slope oil fields. Many spills are small (< 50 barrels) by Industry standards. Larger spills ( $\geq$  500 barrels) account for much of the annual volume. Five large spills occurred between 1985 and 1998 on the North Slope. These spills were terrestrial in nature and pose minimal harm to walrus and polar bears. To date, no major offshore spills have occurred on the North Slope.

Spills of crude oil and petroleum products associated with onshore production facilities during ice-covered and open-water seasons are usually minor spills. They can occur during normal operations (e.g., transfer of fuel, handling of lubricants and liquid products, and general maintenance of equipment).

Larger spills are generally production-related and could occur at any production facility or pipeline connecting wells to the Trans-Alaska Pipeline System. In addition to onshore sites, this could include offshore facilities, such as causeway-linked Endicott or the sub-sea pipeline-linked

Northstar Island. The trajectories of large offshore spills from Northstar and the proposed Liberty facilities have been modeled to examine potential impacts to polar bears and will be discussed in a later section.

For this rule, oil spills in the marine environment that can accumulate at the ice edge, in ice leads, and similar areas of importance to polar bears and walrus are of particular concern. Likewise, oil spills from offshore production activities, such as Northstar, are of concern because as additional offshore oil exploration and production, such as the Oooguruk and Nikaitchuq projects, occurs, the potential for large spills in the marine environment increases. The Northstar Project transports crude oil from a gravel island in the Beaufort Sea to shore via a 5.9-mile buried sub-sea pipeline. The pipeline is buried in a trench in the sea floor deep enough to reduce the risk of damage from ice gouging and strudel scour. Production of Northstar began in 2001, and currently an estimated 70,000 barrels of oil pass through the pipeline daily. However, spill response and clean-up of an oil spill, especially in broken-ice conditions is still problematic where it is unknown if oil could be effectively cleaned up.

#### *Pacific Walrus*

As stated earlier, the Beaufort Sea is not within the primary range for the Pacific walrus; therefore, the probability of walrus encountering oil or waste products as a result of a spill from Industry activities is low. Onshore oil spills would not impact walrus unless oil moved into the offshore environment. In the event of a spill during the open-water season, oil in the water column could drift offshore and possibly encounter a small number of walrus. During the ice-covered season, spilled oil would be incorporated into the thickening sea ice, contained, and pumped into collection tanks. During spring melt, oil would be collected by spill response activities, but could eventually contact a limited number of walrus.

Little is known about the effects of oil specifically on walrus; however, hypothetically, walrus may react to oil much like other pinnipeds, such as seals. Adult walrus may not be severely affected by the oil spill through direct contact, but they will be extremely sensitive to any habitat disturbance by human noise and response activities. In addition, due to their gregarious nature, an oil spill would most likely affect multiple individuals in the area.

Walrus calves are most likely to suffer the effects of oil contamination. Female

walrus with calves are very attentive, and the calf will stay close to its mother at all times, including when the female is foraging for food. Walrus calves can swim almost immediately after birth and will often join their mother in the water. It is possible that an oiled calf will be unrecognizable to its mother either by sight or by smell, and be abandoned. However, the greater threat may come from an oiled calf that is unable to swim away from the contamination and a devoted mother that would not leave without the calf, resulting in the death of both animals.

Walrus have thick skin and blubber layers for insulation and very little hair. Thus, they exhibit no grooming behavior, which lessens their chance of ingesting oil. Heat loss is regulated by control of peripheral blood flow through the animal's skin and blubber. The peripheral blood flow is decreased in cold water and increased at warmer temperatures. Direct exposure of Pacific walrus to oil is not believed to have any effect on the insulating capacity of their skin and blubber, although it is unknown if oil could affect their peripheral blood flow.

Damage to the skin of pinnipeds can occur from contact with oil because some of the oil penetrates into the skin, causing inflammation and death of some tissue. The dead tissue is discarded, leaving behind an ulcer. While these skin lesions have only rarely been found on oiled seals, the effects on walrus may be greater because of a lack of hair to protect the skin. Direct exposure to oil can also result in conjunctivitis, a condition which is reversible.

Like other pinnipeds, walrus are susceptible to oil contamination in their eyes. Continuous exposure to oil will quickly cause permanent eye damage. Walrus may also expose themselves more often to the oil that has accumulated at the edge of a contaminated shore or ice lead if they repeatedly enter and exit the water.

Inhalation of hydrocarbon fumes presents another threat to marine mammals. In studies conducted on pinnipeds, pulmonary hemorrhage, inflammation, congestion, and nerve damage resulted after exposure to concentrated hydrocarbon fumes for a period of 24 hours. If the walrus were also under stress from molting, pregnancy, etc., the increased heart rate associated with the stress would circulate the hydrocarbons more quickly, lowering the tolerance threshold for ingestion or inhalation.

Walrus are benthic feeders, and much of the benthic prey contaminated by an oil spill would be killed immediately. Others that survived would become

contaminated from oil in bottom sediments, possibly resulting in slower growth and a decrease in reproduction. 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 the contamination within the organism. In addition, 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. Furthermore, complete recovery of a bivalve mollusk population may take 10 years or more, forcing walrus to find other food resources or move to nontraditional areas.

#### *Evaluation*

Waste product or oil spills will have detrimental impacts on individual Pacific walrus if they come in contact with a large volume of oil from a large spill. However, the limited number of walrus in the Beaufort Sea and the potential for a large oil spill, which is discussed in the following Risk Assessment Analysis, limit potential impacts to walrus to only certain events (a large oil spill) and then only to a limited number of individuals. Oil discharged into the environment has the potential to impact walrus prey species in a variety of ways including (but not limited to) mortality due to smothering or toxicity, perturbations in the composition of the benthic community, as well as altered metabolic and growth rates.

There are few walrus in the area. In the unlikely event there is an oil spill and walrus in the same area, mitigation measures would minimize any effect. Fueling crews have personnel that are trained to handle operational spills and contain them. If a small offshore spill occurs, spill response vessels are stationed in close proximity and respond immediately.

#### *Polar Bear*

The possibility of oil and waste product spills from Industry activities and the subsequent impacts on polar bears are a major concern. Polar bears could encounter oil spills during the open-water and ice-covered seasons in offshore or onshore habitat. Although the majority of the Southern Beaufort 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 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, 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 production wastes than non-mobile, denning females. 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 the population.

In 1980, Canadian scientists performed experiments that studied the effects to polar bears of exposure to oil. Effects on experimentally oiled polar bears (where bears were forced to remain in oil for prolonged periods of time) included acute inflammation of the nasal passages, marked epidermal responses, anemia, anorexia, and biochemical changes indicative of stress, renal impairment, and death. In experimental oiling, many effects did not become evident until several weeks after exposure to oil.

Oiling of the pelt causes significant thermoregulatory problems by reducing the insulation value of the pelt in polar bears. Irritation or damage to the skin by oil may further contribute to impaired thermoregulation. Furthermore, an oiled bear would ingest oil because it would groom in order to restore the insulation value of the oiled fur. Experiments on live polar bears and pelts showed that the thermal value of the fur decreased significantly after oiling, and oiled bears showed increased metabolic rates and elevated skin temperatures.

Oil ingestion by polar bears through consumption of contaminated prey, and by grooming or nursing, could have pathological effects, depending on the amount of oil ingested and the individual's physiological state. Death could occur if a large amount of oil were ingested or if volatile components of oil were aspirated into the lungs. Indeed, two of three bears died in the Canadian experiment, and it was suspected that the ingestion of oil was a contributing factor to the deaths. Experimentally oiled bears ingested much oil through

grooming. Much of it was eliminated by vomiting and in the feces, but some was absorbed and later found in body fluids and tissues.

Ingestion of sublethal amounts of oil can have various physiological effects on a polar bear, depending on whether the animal is able to excrete or detoxify the hydrocarbons. Petroleum hydrocarbons irritate or destroy epithelial cells lining the stomach and intestine, thereby affecting motility, digestion, and absorption; polar bears may exhibit these symptoms if they ingest oil.

Polar bears swimming in, or walking adjacent to, an oil spill could inhale petroleum vapors. Vapor inhalation by polar bears could result in damage to various systems, such as the respiratory and the central nervous systems, depending on the amount of exposure.

Oil may also affect food sources of polar bears. A local reduction in ringed seal numbers as a result of direct or indirect effects of oil could, therefore, temporarily affect the local distribution of polar bears. A reduction in density of seals as a direct result of mortality from contact with spilled oil could result in polar bears not using a particular area for hunting. Possible impacts from the loss of a food source could reduce recruitment or survival. Also, seals that die as a result of an oil spill could be scavenged by polar bears. This would increase exposure of the bears to hydrocarbons and could result in lethal impact or reduced survival to individual bears.

#### *Evaluation*

To date, large oil spills from Industry activities in the Beaufort Sea and coastal regions that would impact polar bears have not occurred, although the development of offshore production facilities and pipelines has increased the potential for large offshore oil spills. With limited background information available regarding oil spills in the Arctic environment, it is not certain what the outcome of such a spill would be if one were to occur. In a large spill (e.g., 5,900 barrels: the size of a rupture in the Northstar pipeline and a complete drain of the subsea portion of the pipeline), oil would be influenced by seasonal weather and sea conditions. These would include temperature, winds, and, for offshore events, wave action and currents. Weather and sea conditions would also affect the type of equipment needed for spill response and how effective spill cleanup would be. Indeed, spill response drills have been unsuccessful in the cleanup of oil in broken-ice conditions. In addition, based on clean-up activities with the

Exxon Valdez oil spill, spill response may be largely unsuccessful in open water conditions. These factors, in turn, would dictate how large spills impact polar bear and walrus habitat and numbers.

The major concern regarding large oil spills is the impact a spill would have on the survival and recruitment of the Southern Beaufort Sea polar bear population. Currently, this bear population is approximately 2,200 bears. In addition, the maximum sustainable subsistence harvest is 80 bears for this population (divided between Canada and Alaska). The population may be able to sustain the additional mortality caused by a large oil spill of a small number of bears, such as 1 to 5 individuals; however, the additive effect of a worst-case scenario, such as numerous bear deaths (i.e., in the range of 20 to 30) due to direct or indirect effects from a large oil spill may reduce population rates of recruitment or survival. Indirect effects may occur through a local reduction in seal productivity or scavenging of oiled seal carcasses coupled with the subsistence harvest and other potential impacts, both natural and human-induced. The removal of a large number of bears from the population would exceed sustainable levels, potentially causing a decline in the bear population and affecting bear productivity and subsistence use.

Potential impacts of Industry waste products and oil spills suggest that individual bears could be impacted by the disturbances. 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 following section analyzes the likelihood and potential effects of such a large-volume oil spill.

#### **Oil Spill Risk Assessment Analysis**

Although these regulations do not authorize lethal take, we analyze the probability of lethal take of a polar bear by an oil spill through our oil spill risk assessment analysis. Currently, there are two offshore Industry facilities producing oil, Endicott and Northstar. Oil spilled from the sub-sea pipeline of an offshore facility, such as Northstar, is a unique scenario that has been considered in previous regulations. Northstar transports crude oil from a gravel island in the Beaufort Sea to shore via a sub-sea pipeline, which is buried in a trench deep enough to theoretically remove the risk of damage from ice gouging and strudel scour.

Northstar began producing oil in 2001. Endicott is connected by a causeway to the mainland and began producing oil in 1986.

Other offshore sites are in various states of planning and could be developed to produce oil from the nearshore environments in the future. These include the Oooguruk, Nikaitchuq, and Liberty developments. Although Liberty has completed a draft EIS and has been included in the Risk Assessment Analysis for these regulations, none of the potential offshore production sites have finalized their facilities design and completed their environmental impact documentation. Without final information on facilities design and environmental impacts, it is not possible to quantify the likelihood of an oil spill and the likely effects of such a spill. Therefore, we have modeled oil spill trajectories from the Liberty and Northstar sites for the purposes of the risk assessment. We believe that even though the risk assessment does not specifically model spills from the Oooguruk or Nikaitchuq sites, the results for Oooguruk and Nikaitchuq would be within the range of expected impacts and that the analysis for Northstar and Liberty adequately reflects the potential impacts from an oil spill at either of these locations.

It is necessary to understand how offshore sites could affect marine mammals if a spill were to occur. A large-volume amount of movement and distribution data are available to accurately calculate polar bear densities within the area, and we have conducted a thorough analysis. Because of the extremely minimal probability of walrus encountering oil spills, they were not considered in this analysis.

Polar bears would be at risk of adverse impacts if there is an oil spill in the Beaufort Sea. Limited data from a Canadian study suggest that polar bears experimentally oiled with crude oil will most likely die. This finding is consistent with what is known of other marine mammals that rely on their fur for insulation. The Northstar FEIS concluded that mortality of up to 30 polar bears could occur as the result of an oil spill greater than 1,000 barrels. U.S. Geological Survey (USGS) researchers calculated that the number of polar bears potentially oiled at the Liberty prospect was 0 to 25 polar bears for open-water and 0 to 61 bears in the broken-ice period. However, neither estimate for the facilities accounts for the likelihood of spills seasonally during the period that the regulations are in effect.

Two independent lines of evidence were used to assess the potential effects of offshore production, one largely anecdotal and the other quantitative. The anecdotal information is based on Industry site locations and Service studies investigating polar bear aggregations on barrier islands and coastal areas in the Beaufort Sea. This information suggests that polar bear aggregations may occur for brief periods in the fall. The presence and duration of these aggregations are likely influenced by the presence or absence of sea ice near shore and the availability of marine mammal carcasses, notably bowhead whales from subsistence hunts at specific locations. In order for significant impacts on polar bears to occur, an oil spill would have to contact an aggregation of polar bears. We believe the probability of all these events occurring simultaneously is low.

The quantitative assessment of oil spill risk for the current request of incidental take regulations used the method employed in the previous oil spill risk assessment, but with current data. It is based on a risk assessment that considered oil spill probability estimates for two sites (Northstar and Liberty), oil spill trajectory models, and a current polar bear distribution model based on location of satellite-collared females during September and October. Although Liberty was originally designed as an offshore production island, it is currently being developed as an onshore production facility which will drill directionally into the oil prospect. Nevertheless, the Service has included Liberty for this risk assessment as an offshore production island in order to incorporate multiple offshore sample points to analyze.

#### *Methodology*

The first step in the risk assessment analysis was to calculate oil spill probabilities at the Northstar and Liberty sites for open-water (September) and broken-ice (October) seasons. We considered spill probabilities for the drilling platform and the sub-sea pipeline, since this is where spills are most likely to occur. Using production estimates from the Northstar FEIS and the Liberty DEIS, we estimated the likelihood of one or more spills greater than 1,000 barrels in size occurring in the marine environment during the 5-year period covered by the regulations.

Two spill probabilities were calculated for Liberty and Northstar. Spill rates used to estimate the chance of an oil spill occurring at Liberty and Northstar were derived from historical data collected in the Liberty DEIS and Northstar FEIS. Spill probabilities for

the pipelines were derived from spill data on European onshore pipelines and estuary crossings (Conservation of Clean Air and Water in Europe [CONCAWE]) and oil spills in the Gulf of Mexico and the Pacific outer continental shelf.

Annual spill probabilities were further divided to express various types of ice conditions (freeze-up, solid ice, break-up, open water) throughout the year during the life of the regulations.

The second step in the risk assessment was to calculate the number of polar bears that could be oiled from a spill. This involved modeling the probabilistic distribution of bears from current data that could be in the area and overlapping polar bear distributions with oil spill trajectories.

Trajectories previously calculated for Northstar and Liberty sites were used. The trajectories were provided by the MMS. The MMS estimated probable sizes of oil spills from the transportation pipeline and the island as well. These spill sizes ranged from a minimum of 125 barrels to a catastrophic release event of 5,912 barrels. Hence, the size of the modeled spill was set at the worst-case scenario of 5,912 barrels, simulating rupture and drainage of the entire sub-sea pipeline. Each spill was modeled by tracking the location of 500 "spillets." Spillets were driven by wind and currents, and their movements were stopped by the presence of sea ice. Open-water and broken-ice scenarios were each modeled with 360 to 500 simulations. A solid-ice scenario was also modeled in which oil was trapped beneath the ice and did not spread. In this later event, we found it unlikely that polar bears would contact oil, and removed this scenario from further analysis. Each simulation was run for at least 10 days with no cleanup or containment efforts simulated. At the end of each simulation, the size and location of each spill was represented in a geographic information system.

The second component incorporated up-to-date polar bear densities overlapped with the oil spill trajectories. In 2004, USGS completed analysis investigating the potential effects of hypothetical oil spills on polar bears. Movement and distribution information was derived from radio and satellite relocations of collared adult females. Density estimates from 15,308 satellite locations of 194 polar bears collared between 1985 and 2003 was used to estimate the distribution of polar bears in the Beaufort Sea. Using a technique called "kernel smoothing," they created a grid system centered over the Northstar production island and the Liberty site to estimate the number of bears expected to occur within each 1-

km<sup>2</sup> grid cell. Standard errors of bear numbers per cell were estimated with resampling procedures. Each of the simulated oil spills was overlaid with the polar bear distribution grid. Oil spill footprints for September and October, the timeframe that hypothesized effects of an oil-spill would be greatest, were estimated using real wind and current data collected between 1980 and 1996.

The ARC/Info software was used to calculate overlap, numbers of bears oiled between oil-spill footprints, and polar bear grid-cell values. If a spill passed through a grid cell, the bears in that cell were considered oiled by the spill.

Finally, the likelihood of occurrence for the number of bears oiled during the duration of the 5-year incidental take

regulations was estimated. This was calculated by multiplying the number of polar bears oiled by the spill by the percentage of time bears were at risk for each period of the year, and summing these probabilities.

*Results*

Oil spill probabilities for Northstar and Liberty are presented in Table 1.

TABLE 1.—NORTHSTAR AND LIBERTY OIL SPILL PROBABILITIES BASED ON GULF OF MEXICO, PACIFIC OUTER CONTINENTAL SHELF, AND CONCAWE INFORMATION

Ice conditions	Proportion of conditions for 5-yr period	Probability of spill (Ps)	Probability of Spill (Ps) CONCAWE	Probability of Spill (Ps)	Probability of Spill (Ps) CONCAWE
		NORTHSTAR		LIBERTY	
Freeze-up (1 mo/yr) .....	0.083	0.01377	0.00406	0.00435	0.00157
Solid ice (7 mo/yr) .....	0.583	0.09641	0.02841	0.03047	0.01102
Break-up (1 mo/yr) .....	0.083	0.01377	0.00406	0.00435	0.00157
Open water (3 mo/yr) .....	0.250	0.04132	0.01218	0.01306	0.00472
Total .....	1.000	0.1653	0.0487	0.0522	0.0189

The number of bears potentially oiled by a simulated 5,912-barrel spill ranged from 0 to 27 polar bears during the September open-water conditions and from 0 to 74 polar bears during the October mixed-ice conditions for Northstar, and from 0 to 23 polar bears during the September open-water conditions and from 0 to 55 polar bears during the October mixed-ice conditions for Liberty. Median number of bears oiled by the simulated 5,912-barrel spill from the Northstar site in September and October were 3 and 11 bears, respectively; equivalent values for the Liberty site were 1 and 3 bears, respectively. Variation among oil spill scenarios was the result of differences in oil spill trajectories among those scenarios and not the result of variation in the estimated bear densities. In October, 75 percent of trajectories from the 5,912-barrel spill at Northstar affected 20 or fewer polar bears, while 75 percent of the trajectories oiled 9 or fewer bears when the October spill occurred at our Liberty simulation site.

When calculating the probability that a spill would oil five or more bears during the fall period, we found that oil spills and trajectories were more likely to affect small numbers of bears (five bears) than larger numbers of bears. Thus, for Northstar, the probability of a spill that oils (resulting in mortality) 5 or more bears is 1.0–3.4 percent; for 10 or more bears is 0.7–2.3 percent; and for 20 or more bears is 0.2–0.8 percent. For Liberty, the probability of a spill that will cause a mortality of 5 or more bears is 0.3–7.4 percent; for 10 or more bears

is 0.1–0.4 percent; and for 20 or more bears is 0.1–0.2 percent.

*Discussion*

Northstar Island is nearer the active ice flow zone than Liberty, and it is not sheltered from deep water by barrier islands. These characteristics contribute to more polar bears being distributed in close proximity to the island and to oil being dispersed more quickly and further into surrounding areas. By comparison, oil spill trajectories from Liberty were more erratic in the areas covered and the numbers of bears impacted. Hence, larger numbers of bears were consistently exposed to oil trajectories by Northstar simulations than those modeled for Liberty. This difference was especially pronounced in October spill scenarios. In October, the land-fast ice, inside the shelter of the islands and surrounding Liberty, dramatically restricted the extent of most simulated oil spills in comparison to Northstar, which lies outside the barrier islands and in deeper water. At both locations, simulated oil-spill trajectories affected small numbers of bears far more often than they affected larger numbers of bears. At Liberty, the number of bears affected declined more quickly than they did at Northstar. The proposed Liberty Island production site presents less risk to polar bears than the existing facility at Northstar Island.

The greatest source of uncertainty in the calculations was the probability of an oil spill occurring. The oil spill probability estimates for Northstar and Liberty were calculated using data for sub-sea pipelines outside of Alaska and

outside of the Arctic, which likely do not reflect conditions that would be routinely encountered in the Arctic, such as permafrost, ice gouging, and strudel scour in the nearshore environment. They may include other conditions unlikely to be encountered in the Arctic, such as damage from anchors and trawl nets. Consequently, oil spill probabilities as presented in the Northstar FEIS incorporate unquantified levels of uncertainty in their estimate. If the probability of a spill were twice the estimated value, the probability of a spill that would cause a mortality of five or more bears would remain low (approximately 6 percent for Northstar and 1.5 percent for Liberty).

The spill analysis was dependent on numerous assumptions, some of which underestimate, while others overestimate, the potential risk to polar bears. For example, these included variation in spill probabilities during the year (underestimate, overestimate), the length of time the oil spill trajectory model was run (longer time periods would overestimate the risk), whether or not containment occurred during the trajectory model (containment could underestimate the risk), lack of effective hazing to deter wildlife during the model runs (overestimate the risk), contact with a spilllet constituting mortality (overestimate the risk), and an even distribution of polar bears. Polar bear aggregations were not included in the various model runs. We determined that the assumptions that will overestimate and underestimate mortalities were generally in balance. Fall coastal aerial surveys have shown



that the Northstar and Liberty sites are not associated with large aggregations of bears in the immediate areas, although aggregations do occur consistently during this time at Cross Island (approximately 17 miles northeast from Northstar and 17 miles northwest of Liberty, respectively) and Barter Island and may occur wherever whale carcasses are present.

#### *Conclusion*

We conclude that if an offshore oil spill were to occur during the fall or spring broken-ice periods, a significant impact to polar bears could occur; however, in balancing the level of impact with the probability of occurrence, we conclude that lethal take from an oil spill within the 5-year regulatory period is unlikely. Due to the small volume of oil associated with onshore spills, the various response systems identified in Industry oil spill contingency plans to clean up spills, and mitigation measures used to deter bears away from the affected area for their safety, onshore spills would have little impact on the polar bear population as well.

#### **Documented Impacts of the Oil and Gas Industry on Pacific Walrus and Polar Bears**

##### *Pacific Walrus*

During the history of the incidental take regulations, the actual impacts from Industry activities on Pacific walrus, documented through monitoring, were minimal. From 1994 to 2004, Industry recorded nine sightings, involving a total of ten Pacific walrus, during the open-water season. In most cases, walrus appeared undisturbed by human interactions; however, three sightings involved potential disturbance to the walrus. Two of three sightings involved walrus hauling out on the armor of Northstar Island and one sighting occurred at the SDC on the McCovey prospect, where the walrus reacted to

helicopter noise. The walrus were observed during exploration (three sightings), development (two sightings), and production (four sightings) activities. There is no evidence that there were any physical effects or impacts to these individual walrus based on the interaction with Industry. We know of no other interactions that occurred between walrus and Industry during the duration of the incidental take program.

##### *Polar Bear*

Documented impacts on polar bears by the oil and gas industry during the past 30 years are minimal. Polar bears spend a limited amount of time on land, coming ashore to feed, den, or move to other areas. 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. We have found that the polar bear interaction planning and training requirements set forth in these regulations and required through the LOA process have increased polar bear awareness and minimized these encounters. LOA requirements have also increased our knowledge of polar bear activity in the developed areas.

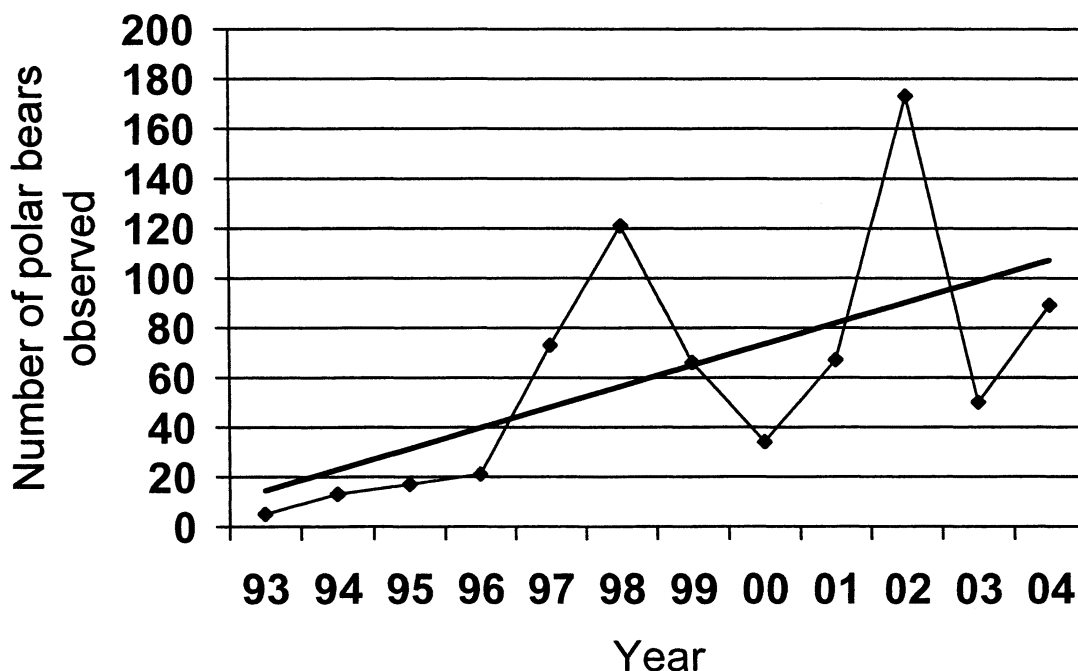
No lethal take associated with Industry has occurred during the period covered by incidental take regulations. Prior to issuance of regulations, lethal takes by Industry were rare. Since 1968, there have been two documented cases of lethal take of polar bears associated with oil and gas activities. In 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.

The majority of actual impacts on polar bears have resulted from direct human-bear encounters. Monitoring efforts by Industry required under previous regulations for the incidental take of polar bears documented various types of interactions between polar bears and Industry. A total of 262 LOAs have been issued for incidental (unintentional) take of polar bears in regard to oil and gas activities between 1993 to 2004: 78 percent were for exploration; 12 percent were for development; and 10 percent were for production activities. A total of 729 polar bear sightings were recorded in monitoring programs during this period. Monitoring programs associated with 21 percent (55 of 262 LOAs) of these activities reported actual sightings of polar bears.

Polar bear observations have generally increased since the inception of the incidental take regulations required observations as part of each activity's monitoring program (Figure 1.) This increase is mainly a result of increased monitoring effort through the years. There was a spike in bear observations in 2002 (173 observations) which was caused, in part, by a fall storm that deposited a higher number of bears on the North Coast of Alaska.

**Figure 1.** Number of polar bears observed per year as a result of monitoring requirements from the Beaufort Sea Incidental Take Program.



More recently, during 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 have no indication that these encounters, which alter the behavior and movement of individual bears, have an effect on survival and recruitment in the Southern Beaufort Sea polar bear population.

#### Summary of Take Estimate for Pacific Walrus and Polar Bear

##### *Pacific Walrus*

Since walrus are typically not found in the region of Industry activity, there is a minimal probability that Industry activities, including offshore drilling operations, seismic, and coastal activities, will adversely affect any

walrus. Walrus observed in the region have typically been lone individuals or small groups, further reducing the number of potential takes expected. There is a possibility of some nonlethal takes occurring at a very low level during the five-year rule from noise, obstructions, and encounters. Furthermore, the majority of walrus hunted by Barrow residents were harvested west of Point Barrow, outside of the area covered by incidental take regulations, while Kaktovik harvested only one walrus within the geographic region. In addition, Industry observations have only recorded nine walrus observations from 1993 to 2004. Given this information, no more than a small number of walrus are likely to be taken during the length of this rule. It is unlikely that there will be any lethal take from normal Industry activities. Takes from an oil spill will depend on the presence of walrus and the size of the spill. However, because the likelihood of a spill is low and because walrus are not typically found in the region, it is unlikely that there would be a lethal take from an oil spill in the central Beaufort Sea. Therefore, we do not anticipate any detrimental effects on recruitment or survival.

##### *Polar Bear*

Industry exploration, development, and production activities other than an oil spill have the potential to incidentally take polar bears. Most of these disturbances are expected to be nonlethal, short-term behavioral reactions resulting in displacement, and should have no 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 vibration from stationary sources could keep females from denning in the vicinity of the source. Furthermore, there is a low chance of injury to a bear during a take and it is unlikely that lethal takes will occur. We do not expect the sum total of these disturbances to affect the rates of recruitment or survival of the Southern Beaufort Sea polar bear population.

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 very 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, including efforts to keep bears away from affected areas. Based on the low likelihood of a large spill occurring that would affect a significant number of bears and the use of mitigation measures to deter or haze bears from an affected area, the Service has determined it is unlikely that a polar bear will come in contact with oil from a spill in the next 5 years.

##### Take Summary

Based on the data provided by LOA monitoring reports submitted since 1993 and additional analysis, we have

determined that any take caused by Industry since 1993 has had a negligible impact on Pacific walrus and polar bears. Additional information, such as subsistence harvest levels and incidental observations of polar bears near shore, suggests that, although there have been interactions between Industry and polar bears and walrus, populations of these species will not be adversely affected by Industry. The projected level of activities during the period covered by these regulations (exploration, development, and production activities), are similar in scale to previous levels. As stated earlier, prospective production activities will likely increase the total area of Industry infrastructure in the geographic region; however, oil production levels are expected to decrease, despite new fields initiating production, due to current producing fields reducing output; and current monitoring and mitigation measures will be kept in place. Therefore, we anticipate that the amount and level of take of polar bears and Pacific walrus during the 5-year period of the regulations will remain comparable to that experienced during the previous sets of regulations.

### 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 Southern Beaufort Sea polar bear stock and Pacific walrus and will not have an unmitigable adverse impact on the availability of polar bears and Pacific walrus for subsistence uses. Based on the previous discussion, we make the following findings regarding this action.

#### *Impact on Species*

Based on the best scientific information available, the results of monitoring data from our previous regulations, the results of our modeling assessments, and the status of the population, we find that any incidental take reasonably likely to result from the effects of oil and gas related exploration, development, and production activities during the period of the rule, in the Beaufort Sea and adjacent northern coast of Alaska will have no more than a negligible impact on polar bears and Pacific walrus. In making this finding, we considered the following: (1) The distribution of the species; (2) the biological characteristics of the species; (3) the nature of oil and gas industry activities; (4) the potential effects of Industry activities and potential oil spills on the species; (5) the probability of oil spills occurring; (6) the

documented impacts of industry activities and oil spills on the species, (7) mitigation measures that will be conditions in the LOAs and minimize effects; and (8) other data provided by monitoring programs that have been in place since 1993. 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)].

The Pacific walrus is only occasionally found during the open-water season in the Beaufort Sea. The Beaufort Sea polar bear population is widely distributed throughout its range. Polar bears typically occur in low numbers in coastal and nearshore areas where most Industry activities occur.

We reviewed the effects of the oil and gas industry activities on polar bears and Pacific walrus, which included impacts from noise, physical obstructions, human encounters, and oil spills. Based on our review of these potential impacts, past LOA monitoring reports, and the biology and natural history of Pacific walrus and polar bear, 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 polar bear and Pacific walrus 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.

We have included potential spill information from the Liberty development (offshore scenario) in our oil spill analysis, to analyze multiple offshore sites (Northstar and Liberty). We have analyzed the likelihood of an oil spill in the marine environment of the magnitude necessary to kill a significant number of polar bears for Northstar and Liberty, and through a

risk assessment analysis found that it is unlikely that there will be any lethal take. We have also considered prospective production-related activities at the Oooguruk and Nikaitchuq locations in this finding. Thus, after considering the additive effects of existing and proposed development, production, and exploration activities, and the likelihood of any impacts, both onshore and offshore, we find that the total expected takings resulting from oil and gas industry activities will have a negligible impact on polar bear and Pacific walrus populations inhabiting the Beaufort Sea area on the North Slope coast of Alaska.

The probability of an oil spill that will cause significant impacts to Pacific walrus and polar bears is extremely low. However, in the event of a catastrophic spill, we will reassess the impacts to these species and reconsider the appropriateness of authorizations for incidental taking through section 101(a)(5)(A) of the MMPA.

Our finding of "negligible impact" applies to oil and gas exploration, development, and production 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 polar bear or Pacific walrus or lethal incidental take; (2) For the protection of pregnant polar bears during denning activities (den selection, birthing, and maturation of cubs) in known denning areas, Industry activities may 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 add additional measures depending upon site-specific and species-specific concerns. Restrictions in denning areas will be applied on a case-by-case basis after assessing each LOA request and may 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. We will analyze the required plan of operation and interaction plans to ensure that the level of activity and possible take are consistent with our finding that total incidental takes will have a negligible impact on polar bear and Pacific walrus and, where relevant, will not have an unmitigable adverse impact on the

availability of these species for subsistence uses.

In addition, we have evaluated climate change in regards to polar bears and walrus. Although climate change is a world-wide phenomenon, it was analyzed as a contributing effect that could alter polar bear and walrus habitat. 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. The challenge in the Beaufort 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.

Within the described geographic region of this rule, Industry effects on Pacific walrus and polar bears are expected to occur at a level similar to what has taken place under previous regulations. We anticipate that there will be an increased use of terrestrial habitat in the fall period by polar bears. We also anticipate a slight increased use of terrestrial habitat by denning bears. Nevertheless, we expect no significant impact to these species as a result of these anticipated changes. The mitigation measures will be effective in minimizing any additional effects attributed to seasonal shifts in distribution 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.

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 the Southern Beaufort Sea polar bear population. As we gain a better understanding of climate change

effects on the Southern Beaufort Sea population, 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.

Although the Pacific walrus population is currently extra-limital in the Beaufort Sea, the Service and USGS are conducting multi-year studies on the population to ascertain a population estimate and movement patterns. Furthermore, it is plausible that as sea ice diminishes in the Chukchi beyond the five-year period of this rule, more walrus will migrate east into the Beaufort Sea.

#### *Impact on Subsistence Take*

Based on the best scientific information available and the results of monitoring data, we find that take caused by oil and gas exploration, development, and production activities in the Beaufort Sea and adjacent northern coast of Alaska will not have an unmitigable adverse impact on the availability of polar bears and Pacific walrus for taking for subsistence uses during the period of the rule. In making this finding, we considered the following: (1) Records on subsistence harvest from the Service's Marking, Tagging and Reporting Program; (2) effectiveness of the Plans of Cooperation between Industry and affected Native communities; and (3) anticipated five-year effects of Industry activities on subsistence hunting.

Polar bear and Pacific walrus represent a small portion, in terms of the number of animals, of the total subsistence harvest for the villages of Barrow, Nuiqsut, and Kaktovik. However, the low numbers do not mean that the harvest of these species is not important to Alaska Natives. Prior to receipt of an LOA, Industry must provide evidence to us that an adequate Plan of Cooperation has been presented to the subsistence communities. Industry will be required to contact subsistence communities that may be affected by its activities to discuss potential conflicts caused by location, timing, and methods of proposed

operations. Industry must make reasonable efforts to ensure that activities do not interfere with subsistence hunting and that adverse effects on the availability of polar bear or Pacific walrus are minimized. Although multiple meetings for multiple projects from numerous operators have already taken place, no official concerns have been voiced by the Native communities with regards to Industry activities limiting availability of polar bears or walrus for subsistence uses. However, should such a concern be voiced as Industry continues to reach out to the Native communities, development of Plans of Cooperation, which must identify measures to minimize any adverse effects, will be required.

The plan will ensure that oil and gas activities will continue not to have an unmitigable adverse impact on the availability of the species or stock for subsistence uses. This Plan of Cooperation must provide the procedures on how Industry will work with the affected Native communities and what actions will be taken to avoid interference with subsistence hunting of polar bear and walrus, as warranted.

If there is evidence during the five-year period of the regulations that oil and gas activities are affecting the availability of polar bear or walrus 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 polar bears and walrus 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. Monitoring plans document when and how bears and walrus are encountered, the number of bears and walrus, and their behavior during the encounter. This information allows the Service to measure encounter rates, trends of bear and walrus activity in the industrial areas, such as numbers and gender, activity, and seasonal use. Monitoring plans are site-specific, dependent on the location of the activity to habitat, such as den sites, travel corridors, and food sources; however, all activities are required to report all sightings of polar bears and walrus. To the extent possible, monitors will record group size, age, sex, reaction, duration of interaction, and closest approach to Industry. Activities within the coast of the geographic region may incorporate

daily watch logs as well, which record 24-hour animal observations throughout the duration of the project. Polar bear monitors will be incorporated into the monitoring plan if bears are known to frequent the area or known polar bear dens are present in the area. At offshore Industry sites, systematic monitoring protocols will be implemented in order to statistically monitor observation trends of walrus or polar bears in the nearshore areas where they usually occur.

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, development, and production activities on polar bear and walrus prior to issuance of an LOA. Since production activities are continuous and long-term, upon approval, LOAs and their required monitoring and reporting plans will be issued for the life of the activity or until the expiration of the regulations, whichever occurs first. Each year, prior to January 15, we require that the operator submit development and production activity monitoring results of the previous year's activity. We require approval of the monitoring results for continued operation under the LOA.

#### Discussion of Comments on the Proposed Rule

The proposed rule, which was published in the **Federal Register** (71 FR 14446) on March 22, 2006, included a request for public comments. The closing date for the comment period was April 21, 2006. We received three comments. One commenter indicated support for the rule but did not provide specific comments. One commenter provided new comments but also incorporated by reference their comments on the 2000 proposed rule (65 FR 16828, March 30, 2000) and the 2003 proposed rule (68 FR 66744, August 29, 2003). The following issues were raised by the commenters.

(1) *Comment:* One commenter asserted that the Service needs to conduct a more comprehensive analysis of oil and gas operations by considering the direct effect of these operations together with (1) other oil and gas activities that affect these populations;

and (2) other natural and anthropogenic risk factors (e.g., climate change). Two commenters criticized the rule for failure to analyze the indirect effects of Industry activities on polar bear and walrus prey species and cumulative effects of Industry activities.

*Response:* The Service analysis of oil and gas activities for this rulemaking encapsulates all of the known oil and gas industry's activities that will occur in the geographic region during the 5-year regulation period. If additional activities are proposed that were not included in the Industry petition or otherwise known at this time, the Service will evaluate the potential impacts associated with those projects to determine whether a given project lies within the scope of the analysis for these regulations.

The Service has analyzed oil and gas operations taking into account risk factors to polar bears and walrus such as, potential habitat loss due to climate change, hunting, disease, oil spills, contaminants, and effects on prey species within the geographic region. We have expanded our analysis in the final rule to include more detail on potential effects due to the pressing issue of climate change and the indirect effects on polar bears and walrus, such as the potential effects of Industry activities on prey species.

The Service's analysis for this rulemaking does consider cumulative effects of all oil and gas activities in the area over time. Cumulative impacts of oil and gas activities are assessed, in part, through the information we gain in monitoring reports, which are required for each operator under the authorizations. Incidental take regulations have been in place in the Arctic oil and gas fields for the past 13 years. Information from these reports provides a history of past effects on walrus and polar bears from interactions with oil and gas activities. Information on previous levels of impact are used to evaluate future impacts from existing and proposed industry activities and facilities. In addition, information used in our cumulative effects assessment includes research publications and data, information from the 2003 Beaufort Sea Polar Bear Monitoring Workshop, traditional knowledge of polar bear habitat use, anecdotal observations, and professional judgment.

Monitoring results indicate little to no short-term impact on polar bears or Pacific walrus from oil and gas activities. We evaluated the sum total of both subtle and acute impacts likely to occur from industrial activity and, using this information, we determined that all direct and indirect effects, including

cumulative effects, of industrial activities would not adversely affect the species through effects on rates of recruitment or survival. Based on past monitoring reports, the level of interaction between Industry and polar bears and Pacific walrus has been minimal. Additional information, such as subsistence harvest levels and incidental observations of polar bears near shore, provide evidence that these populations have not been adversely affected. For the next five years, we anticipate the level of oil and gas industry interactions with polar bears and Pacific walrus will be similar to interactions of the past years.

(2) *Comment:* This same commenter stated that the Service needs to provide estimates of the annual and five-year probabilities of a large spill for each individual project and from all projects combined to provide better insights into the likelihood of a spill resulting in mortality of polar bears or walrus. They pointed out that the likelihood values for oil spill probabilities are not presented.

*Response:* The Service provided five-year estimates for the probability of a large spill at two offshore production sites, Northstar and the proposed Liberty development, in the supplemental Risk Assessment Analysis document for this rule. These estimates are incorporated in the final rule. It should be noted that we believe spill probabilities alone are insufficient to assess the risk to polar bears. Therefore, to address this issue, our risk assessment incorporates the likelihood that a spill would occur as well as the potential impacts of such a spill. The rule contains a discussion of these quantified impacts as well as qualitative analysis of other potential sources and sizes of oil spills. Walrus are extralimital in the area covered by these regulations (as discussed in the body of the rule); we do not anticipate any level of effect on walrus.

Although spill probabilities for the other offshore facilities in development, such as Oooguruk and Nikaitchuq, would provide the Service better insights into the impacts of oil spills on polar bears and walrus, oil spill trajectories were unavailable for these sites, and the analysis presented represents the best data and science available. We understand that variables for the risk assessment for these other offshore sites will be different than Northstar and Liberty; however, the Service believes that the analysis of two known sites led to a valid representation and analysis of the types of risks polar bears would encounter if a large spill occurred in the nearshore areas of the

Beaufort Sea. We determined that the probability of a large-volume spill being associated with high polar bear mortality is low, and thus, warrants our finding of negligible impact.

(3) *Comment:* This same commenter noted that the regulations should include a description of mitigation measures that will be established to minimize impacts to polar bears.

*Response:* Although the Service did include a description of mitigation measures that will be required of Industry to minimize the impacts to polar bears and walrus and ensure that the negligible impact standard is not exceeded, we did not clarify which measures will be required for all projects and which mitigation measures will be required on a project-by-project basis. We have revised the regulations to specify those mitigation measures that will be required for all oil and gas activities and those that may be required, depending on the type or location of the activity. For those that are not required for all activities, we have described under what conditions that type of mitigation measure will be required.

(4) *Comment:* Two commenters remarked that the proposed rule failed to describe in detail the monitoring requirements for each activity. In addition, one commenter remarked that the monitoring program has to measure negligible impacts on affected species. The other commenter asserted that the monitoring program should be capable of detecting when and how polar bears and walrus are taken.

*Response:* The purpose of monitoring requirements is to assess the effects of industrial activities on polar bears and walrus 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. The Service has clarified in the rule the monitoring requirements for Industry activity.

There is no requirement that monitoring associated with authorization of incidental take be sufficient on its own to assess whether take associated with the activities has a negligible impact on the species or stock. Rather, information from the oil and gas monitoring program is one piece of information that along with other information is used to determine the level of take that is likely to occur and the effect of that take on the species or stock. Existing monitoring programs that have been in place, or are currently in place, and provide pertinent information, specifically for polar bears, in relation to oil and gas activities on the North Slope were identified at the

2003 Beaufort Sea Polar Bear Monitoring Workshop and are listed below:

1. Fall coastal polar bear aerial surveys;
  2. Ice monitoring for offshore oil and gas operations in the oilfield units;
  3. Weather monitoring;
  4. Polar bear subsistence harvest monitoring;
  5. Ringed seal on-ice aerial surveys and monitoring (LGL Alaska Research Associates' Northstar Before-After/Control-Impact Study and Alaska Department of Fish and Game (ADFG) aerial surveys);
  6. Polar bear tissue archiving: Arctic Marine Monitoring and Trends Assessment Program;
  7. Known polar bear den monitoring by the Service and USGS;
  8. Bowhead whale physiology data based on harvest information from ADFG;
  9. Circumpolar contaminant studies, monitoring polar bear contaminant levels;
  10. Bowhead carcass monitoring data for polar bears from MMS Bowhead Whale Aerial Survey Program;
  11. Arctic Nearshore Impact Monitoring in the Developed Area;
  12. Global Information System data of offshore industry activities from the MMS Human Activities Database;
  13. Alaska Department of Environmental Conservation oil spill database;
  14. National Ice Data Base;
  15. North Slope Borough community polar bear patrols;
  16. Aerial photographs of the north slope terrestrial habitat (various government agencies and private companies); and
  17. Arctic Borderlands program, monitoring climate change.
- Pacific walrus are considered extralimital in the Beaufort Sea. Consequently, there are relatively few monitoring programs currently in operation. Should the distribution and abundance of walrus in the Beaufort Sea change, additional monitoring and research programs may be warranted in future regulations. Beaufort Sea Monitoring programs for walrus include:

1. The Marking, Tagging, and Reporting Program, which monitors the subsistence take of walrus by native hunters from the communities of Barrow and Kaktovik;
2. Walrus samples have been contributed to the Arctic Marine Mammal Tissue Archival Project in support of environmental contaminant studies; and

3. Offshore exploration activities have included marine mammal monitoring programs to mitigate disturbances.

We agree that ultimately a comprehensive approach to monitoring the effects of oil and gas activities is important. We identified the utility of a long-term monitoring and research strategy at the 2003 Beaufort Sea Polar Bear Monitoring Workshop. Such a coordinated strategy would improve our ability to determine whether cumulative impacts from activities are adversely affecting polar bears and walrus and to detect and measure changes in their populations.

(5) *Comment:* One commenter recommended that the Service, the applicant, and other available agencies and organizations should develop a broad-based population monitoring and impact assessment program to ensure that these activities, in combination with other risk factors, are not (1) individually or cumulatively having any population-level effects on polar bear and walrus populations, and (2) adversely affecting the availability of these marine mammals for subsistence uses by Alaska natives.

*Response:* The Service agrees with this comment, in part. One basic purpose of monitoring polar bears and walrus within the oil and gas fields on the North Slope of Alaska is to establish baseline information on polar bear and walrus use and encounters and to detect any unforeseen effects of Industry activities. We agree that a broad-based, long-term monitoring program would be useful to refine our understanding of the impacts of oil and gas activities on polar bears, walrus, and their habitat over time, and to detect and measure changes in the status of the overall polar bear and walrus populations in the Beaufort Sea. Examples of current monitoring necessary for this type of broad-based monitoring plan have been discussed in Comment 4; however, a broad-based population monitoring plan as described by the commenter would need to incorporate research elements as well. When making our findings, the Service uses the best and most current information regarding polar bears and walrus. The integration of, and improvement in, research and monitoring programs would be useful in assessing potential effects to rates of recruitment and survival and the population parameters linked to assessing population level impacts from oil and gas development.

Nonetheless, monitoring provisions associated with these types of regulations were never intended as the sole means to determine whether the activities will have a negligible effect on

polar bear or walrus populations. There is nothing in the MMPA that indicates that Industry is wholly responsible for conducting general population research. Thus, we have not required industry to conduct such population research and instead require monitoring of the observed effect of the activity on polar bear and walrus. We are constantly accumulating information, such as reviewing elements of existing and future research and monitoring plans that will improve our ability to detect and measure changes in the polar bear and walrus populations. We further acknowledge that additional or complimentary research, studies, and information, collected in a timely fashion, is useful to better evaluate the effects of oil and gas activities on polar bears and walrus.

As information and technology improves, the monitoring program will continue to evolve. Our goal is to continue to improve on the collection of the types of information that have been useful in assessing Industry effects in the past. We also anticipate that additional analysis and collection of additional data will be useful to improve upon future longer-range impact assessment. We also acknowledge that creating a comprehensive research and monitoring program capable of developing information of sufficient resolution to detect changes in population rates of recruitment and survival is a formidable task and a worthy goal.

Regarding the availability of polar bears and walrus for subsistence uses, the Service requires that the oil and gas industry consult with villages and possibly formulate a Plan of Cooperation for any activities that occur in or near areas of traditional subsistence hunting to assure that any concerns of subsistence users are being addressed and that polar bears and walrus remain available for subsistence uses. Plans of cooperation are included as part of the broad-based monitoring strategy for Industry impacts on polar bears and Pacific walrus. It is also the intent of the Service to offer guidance for communities and Industry when they are developing Plans of Cooperation.

(6) *Comment:* The same commenter asserted that a broad-based monitoring program initially should focus on the need to collect adequate baseline information to allow future analyses of effects and that such baseline information should be collected before further oil and gas operations commence.

*Response:* We agree with the commenter that baseline data is

important information to ensure proper analysis of future effects. Information collection regarding the Service's trust species is a constant activity, whether or not the information is collected as a direct result of oil and gas operations. The current monitoring program allows the Service to monitor bear movements in the oilfield and focuses on limiting polar bear/human interactions. Information from monitoring is used to track the effects of the oil and gas industry on the population and availability of marine mammals for subsistence uses to surrounding villages. We acknowledge that the current monitoring program can be expanded, and to that end we are constantly improving data collection and evolving the impact analysis. The Service has been conducting population, contaminant, distribution, and behavioral studies in an effort to gather data to better understand the ecology of polar bears and walrus in Alaska. For example, from 1999 to 2005, the Service has conducted fall coastal area surveys along the north coast of Alaska to monitor polar bear distribution throughout the North Slope. This includes areas of existing development, proposed development, and non-developed areas. Furthermore, the Service reviews satellite relocations from radio-collared polar bears that have been previously captured by USGS to monitor the distribution of the bears. In addition, the Service collects baseline data on contaminant levels (chlorinated hydrocarbons), such as polychlorinated biphenyls (PCBs), polybrominated diphenylethers (PBDEs), and heavy metal contaminants from bears in Alaska. Contaminant levels in polar bears residing in Alaska are relatively low, except for hexachlorocyclohexanes (HCH), and thus, we would not expect immune and reproductive effects that may be having effects on other polar bear populations, such as the Svalbard polar bear population. Information on walrus is collected from a variety of sources as detailed in the response to Comment #4.

In addition, in the past 30 years the Service and USGS have been gathering an abundance of baseline data on survival and recruitment, denning ecology, distribution, population bounds, and habitat use, of polar bears and walrus. This information will be used as a baseline for future studies in order to understand the ecological effects of climate change in the Arctic.

In regards to baseline data being collected prior to the commencement of further oil and gas operations, the statute does not require that the agency have complete or perfect information

prior to authorizing incidental take. Rather, the Service makes its findings based on the best available information. While the Service acknowledges that additional information would be beneficial to our understanding of the effects of Industry activities on these species (see response to comment 5 above), currently available information is adequate to assess the direct and indirect effects of Industry activities on the species and on the availability of the species for taking for subsistence use. In addition, incidental take regulations do not authorize the actual oil and gas activities. Thus, the Service cannot require that certain information be collected prior to the commencement of a particular activity. The Service has been given the authority under the MMPA to authorize incidental take associated with activities that are likely to cause the taking of one or more marine mammals, provided that any take reasonably likely to occur meets the statutory standards. The monitoring requirements are a component of authorizing incidental take, and are not associated with whether the applicant can proceed with the underlying activity.

(7) *Comment:* One commenter asserted that the Service does not adequately "specify" the activities to be covered by the take authorization.

*Response:* We disagree. The preamble of the rule provides a thorough description of the activities to be conducted by the oil and gas industry during the next 5 years within the described geographic region. In addition, the petitioner's application, which provides an even more complete description of the activities proposed by Industry, including locations and time schedules, was available to the public for inspection during the public comment period.

(8) *Comment:* One commenter argued that the Service has misinterpreted the MMPA's standards for authorizing the taking of small numbers and that the takings have a negligible impact on a species or stock.

*Response:* The Service's analysis of "small numbers" complies with the agency's regulatory definition and is an appropriate reflection of Congress' intent. As we noted during our development of this definition (48 FR 31220, July 7, 1983), Congress itself recognized the "imprecision of the term 'small numbers,' but was unable to offer a more precise formulation because the concept is not capable of being expressed in absolute numerical limits." See H.R. Report No. 97-228 at 19. Thus, Congress itself focused on the anticipated effects of the activity on the

species and that authorization should be available to persons “whose taking of marine mammals is infrequent, unavoidable, or accidental.” Id.

(9) *Comment:* This same commenter argued that the Service has failed to make a separate finding that only “small numbers” of Pacific walrus and polar bears will be affected by the authorization and that no numerical estimate has been given for the number of polar bears and Pacific walrus that will be taken during the five-year period.

*Response:* We have determined that the anticipated number of polar bears and walrus that are likely to modify their behavior as a result of oil and gas industry activity is small. In most cases, takes are a behavioral change that will be temporary, minor behavioral modifications that will have no effect on rates of recruitment or survival. Other takes will be associated with deterrence or hazing events. For example, information on animal interactions during the calendar years, 2003 and 2004, which spanned the last regulatory period (November 28, 2003, to March 28, 2005), indicated that there were 52 individual polar bear sightings in 2003 and 127 bear sightings in 2004. It is important to note that the bear sightings may have included multiple observations of the same bear. In 2003, only 29 out of the 52 observations of bears involved an interaction that qualified as a taking, all of which were limited to level B harassment that resulted in a temporary behavioral change. Likewise, in 2004 only 58 out of the 127 observations qualified as takes of a similar level, again all of which were limited to level B harassment. This shows that only a small number of bears (relative to the overall bear population) are even observed within the vicinity of Industry activities and, of those, an even smaller number are engaged in an interaction that qualifies as take. All of these takes have been limited to level B harassment. During the same 2-year period, only three walrus were observed by Industry activities. Of these three walrus, only two were engaged in an interaction that qualified as take, both of which were limited to Level B harassment. The Service anticipates that the amount and level of take in the coming five years will be consistent with the amount and level of take in recent years, as described above.

Takes that could potentially have effects on rates of recruitment and survival are associated with oil spills. We calculated that the probability of a spill occurring that could cause mortality of one or more polar bears is

0.4–1.3 percent. The likelihood of taking more than one bear decreases as the number of potential bears taken in a single spill event increases, such that, the probability of a spill occurring that could cause the mortality of 5 or more bears is 0.3–1.1 percent; for 10 or more bears is 0.3–0.9 percent; and for 20 or more bears is 0.1–0.5 percent. Thus, the anticipated level of take of polar bears from an oil spill also qualifies as a “small” number.

(10) *Comment:* The same commenter challenged the Service’s findings as inadequate because the commenter claims that the Service’s analysis underestimates the amount of oil and gas activity that will occur in the next 5 years, with specific emphasis on seismic surveys.

*Response:* The Service addressed and presented all the Industry activities supplied by the petitioner and known to the Service for analysis that are expected to occur in the next 5 years. Discussion in the preamble clarifies the evaluation in the rule and considers the projected future activities in addition to ongoing activities and existing facilities. In regards to seismic surveys, previous regulations have analyzed open water seismic activity even though open water seismic has not occurred on an annual basis in the Beaufort Sea. We have accounted for multiple seismic surveys by estimating total track lines.

(11) *Comment:* This commenter also asserted that the Service’s findings are not supportable because the Service failed to adequately analyze the effects of climate change on polar bears and Pacific walrus.

*Response:* The proposed rule did consider the anticipated effects of climate change on polar bears and walrus in the Beaufort Sea in the coming five years, and how that is likely to affect take associated with Industry activities. Nonetheless, additional information has been incorporated into the final rule.

(12) *Comment:* One commenter asserted that for the same reasons that they believe the Service’s negligible impact finding is unsupported, they also believe that the Service’s finding that anticipated incidental take will not have “an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses” by Alaska Natives is arbitrary and capricious.

*Response:* For the same reasons explained in the responses above and in the final rule, the Service’s finding is fully supported and meets all statutory standards. The Service’s finding is based on the best available information, such as information from the polar bear

and walrus harvest data provided by the three affected communities (Barrow, Kaktovik, and Nuiqsut), which indicates that activities will not have an unmitigable, adverse impact on the availability of species for taking for subsistence uses. We also based our finding on the results of coastal aerial surveys conducted within the area during the past 3 years, upon direct observations of polar bears occurring near bowhead whale carcasses on Barter Island and on Cross Island during the villages of Kaktovik and Nuiqsut’s annual fall bowhead whaling efforts, respectively, and upon anecdotal reports of North Slope residents. The Service has not received any reports and is aware of no information that indicates that bears or walrus are being or will be deflected or impacted in any way that diminishes their availability for subsistence use by the expected level of oil and gas activity.

(13) *Comment:* One commenter asserted that the incidental take regulations violate the mandate of the 1973 Agreement on the Conservation of Polar Bears to protect essential polar bear habitat.

*Response:* The incidental take regulations are consistent with the Agreement. Article II of the Polar Bear Agreement lists three obligations of the Parties in protecting polar bear habitat: (1) To take “appropriate action to protect the ecosystem of which polar bears are a part;” (2) to give “special attention to habitat components such as denning and feeding sites and migration patterns;” and (3) to manage polar bear populations in accordance with “sound conservation practices” based on the best available scientific data. The Service’s actions are consistent with these responsibilities.

This rule is consistent with the Service’s treaty obligations because it incorporates mitigation measures that ensure the protection of polar bear habitat. LOAs for industrial activities are conditioned to include area or seasonal timing limitations or prohibitions, such as placing 1-mile avoidance buffers around known or observed dens (which halts or limits activity until the bear naturally leaves the den), building roads perpendicular to the coast to allow for polar bear movements along the coast, and monitoring the effects of the activities on polar bears. Available denning habitat maps are provided by USGS.

In addition to the protections provided for known or observed dens, industry has assisted in the research of forward looking infrared (FLIR) thermal imagery, which is useful in detecting the heat signatures of polar bear dens.



By conducting FLIR surveys prior to activities to discern polar bear dens along with verification of these dens by scent-trained dogs, disturbance of even unknown denning females is limited. Another area of industry support has been the use of digital elevation models and aerial imagery in identifying habitats suitable for denning.

LOAs also require the development of polar bear-human interaction plans in order to minimize potential for encounters and to mitigate for adverse effects should an encounter occur. These plans enhance the safety of polar bears using habitats within the area of industrial activity. Finally, as outlined in our regulations at 50 CFR 18.27(f)(5), LOAs may be withdrawn or suspended, if non-compliance of the prescribed regulations occurs.

To conclude, while oil and gas activities occupy a relatively small proportion of available polar bear habitat of Alaska, the Service is aware of potential far-reaching effects of these activities. The Service has ensured that these regulations are consistent with our treaty commitments.

(14) *Comment:* One commenter stated that, in accordance with NEPA, there was inadequate public notice for the incidental take regulations.

*Response:* A **Federal Register** publication announcing the availability of NEPA documentation is an acceptable means for notifying the public and inviting an opportunity to comment. The Service announced the availability of a draft Environmental Assessment (EA) prepared in conjunction with the proposed rulemaking in the **Federal Register** on March 22, 2006 (71 FR 14446). The **Federal Register** notice also provided contact information for obtaining a copy of the draft EA. Therefore, the Service believes that it provided sufficient notice to the public through the **Federal Register** process and was within the procedural requirements of NEPA. When this commenter requested a copy of the EA, a copy was provided on April 21, 2006.

(15) *Comment:* This same commenter stated that, in accordance with NEPA, the Service must prepare a full Environmental Impact Statement for this rulemaking.

*Response:* The Service analyzed the proposed activity, i.e., issuance of implementing regulations, in accordance with the criteria of NEPA and made an initial determination that it does not constitute a major Federal action significantly affecting the quality of the human environment. The regulations have been in place since 1993 and, therefore, are not unique and

are based on known and documented risks. Furthermore, the regulations have been an effective tool for minimizing risk from oil and gas industrial activities and polar bears and walrus.

The EA analyzed potential impacts of these regulations on the Service's trust species rather than the potential impacts of the oil and gas activities. It should be noted that the Service does not authorize the actual Industry activities. Those activities are authorized by other State and Federal agencies, and would likely occur even without incidental take authority. These regulations provide the Service with a means of interacting with Industry to ensure that the impacts to polar bears and Pacific walrus are minimal. Furthermore, the analysis in the EA found that the proposed activity would have a negligible impact on Pacific walrus and polar bears and would not have an unmitigable adverse impact on subsistence users, thereby resulting in a "Finding of No Significant Impact (FONSI)." Therefore, in accordance with NEPA, an EIS is not required.

(16) *Comment:* One commenter asserted that the Service failed to consider the cumulative effects of all the past, present, and likely future activities and events affecting the polar bear and walrus in its NEPA analysis.

*Response:* Cumulative effects have been analyzed in the context of making a negligible effect finding. From the Service perspective, impacts to polar bears and walrus will be minimized with regulations in place because the Service will have increased ability to work directly with the Industry operators to implement mitigation measures.

#### **Effective Date**

In accordance with 5 U.S.C. 553(d)(3), we find that we have good cause to make this rule effective immediately upon publication. To protect the affected species and reduce the chances of lethal and nonlethal effects from Industry, Industry needs to implement mitigation measures and monitoring programs on the North Slope of Alaska when there is a possibility for polar bear or walrus encounters in the industrial area considered within this rule. Immediate effectiveness of this rule will allow these protective mechanisms to be put into effect immediately.

#### **Required Determinations**

##### *NEPA Considerations*

We have prepared an Environmental Assessment (EA) in conjunction with this rulemaking, and have determined that this rulemaking is not 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 Environmental Assessment, contact the individual identified above in the section **FOR FURTHER INFORMATION CONTACT**.

##### *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 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, or 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 or entitlement, 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 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 13 years. Realistically, these costs are minimal in comparison to those related to actual oil and gas exploration, development, and production operations. The actual costs to Industry to develop the petition for promulgation of regulations (originally developed in 2002) and LOA requests probably does 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 will accrue to Industry; royalties and taxes will accrue to the Government; and the rule will 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 is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. The rule 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 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 rule is available from the individual identified above in the section **FOR FURTHER INFORMATION CONTACT**.

#### *Taking Implications*

This rule does not have a takings implication under Executive Order 12630 because it authorizes the nonlethal, incidental, but not intentional, take of polar bear and walrus by oil and gas industry companies and thereby exempt 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 rule does not contain policies with Federalism implications sufficient to warrant preparation of a Federalism Assessment under Executive Order 13132.

#### *Unfunded Mandates Reform Act*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501, et seq.), this rule will 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*

The information collection requirements included in this rule are approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). The OMB control number assigned to these information collection requirements is 1018–0070, which expires on October 31, 2007. This control number covers the information collection, recordkeeping, and reporting requirements in 50 CFR part 18, subpart J, which are associated with the development and issuance of specific regulations and LOAs.

#### *Energy Effects*

Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This rule provides exceptions from the taking prohibitions of the MMPA for entities engaged in the exploration, development, and production of oil and gas in the Beaufort Sea and adjacent coastal areas of northern 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.

#### **Regulation Promulgation**

■ For the reasons set forth in the preamble, the Service amends 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. Revise part 18 by adding a new subpart J to read as follows:

#### **Subpart J—Nonlethal Taking of Marine Mammals Incidental to Oil and Gas Exploration, Development, and Production Activities in the Beaufort Sea and Adjacent Northern Coast of Alaska**

Sec.

- 18.121 What specified activities does this subpart cover?  
 18.122 In what specified geographic region does this subpart apply?  
 18.123 When is this subpart effective?  
 18.124 How do I obtain a Letter of Authorization?  
 18.125 What criteria does the Service use to evaluate Letter of Authorization requests?  
 18.126 What does a Letter of Authorization allow?  
 18.127 What activities are prohibited?  
 18.128 What are the mitigation, monitoring, and reporting requirements?  
 18.129 What are the information collection requirements?

#### **§ 18.121 What specified activities does this subpart cover?**

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

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

This subpart applies to the specified geographic region defined by a north-south line at Barrow, Alaska, and includes all Alaska coastal areas, State waters, and Outer Continental Shelf

waters east of that line to the Canadian border and an area 25 miles inland from Barrow on the west to the Canning River

on the east. The Arctic National Wildlife Refuge is not included in the area

covered by this subpart. Figure 1 shows the area where this subpart applies.

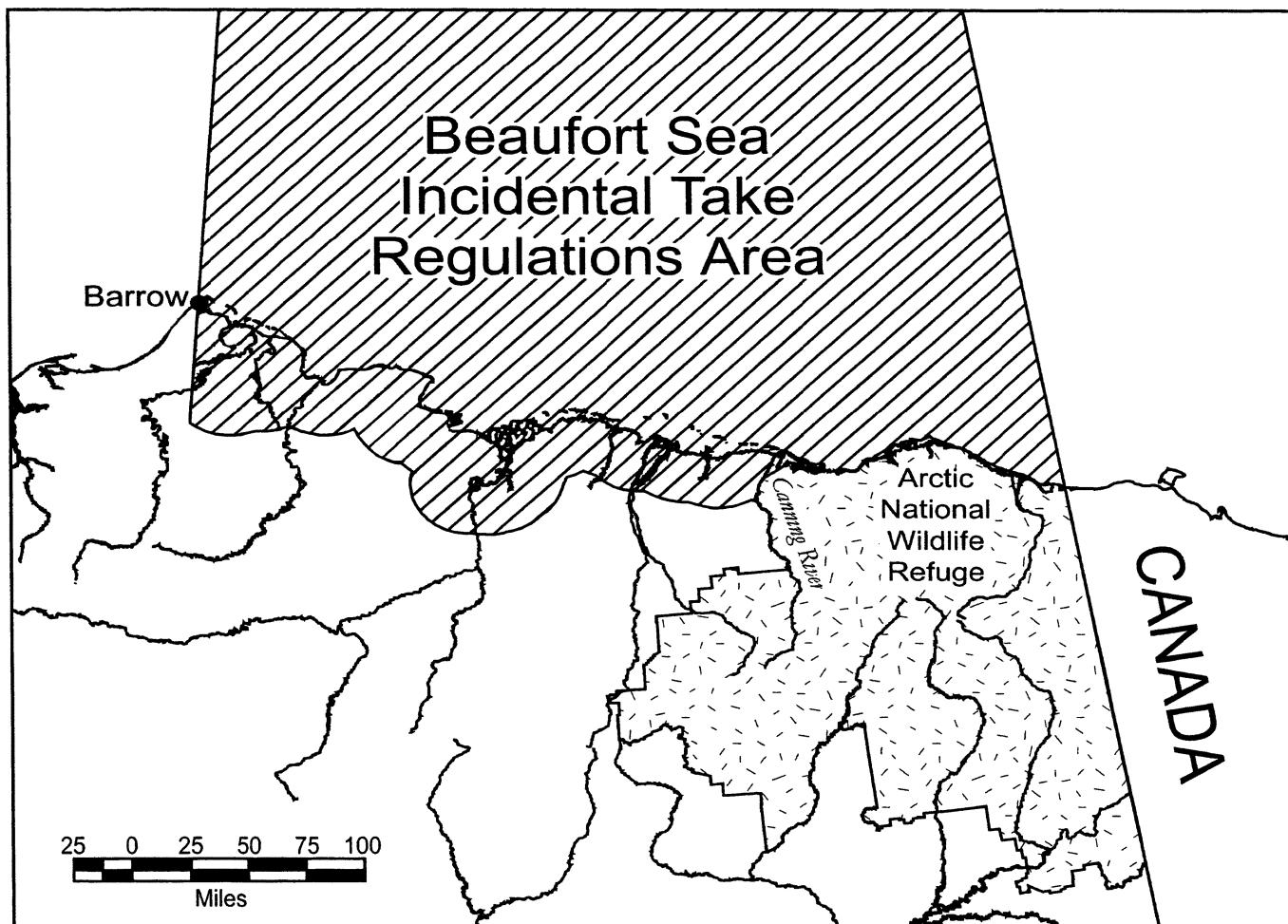


Figure 1. Specific geographic region covered by the Beaufort Sea incidental take regulations.

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

Regulations in this subpart are effective from August 2, 2006 through August 2, 2011 for year-round oil and gas exploration, development, and production activities.

**§ 18.124 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, development, or production activity in the specified geographic region described in § 18.122 that may cause the taking of polar bear or Pacific walrus in execution of those

activities and you want nonlethal incidental take authorization under this rule, you must apply for a Letter of Authorization for each exploration activity or a Letter of Authorization for activities in each development or production area. 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 polar bear and Pacific walrus that may be present during the ongoing activities. 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.

(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 polar bear and Pacific walrus for subsistence uses if the activity takes place in or near a traditional subsistence hunting area. Some of these measures may include, but are not limited to, mitigation measures described in § 18.128.

**§ 18.125 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 should we determine that an emergency exists that poses a significant risk to the well-being of the species or stock of polar bear or Pacific walrus.

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

(a) Your Letter of Authorization may allow the nonlethal incidental, but not intentional, take of polar bear and Pacific walrus 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;

(3) Developing oil fields and associated activities;

(4) Drilling production wells and performing production support operations;

(5) Conducting environmental monitoring activities associated with exploration, development, and

production activities to determine specific impacts of each activity;

(6) Conducting restoration, remediation, demobilization programs, and associated activities.

(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 polar bear and Pacific walrus, 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.

**§ 18.127 What activities are prohibited?**

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

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

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

(a) 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, development, and production activities on polar bear and Pacific walrus.

(b) Holders of Letters of Authorization must designate a qualified individual or individuals to observe, record, and report on the effects of their activities on polar bear and Pacific walrus.

(c) All holders of Letters of Authorization are required to have an approved polar bear and/or walrus interaction plan on file with the Service and on-site, and polar bear awareness training will also be required of certain personnel. Interaction plans must 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) Walrus/bear observation and reporting procedures; and

(6) Bear/walrus avoidance and encounter procedures.

(d) All applicants for a Letter of Authorization must contact affected subsistence communities to discuss potential conflicts caused by location, timing, and methods of proposed operations and submit to us a record of communication that documents these discussions. If appropriate, the

applicant for a Letter of Authorization must also submit to us a Plan of Cooperation that ensures that activities will not interfere with subsistence hunting and that adverse effects on the availability of polar bear or Pacific walrus are minimized.

(e) Mitigation measures that may be required on a case-by-case basis include:

(1) The use of trained marine mammal monitors associated with marine activities. We may require a monitor on the site of the activity or on board drill ships, drill rigs, aircraft, icebreakers, or other support vessels or vehicles to monitor the impacts of Industry's activity on polar bear and Pacific walrus.

(2) The use of den habitat map developed by the USGS. A map of potential coastal polar bear denning habitat can be found at: [http://www.absc.usgs.gov/research/sis\\_summaries/polar\\_bears\\_sis/mapping\\_dens.htm](http://www.absc.usgs.gov/research/sis_summaries/polar_bears_sis/mapping_dens.htm). This measure ensures that the location of potential polar bear dens is considered when conducting activities in the coastal areas of the Beaufort Sea.

(3) The use of Forward Looking Infrared (FLIR) imagery, polar bear scent-trained dogs, or both to determine the presence or absence of polar bear dens in area of the activity.

(4) Restricting the timing of the activity to limit disturbance around dens.

(5) Requiring a 1-mile exclusion buffer surrounding known dens. If known occupied dens are located within an operator's area of activity, we will require a 1-mile 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.

(f) For exploratory and development activities, 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. For production activities, holders of a Letter of Authorization must submit a report to our Alaska Regional Director (Attn: Marine Mammals Management Office) by January 15 for the preceding year's activities. Reports must include, at a minimum, the following information:

(1) Dates and times of activity;

(2) Dates and locations of polar bear or Pacific walrus activity as related to the monitoring activity; and

(3) Results of the monitoring activities required under subsection (g) of this

section, including an estimated level of take.

(g) Monitoring requirements include, but are not limited to:

(1) For all activities, all sightings of polar bears and walrus must be recorded. To the extent possible, the monitor will record group size, age, sex, reaction, duration of interaction, and closest approach to Industry activity.

(2) Activities within the coast of the geographic region may incorporate daily polar bear watch logs.

(3) Polar bear monitors will be required under the monitoring 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 regards to proximate bear activity to Industry facilities.

(4) Offshore sites may require systematic monitoring protocols for polar bears and walrus due to their nearshore locations. Systematic monitoring may be implemented to statistically monitor observation trends of walrus or polar bears in the nearshore areas where they usually occur.

**§ 18.129 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 (MMPA). 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: July 21, 2006.

**Matt Hogan,**

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

[FR Doc. 06-6626 Filed 8-1-06; 8:45 am]

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