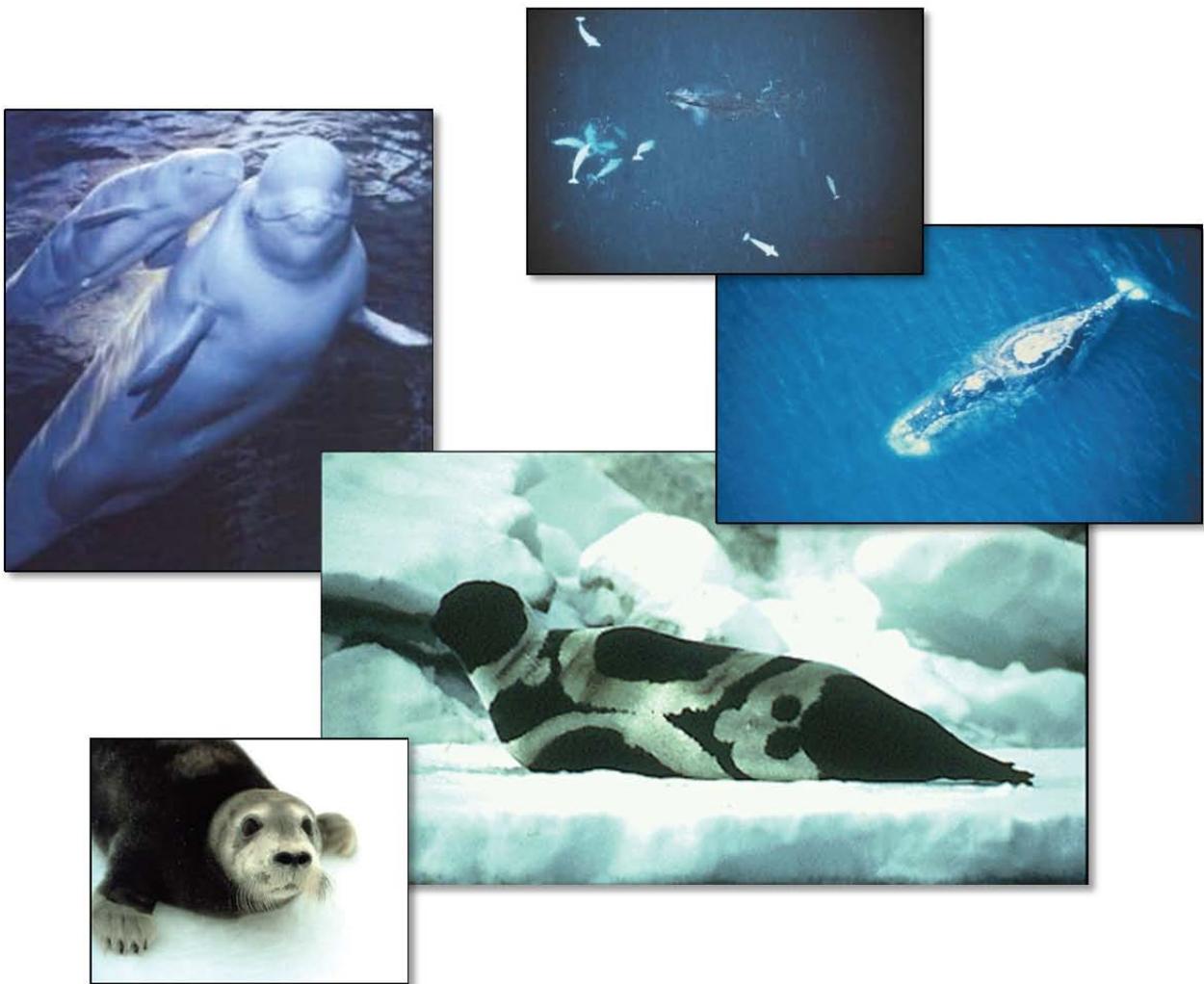


Effects of Oil and Gas Activities in the Arctic Ocean

Draft Environmental Impact Statement

Volume 3: Chapters 7-8, Figures, and Appendices



December 2011

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources



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Prepared by:

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LIST OF ACRONYMS AND ABBREVIATIONS

1D	One-dimensional
2D	Two-dimensional
3D	Three-dimensional
4D	Four-dimensional
AAC	Alaska Administrative Code
ACP	Arctic Coastal Plain Physiographic Province
ACMP	Alaska Coastal Management Act of 1977
ACP	Arctic Coastal Plain
ADCCED	Alaska Department of Commerce, Community, and Economic Development
ADCP	Acoustic Doppler Current Profile
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADLWD	Alaska Department of Labor and Workforce Development
ADNR	Alaska Department of Natural Resources
AEWC	Alaska Eskimo Whaling Commission
AF	Arctic Foothills Physiographic Province
AHRS	Alaska Heritage Resource
AMNWR	Alaska Maritime National Wildlife Refuge
AN(SW)T	Ambient-Noise (Surface-Wave) Tomography
ANCSA	Alaska Native Claims Settlement Act
ANIMIDA	Arctic Nearshore Impact Monitoring in Development Area
ANILCA	Alaska National Interest Lands Conservation Act
ANOs	Alaska Native Organizations
ANWR	Arctic National Wildlife Refuge
AO	Arctic Oscillation
AOOS	Alaskan Ocean Observing system
APD	Application for Permit to Drill
APP	Alaska Pipeline Project
AQRV	air quality related values
ARRT	Alaska Regional Response Team
ASNA	Arctic Slope Native Association

ASRC	Arctic Slope Regional Corporation
BACT	Best Available Control Technology
bbbl	barrels
BIA	U.S. Bureau of Indian Affairs
BLM	U.S. Bureau of Land Management
BOEMRE	U.S. Bureau of Ocean Energy Management, Regulation and Enforcement
BOWFEST	Bowhead Whale Feeding Ecology Study
BSEE	Bureau of Safety and Environmental Enforcement
BWASP	Bowhead Whale Aerial Survey Program
°C	Degrees-Celcius (spelling?)
CAA	Conflict Avoidance Agreement
CAH	Central Arctic Caribou Herd
cANIMIDA	Continuation of Arctic Nearshore Impact Monitoring in Development Area
CAR	Comment Analysis Report
CatExs	Categorically Excludes
CDS	conical drilling unit
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response Compensation and Liability Act of 1980
CFR	Code of Federal Regulations
CH ₄	Methane
CBS	Chukchi/Bering Seas stock
CIDS	Concrete Island Drilling Structure
CLRD	Chronic lower respiratory disease
cm	Centimeter
cm ³	Cubic centimeter
cm/s	Centimeters per second
CO	carbon monoxide
CO ₂	Carbon Dioxide
CO ₂ e	carbon dioxide equivalent
COA	corresponding onshore area
COMIDA	Chukchi Offshore Monitoring in Drilling Area Survey Project
CSPA	Chukchi Sea Planning Area

CPAI	ConocoPhillips Alaska, Inc
CPUE	Catch Per Unit Effort
CSEM	Controlled Source Electromagnetic
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
D	Drilling
DAO	Department Administrative Order
dB	Decibel
dba	A-weighted sound level
dB re 1 μ Pa rms	Decibels Relative to 1 micropascal Root Mean Square
DCOM	Division of Coastal and Ocean Management
DCRA	Division of Community and Regional Affairs
DDT	dichlorodiphenyltrichloroethane
deg.	Degrees
DEIS	Draft Environmental Impact Statement
Detritus	Dead
DEW	Distant Early Warning
DLI	Daylight Imaging
DMLW	Division of Mining, Land and Water
DO&G	Department of Oil and Gas
DOC	U.S. Department of Commerce
DPEIS	Draft Programmatic Environmental Impact Statement
DS	Deep Seismic Survey
DTAGS	Deep-towed Acoustics/Geophysics System
DPP	Development and Production Plan
DWG	Supplemental Final EIS
EA	Environmental Assessment
Ecotone	salinity transition zone
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EP	Exploration Plan
EPA	U.S. Environmental Protection Agency

EMS	Emergency Medical Services
EO	Executive Order
EP	Exploration Plan
EPA	U.S. Environmental Protection Agency
ERD	Extended Reach Drilling
ERM	Effects Range Median
ERL	Effects Range Low
ESA	Endangered Species Act
ESP	Environmental Studies Program
EVOS	Exxon Valdez Oil Spill
°F	Degrees-Fahrenheit
FEIS	Final Environmental Impact Statement
FLIR	Forward Looking Infrared
FM	frequency-modulated
FMPs	Fishery management plans
FOSC	Federal On-Scene Coordinator
FONSI	Finding of No Significant Impact
FR	Federal Register
ft	Feet
FY	fiscal year
g	gram
G&G	Geological and Geophysical
GAO	Government Accountability Office
GHG	Greenhouse Gas
GIS	Geographic Information System
Gm	geographic mile
GPS	Global Positioning System
GTP	gas treatment plant
HAP	hazardous air pollutants
Hg	elemental mercury
HgCl ₂	Mercuric chloride
HIV	Human Immunodeficiency Virus
HRS	High Resolution Seismic

HyMAS	Hydrocarbon Microtremor Analysis
Hz	Hertz
IAP	Integrated Activity Plan
IB	Icebreaking
ICAS	Inupiat Community of the Arctic Slope
IHA	Incidental Harassment Authorization
in	Inch
in ³	Cubic Inch
IMPROVE	Interagency Monitoring of Protected Visual
ISER	Social and Economic Research
ITA	Incidental Take Authorization
IVI	Industrial Vehicle International
IWC	International Whaling Commission
Kg	kilograms
kHz	kilohertz
KIC	Kikiktagruk Inupiat Corporation
km	Kilometer
km ₂	square kilometers
kn	Knot
LACS	Low Level Acoustic Combustion Source
Lb	pounds
LBCHU	Ledyard Bay Critical Habitat Unit
LCU	Lower Cretaceous Unconformity
L _{eq}	Equivalent sound level
LET	Local Earthquake Tomography
LME	Large Marine Ecosystem
L _{min}	RMS maximum noise level
L _{min}	RMS minimum noise level
LOA	Letters of Authorization
LFS	Low-Frequency Spectroscopy
LRI	lower respiratory tract infections
m	Meter
mg/kg	milligrams per kilograms

Mg/L	Milligrams per liter
Mg/m ³	Milligrams per cubic meter
mi	Mile
min.	Minutes
MIRIS	Michigan Resource Information System
mm	Millimeter
MMbbls	million barrels
MMO	Marine Mammal Observer
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MMt	million metric tons
MODU	Mobile Offshore Drilling Unit
Mph	Miles per hour
MSFCMA	Magnuson Stevens Fishery Conservation and Management Act
my	million years
myBP	million years before present
μPa	Micro Pascal
NAAQS	National Ambient Air Quality Standards
NAB	Northwest Arctic Borough
NANA	NANA Regional Corporation
NAO	North Atlantic Oscillation
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEP-A	National Environmental Policy Act
Ng/L	parts per trillion
NGO	non-governmental organization
NH	ammonia
NM	Nautical Miles
NMFS	National Marine Fisheries Service
NMI	nautical miles
NO	nitrogen oxides
N ₂ O	Nitrous Oxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent

NPDES	National Pollutant Discharge Elimination System
NPFMC	North Pacific Fisheries Management Council
NPR-A	National Petroleum Reserve–Alaska
NRC	National Research Council
NSR	New Source Review
NTL	Notice to Lessees
NTU	Nephelometric Turbidity Units
NVDs	Night Vision Devices
NPFMC	North Pacific Fisheries Management Council
NPS	National Park Service
NRHP	National Register of Historic Places
NSB	North Slope Borough
NSB DHHS	North Slope Borough Department of Health and Social Services
NSR	New Source Review
O ₃	ozone
OBC	Ocean-bottom-cable
OBN	ocean bottom node
OCRM	Office of Ocean and Coastal Resource Management
OCS	Outer Continental Shelf
ODPCP	Oil Discharge Prevention and Contingency Plan
OMB	U.S. Office of Management and Budget
OPEC	Organization of Petroleum-Exporting Countries
OSRB	Oil Spill Response Barge
OSRO	Oil Spill Removal Organizations
OSRP	Oil Spill Response Plan
OSRV	Oil Spill Response Vessels
Pa	Pascals
PAH	polycyclic aromatic hydrocarbons
Pb	lead
PCB	Polychlorinated Biphenyl
PCH	Porcupine Caribou Herd
PDO	Pacific Decadal Oscillation
PEA	Programmatic Environmental Assessment

PEIS	Programmatic Environmental Impact Statement
PILT	payment in lieu of tax
PGS	Petroleum Geo-Services
PM _{2.5}	Particulate matter 10 microns in diameter
PM ₁₀	Particulate matter 10 microns in diameter
<i>P</i>	Pressure
<i>P</i> ₁	Sound having pressure
POC	Plan of Cooperation
<i>P</i> _{ref}	Standard Reference Pressure
ppm	parts per million
ppt	parts per thousand
PSD	Prevention of Significant Deterioration
Psi	per square inch
PSO	Protected Species Observer
psu	practical salinity units
PTE	potential-to-emit
PTS	permanent threshold shifts
R/B	biomass ratio
RDD	Resource Development Districts
RFFA	reasonably foreseeable future actions
RMS	root-mean-square
ROD	Record of Decision
RSC	reduced sulfur compounds
RUSALCA	Russian-American Long-term Census of the Arctic
s	Second
SA	Subsistence Advisor
SAR	Search and Rescue
SBI	Shelf Basin Interactions
SBS	Southern Beaufort Sea stock
SCR	Selective catalytic control
SEL	sound exposure level
SEIS	Supplemental Environmental Impact Statement
SEMS	Safety and Environmental Management Systems

SFEIS	Supplemental Final EIS
SO	sulfur dioxide
SOPCs	Stressors of Potential Concern
SQRU	Scenic Quality Rating Unit
SSV	Sound Source Verification
SDC	Steel Drilling Caisson
SLRU	Sensitivity Level Rating Unit
SPLASH	Structure of Populations, Levels of Abundance, and Status of Humpbacks
SQRU	Scenic Quality Rating Unit
STI	Sexually transmitted infection
TA&R	Technology Assessment & Research
TAPS	Trans-Alaska Pipeline System
TB	Tuberculosis
TCH	Teshkepuk Caribou Herd
TCP	Traditional cultural properties
TK	Traditional Knowledge
TPY	tons per year
TTS	temporary threshold shifts
μPa	Micro Pascal
ULSD	ultra-low sulfur diesel
URI	Upper respiratory tract infection
U.S.	United States of America
USACE	U.S. Army Corps of Engineer
USCG	U.S. Coast Guard
USDOJ	U.S. Department of the Interior
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	U.S. Park Service
VLCC	Very Large Crude Carrier
VLOS	Very Large Oil Spill
VOC	volatile organic compounds
WAH	Western Arctic Caribou Herd
WCD	Worst Case Discharge

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8.0 GLOSSARY

Acute—Sudden, short term, severe, critical, crucial, intense, but usually of short duration.

Anadromous fish—Fish that migrate up river from the sea to breed in fresh water.

Annelid—Worm with a cylindrical body segmented both internally and externally.

Annular preventer—A component of the pressure control system in the Blowout Preventer that forms a seal in the annular space around any object in the wellbore or upon itself, enabling well control operations to commence.

Anthropogenic—Coming from human sources, relating to the effect of humankind on nature.

Aphotic zone—Zone where the levels of light entering through the surface are not sufficient for photosynthesis or for animal response.

Archaeological resource—Any material remains of human life or activities that are at least fifty years of age and that are of archaeological interest.

Aromatic—Class of organic compounds containing benzene rings or benzenoid structures.

Attainment area—An area that is shown by monitored data or by air-quality modeling calculations to be in compliance with primary and secondary ambient air quality standards established by the USEPA.

Barrel (bbl)—A volumetric unit used in the petroleum industry; equivalent to 42 U.S. gallons or 158.99 liters.

Benthic—Literally, living on the bottom. Refers to material, especially sediment, at the bottom of an aquatic ecosystem, or it can be used to describe the organisms that live on, or in, the bottom of a water body or the sea.

Benthos—A region that includes the bottom of the sea and the littoral zone; also refers to the benthic invertebrate community, which is a group of animals that lives on or in the bottom sediments.

Biological Opinion—The FWS or NMFS evaluation of the impact of a proposed action on endangered and threatened species, in response to formal consultation under Section 7 or the endangered Species Act.

Block—A geographical area portrayed on official BOEMRE protraction diagrams or leasing maps that contains approximately 2,331 ha (9 mi²).

Blowout—An uncontrolled flow of fluids below the mudline from appurtenances on a wellhead or from a wellbore.

Blowout preventer (BOP)—One of several valves installed at the wellhead to prevent the escape of pressure either in the annular space between the casing and drill pipe or in open hole (i.e., hole with no drill pipe) during drilling completion operations. Blowout preventers on jackup or platform rigs are located at the water's surface; on floating offshore rigs, BOP's are located on the seafloor.

Brackish—Slightly salty water.

Cetacean—Large aquatic carnivorous mammal with fin-like forelimbs, no hind limbs includes whales, dolphins, porpoises, and narwhals. Also of or relating to these animals.

Chemosynthetic—Organisms that obtain their energy from the oxidation of various inorganic compounds rather than from light (photosynthesis).

Critical habitat—Specific areas within the geographical area occupied by the species at the time of listing (under the ESA), if they contain physical or biological features essential to conservation, and those features may require special management considerations or protection; and specific areas outside the geographical area occupied by the species if the agency (USFWS or NMFS) determines that the area itself is essential for conservation.

Coastal waters—Waters within the geographical areas defined by each State's Coastal Zone Management Program.

Coastal wetlands—Forested and nonforested habitats, mangroves, and marsh islands exposed to tidal activity. These areas directly contribute to the high biological productivity of coastal waters by input of detritus and nutrients, by providing nursery and feeding areas for shellfish and finfish, and by serving as habitat for birds and other animals.

Coastal zone—The coastal waters (including the lands therein and thereunder) and the adjacent shore lands (including the waters therein and thereunder) strongly influenced by each other and in proximity to the shorelines of the several coastal states; the zone includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches and extends seaward to the outer limit of the United States territorial sea. The zone extends inland from the shorelines only to the extent necessary to control shore lands, the uses of which have a direct and significant impact on the coastal waters. Excluded from the coastal zone are lands the use of which is by law subject to the discretion of or which is held in trust by the Federal Government, its officers, or agents. (The State land and water area officially designated by the State as "coastal zone" in its State coastal zone program as approved by the U.S. Department of Commerce under the Coastal Zone Management Act.)

Condensate—Liquid hydrocarbons produced with natural gas; they are separated from the gas by cooling and various other means. Condensates generally have an API gravity of 50o-120o.

Continental margin—The ocean floor that lies between the shoreline and the abyssal ocean floor, includes the continental shelf, continental slope, and continental rise.

Continental shelf—The gently seaward-sloping surface that extends between the shoreline and the top of the continental slope at about 150 meters (345 feet) depth. The average gradient of the shelf is between 1:500 and 1:1000 and, although it varies greatly, the average width is approximately 70 kilometers (44 miles). This can also be a judicial term; for example, the outer limit of the legal continental shelf is determined by reference to be a distance of 200 nautical miles (370 kilometers, 230 miles) or to the outer edge of the geological continental margin, wherever the margin extends beyond 200 nautical miles (370 kilometers; 230 miles).

Contingency Plan—A plan for possible offshore emergencies prepared and submitted by the oil or gas operator as part of the plan of development and production, and which may be required for part of the plan of exploration.

Continental slope—That part of the continental margin that lies between the continental shelf and the bottom of the ocean. Sunlight does not penetrate this area, and mostly it is home to scavengers. It is characterized by a relatively steep slope of 3 to 6 degrees.

Critical habitat—a designated area that is essential to the conservation of an endangered or threatened species that may require special management considerations or protection.

Crude oil—Petroleum in its natural state as it emerges from a well, or after it passes through a gas-oil separator but before refining or distillation. An oily, flammable, bituminous liquid that is essentially a complex mixture of hydrocarbons of different types with small amounts of other substances.

Crustacean—Includes a diversity of marine, freshwater, and terrestrial animals. All crustaceans have a head and five pairs of appendages, two of which are antennae. Many microscopic crustaceans, like krill and brine shrimp, are marine plankton, an important food source for other animals in the sea. Shrimp, lobsters, crabs, crayfish, and barnacles are crustaceans.

Deferral—Action taken by the Secretary of the Interior at the time of the Area Identification to remove certain areas/blocks from the proposed sale.

Delineation well—A well that is drilled for the purpose of determining the size and/or volume of an oil or gas reservoir.

Deepwater Horizon (DWH) event—All actions stemming from the April 20, 2010, explosion and subsequent sinking of the Transocean drillship *Deepwater Horizon*, up to and including the Macondo well kill declaration on September 19, 2010.

Depleted species—Defined by the MMPA as any case in which: (a) the Secretary of Commerce, after consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals, determines that a species or population stock is below its optimum sustainable population; (b) a State determines that such species or stock is below its optimum sustainable population; or (c) a species or population stock is listed as a threatened species or endangered species under the ESA.

Demersal—Living near, deposited on, or sinking to the bottom of the sea.

Development—Activities that take place following discovery of economically recoverable mineral resources, including geophysical surveying, drilling, platform construction, operation of onshore support facilities, and other activities that are for the purpose of ultimately producing the resources.

Development Operations Coordination Document (DOCD)—A document that must be prepared by the operator and submitted to BOEMRE for approval before any development or production activities are conducted on a lease in the Western Gulf.

Diapause—A state of rest, halted development, or arrested development or growth, accompanied by greatly decreased metabolism, often correlated with the seasons, usually applied only to insects.

Dilution—The reduction in the concentration of dissolved or suspended substrates by mixing with water.

Direct employment—Consists of those workers involved the primary industries of oil and gas exploration, development, and production operations (Standard Industrial Classification Code 13—Oil and Gas Extraction).

Discharge—Something that is emitted; flow rate of a fluid at a given instant expressed as volume per unit of time.

Dispersant—A suite of chemicals and solvents used to break up an oil slick into small droplets, which increases the surface area of the oil and hastens the processes of weathering and microbial degradation.

Dispersion—A suspension of finely divided particles in a medium.

Distinct Population Segment (DPS)—A vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. Distinct population segments may be listed as threatened or endangered under the ESA.

Drilling mud—A mixture of clay, water or refined oil, and chemical additives pumped continuously downhole through the drill pipe and drill bit, and back up the annulus between the pipe and the walls of the borehole to a surface pit or tank. The mud lubricates and cools the drill bit, lubricates the drill pipe as it turns in the wellbore, carries rock cuttings to the surface, serves to keep the hole

from crumbling or collapsing, and provides the weight or hydrostatic head to prevent extraneous fluids from entering the well bore and to downhole pressures; also called drilling fluid.

Drillship—A self-propelled, self-contained vessel equipped with a derrick amidships for drilling wells in deep water.

Effluent—A waste product that is discharged to the environment, usually used to mean treated wastewater discharged from a wastewater treatment plant, sewer, or industrial outfall.

Effluent limitations—Any restriction established by a State or the USEPA on quantities, rates, and concentrations of chemical, physical, biological, and other constituents discharged from point sources into U.S. waters, including schedules of compliance.

Endangered species—Defined under the ESA as “any species which is in danger of extinction throughout all or a significant portion of its range.”

Environmental Assessment—A concise public document required by the National Environmental Policy Act of 1969 (NEPA). In the document, a Federal agency proposing (or reviewing) and action provides evidence and analysis for determining whether it must prepare an Environmental Impact Statement (EIS) or whether it finds there is no significant impact (i.e., Finding of No Significant Impact [FONSI]).

Environmental effect—A measurable alteration or change in environmental conditions.

Environmental Impact Statement (EIS)—A statement required by the National Environmental Policy Act of 1969 (NEPA) or similar State law in relation to any major action significantly affecting the environment; a NEPA document.

Epifaunal—Animals living on the surface of hard substrate.

Essential Fish Habitat (EFH)—Defined under the Magnuson-Stevens Fishery Conservation and Management Act as waters and substrate that are necessary to the fish species for spawning, breeding, feeding, or growth to maturity.

Estuary—Coastal semienclosed body of water that has a free connection with the open sea and where freshwater meets and mixes with seawater.

Eutrophication—The process whereby an aquatic environment becomes rich in dissolved nutrients, causing excessive growth and decomposition of oxygen-depleting plant life and resulting in injury or death to other organisms.

Exclusive Economic Zone (EEZ)—The maritime region extending 200 nmi from the baseline of the territorial sea, in which the United States has exclusive rights and jurisdiction over living and nonliving natural resources.

Exploration—The process of searching for minerals. Exploration activities include: (1) geophysical surveys where magnetic, gravity, seismic, or other systems are used to detect or infer the presence of such minerals; and (2) any drilling, except development drilling, whether on or off known geological structures. Exploration also includes the drilling of a well in which a discovery of oil or natural gas in paying quantities is made, and the drilling, after such a discovery, of any additional well that is needed to delineate a reservoir and to enable the lessee to determine whether to proceed with development and production.

Exploration Plan (EP)—A plan that must be prepared by the operator and submitted to BOEMRE for approval before any exploration or delineation drilling is conducted on a lease.

Exploration well—A well drilled in unproven or semi-proven territory to determine whether economic quantities of oil or natural gas deposit are present; exploratory well.

- Fault**—A fracture in the earth’s crust accompanied by a displacement of one side of the fracture with respect to the other.
- Field**—An accumulation, pool, or group of pools of hydrocarbons in the subsurface. A hydrocarbon field consists of a reservoir in a shape that will trap hydrocarbons and that is covered by an impermeable, sealing rock.
- Fixed or bottom founded**—Permanently or temporarily attached to the seafloor.
- Flyway**—An established air route of migratory birds.
- Formation**—A bed or deposit sufficiently homogeneous to be distinctive as a unit. Each different formation is given a name, frequently as a result of the study of the formation outcrop at the surface and sometimes based on fossils found in the formation.
- Fugitive emissions**—Emission into the atmosphere that could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.
- Gathering lines**—A pipeline system used to bring oil or gas production from a number of separate wells or production facilities to a central trunk pipeline, storage facility, or processing terminal.
- Geochemical**—Of or relating to the science dealing with the chemical composition of and the actual or possible chemical changes in the crust of the earth.
- Geologic hazard**—A feature or condition that, if unmitigated, may seriously jeopardize offshore oil and gas exploration and development activities. Mitigation may necessitate special engineering procedures or relocation of a well.
- Geophysical**—Of or relating to the physics of the earth, especially the measurement and interpretation of geophysical properties of the rocks in an area.
- Geophysical data**—Facts, statistics, or samples that have not been analyzed or processed, pertaining to gravity, magnetic, seismic, or other surveys/systems.
- Geophysical survey**—A method of exploration in which geophysical properties and relationships are measured remotely by one or more geophysical methods.
- Habitat**—A specific type of environment that is occupied by an organism, a population, or a community.
- Halophytic**—A plant that can tolerate or thrive in alkaline soil rich in sodium or calcium salts; tolerant of saline (salty) conditions.
- Harassment**—Under the 1994 amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance which: has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or 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 but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B Harassment).
- Haulout area**—Specific locations where pinnipeds come ashore and concentrate in numbers to rest, breed, and/or bear young.
- Holocene Epoch**—A geologic time segment of the Quaternary Period, dating from the end of the Pleistocene Epoch, approximately 8,000 years ago until the present.
- Hydrocarbons**—Any of a large class of organic compounds containing primarily carbon and hydrogen. Hydrocarbon compounds are divided into two broad classes: aromatic and aliphatics. They occur primarily in petroleum, natural gas, coal, and bitumens.

- Hypothermia**—Condition in which body temperature drops below the level required for normal metabolism and/or bodily function to take place.
- Hypoxia**—Depressed levels of dissolved oxygen in water, usually resulting in decreased metabolism.
- Incidental take**—Takings that result from, but are not the purpose of, carrying out an otherwise lawful activity (e.g., fishing) conducted by a Federal agency or applicant (see Taking).
- Indigenous**—Originating where it is found. Refers to species or peoples found locally and from the local area.
- Indirect effects**—Effects caused by activities that are stimulated by an action but not directly related to it.
- Industry infrastructure**—The facilities associated with oil and gas development, e.g., refineries, gas processing plants, etc.
- Indirect employment**—Secondary or supporting oil- and gas-related industries, such as the processing of crude oil and gas in refineries, natural gas plants, and petrochemical plants.
- Intertidal**—The zone between the high and low water marks.
- Invertebrate**—An animal without a backbone or spinal column, such as an insect.
- Isobath**—Line connecting points of equal water depth on a nautical chart; a seabed contour.
- Jackup rig**—A barge-like, floating platform with legs at each corner that can be lowered to the sea bottom to raise the platform above the water.
- Lagoon**—A water body often separated from ocean water exchange, with enclosure as a defining characteristic.
- Lease**—Authorization that is issued under and that authorizes exploration for, and development and production of, minerals. Lease means an agreement that is issued under Section 8 or maintained under Section 6 of the Outer Continental Shelf Lands Act and that authorizes exploration for, and development and production of, minerals. The term also means the area covered by that authorization, whichever the context requires.
- Lease sale**—The competitive auction of leases granting companies or individuals the right to explore for and develop certain minerals under specified conditions and periods of time.
- Lease term**—The initial period for oil and gas leases, usually a period of 5, 8, or 10 years depending on water depth or potentially adverse conditions.
- Lessee**—A party who has entered into a lease with the United States to explore for, develop, and produce the leased minerals.
- Lightering**—Smaller boats supplying larger boats with supplies and/or carrying fuel; lightering operations include transfers within the vessel, to lightering barges, or if necessary, into the sea.
- Lithic**—Of or pertaining to stone.
- Macondo Oil Spill**—The name given to the oil spill that resulted from the explosion and sinking of the *Deepwater Horizon* rig from the period between April 24, 2010, when search and recovery vessels on site reported oil at the sea surface until uncontrolled flow from the Macondo well was capped.
- Marshes**—Persistent, emergent, nonforested wetlands characterized by predominantly cordgrasses, rushes, and cattails.
- Migratory bird**—Any mutation or hybrid of a listed species, as well as any part, egg, or nest of such bird. Protected under the Migratory Bird Treaty Act.

- Minerals**—As used in this document, minerals include oil, gas, sulphur, and associated resources, and all other minerals authorized by an Act of Congress to be produced from public lands as defined in Section 103 of the Federal Land Policy and Management Act of 1976.
- Mollusk**—An invertebrate having a soft unsegmented body, usually enclosed in a shell. Also a group of freshwater and saltwater animals, including oysters, clams, mussels, snails, conches, scallops, squid, and octopus.
- Mysticete**—A whale that has baleen (plates of keratinized tissue that hang from the upper jaw) instead of teeth (suborder Mysticeti). Examples include the humpback whale (*Megaptera novaeangliae*), gray whale (*Eschrichtius robustus*), and minke whale (*Balaenoptera acutorostrata*).
- Nautical mile**—A distance measurement equivalent to 1.15 statutory miles, or 1.8 kilometers.
- Nearshore waters**—Offshore open waters that extend from the shoreline out to the limit of the territorial seas (twelve nautical miles).
- Nonattainment area**—An area that is shown by monitoring data or by air-quality modeling calculations to exceed primary or secondary ambient air quality standards established by the USEPA.
- Odontocete**—Toothed marine mammals (suborder Odontoceti). Examples include the sperm whale (*Physeter macrocephalus*), beluga whale (*Delphinapterus leucas*), harbor porpoise (*Phocoena phocoena*), and bottlenose dolphin (*Tursiops truncatus*).
- Offloading**—Unloading liquid cargo, crude oil, or refined petroleum products.
- Offshore**—In beach terminology, the comparatively flat zone of variable width, extending from the shore to the edge of the continental shelf. It is continually submerged. Also the breaker zone directly seaward of the low tide line.
- Oil spill contingency plan**—A plan submitted by the lease or unit operator along with or prior to a submission of a plan of exploration or a development/production plan that details provisions for fully defined specific actions to be taken following discovery and notification of an oil spill occurrence.
- Operational discharge**—Any incidental pumping, pouring, emitting, emptying, or dumping of wastes generated during routine offshore drilling and production activities.
- Operator**—An individual, partnership, firm, or corporation having control or management of operations on a leased area or portion thereof. The operator may be a lessee, designated agent of the lessee, or holder of operating rights under an approved operating agreement.
- Organic matter**—Material derived from living plants or animals.
- Outer Continental Shelf (OCS)**—All submerged lands that comprise the continental margin adjacent to the United States and seaward of State offshore lands.
- Pelagic**—Of or pertaining to the open sea; associated with open water beyond the direct influence of coastal systems.
- Perturbation**—A secondary influence on a system that causes it to deviate.
- Plankton**—Passively floating or weakly motile aquatic plants (phytoplankton) and animals (zooplankton).
- Pathology**—The scientific study of the nature of disease and its causes, processes, development, and consequences.
- Phocid**—True or earless seals (family Phocidae). Examples include the bearded seal (*Erignathus barbatus*) and ringed seal (*Phoca hispida*).

- Phytoplankton**—Microscopic floating aquatic plants that produce their own nutrients through photosynthesis.
- Pinniped**—Aquatic carnivorous mammals having a streamlined body specialized for swimming with limbs modified as flippers, for example, seals.
- Platform**—A steel or concrete structure from which offshore development wells are drilled.
- Plankton**—Very small, free-floating organisms of the ocean or other aquatic systems, including phytoplankton and zooplankton, which get their nutrients from organisms.
- Play**—A prospective subsurface area for hydrocarbon accumulation that is characterized by a particular structural style or depositional relationship.
- Plume**—A narrow thermal feature, which can be either hot or cold, that rises or sinks because of its anomalous temperature compared to the surrounding fluid.
- Polychaete**—A class of mainly marine annelids, characterized by parapodia bearing numerous hairs; for example, bristle worm.
- Polychlorinated Biphenyls (PCBs)**—A group of toxic, carcinogenic organic compounds previously used for industrial purposes.
- Polycyclic Aromatic Hydrocarbon (PAH)**—Chemical compounds that consist of fused aromatic rings; many are known or suspected carcinogens.
- Potential impact (effect)**—The range of alterations or changes to environmental conditions that could be caused by an action.
- Primary production**—Organic material produced by photosynthetic or chemosynthetic organisms.
- Produced water**—Total water discharged from the oil and gas extraction process; production water or production brine.
- Production**—Activities that take place after the successful completion of any means for the extraction of resources, including bringing the resource to the surface, transferring the produced resource to shore, monitoring operations, and drilling additional wells or workovers.
- Promulgated**—Formally made public; published accounts.
- Prospect**—An untested geologic feature having the potential for trapping and accumulating hydrocarbons.
- Province**—A spatial entity with common geologic attributes. A province may include a single dominant structural element such as a basin or a fold belt, or a number of contiguous related elements.
- Refining**—Fractional distillation of petroleum, usually followed by other processing (for example, cracking).
- Relief**—The difference in elevation between the high and low points of a surface.
- Reserves**—Proved oil or gas resources.
- Reservoir**—A subsurface, porous, permeable rock body in which hydrocarbons have accumulated.
- Rig**—A structure used for drilling an oil or gas well.
- Right-of-way**—A legal right of passage, an easement; the specific area or route for which permission has been granted to place a pipeline, (and) ancillary facilities, and for normal maintenance thereafter.
- Rookery**—The nesting or breeding grounds of gregarious (i.e., social) birds or mammals; also a colony of such birds or mammals.

- Royalty**—A share of the minerals produced from a lease paid in either money or “in-kind” to the landowner by the lessee.
- Sale area**—The geographic area of the Outer Continental Shelf (OCS) being offered for lease for the exploration, development, and production of mineral resources.
- Scoping**—The process prior to Environmental Impact Statement (EIS) preparation to determine the range and significance of issues to be addressed in the EIS for each proposed major federal action.
- Seagrass beds**—More or less continuous mats of submerged, rooted marine flowering vascular plants occurring in shallow tropical and temperate waters. Seagrass beds provide habitat, including breeding and feeding grounds, for adults and/or juveniles of many of the economically important shellfish and finfish.
- Seismic**—Pertaining to, characteristic of, or produced by water, earthquakes or earth vibration; having to do with elastic waves in the earth; also geophysical when applied to surveys.
- Sediment**—Material that has been transported and deposited by water, wind, glacier, precipitation, or gravity; a mass of deposited material.
- Seeps (hydrocarbon)**—Gas or oil that reaches the surface along bedding planes, fractures, unconformities, or fault planes.
- Sensitive area**—An area containing species, populations, communities, or assemblages of living resources, that is susceptible to damage from normal OCS-related activities. Damage includes interference with established ecological relationships.
- Stranding**—Defined under the MMPA as “an event in the wild in which (A) a marine mammal is dead and is (i) on a beach or shore of the United States; or (ii) in waters under the jurisdiction of the United States (including any navigable waters); or (B) a marine mammal is alive and is (i) on a beach or shore of the United States and is unable to return to the water; (ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or (iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance.”
- Stipulations**—Specific measures imposed upon a lessee that apply to a lease. Stipulations are attached as a provision of a lease; they may apply to some or all tracts in a sale. For example, a stipulation might limit drilling to a certain time period of the year or certain areas.
- Subarea**—A discrete analysis area.
- Subsistence uses**—The customary and traditional uses by rural residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for making and selling of handcraft articles out of nonedible byproducts of fish and wildlife resources take for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.
- Substrate**—Any stratum lying underneath another.
- Supply vessel**—A boat that ferries food, water, fuel, and drilling supplies and equipment to an offshore rig or platform and returns to land with refuse that cannot be disposed of at sea.
- Take**—In the Marine Mammal Protection Act, meaning “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” In the Endangered Species Act, the definition includes to harass, harm, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. A notable component of this definition is “harm,” which means an act that actually kills or injures protected wildlife. Such acts may include significant habitat modification

or degradation that actually kills or injures wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering.

Tertiary—A geologic period dating from 63 million to 2 million years ago.

Threatened species—Defined under the Endangered Species Act as “any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.”

Total suspended solids—The total amount of suspended solids in water.

Turbidity—Reduced water clarity due to the presence of suspended matter.

Trawling—The operation of towing a net (trawl) to catch fish and/or shellfish. Trawls are towed either with bottom contact or in midwater. The towing speed varies, according to such factors as the type of trawl and trawling and the target species.

Trophic—Trophic levels refer to the hierarchy of organisms from photosynthetic plants to carnivores, such as man; feeding trophic levels refer to the hierarchy of organisms from photosynthetic plants to carnivores in which organisms at one level are fed upon by those at the next higher level (e.g., phytoplankton eaten by zooplankton eaten by fish).

Turbidity—Reduced water clarity resulting from the presence of suspended matter.

Upwelling—Divergence of water currents or the movement of surface water away from land, leading to upward movement of cold nutrient-rich water from the ocean depths; often associated with great production of fish and fisheries.

Volatile organic compound (VOC)—Any reactive organic compound that is emitted to the atmosphere as a vapor. The definition does not include methane.

Weathering (of oil)—The aging of oil due to its exposure to the atmosphere, causing marked alterations in its physical and chemical makeup.

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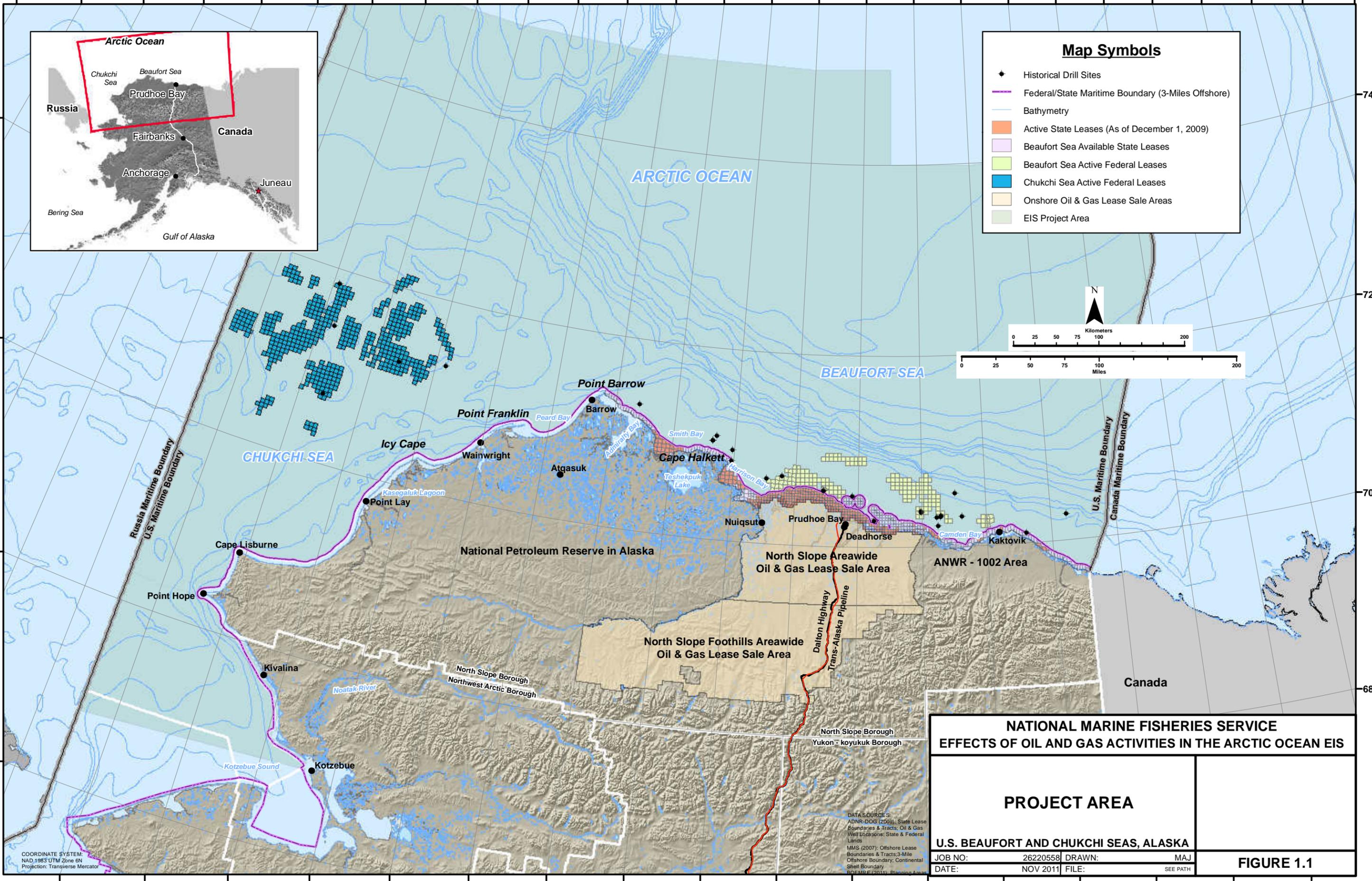
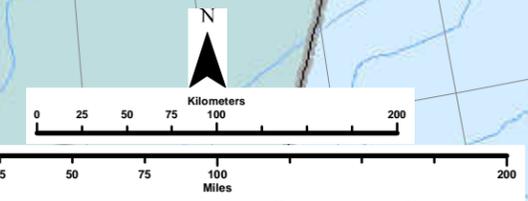
CHAPTER 1 FIGURES

180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W



Map Symbols

- ◆ Historical Drill Sites
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- Onshore Oil & Gas Lease Sale Areas
- EIS Project Area



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PROJECT AREA

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

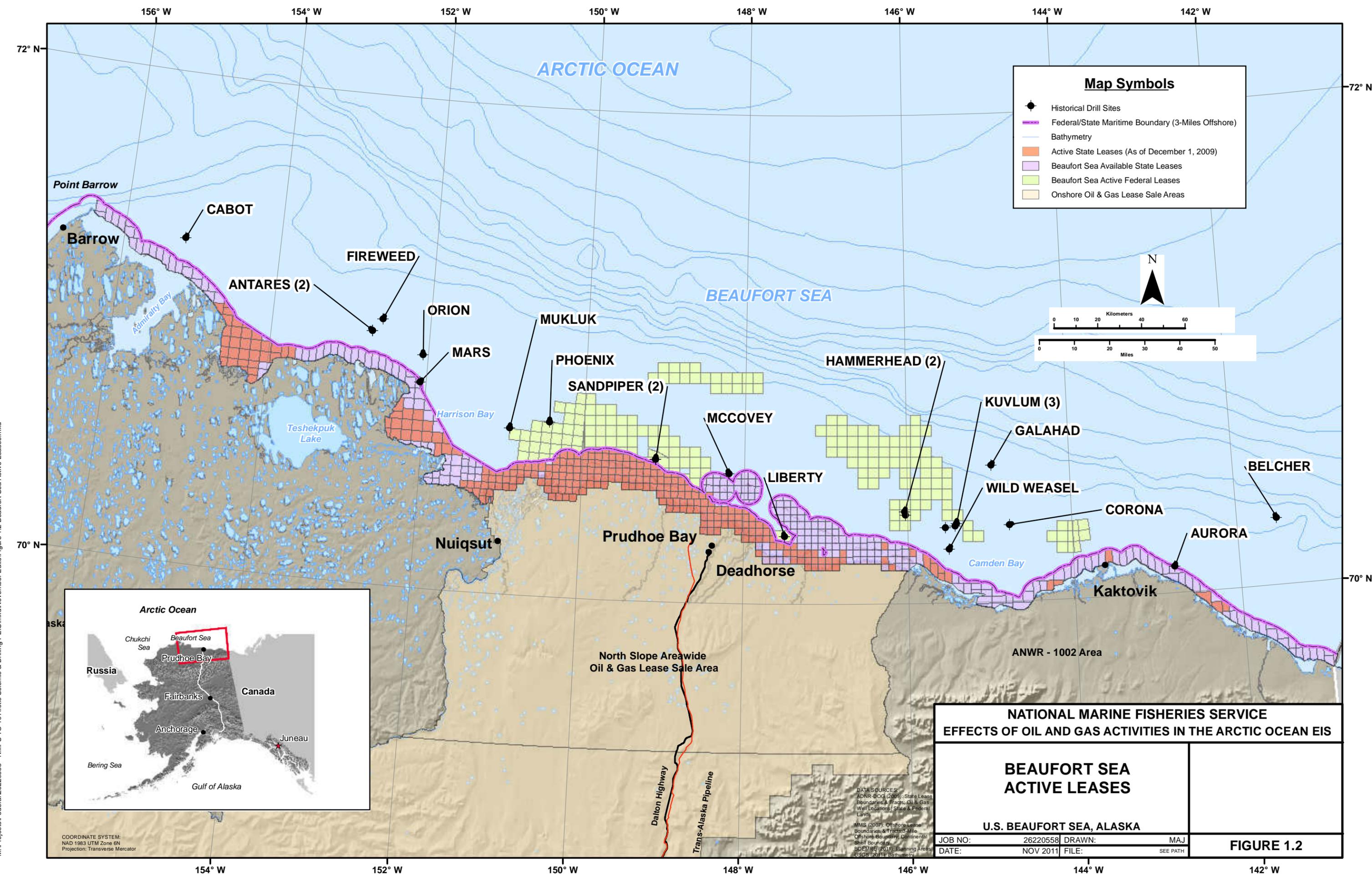
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DATA SOURCES:
 ADNR-DOG (2009), State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007), Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011), Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 1.1 Project Area.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W



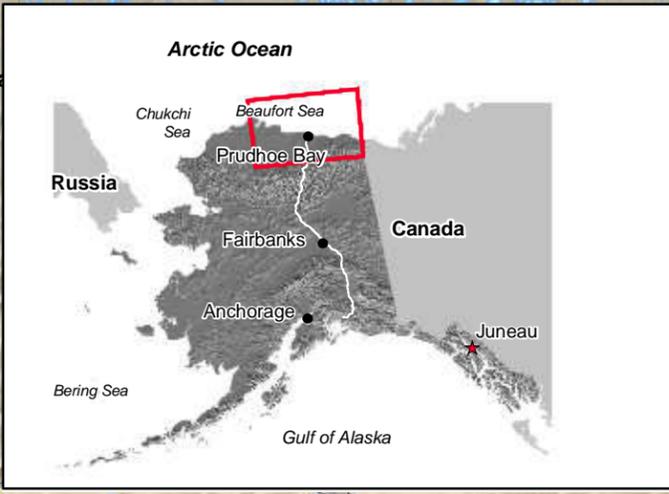
Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas

N

0 10 20 40 60
Kilometers

0 10 20 30 40 50
Miles



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BEAUFORT SEA
ACTIVE LEASES

U.S. BEAUFORT SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

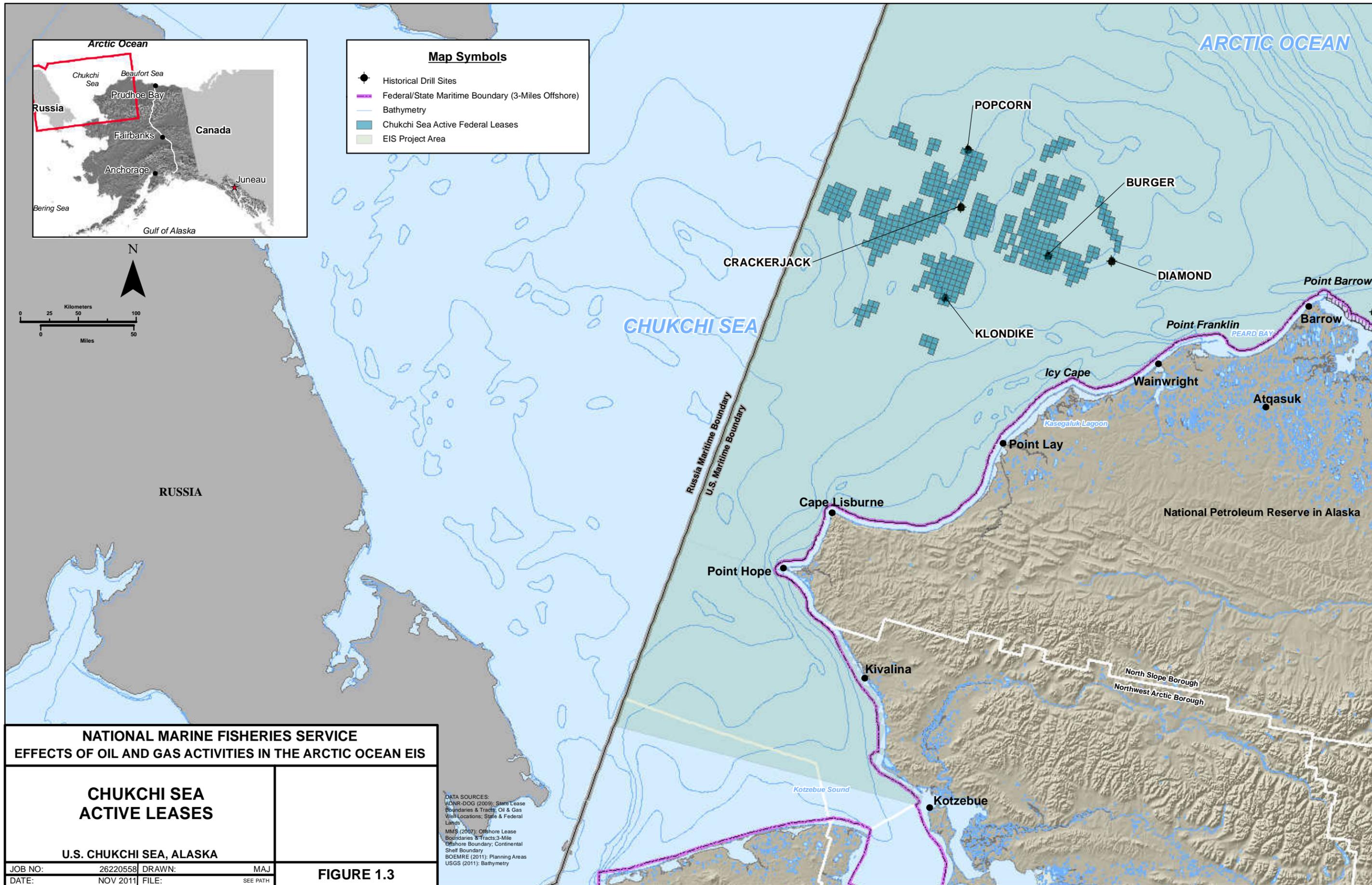
FIGURE 1.2

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR-BOG (2009): State Lease
 Boundaries & Tracts; Oil & Gas
 Well Locations; State & Federal
 Lands
 MMS (2007): Offshore Lease
 Boundaries & Tracts; 3-Mile
 Offshore Boundary; Continental
 Shelf Boundary
 BOENRE (2011): Planning Areas
 USGS (2011): Bathymetry

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 1.2 Beaufort Sea Active Leases.mxd

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CHAPTER 2 FIGURES

Figure 2.1 Simple Illustration of a Marine Seismic Survey Operation using Streamers.

Source: USDO, MMS 2006a

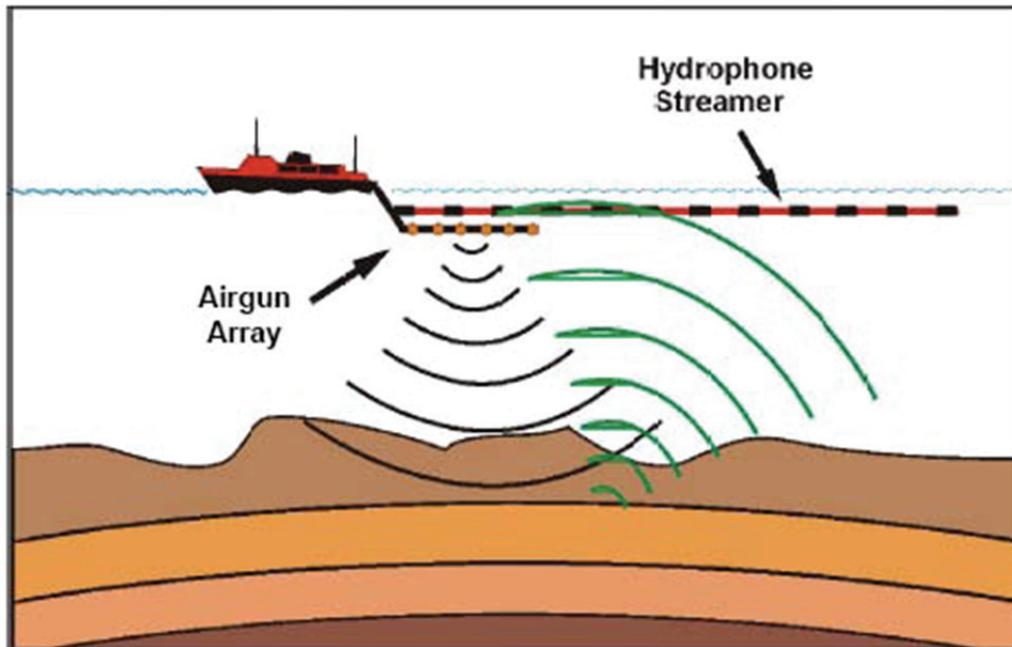


Figure 2.2 Illustration of Ocean Bottom Cable survey.

Source: Schlumberger 2011

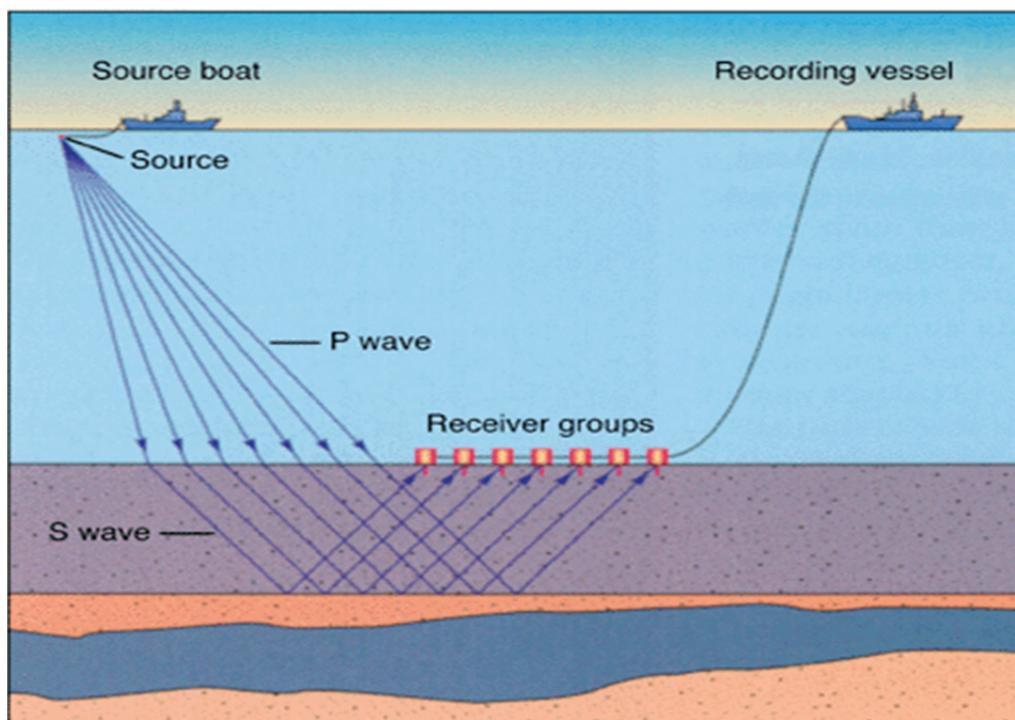


Figure 2.3 Schematic view of a Controlled Source Electromagnetic (CSEM) survey.

A horizontal electric dipole is towed above receivers that are deployed on the seafloor.

Source: 2010 Electromagnetic Geoservices ASA

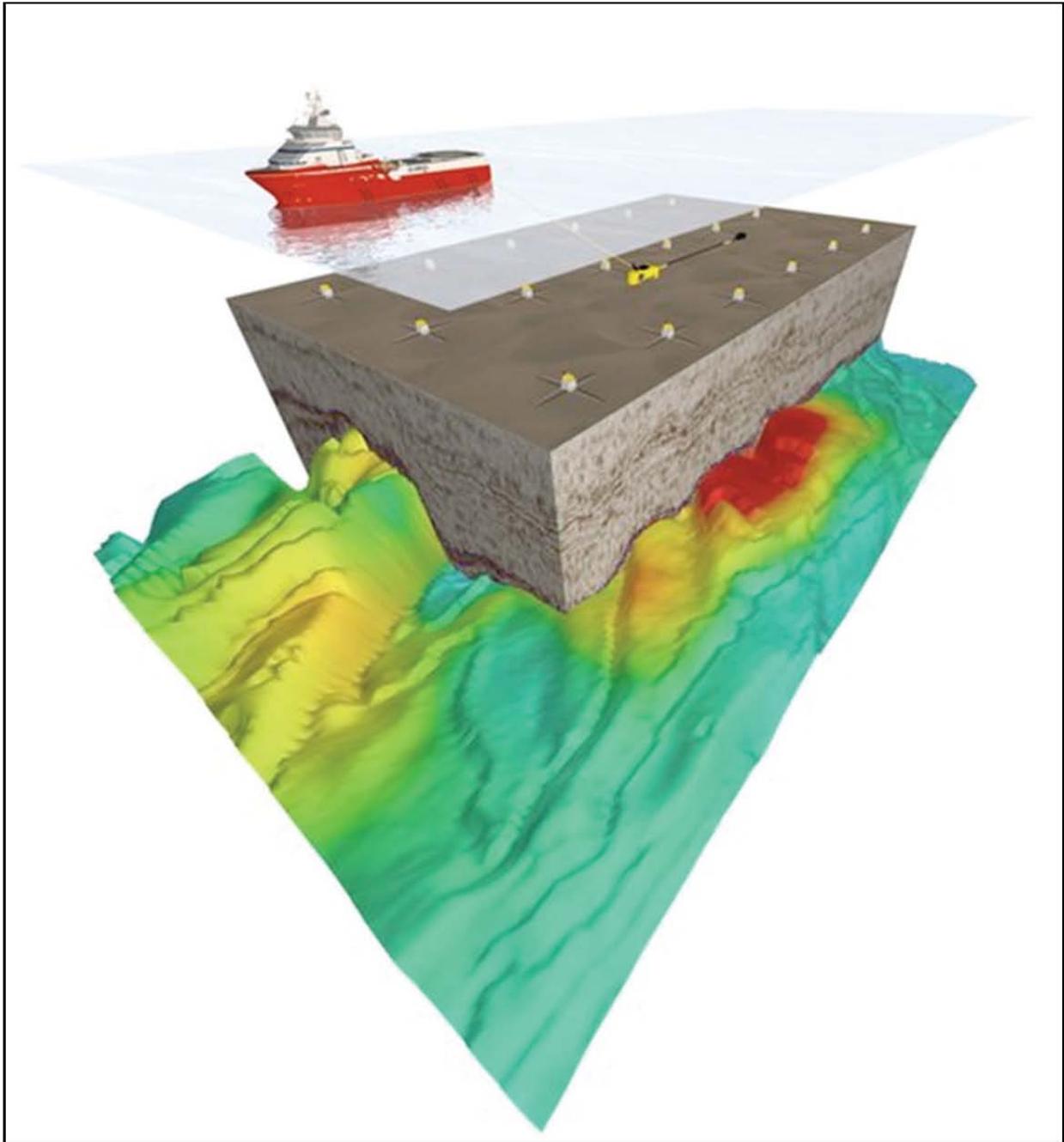


Figure 2.4 SDC operating in the Beaufort Sea.

Source: ICETECH 2010 Conference



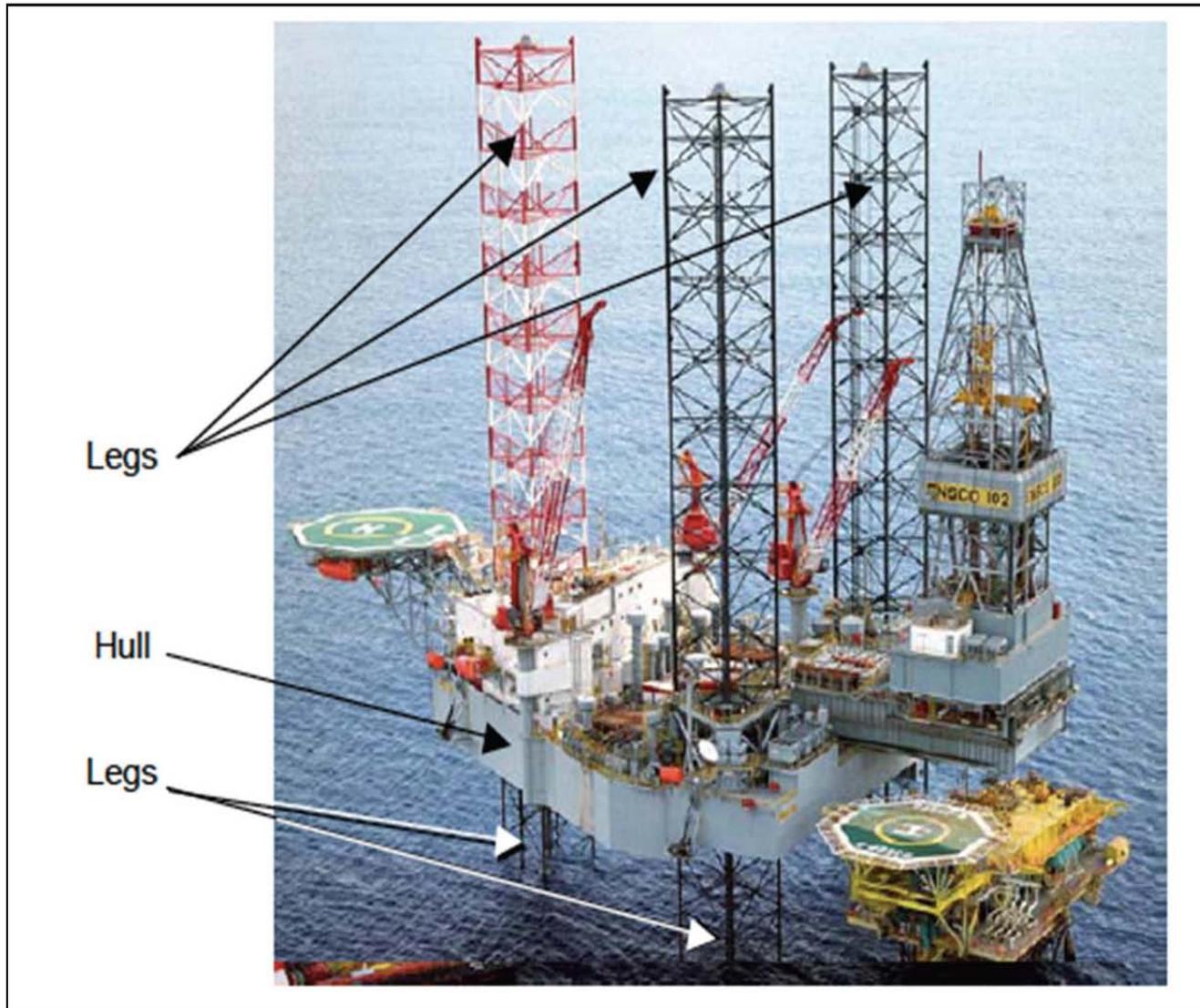
Figure 2.5 M/V Noble Discoverer.

Source: Shell Inc. 2010a



Figure 2.6 *Jackup Rig.*

Source: Bennet & Associates LLC and Offshore Technology Development Inc. 2011



CHAPTER 3 FIGURES

Figure 3.1-1 General circulation map of the Beaufort and Chukchi seas.

Source: Weingartner and Danielson 2010

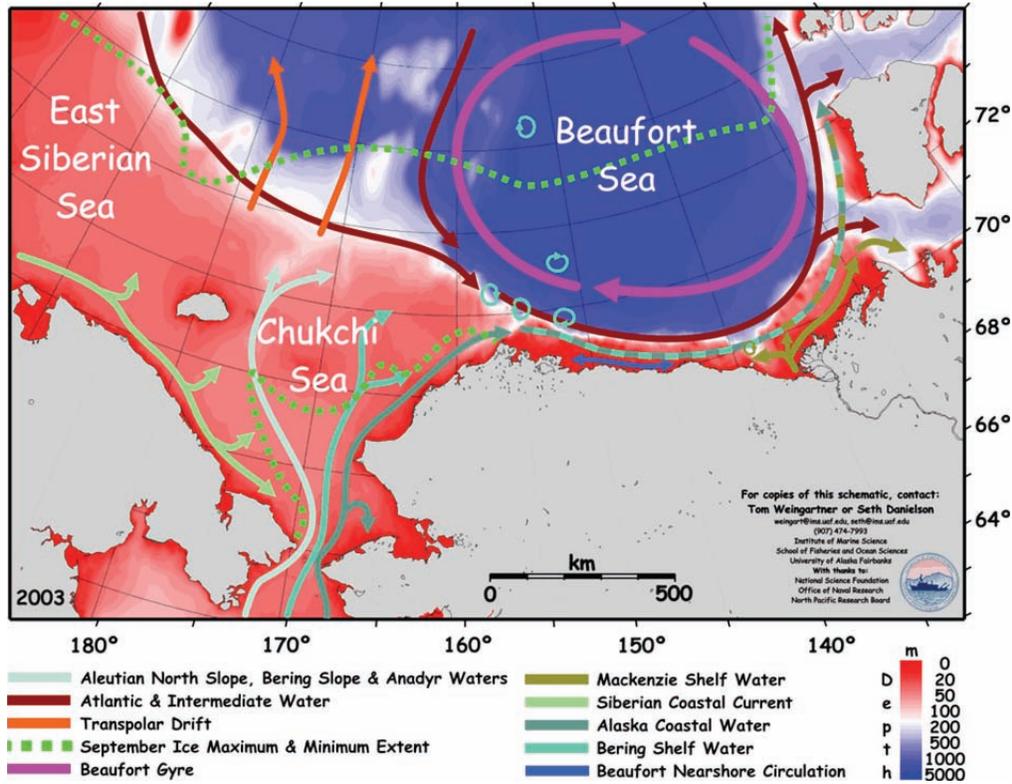


Figure 3.1-2 Bathymetry of the Beaufort Sea, with place names indicated.

Source: Weingartner 2008

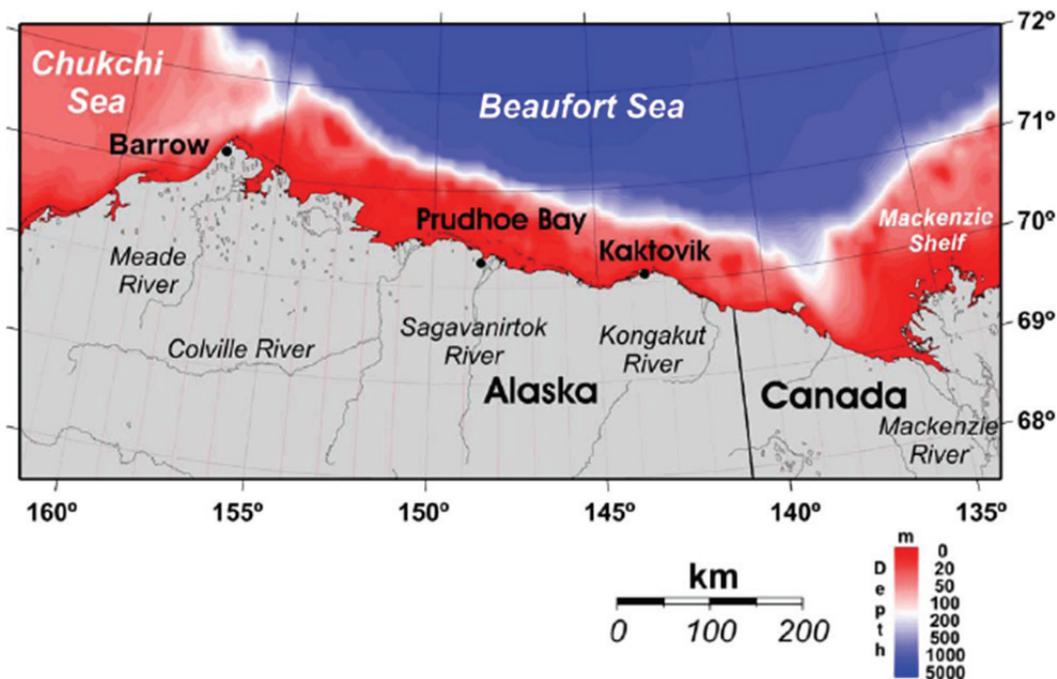


Figure 3.1-3 Schematic circulation map of the Beaufort and Chukchi shelves showing the flow of Bering Strait water through the Chukchi Sea along three principal pathways that are associated with distinct bathymetric features: the Herald Valley, the Central Channel, and Barrow Canyon.

Source: Weingartner and Danielson 2010

Three branches of the inflowing Pacific water are color-coded with navy blue (Anadyr Water) being the most nutrient-rich water and light blue (Alaska Coastal Water) being the least nutrient-rich. The Siberian Coastal Current (green) is present in summer and fall, but absent or weak in winter and spring. On the continental slope, the Pacific-origin water encounters Atlantic-origin Water (red) which is flowing counter-clockwise around the Arctic basin. Offshore of the slope, in the interior of the Canada Basin, is the clockwise wind-driven flow of the Beaufort Gyre (purple)

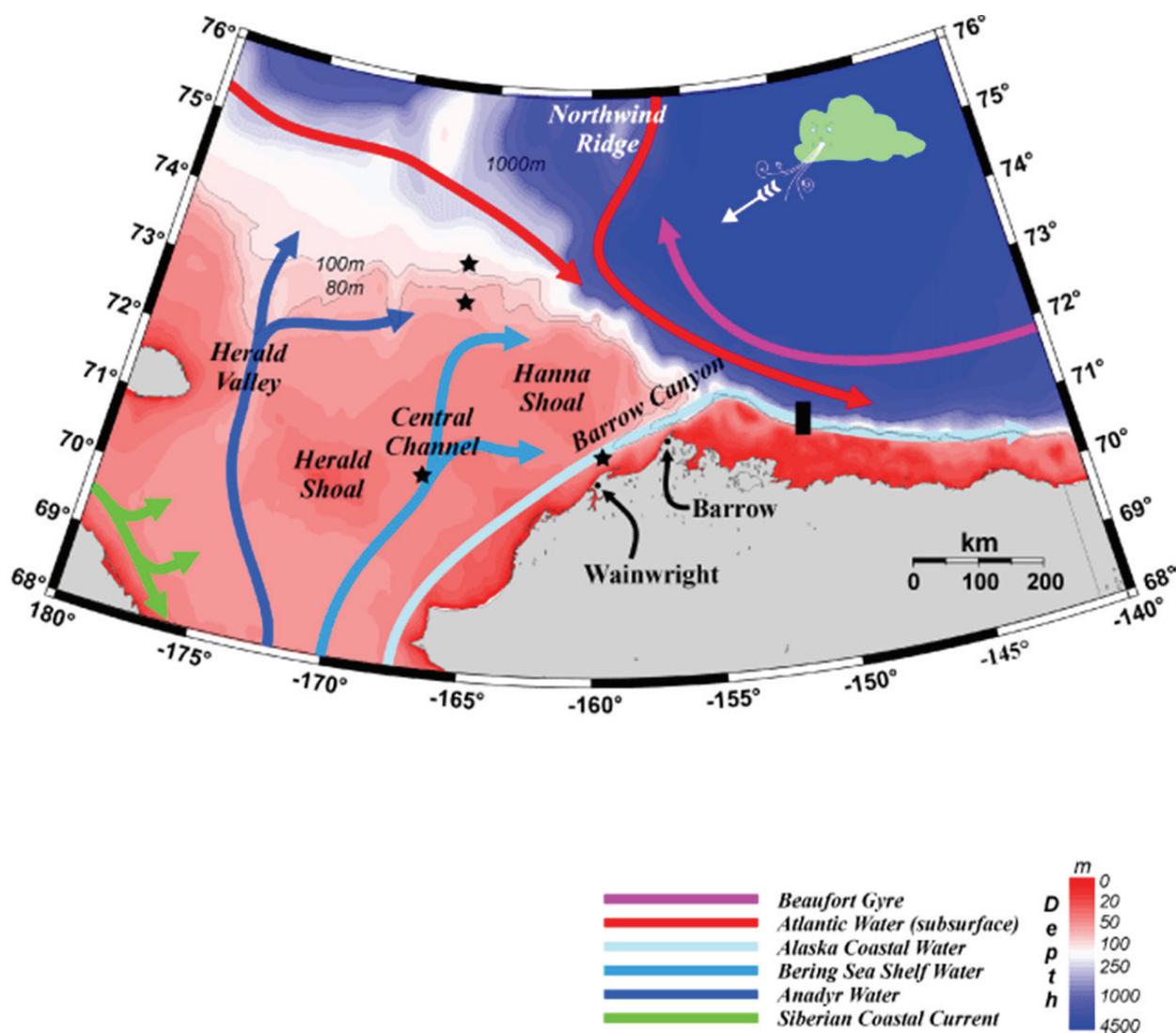
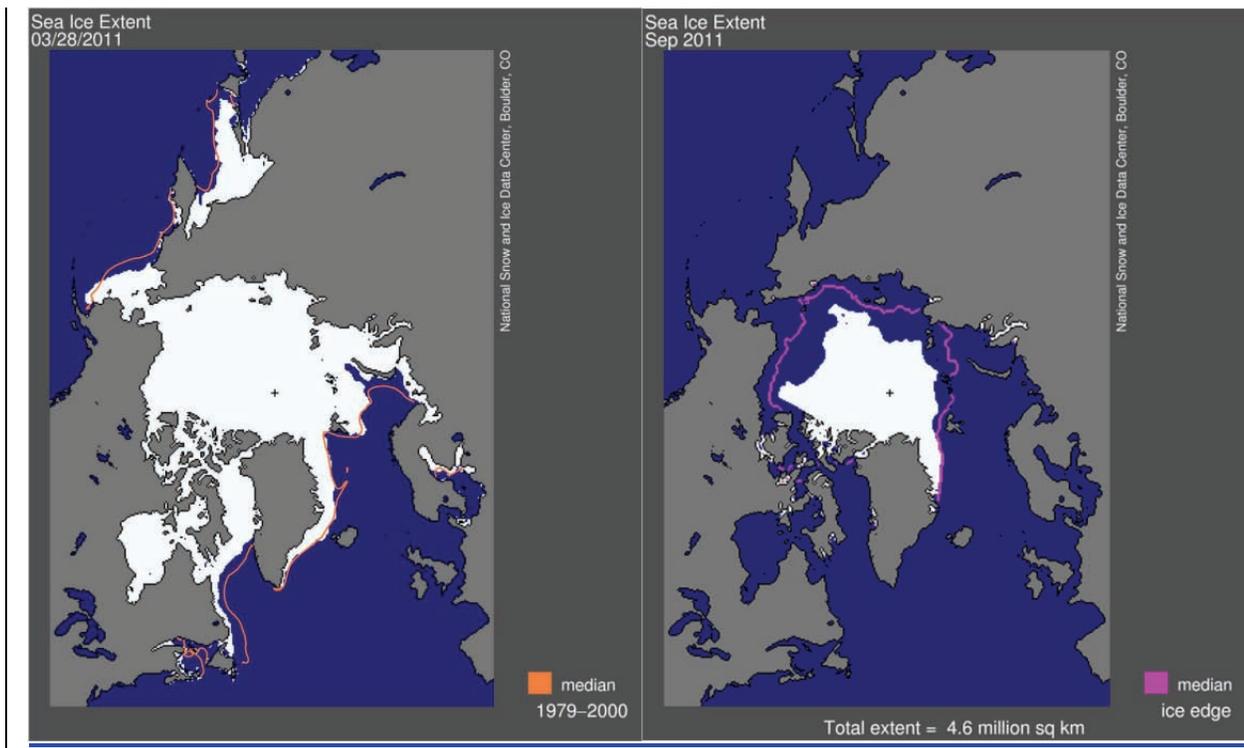


Figure 3.1-4 a) Sea Ice Extent March 2011 and September 2011. b) Average Monthly Arctic Sea Ice Extent March 1979 – 2011 and September 1979 – 2011.

Sources: NSIDC, 2011a,b

a) Map shows the maximum sea ice extent (in white) for March 2011, and also the median sea ice extent (red line) for the period 1979–2000. Graph shows the average monthly sea ice extent over the period 1979–2011.



b) Map shows the minimum sea ice extent (in white) for September 2011, and the median sea ice extent (red line) for the period 1979–2000. Graph shows the average monthly sea ice extent over the period 1979–2011.

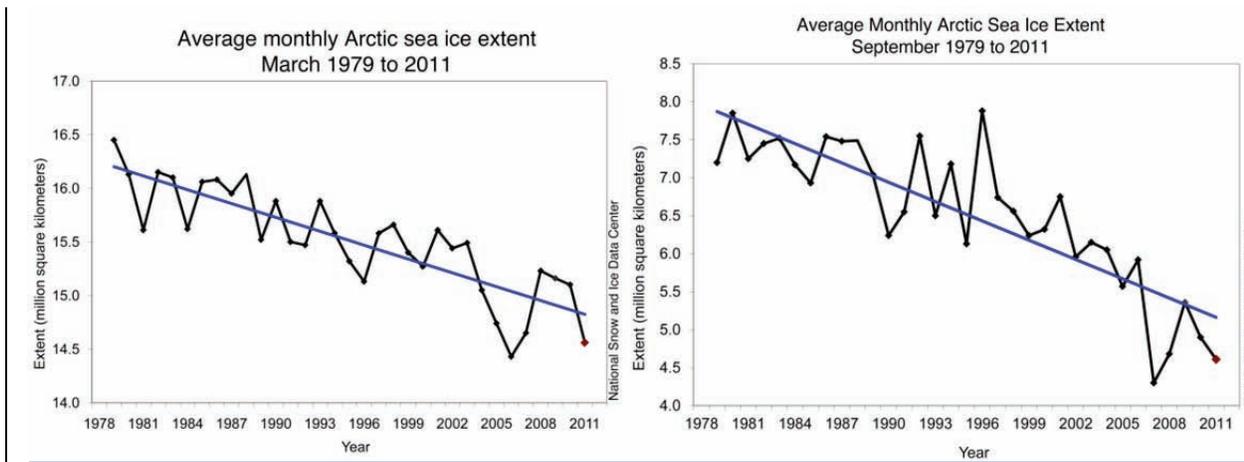


Figure 3.1-5 Sound Level Metrics.

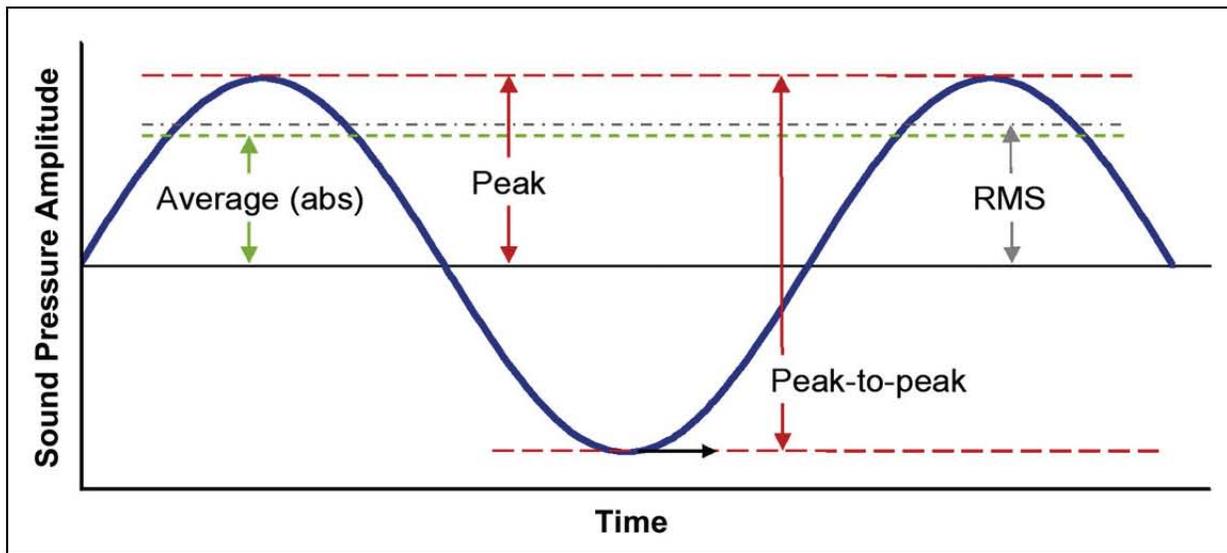


Figure 3.1-6a An audiogram of human hearing.

Source: Discovery of Sound in the Sea 2011

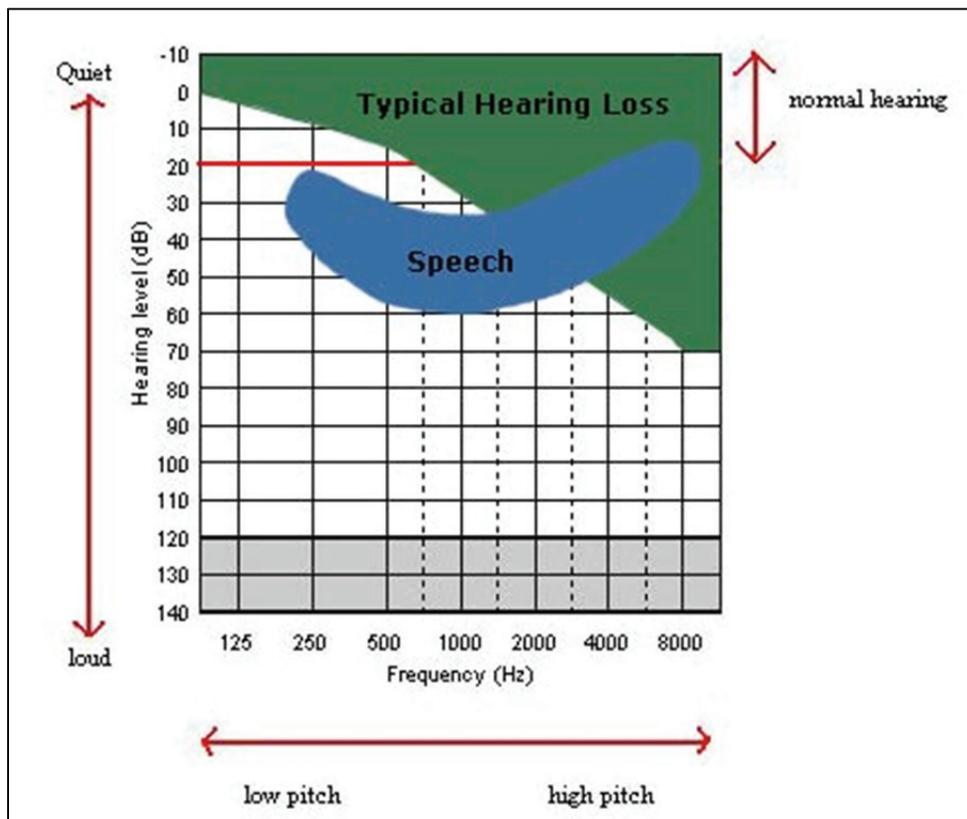


Figure 3.1-6b Graphic showing A-weighting function for human hearing.

Source: Harris 1998

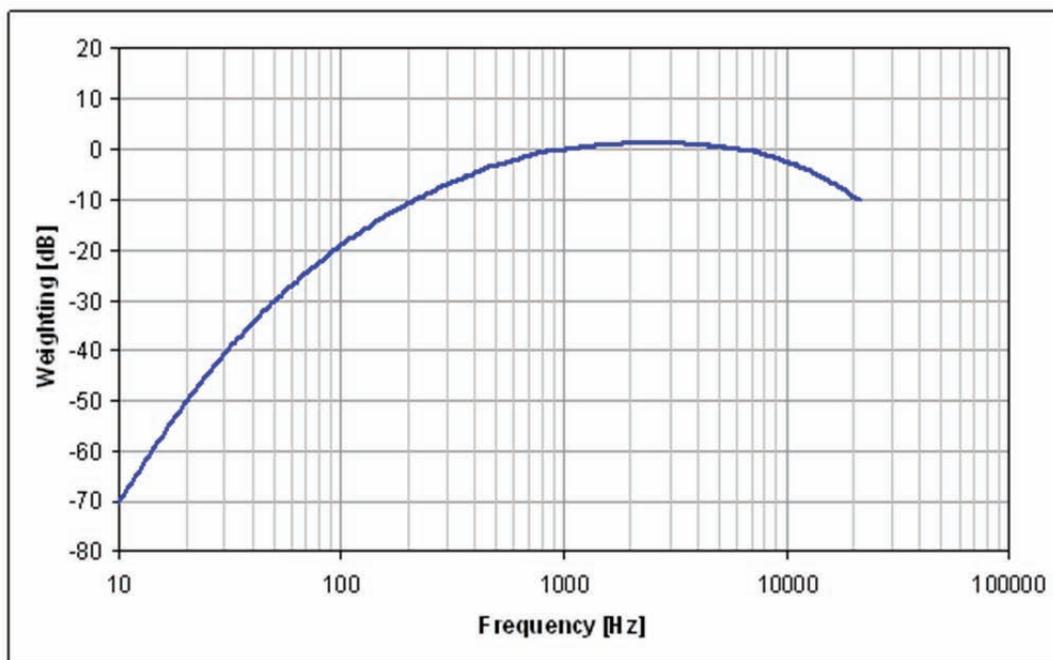


Figure 3.1-7 Hearing curves for some marine mammals in water and a typical human in air.

Source: Discovery of Sound in the Sea 2011

There are two sets of y-axes (vertical) because different reference pressures are used to measure sound in water (re 1 μPa ; left axis) vs in air (re 20 μPa ; right axis). Notice that the decibel values differ by 61.5 dB for the same value of intensity (watts/ m^2). The x-axis (horizontal) is the frequency of a sound on a logarithmic scale.

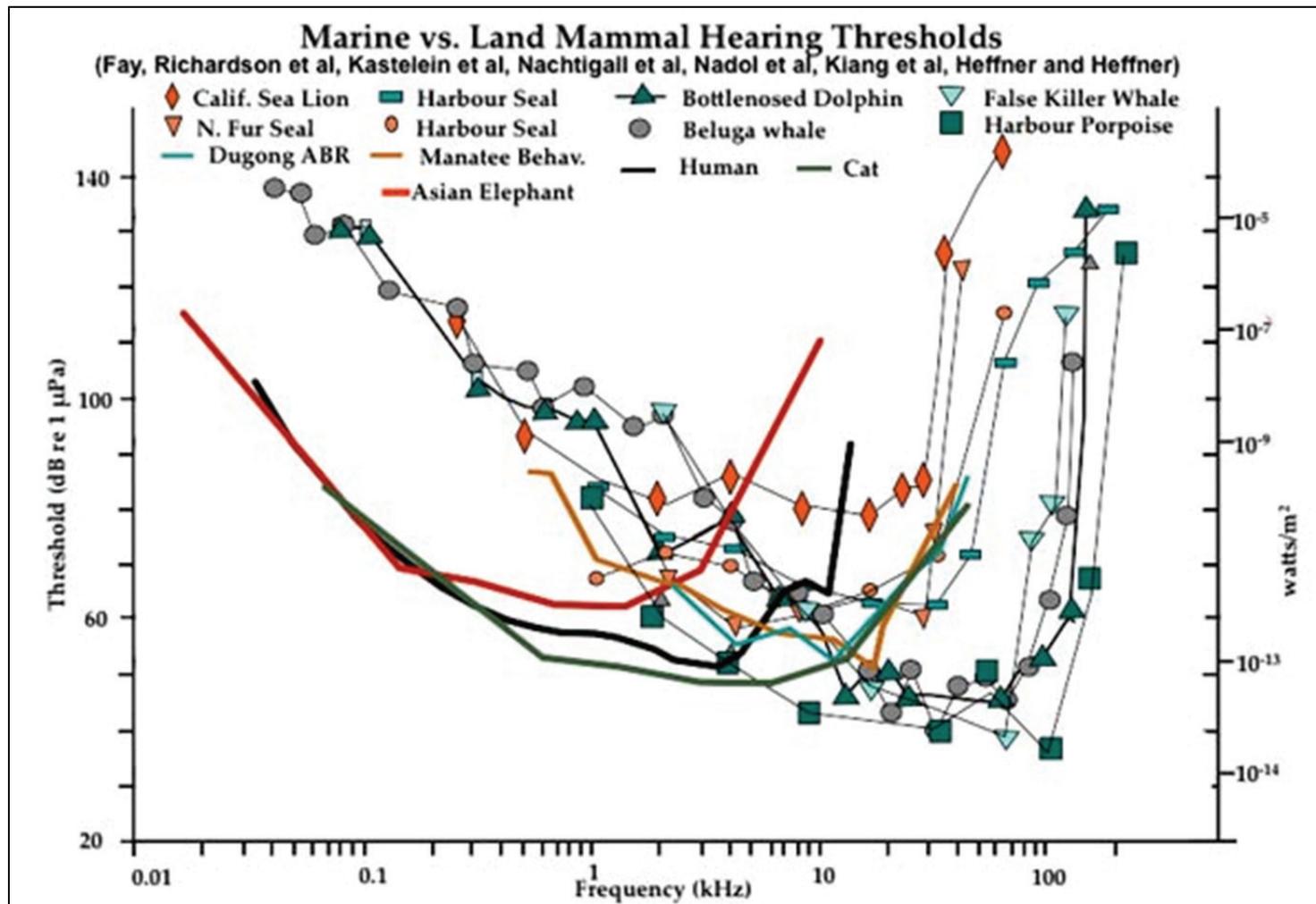


Figure 3.1-8 Graphic showing M-weighting functions for marine mammal hearing for (A) low, mid, and high frequency cetaceans, and (B) for pinnipeds in water and air.

Source: Southall et al. (2007)

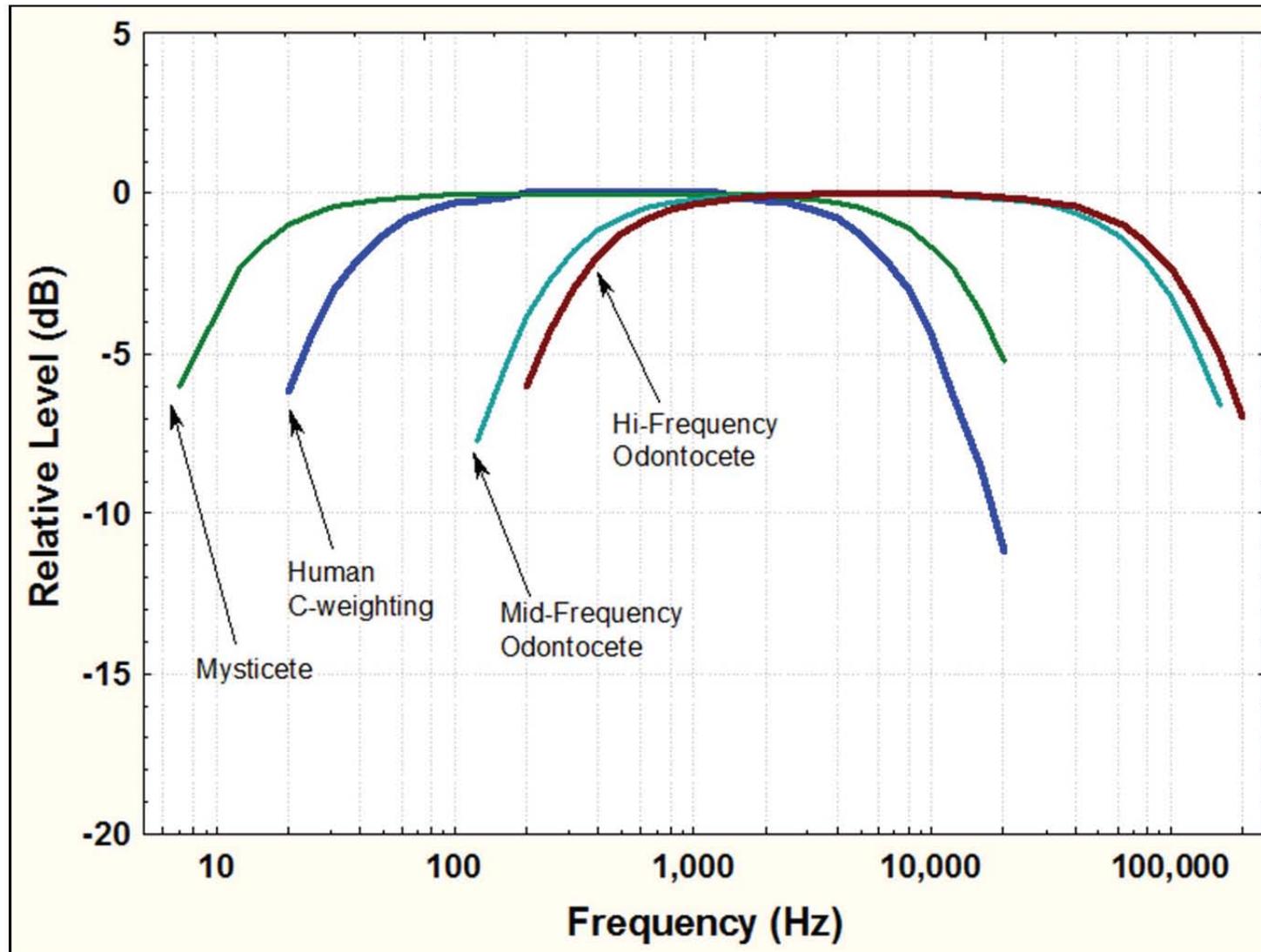


Figure 3.1-9 Prevailing underwater sound levels.

Source: NRC 2003a

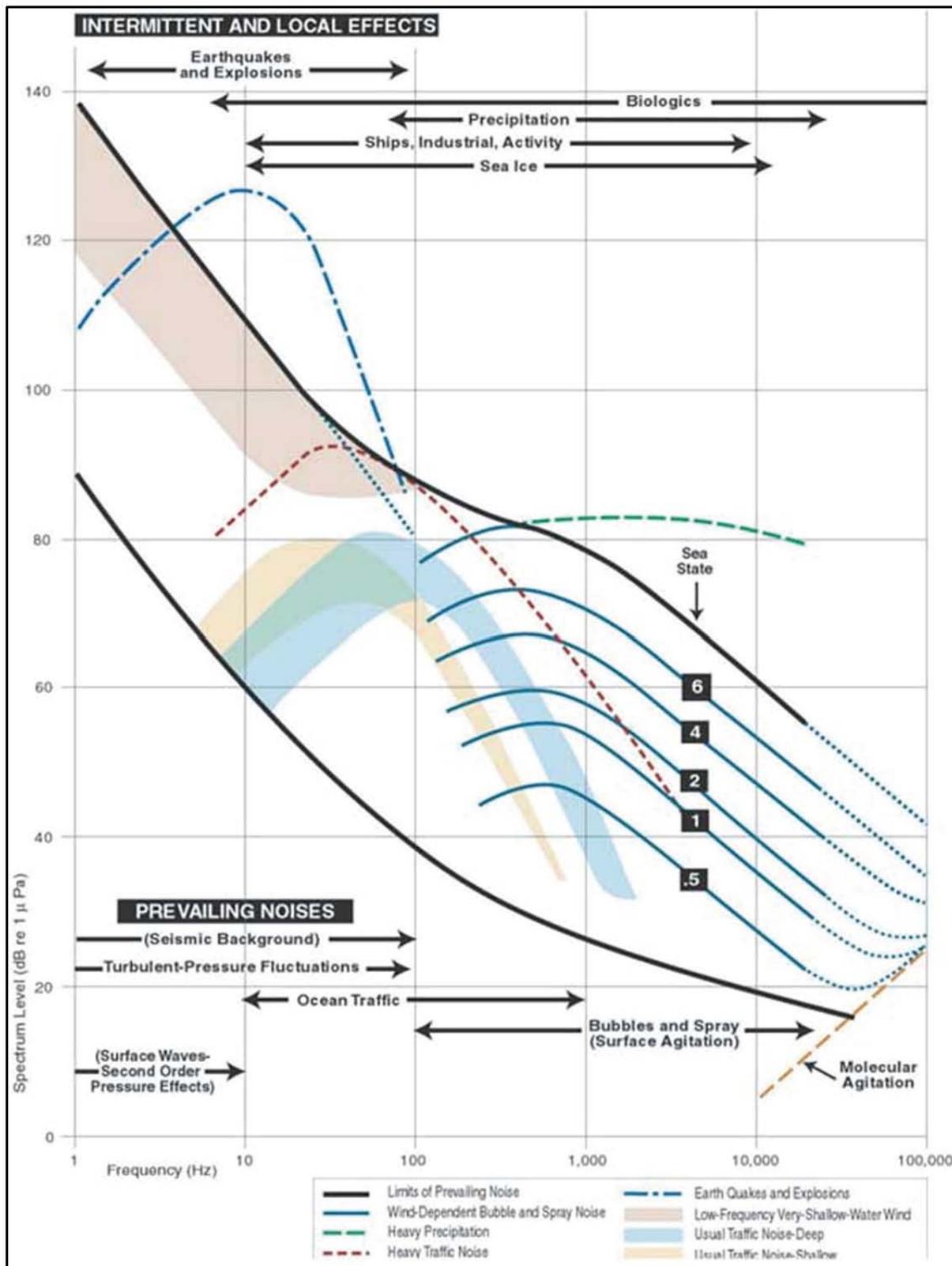
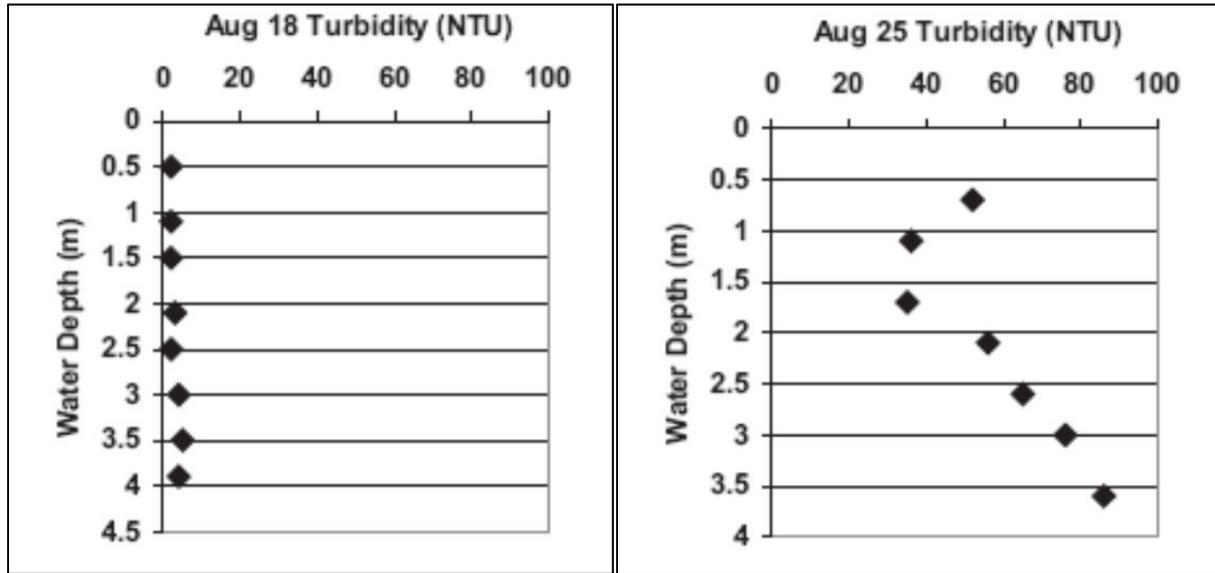


Figure 3.1-10 Depth profiles of natural turbidity levels measured in the nearshore Alaskan Beaufort Sea in 1999.

Source: Boehm 2001

Profile (a) shows turbidity levels before a storm event; profile (b) shows turbidity levels immediately following a storm event

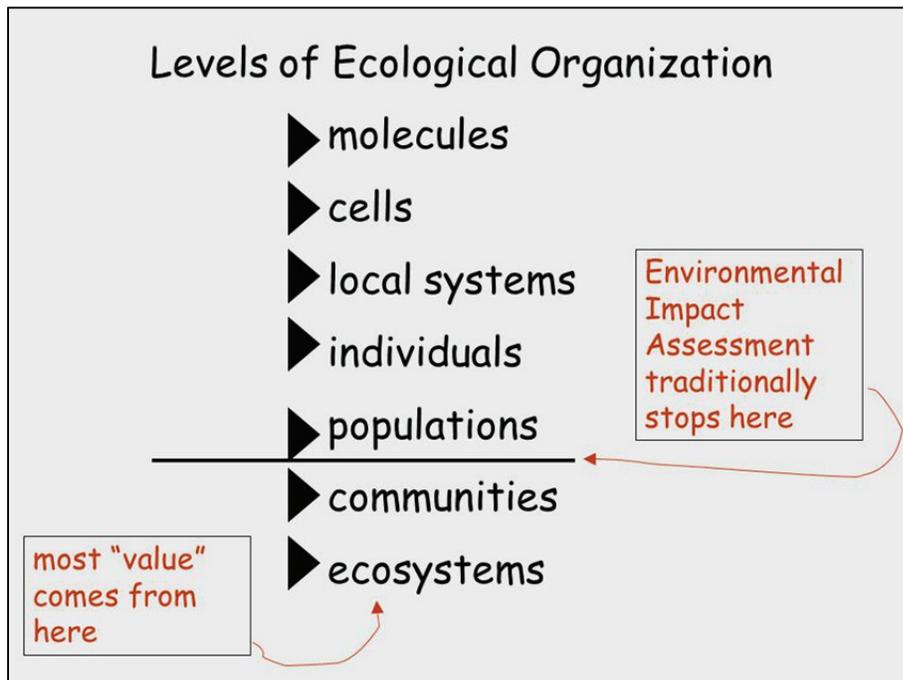


(a)

(b)

Figure 3.1-11 Levels of Ecological Organization.

The dose-response model traditionally used in environmental impact assessment only considers the effects of stressors on individuals or populations. However, the value of ecosystem goods and services is usually derived from interactions among physical, chemical, and biological ecosystem components.

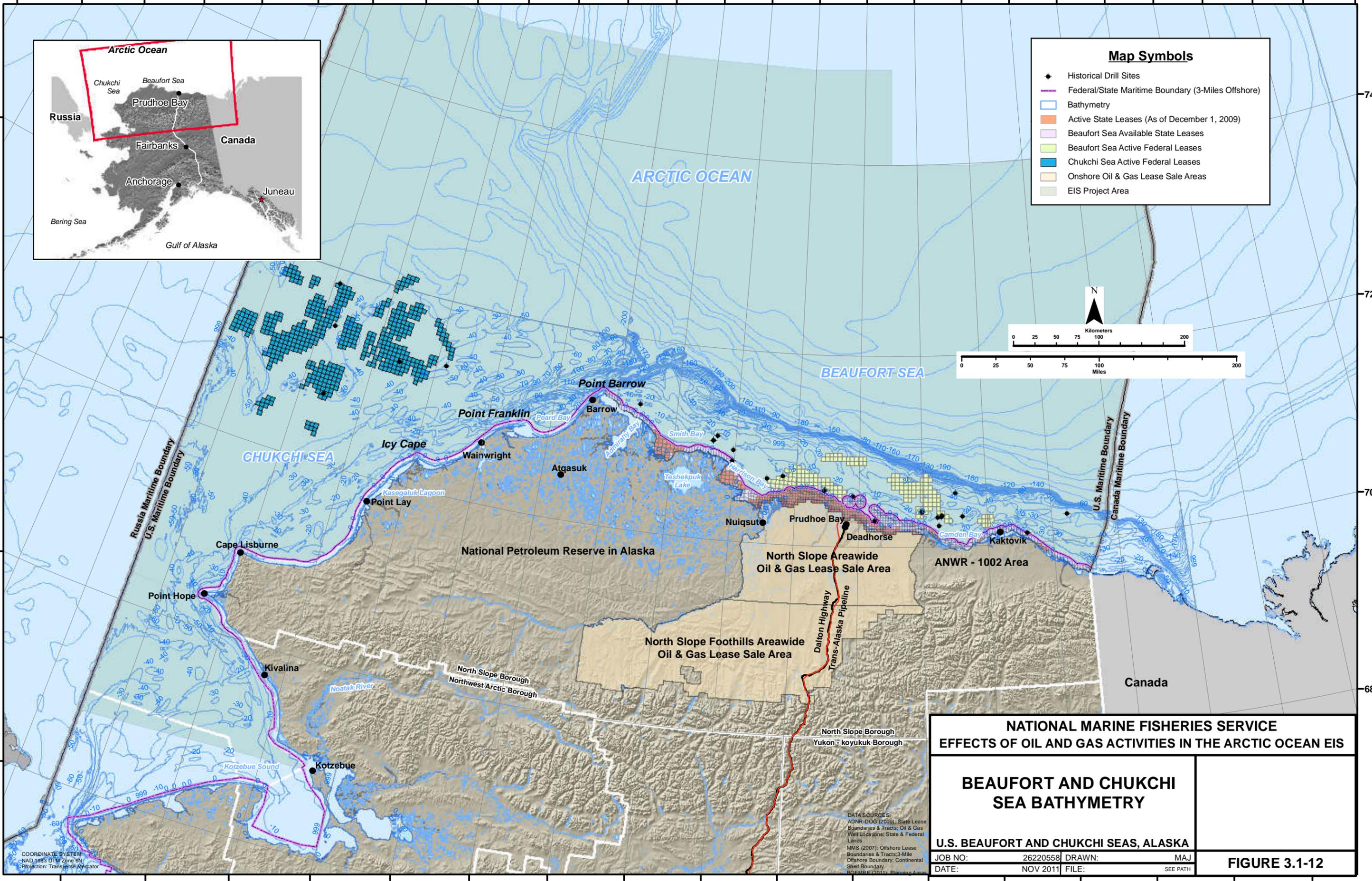
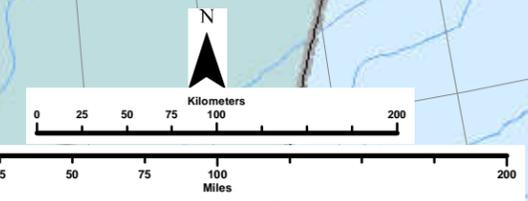


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Map Symbols

- ◆ Historical Drill Sites
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BEAUFORT AND CHUKCHI SEA BATHYMETRY

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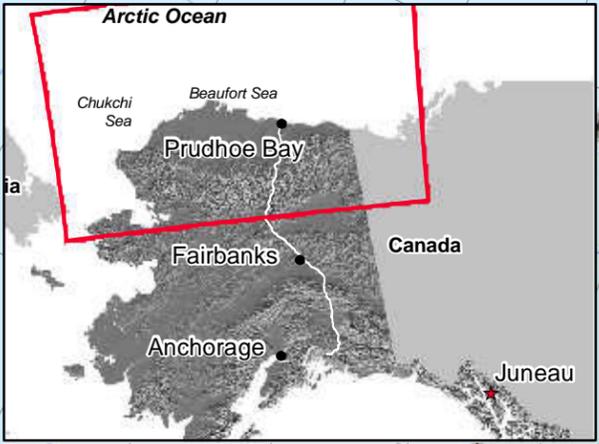
FIGURE 3.1-12

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011): Planning Areas

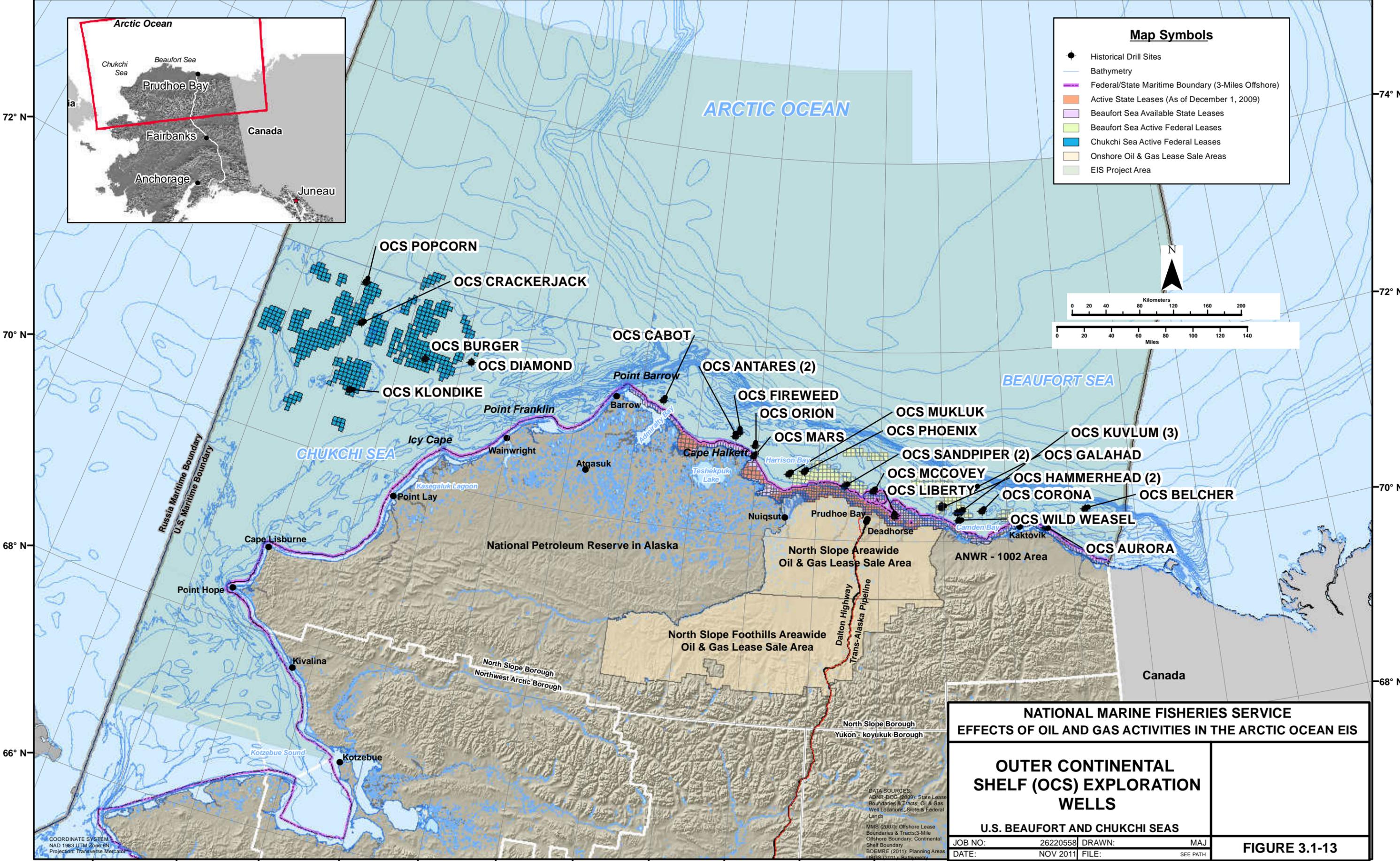
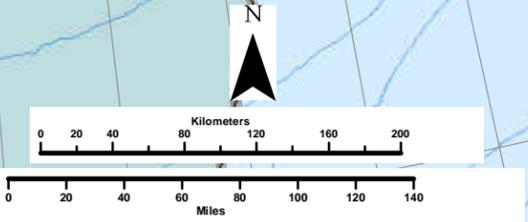
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Map Symbols

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**NATIONAL MARINE FISHERIES SERVICE
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**OUTER CONTINENTAL
SHELF (OCS) EXPLORATION
WELLS**

U.S. BEAUFORT AND CHUKCHI SEAS

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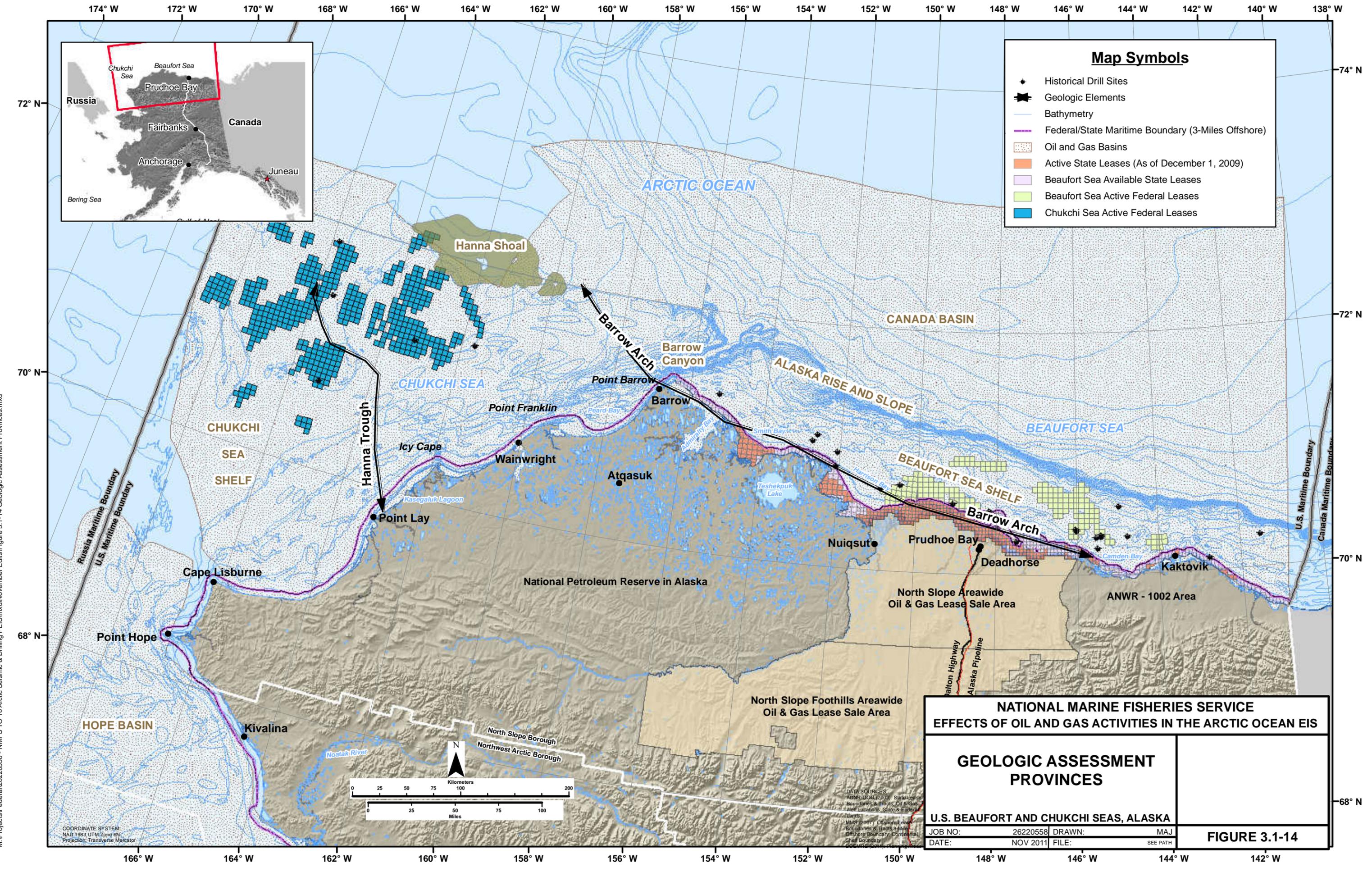
FIGURE 3.1-13

DATA SOURCES:
ADNR-DOG (2009): State Lease
Boundaries & Tracts; Oil & Gas
Well Locations; State & Federal
Lands
MMS (2007): Offshore Lease
Boundaries & Tracts; 3-Mile
Offshore Boundary; Continental
Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry

M:\projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.1-13 OCS Exploration Wells.mxd

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W



Map Symbols

- ◆ Historical Drill Sites
- ★ Geologic Elements
- Bathymetry
- Federal/State Maritime Boundary (3-Miles Offshore)
- Oil and Gas Basins
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Chukchi Sea Active Federal Leases

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

GEOLOGIC ASSESSMENT PROVINCES

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FIGURE 3.1-14

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COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNS (2004, 2009); State Lease
 Boundaries & Tracts; Oil & Gas
 Well Locations; State & Federal
 Lands;
 MMS (2007); Offshore Lease
 Boundaries & Tracts; 3-Mile
 Offshore Boundary; Continental
 Shelf Boundary

Figure 3.2-1 Simplified Food Web of the Arctic Ocean Ecosystem.

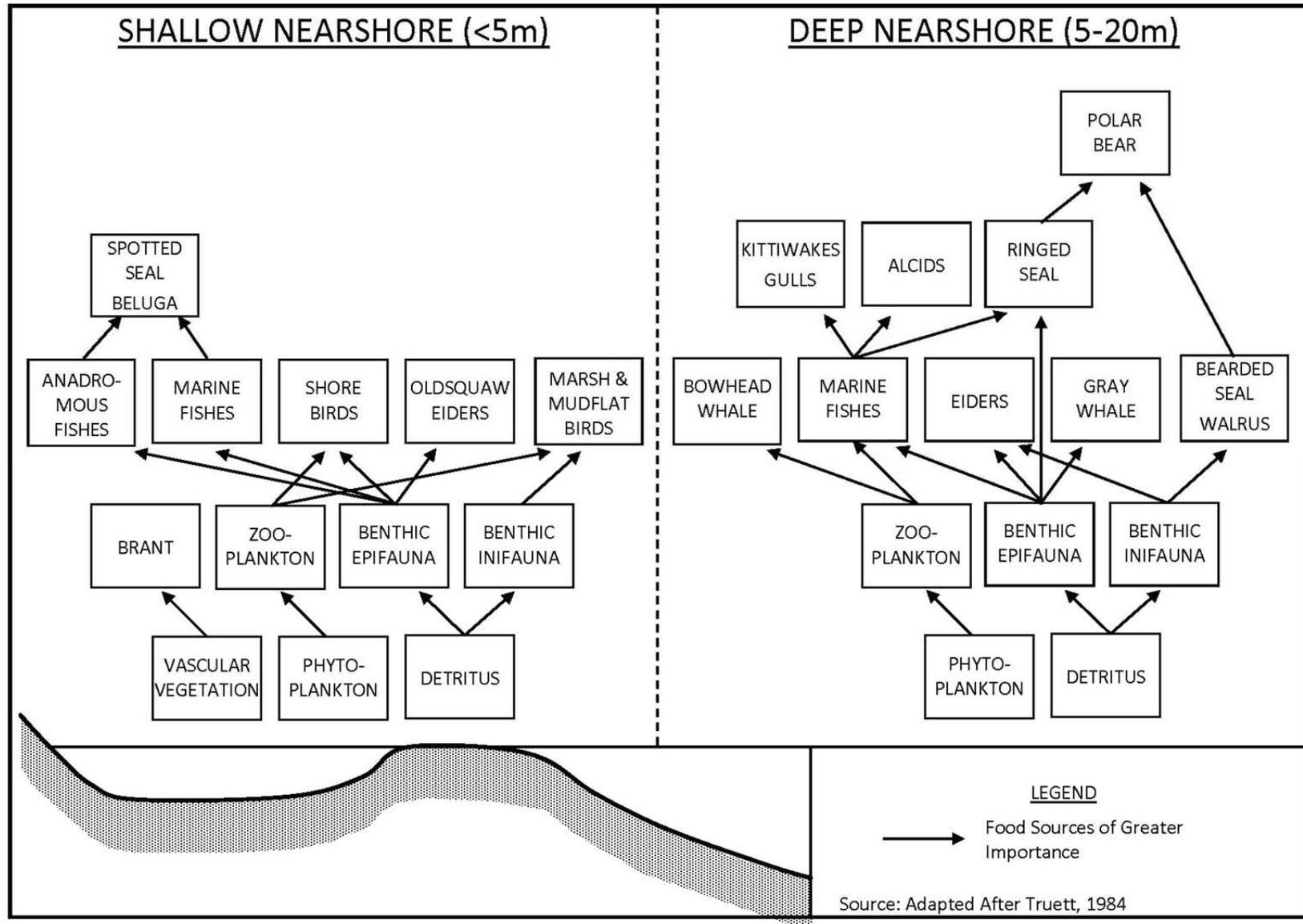


Figure 3.2-2 Seasonal ranges of the Western Arctic caribou herd with locations of satellite-collared caribou collected during the 2006-2007 regulatory year.

Source: ADF&G 2003

Data excludes first year caribou was collared; all collars standardized to one location every six days.

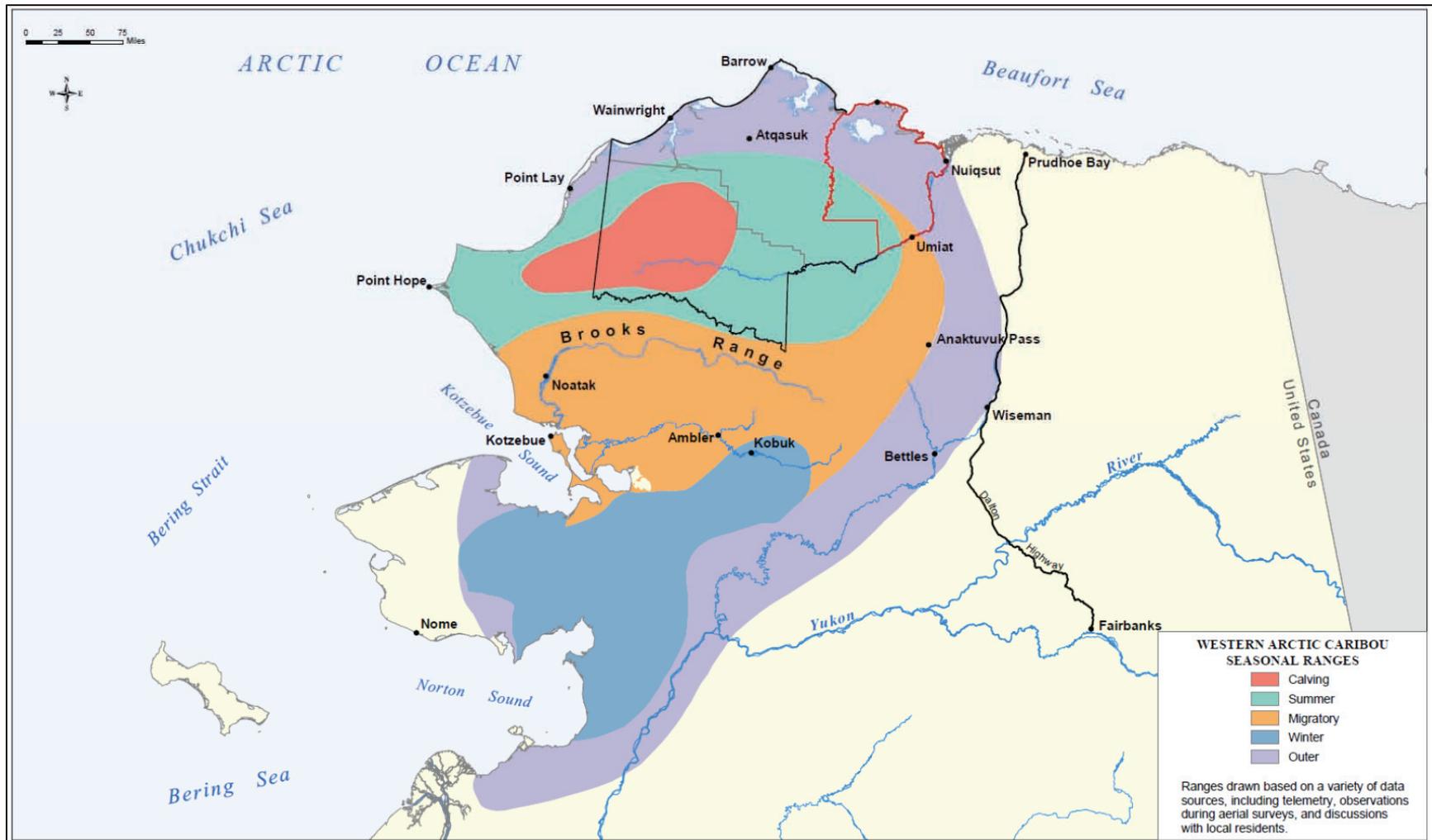


Figure 3.2-3 Central Arctic Caribou Herd Seasonal Ranges in Northern Alaska.

Source: BLM 2005



Source: Alaska Department of Fish & Game

Figure 3.2-4 Caribou calving areas within the Arctic National Wildlife Refuge.

Source: USFWS 2008 The Teshekpuk Caribou Herd

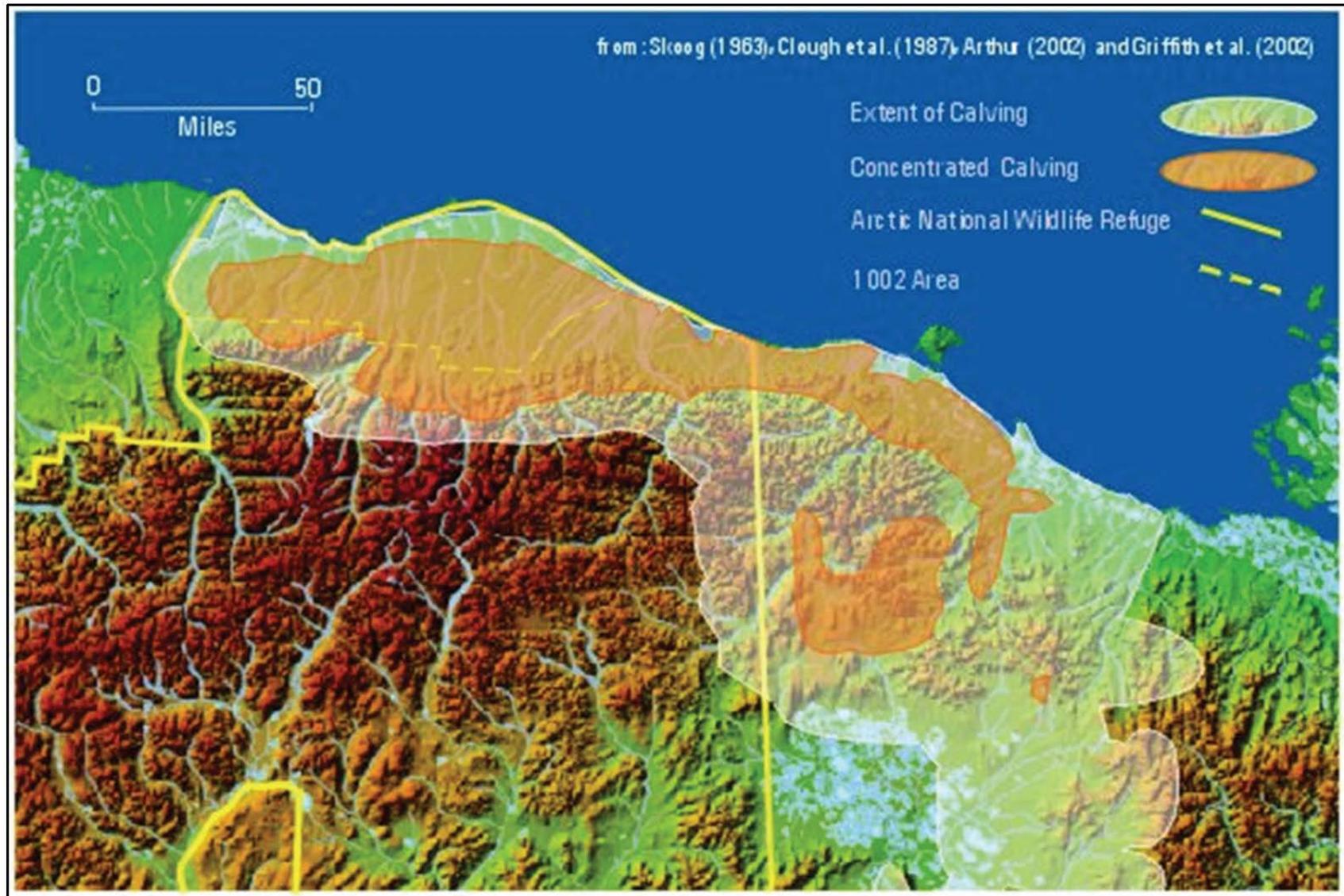


Figure 3.2-5 Teshekpuk Lake Caribou Herd Seasonal Ranges in Northern Alaska (1990 – 2005 Satellite Telemetry Data).

Source: BLM 2005

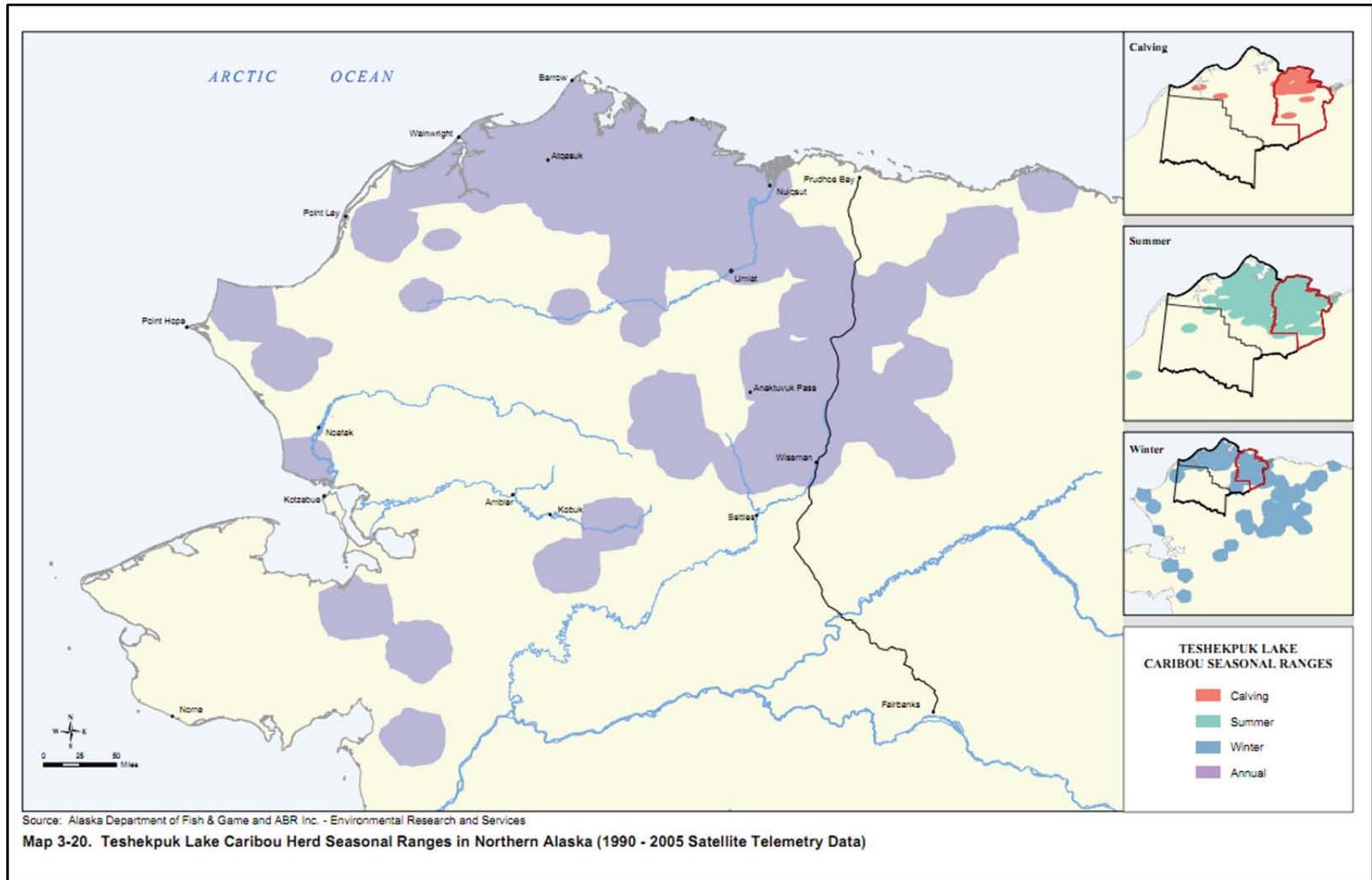
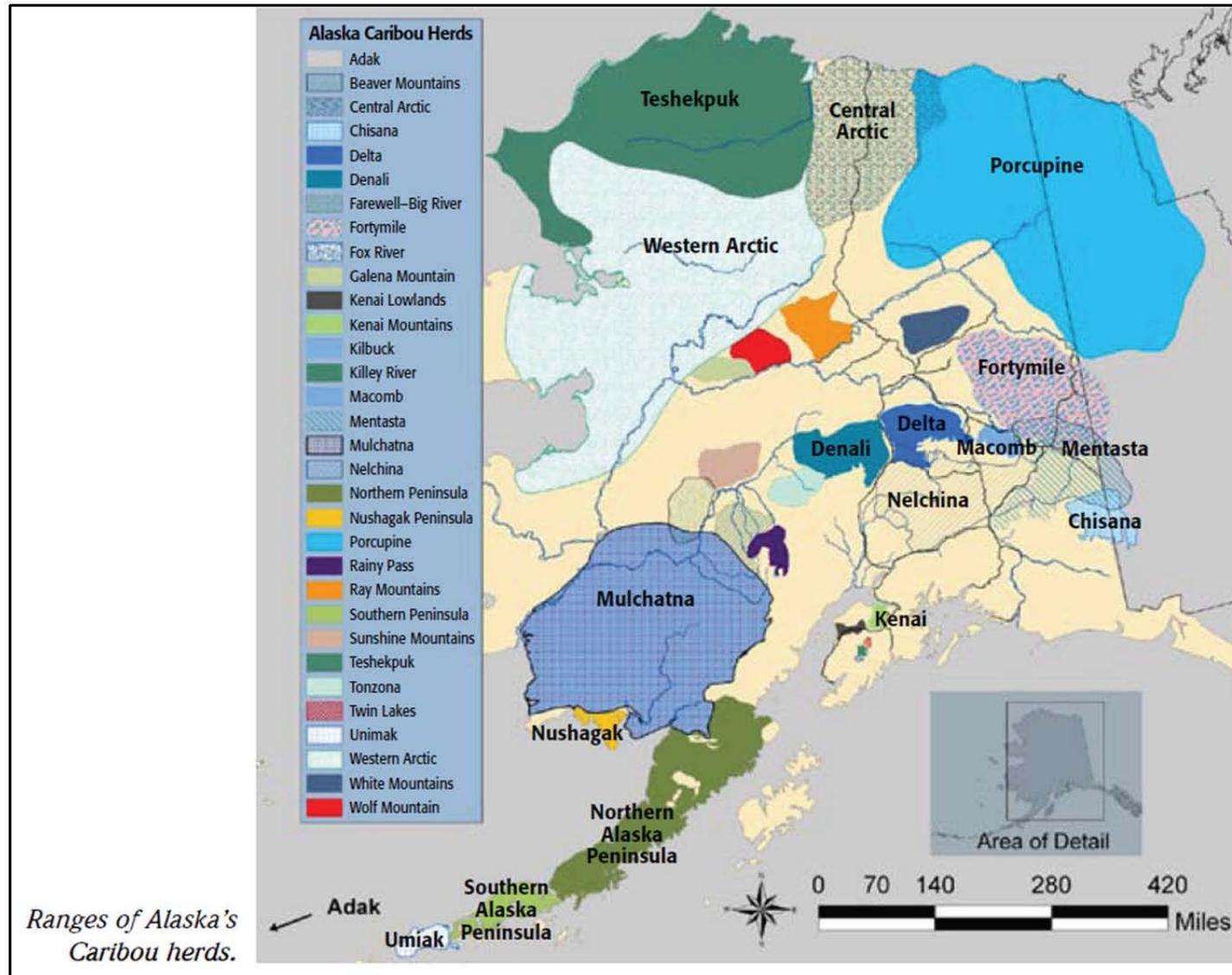
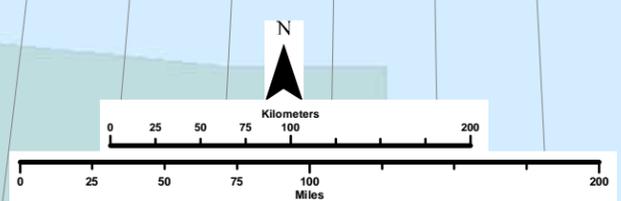


Figure 3.2-6 Ranges of Alaska's Caribou herds.

Source: ADFG 2010a

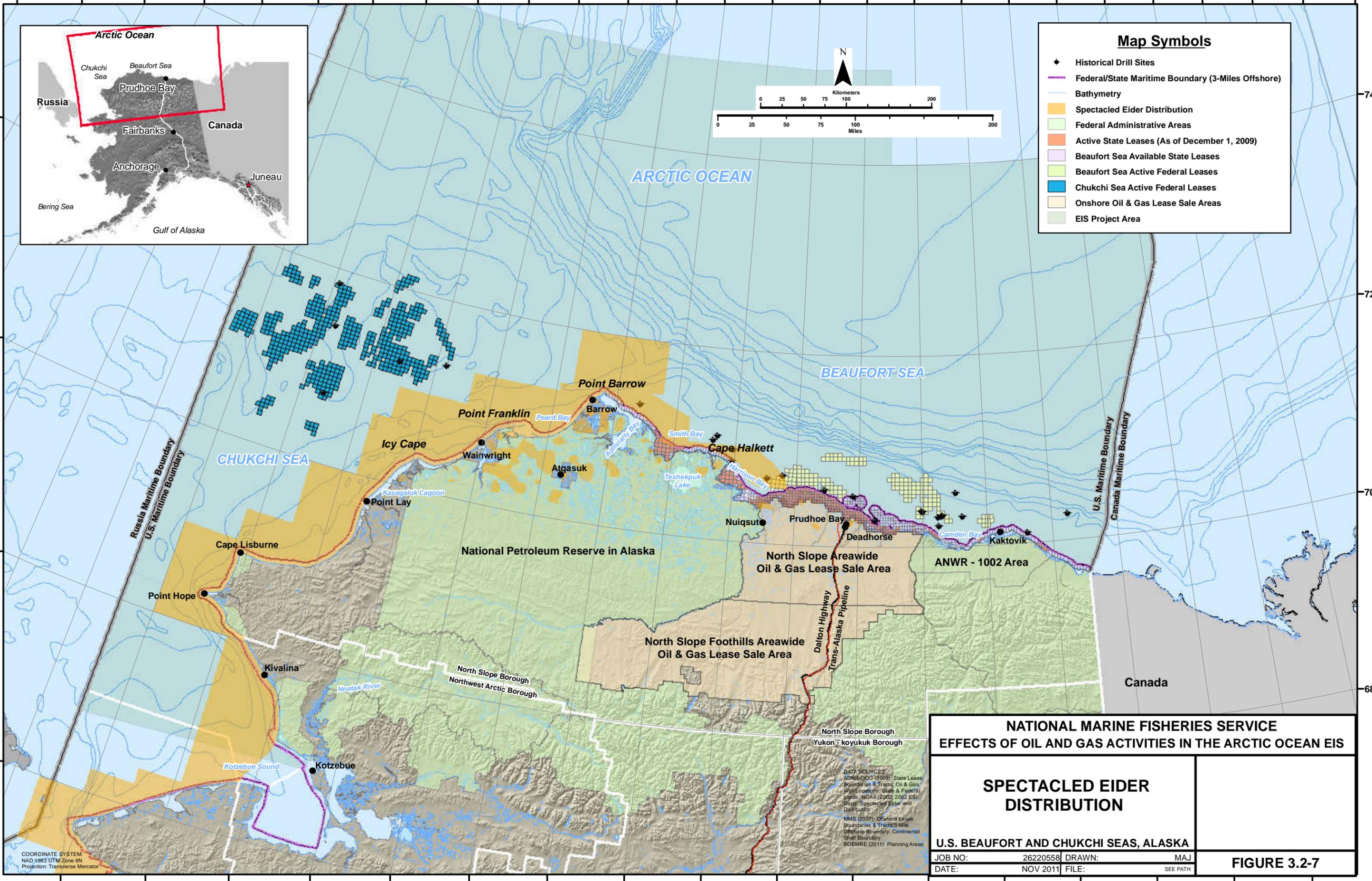


180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W



Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Spectacled Eider Distribution
- Federal Administrative Areas
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Chukchi Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas
- EIS Project Area



**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

**SPECTACLED EIDER
DISTRIBUTION**

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO: 26220558 DRAWN: MAJ
DATE: NOV 2011 FILE: SEE PATH

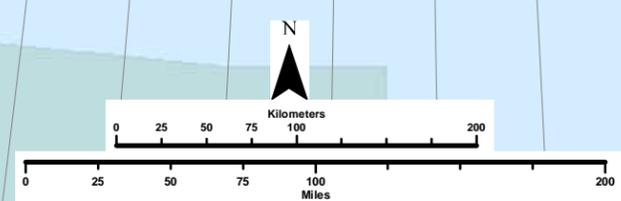
FIGURE 3.2-7

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

DATA SOURCES:
ADNR-DOG (2009): State Lease
Boundaries & Tracts; Oil & Gas
Wyn Locations: State & Federal
Leases; NOAA (2002, 2002 ESI
Data); Spectacled Eider and
Distribution
MMS (2007): Offshore Lease
Boundaries & Tracts; 3-Mile
Offshore Boundary; Continental
Shelf Boundary
BOEMRE (2011): Planning Areas

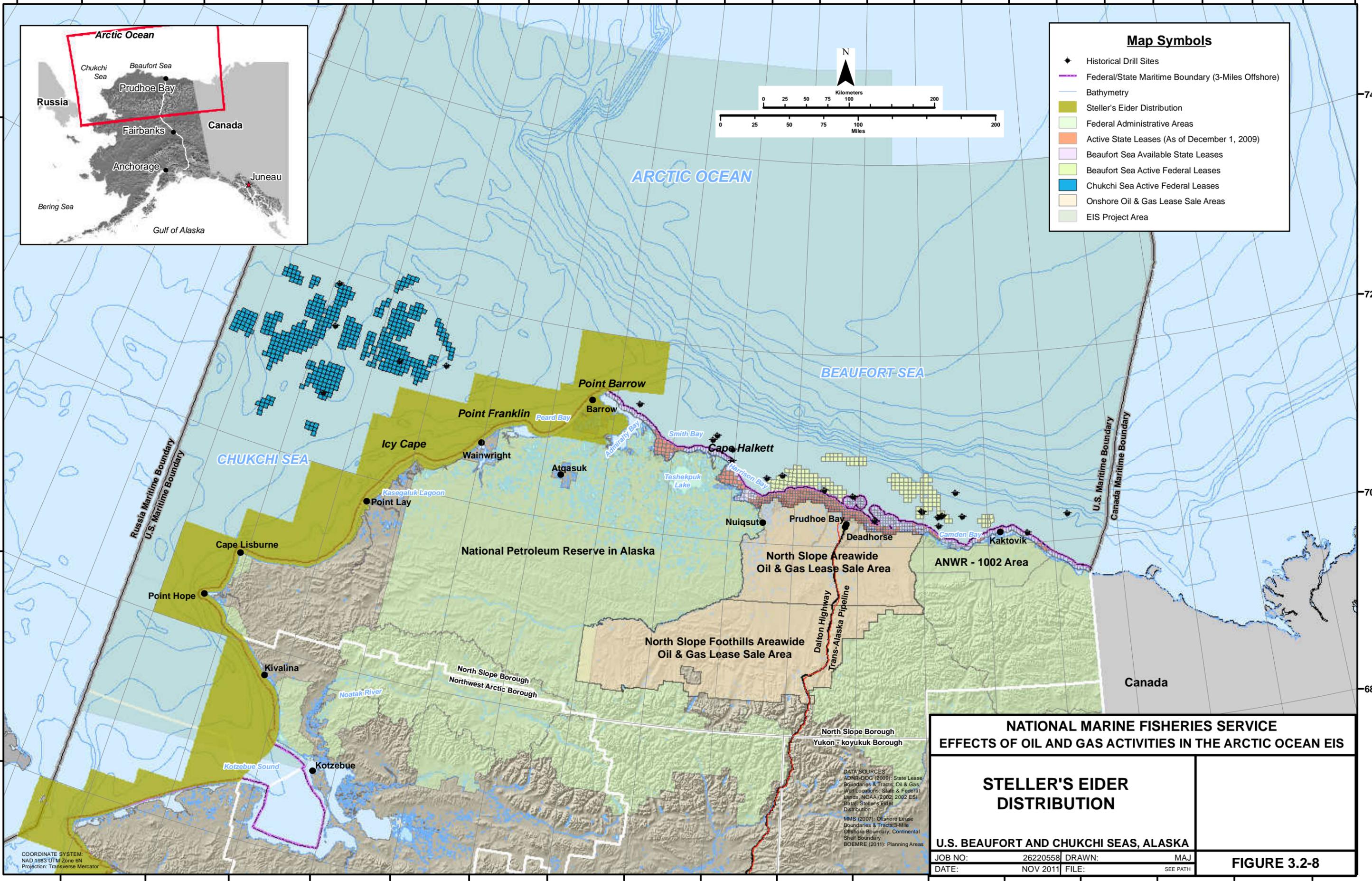
M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-7 Spectacled Eider Distribution.mxd

180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W



Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Steller's Eider Distribution
- Federal Administrative Areas
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Chukchi Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas
- EIS Project Area



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EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

STELLER'S EIDER DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

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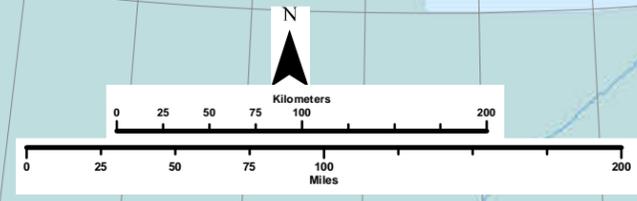
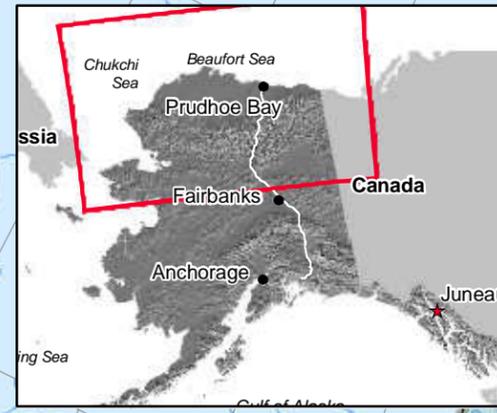
FIGURE 3.2-8

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-8 Steller's Eider Distribution.mxd

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

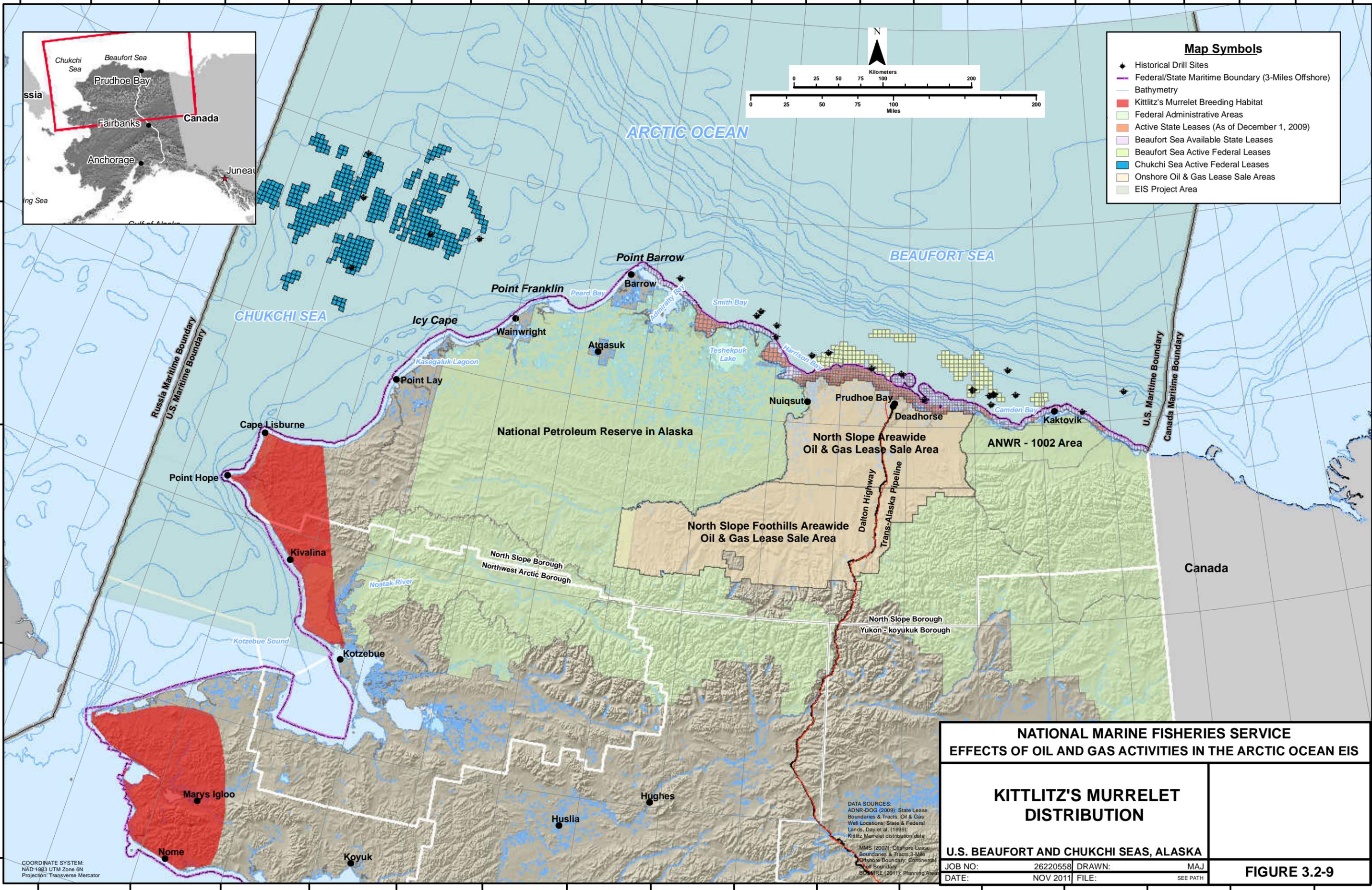
DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Leases; NOAA (2002, 2002 ESI Data); Steller's Eider Distribution
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011): Planning Areas

178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W



Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Kittlitz's Murrelet Breeding Habitat
- Federal Administrative Areas
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Chukchi Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas
- EIS Project Area



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

KITTLITZ'S MURRELET DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO:	26220558	DRAWN:	MAJ
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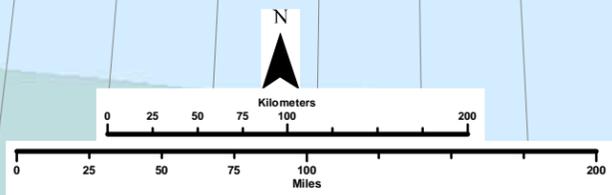
FIGURE 3.2-9

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-9 Kittlitz Murrelet Distribution.mxd

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

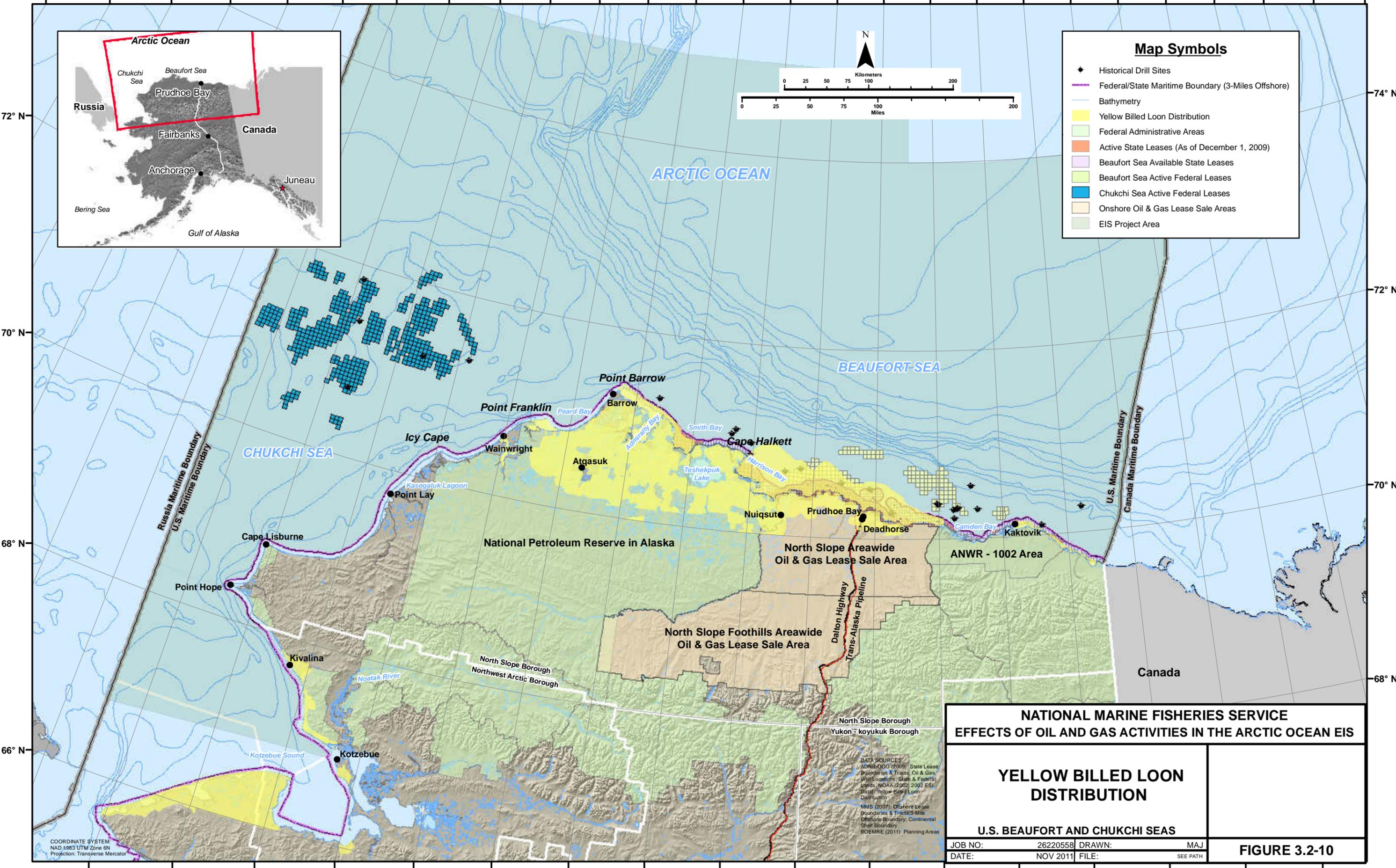
DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands; Day et al. (1999): Kittlitz Murrelet distribution data
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011): Planning Areas

180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W



Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Yellow Billed Loon Distribution
- Federal Administrative Areas
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Chukchi Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas
- EIS Project Area



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

YELLOW BILLED LOON DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS

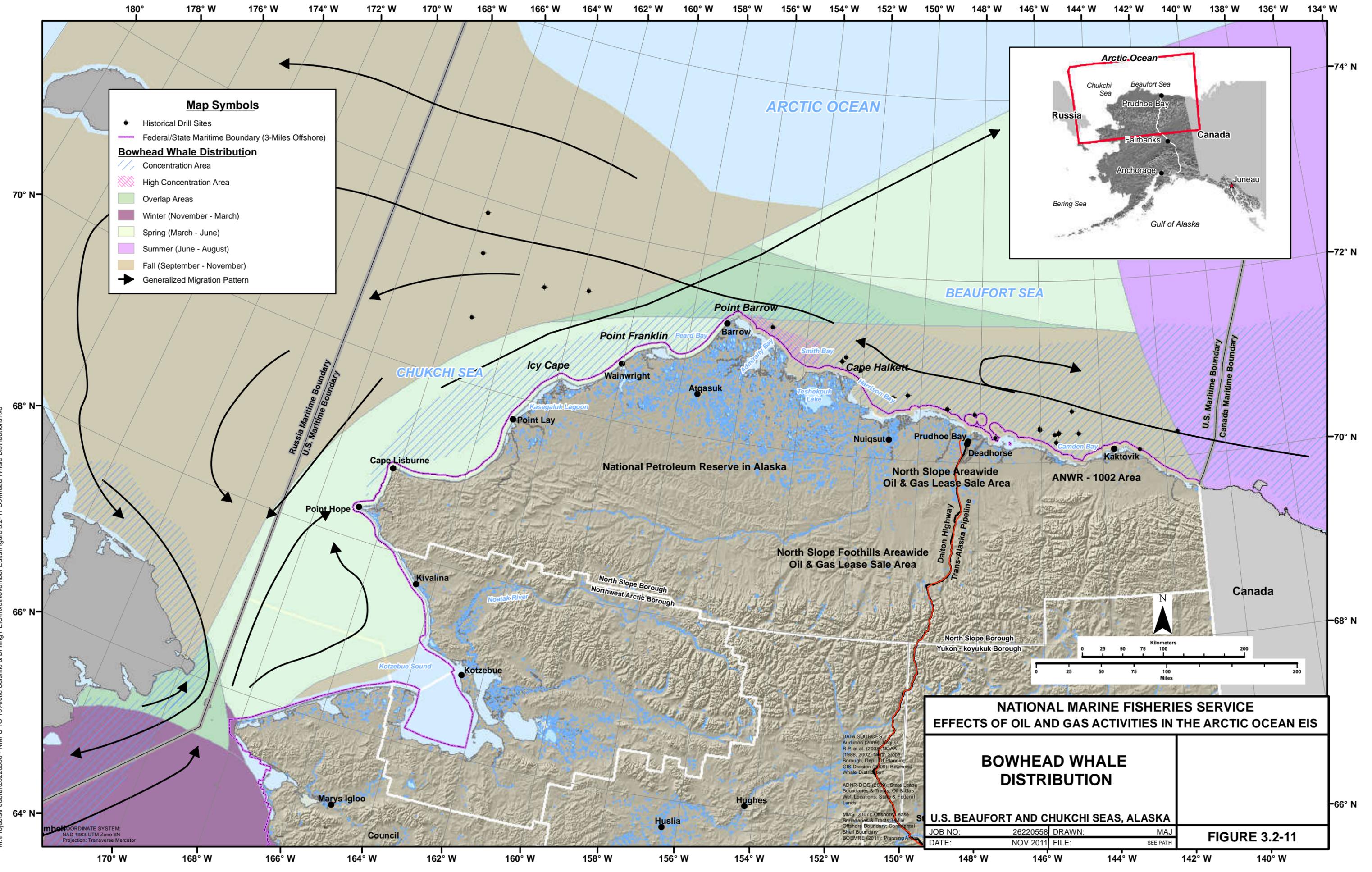
JOB NO:	26220558	DRAWN:	MAJ
DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.2-10

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-10 Yellow Billed Loon Distribution.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations: State & Federal Leases; NOAA (2002, 2002 ESI Bata): Yellow Billed Loon Distribution
 MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011): Planning Areas



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

BOWHEAD WHALE DISTRIBUTION

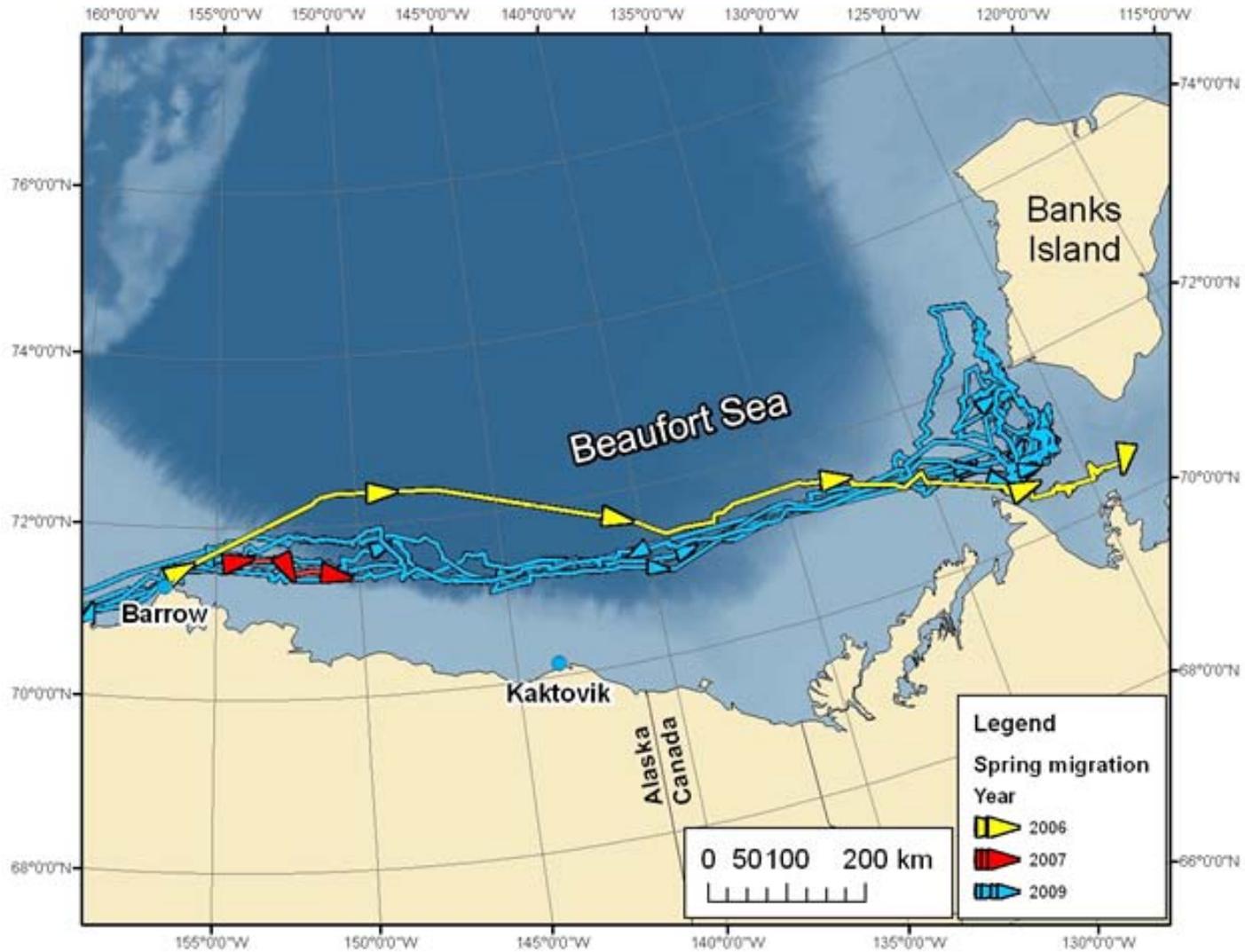
U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.2-11

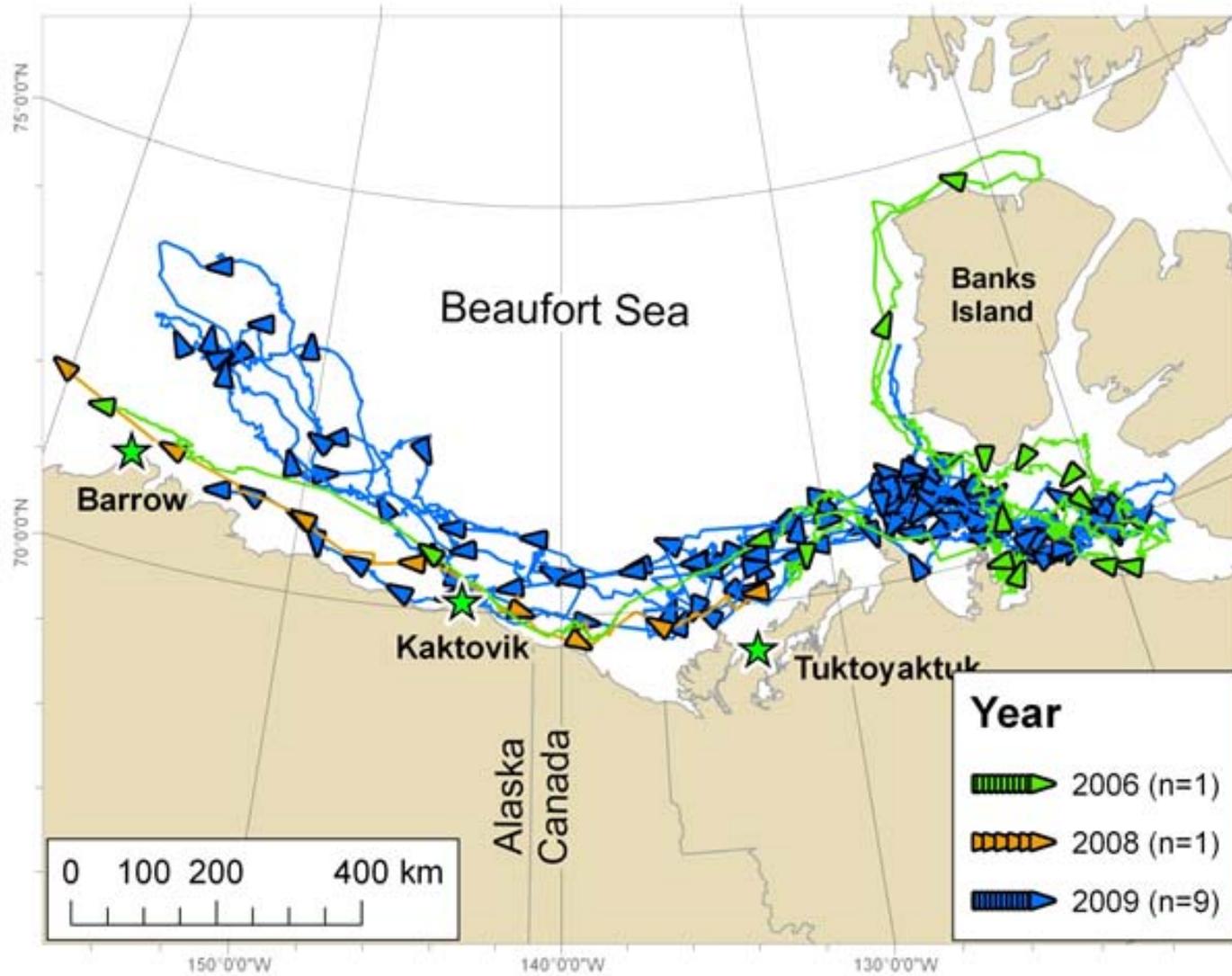
DATA SOURCES:
 Audubon (2009), Inglis, R.P. et al. (2008), NOAA (1988, 2002), North Slope Borough, Dept. of Planning, GIS Division (2009), Bowhead Whale Distribution
 ADNOR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-11 Bowhead Whale Distribution.mxd



DATA SOURCE:
Quakenbush et al. 2010b

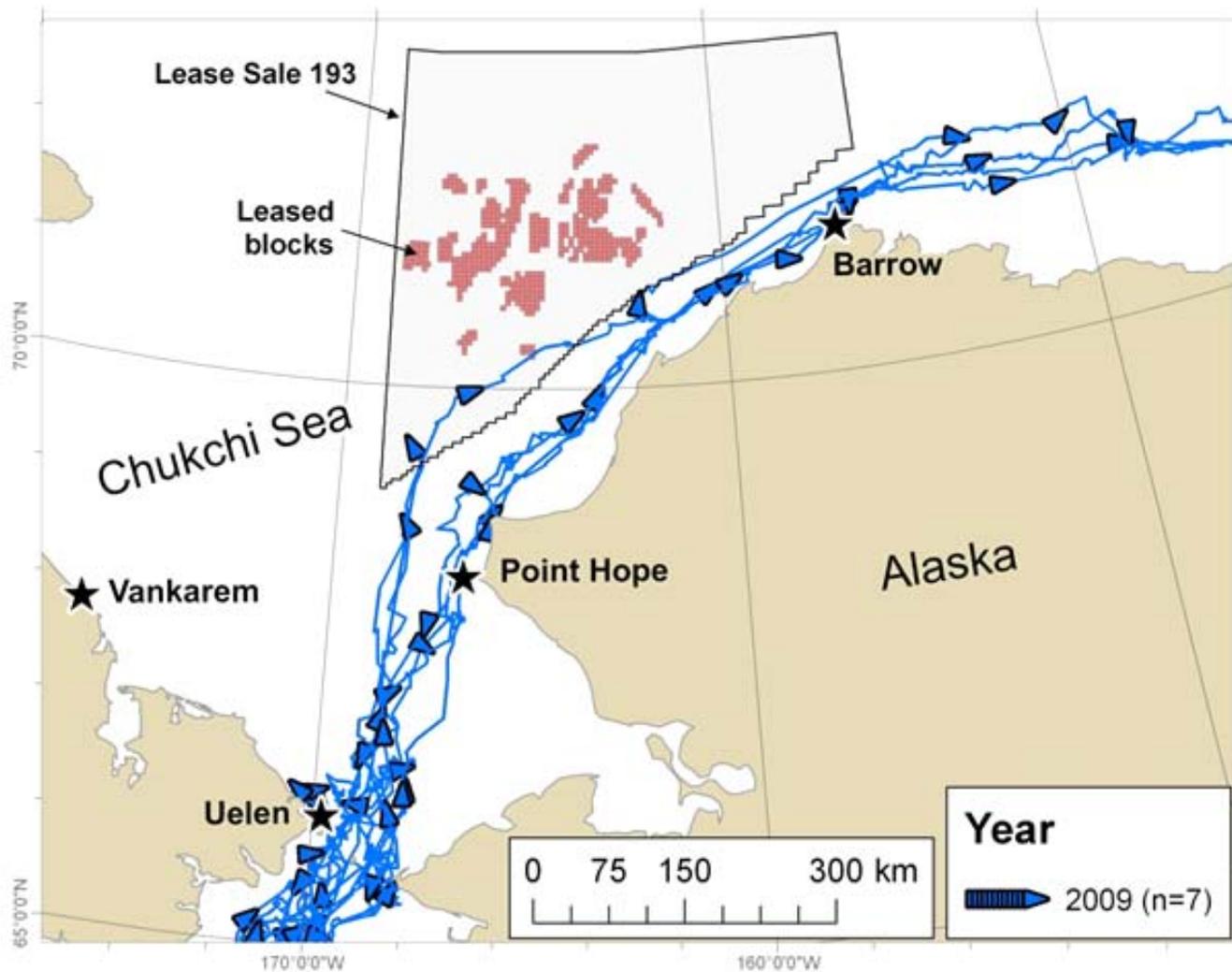
NATIONAL MARINE FISHERIES SERVICE	
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS	
TRACKS OF SATELLITE-TAGGED BOWHEAD WHALES DURING SPRING MIGRATION IN THE BEAUFORT SEA IN 2006, 2007, AND 2009	
U.S. BEAUFORT SEA, ALASKA	
JOB NO: 26220558	DRAWN: MAJ
DATE: NOV 2011	FILE: SEE PATH
FIGURE 3.2-12	



DATA SOURCE:
Quakenbush et al. 2010b

NATIONAL MARINE FISHERIES SERVICE	
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS	
TRACKS OF ELEVEN SATELLITE-TAGGED BOWHEAD WHALES IN THE BEAUFORT SEA IN SUMMER/FALL 2006-2009	
U.S. BEAUFORT SEA, ALASKA	
JOB NO:	26220558
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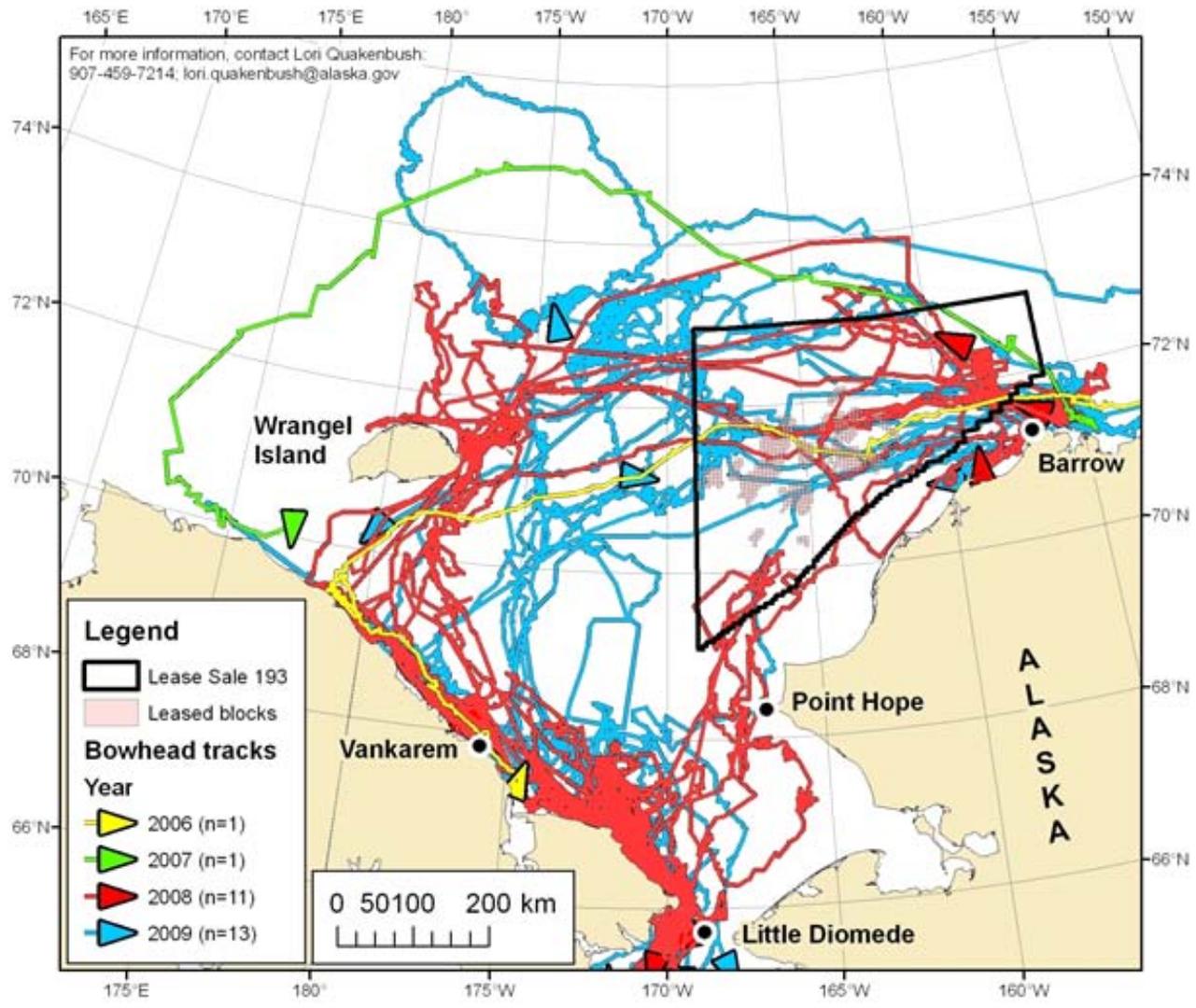
FIGURE 3.2-13



DATA SOURCE:
Quakenbush et al. 2010b

NATIONAL MARINE FISHERIES SERVICE	
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS	
TRACKS OF SATELLITE-TAGGED BOWHEAD WHALES MIGRATING THROUGH THE CHUKCHI SEA AND PAST POINT BARROW IN SPRING 2009	
U.S. CHUKCHI SEA, ALASKA	
JOB NO:	26220558
DATE:	NOV 2011
DRAWN:	MAJ
FILE:	SEE PATH

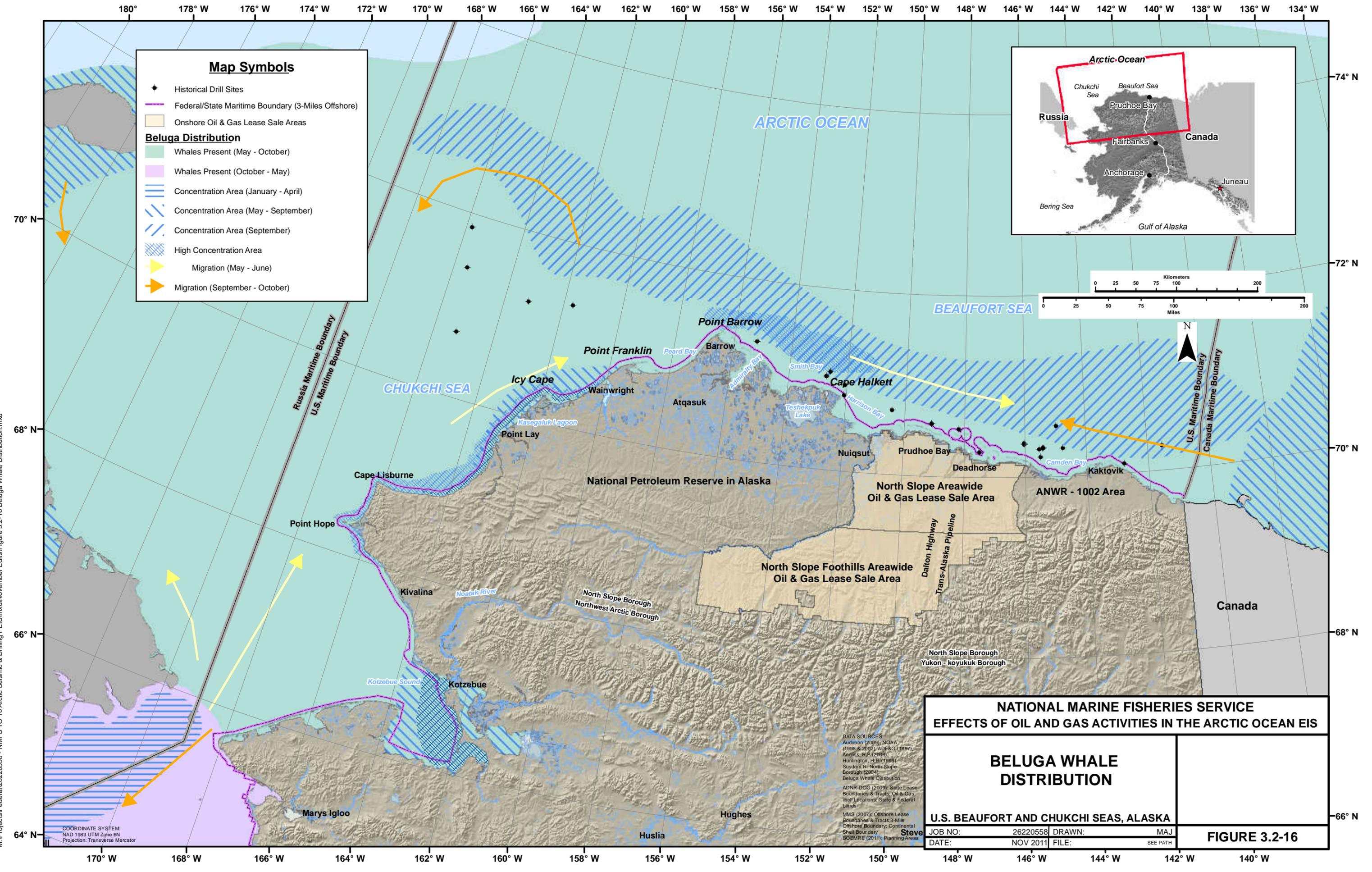
FIGURE 3.2-14



DATA SOURCE:
Quakenbush et al. 2010b

NATIONAL MARINE FISHERIES SERVICE	
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS	
TRACKS OF TWENTY-SIX SATELLITE-TAGGED BOWHEAD WHALES IN THE CHUKCHI SEA DURING FALL 2006-2009	
U.S. CHUKCHI SEA, ALASKA	
JOB NO:	26220558
DATE:	NOV 2011
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FILE:	SEE PATH

FIGURE 3.2-15



**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

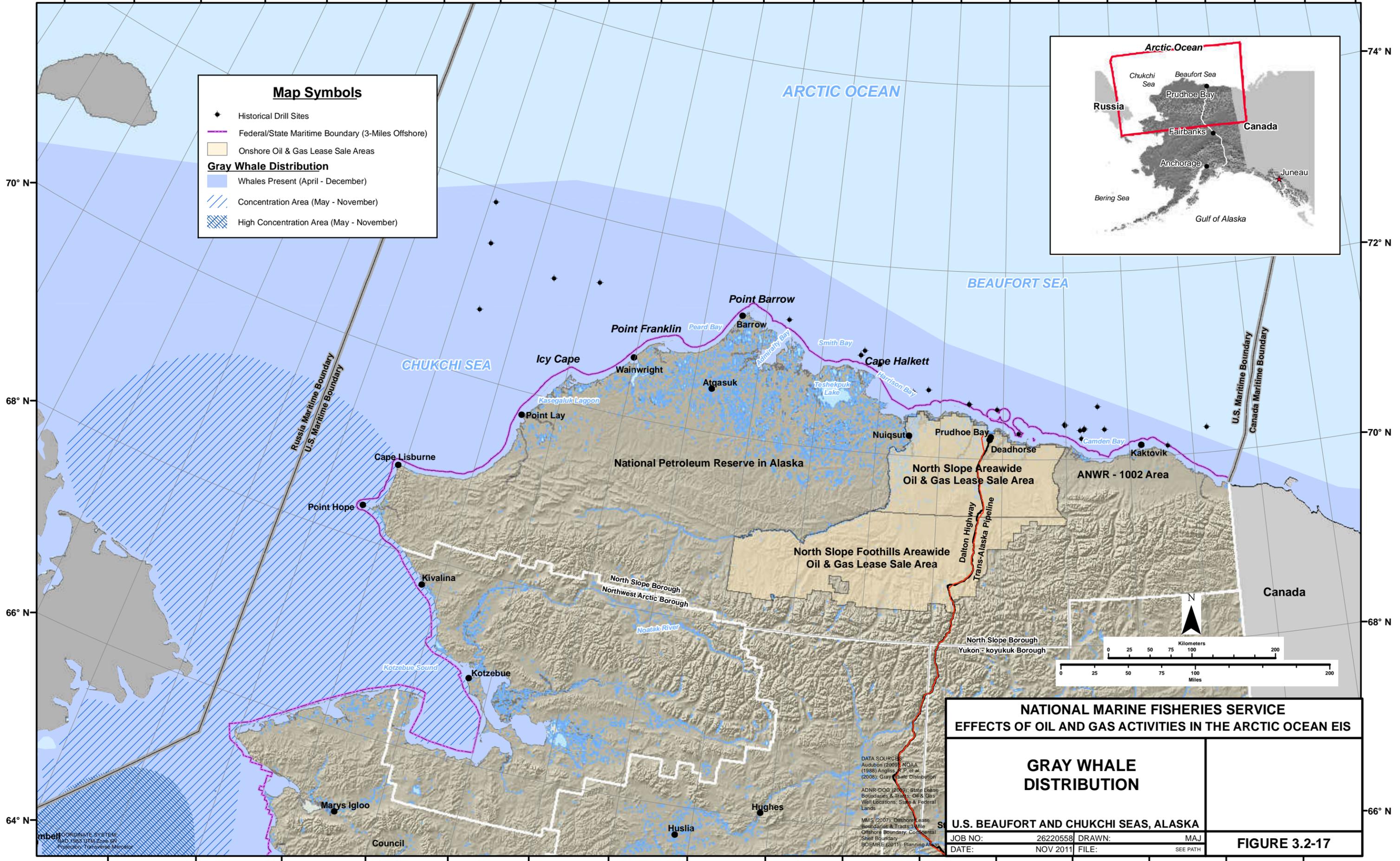
BELUGA WHALE DISTRIBUTION	
U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA	
JOB NO: 26220558	DRAWN: MAJ
DATE: NOV 2011	FILE: SEE PATH

FIGURE 3.2-16

DATA SOURCES:
Audubon (2009), NOAA (1998 & 2002), ADF&G (1997), Angillis, R.P. (2008), Huntington, H.M. (1998), Suydam, R. North Slope Borough (2004), Beluga Whale Distribution, ADNR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands, MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary, BOEMRE (2011), Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-16 Beluga Whale Distribution.mxd

178° E 180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W

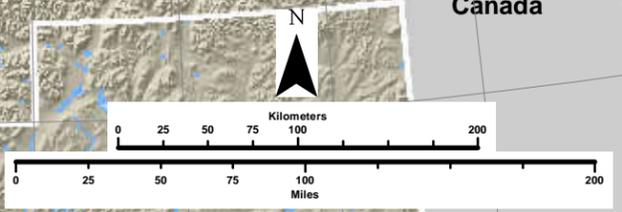


Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Onshore Oil & Gas Lease Sale Areas

Gray Whale Distribution

- Whales Present (April - December)
- ▨ Concentration Area (May - November)
- ▩ High Concentration Area (May - November)



DATA SOURCES
 Audubon (2009); NOAA (1988); Angliss, R.P. et al. (2008); Gray Whale Distribution
 ADNIR-DOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007); Onshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011); Planning Atlas

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

GRAY WHALE DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

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FIGURE 3.2-17

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-17 Gray Whale Distribution.mxd

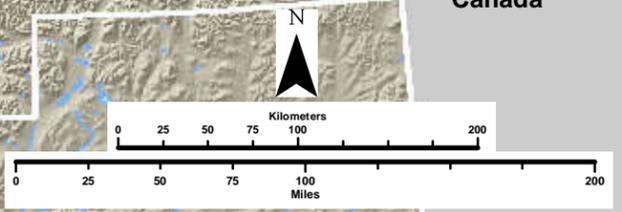
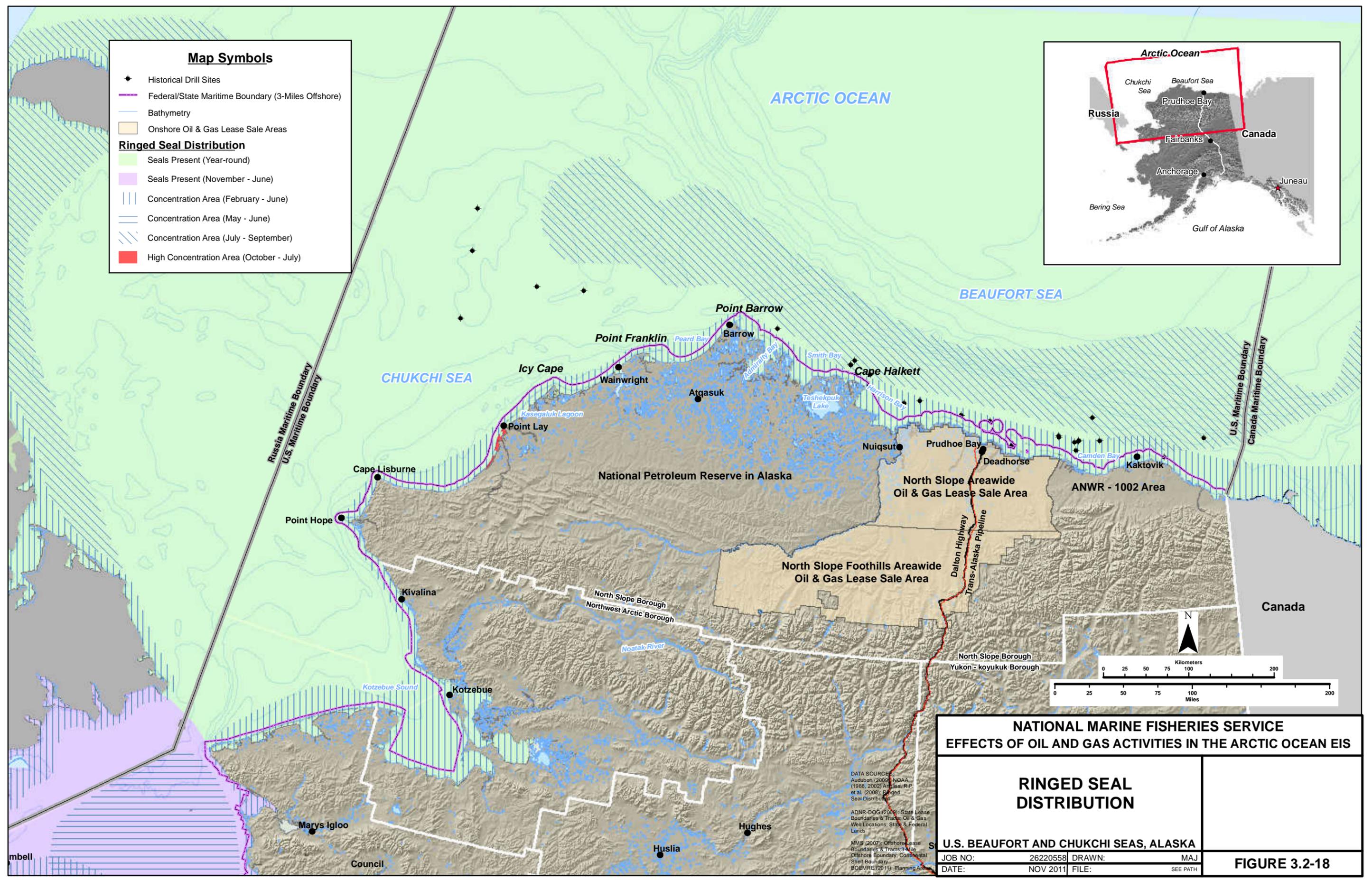
COORDINATE SYSTEM
 NAD 1983 UTM Zone 18N
 Projection: Transverse Mercator

Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

Ringed Seal Distribution

- Seals Present (Year-round)
- Seals Present (November - June)
- ▨ Concentration Area (February - June)
- ▨ Concentration Area (May - June)
- ▨ Concentration Area (July - September)
- High Concentration Area (October - July)



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EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

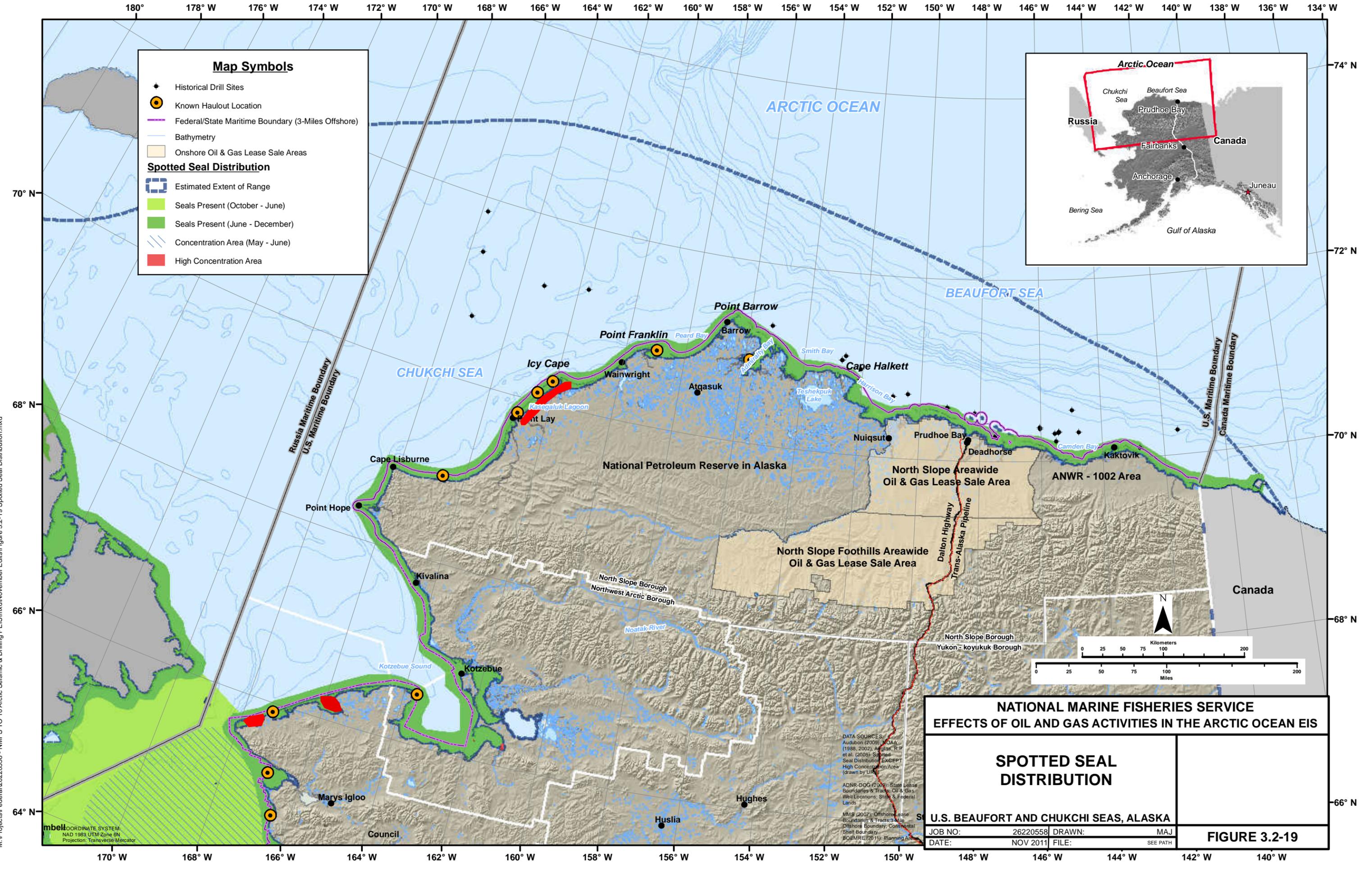
RINGED SEAL DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

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DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.2-18

DATA SOURCES:
Audubon (2008), NOAA (1988, 2002), Arlis, R.P. et al. (2008), Ringed Seal Distribution
ADNR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
BOEMRE (2011), Planning Areas



Map Symbols

- ◆ Historical Drill Sites
- Known Haulout Location
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

Spotted Seal Distribution

- ▭ Estimated Extent of Range
- Seals Present (October - June)
- Seals Present (June - December)
- ▨ Concentration Area (May - June)
- High Concentration Area



DATA SOURCES:
 Audubon (2009), NOAA (1988, 2002), Angilas, R.P. et al. (2008), Spotted Seal Distribution, EXCEPT High Concentration Area (drawn by URS)
 ADN-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary, BOEMRE (2011), Planning Areas

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

SPOTTED SEAL DISTRIBUTION

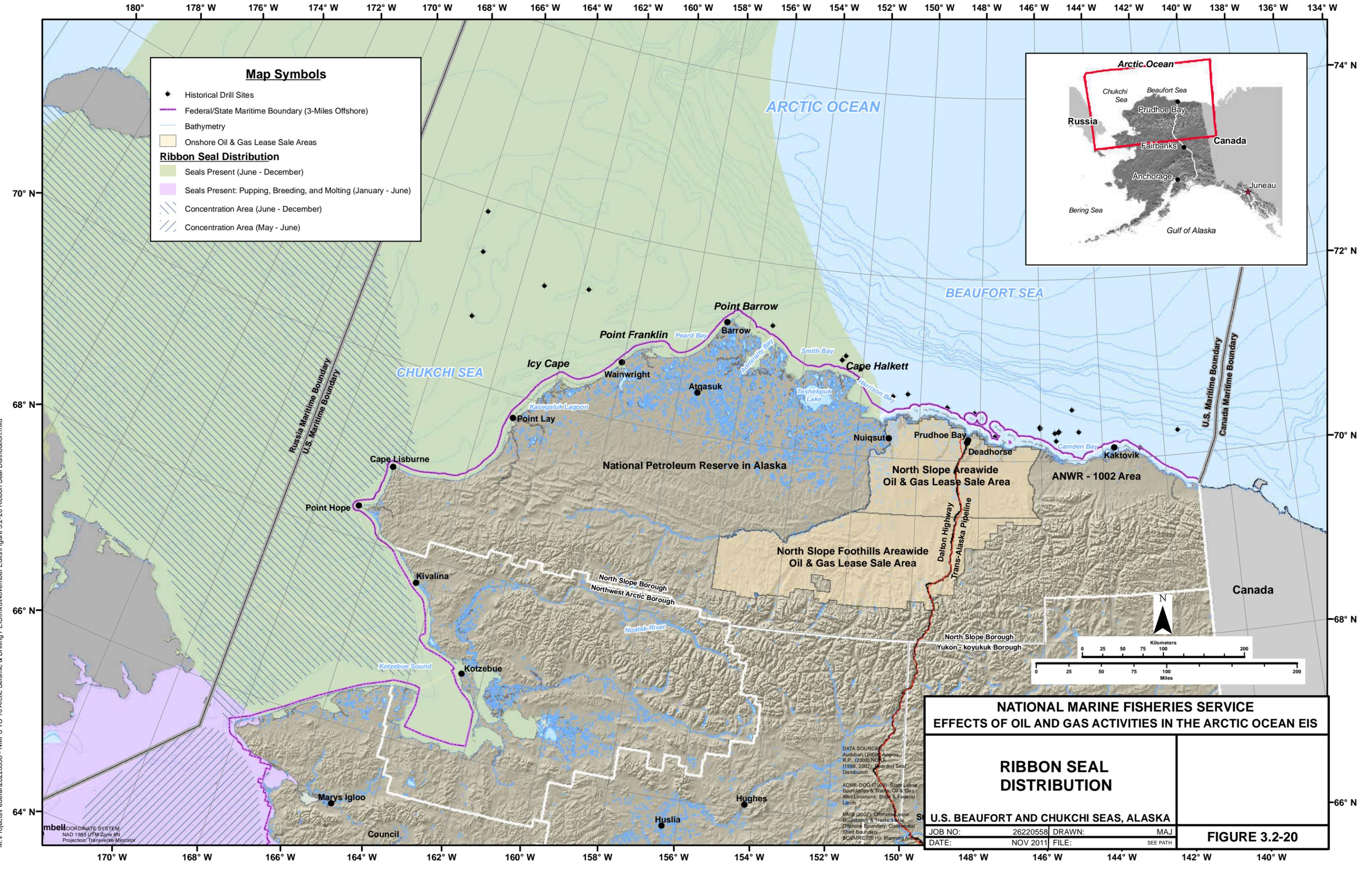
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FIGURE 3.2-19

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-19 Spotted Seal Distribution.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

RIBBON SEAL DISTRIBUTION

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FIGURE 3.2-20

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-20 Ribbon Seal Distribution.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 Audubon (2008), Angillis, R.P. (2008), NOAA (1988, 2002), Bearded Seal Distribution
 ADNOR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
 BOEMRE (2011), Planning Areas

180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W

Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

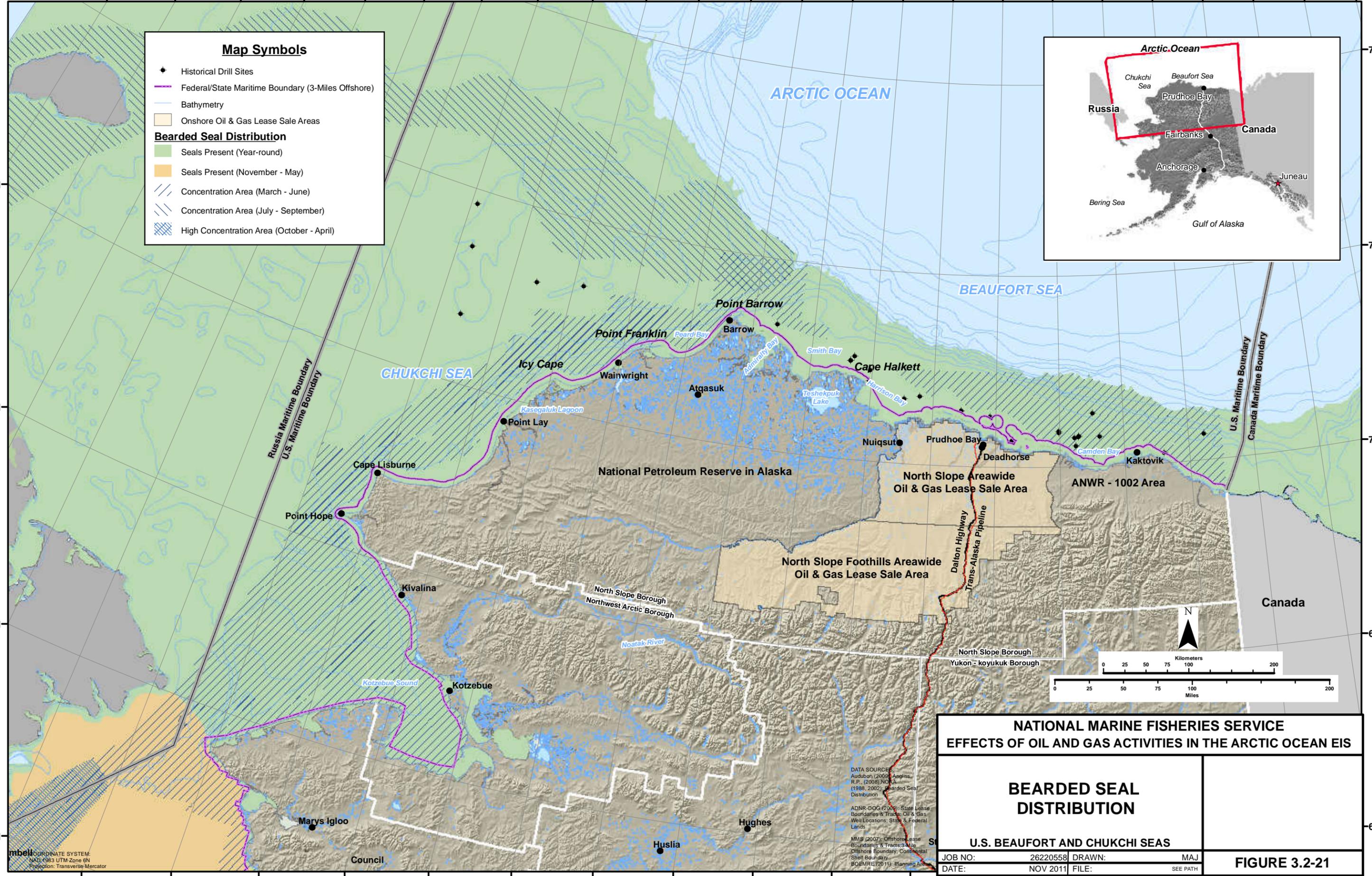
Bearded Seal Distribution

- Seals Present (Year-round)
- Seals Present (November - May)
- ▨ Concentration Area (March - June)
- ▨ Concentration Area (July - September)
- ▨ High Concentration Area (October - April)



70° N
68° N
66° N
64° N

74° N
72° N
70° N
68° N
66° N



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

BEARDED SEAL DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS

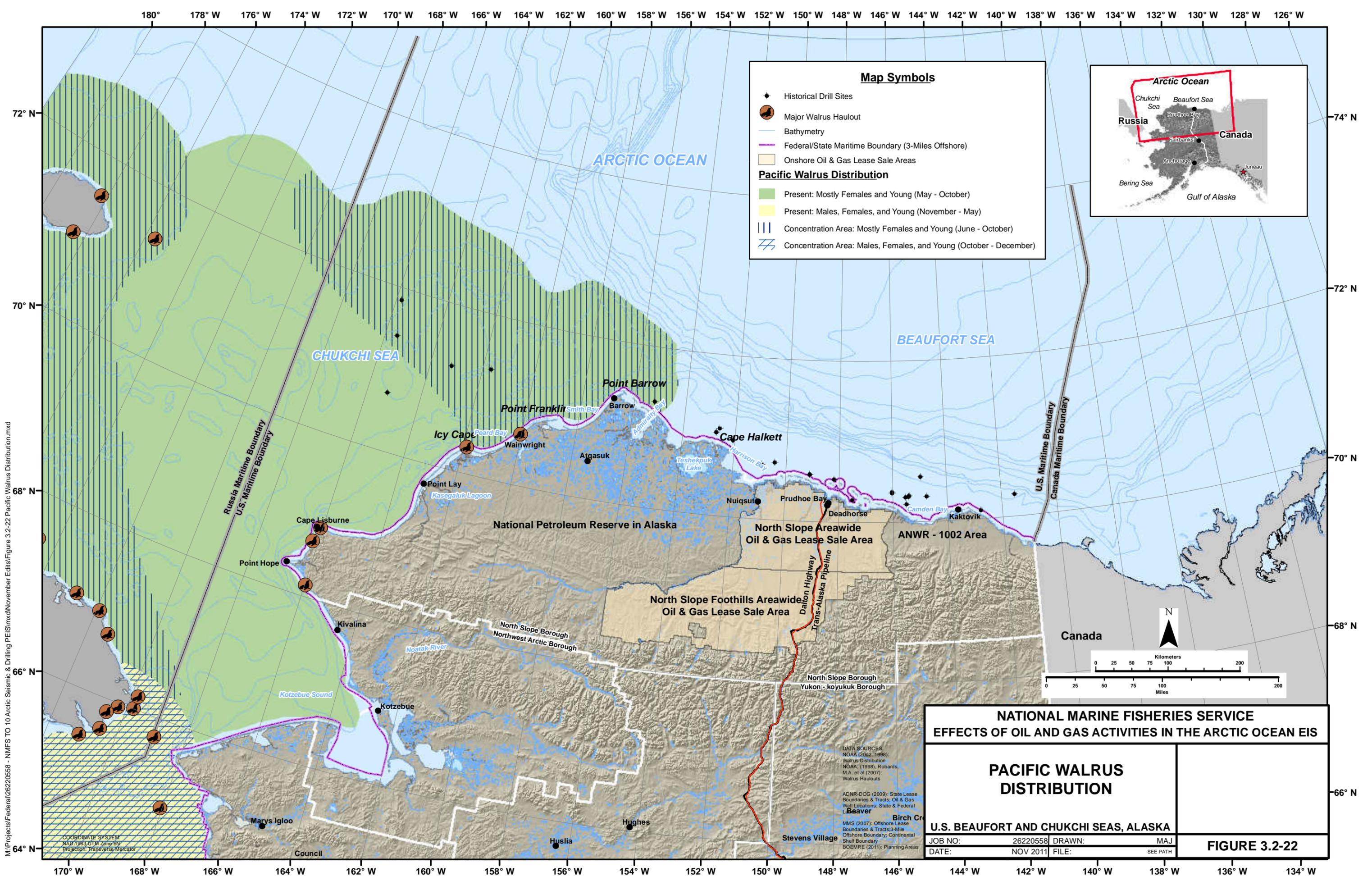
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DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.2-21

DATA SOURCES:
Audubon (2008), Angiess, R.P., (2008), NOAA (1988, 2002), Bearded Seal Distribution
ADNR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
BOEMRE (2011), Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-21 Bearded Seal Distribution.mxd

COORDINATE SYSTEM:
NAD 83 UTM Zone 6N
Projection: Transverse Mercator

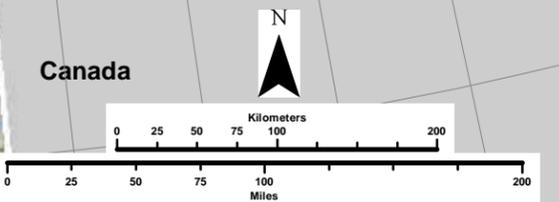


Map Symbols

- ◆ Historical Drill Sites
- 🐻 Major Walrus Haulout
- Bathymetry
- Federal/State Maritime Boundary (3-Miles Offshore)
- Onshore Oil & Gas Lease Sale Areas

Pacific Walrus Distribution

- Present: Mostly Females and Young (May - October)
- Present: Males, Females, and Young (November - May)
- ||| Concentration Area: Mostly Females and Young (June - October)
- /// Concentration Area: Males, Females, and Young (October - December)



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

PACIFIC WALRUS DISTRIBUTION

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO: 26220558 DRAWN: MAJ
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FIGURE 3.2-22

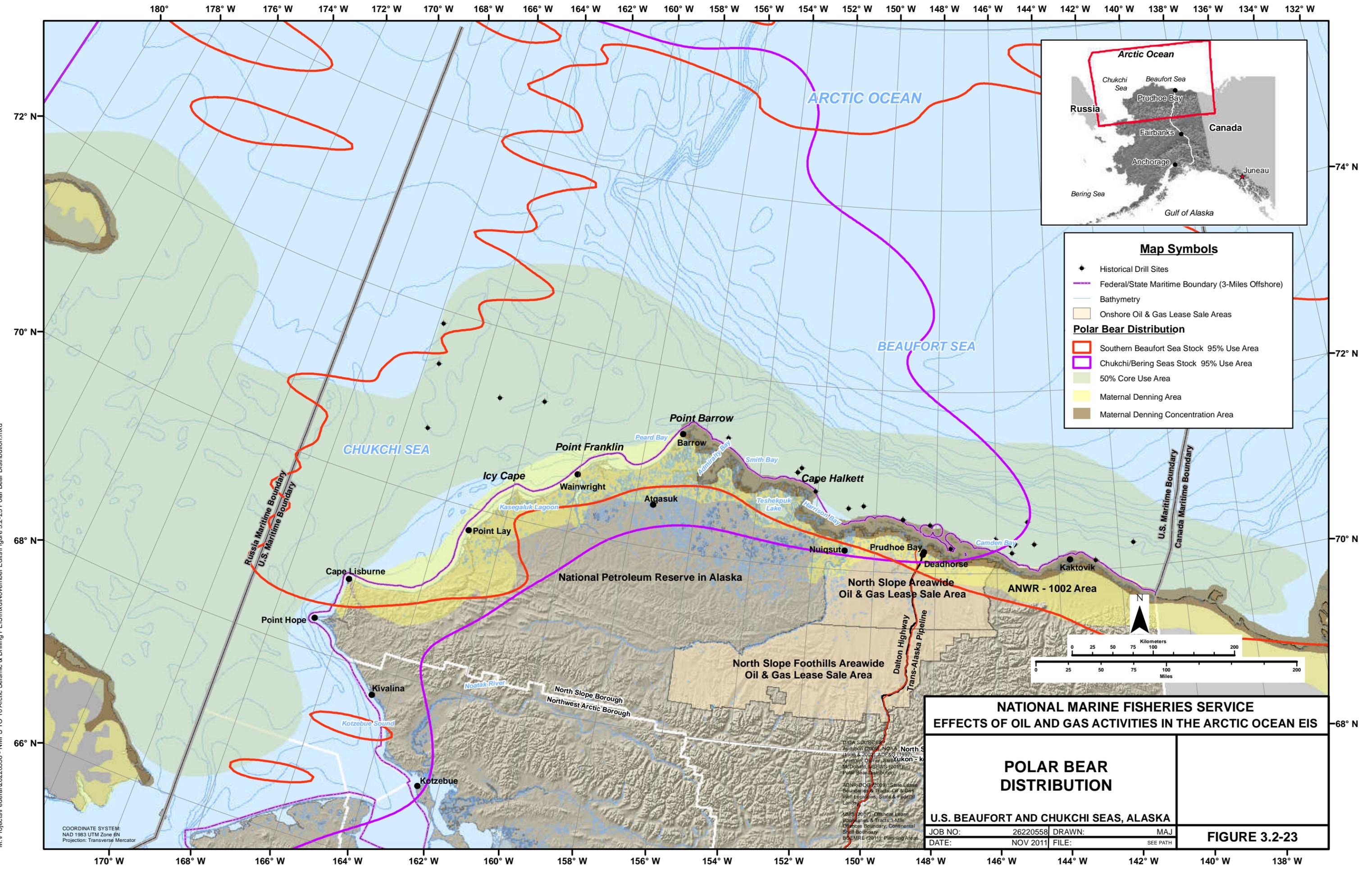
DATA SOURCES:
 NOAA (2002, 1998):
 Walrus Distribution
 NOAA, (1998), Robards,
 M.A. et al (2007):
 Walrus Haulouts

ADNR-DOG (2009): State Lease
 Boundaries & Tracts; Oil & Gas
 Well Locations; State & Federal
 Beaver

MMS (2007): Offshore Lease
 Boundaries & Tracts; 3-Mile
 Offshore Boundary; Continental
 Shelf Boundary
 BOEMRE (2011): Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-22 Pacific Walrus Distribution.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6V
 Projection: Transverse Mercator

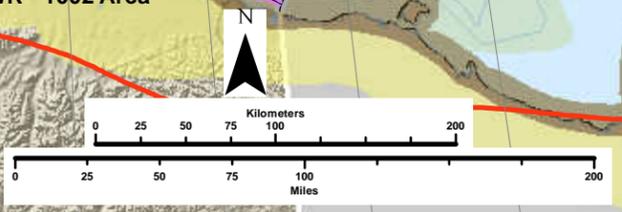


Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

Polar Bear Distribution

- ▭ Southern Beaufort Sea Stock 95% Use Area
- ▭ Chukchi/Bering Seas Stock 95% Use Area
- ▭ 50% Core Use Area
- ▭ Maternal Denning Area
- ▭ Maternal Denning Concentration Area



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

POLAR BEAR DISTRIBUTION
U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

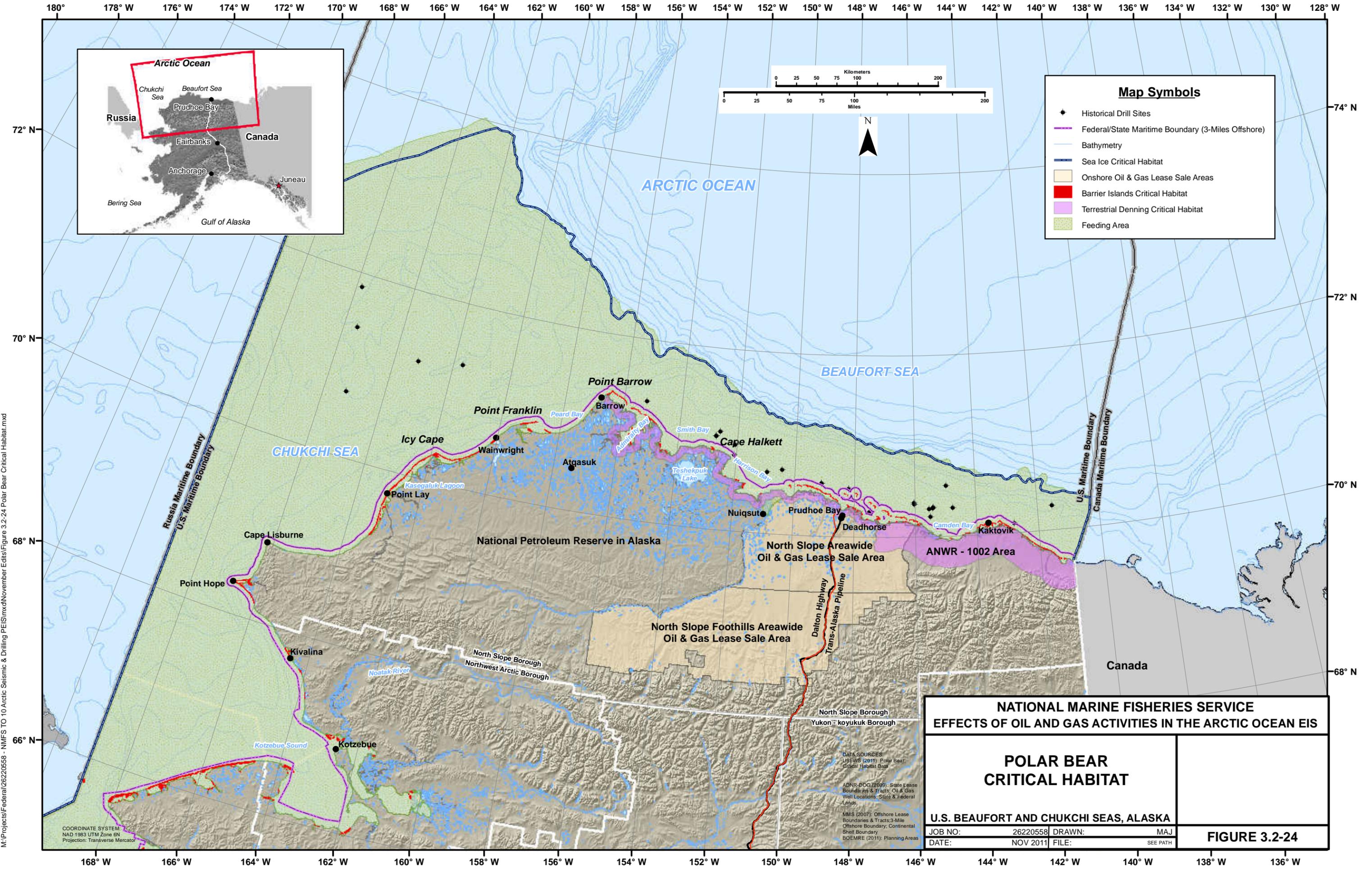
JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.2-23

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 Audubon (2009), NOAA (1998 & 2007), ADP&G (1999), Arctic Oil and Gas (Mukon - k), McDonald, USFWS (2011), Polar Bear Distribution, ADNR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands, MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary, BOEMRE (2011), Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-23 Polar Bear Distribution.mxd



M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-24 Polar Bear Critical Habitat.mxd

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

POLAR BEAR
CRITICAL HABITAT

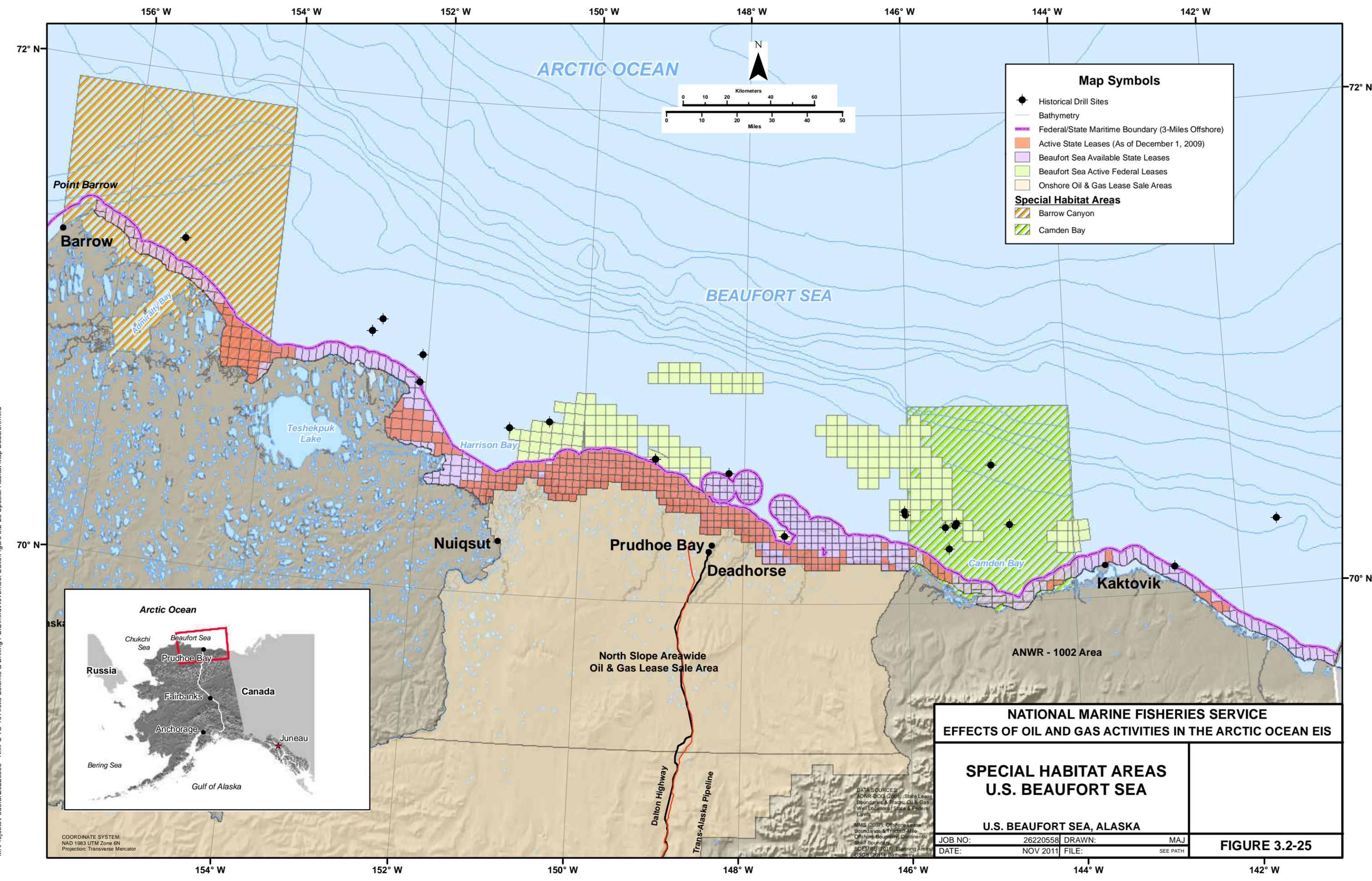
U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO:	26220558	DRAWN:	MAJ
DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.2-24

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 USFWS (2011): Polar Bear
 Critical Habitat Data
 ADNR-DOG (2009): State Lease
 Boundaries & Tracts: Oil & Gas
 Well Locations, State & Federal
 Lands
 MMS (2007): Offshore Lease
 Boundaries & Tracts: 3-Mile
 Offshore Boundary, Continental
 Shelf Boundary
 BOEMRE (2011): Planning Areas



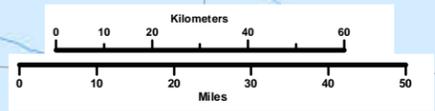
M:\projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.2-25 Special Habitat Map Beaufort.mxd

Map Symbols

- Historical Drill Sites
- Bathymetry
- Federal/State Maritime Boundary (3-Miles Offshore)
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas

Special Habitat Areas

- ▨ Barrow Canyon
- ▨ Camden Bay



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

SPECIAL HABITAT AREAS
U.S. BEAUFORT SEA

U.S. BEAUFORT SEA, ALASKA

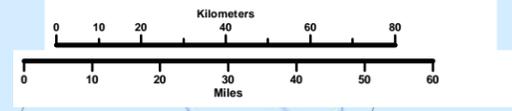
JOB NO:	26220558	DRAWN:	MAJ
DATE:	NOV 2011	FILE:	SEE PATH

DATA SOURCES:
ADNR-BOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEI\Sims\November Edits\Figure 3.2-26 Special Habitat Areas Map Chukchi.mxd

174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W



Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Chukchi Sea Active Federal Leases

Special Habitat Areas

- ▨ Barrow Canyon
- ▨ Hanna Shoal
- ▨ Kasegaluk Lagoon
- ▨ Ledyard Bay Critical Habitat Unit

70° N

68° N

72° N

70° N

Russia Maritime Boundary
U.S. Maritime Boundary

Cape Lisburne

Point Hope

Point Lay

Icy Cape

CHUKCHI SEA

Wainwright

Point Franklin

PEARL BAY

Point Barrow

Barrow

Atqasuk

ARCTIC OCEAN

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

SPECIAL HABITAT AREAS
U.S. CHUKCHI SEA

U.S. CHUKCHI SEA, ALASKA

JOB NO:	26220558	DRAWN:	MAJ
DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.2-26

DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands, NOAA (2008): Ledyard Critical Habitat Unit
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary, Continental Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry

168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W

Figure 3.3-1 2009 Alaska Economic Performance Report.

Source: ADCCED 2011d

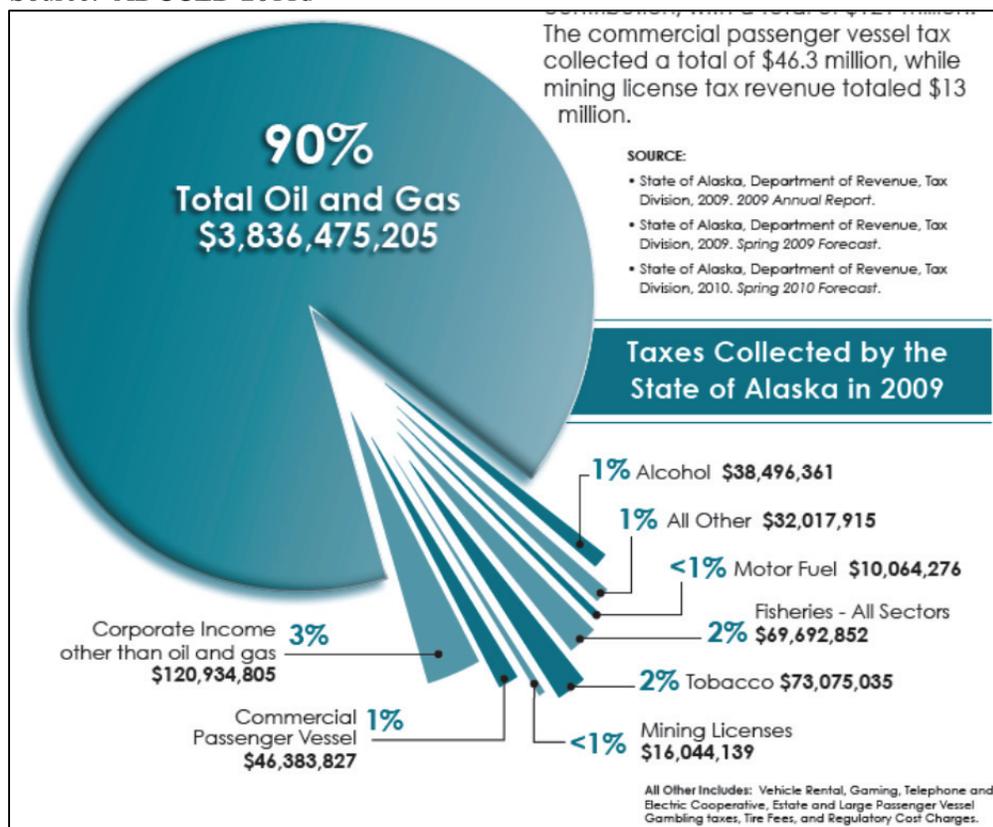


Figure 3.3-2 Statewide Employment by Section (February 2011).

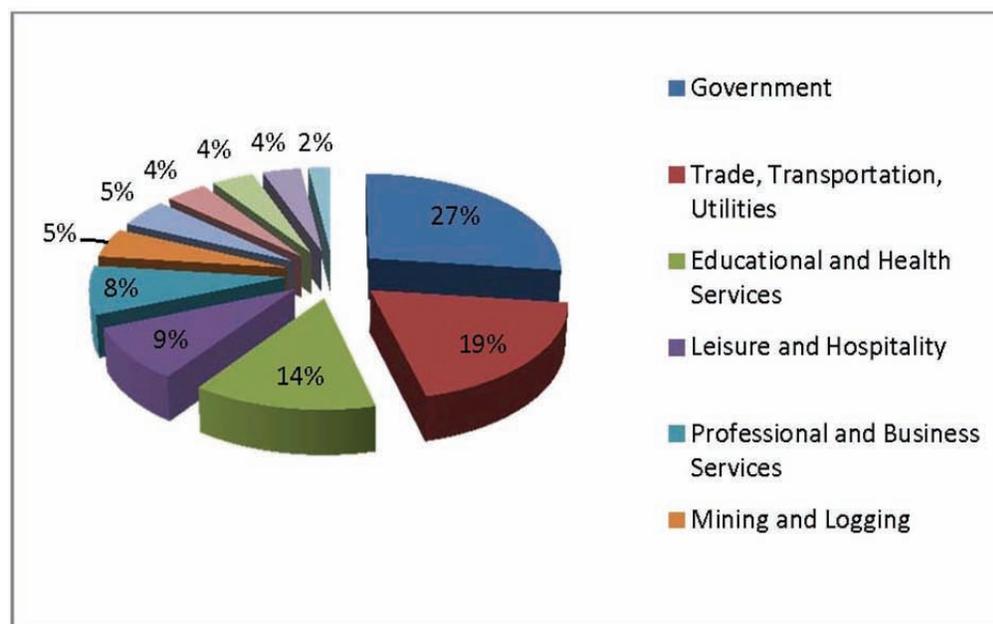


Figure 3.3-3 Local Capture of Large-Scale Resource Extraction from Remote Region Alaska (Million \$).

Source: Goldsmith 2007 Calculated by URS in 2003 dollars

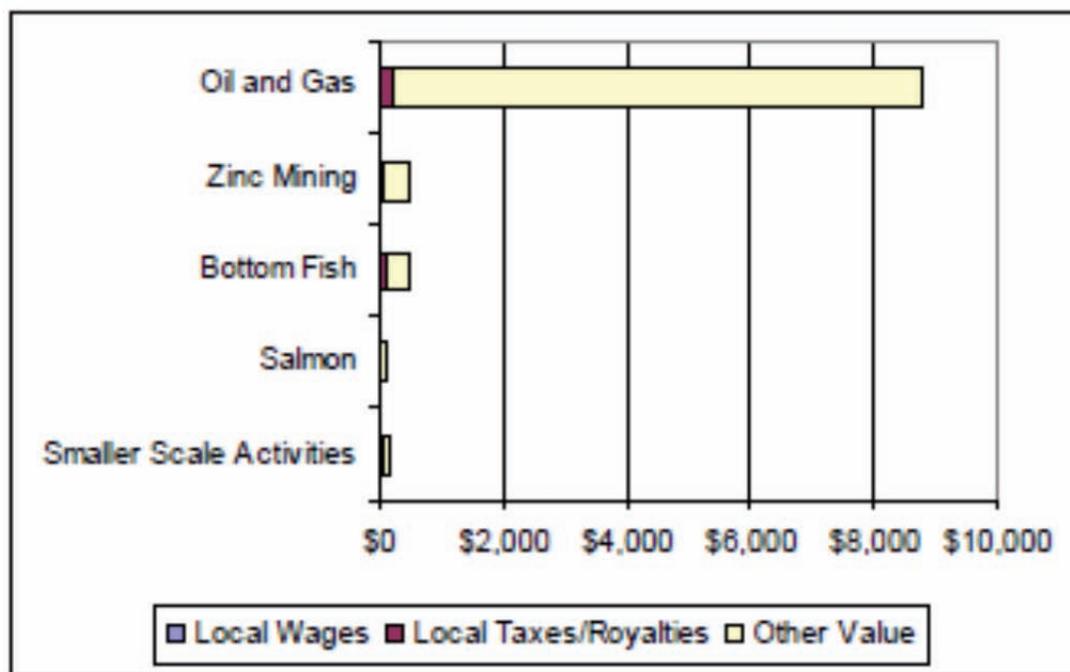


Figure 3.3-4a Top Employers in the NSB (2003).

Source: NSB 2003 Economic Profile and Census Report

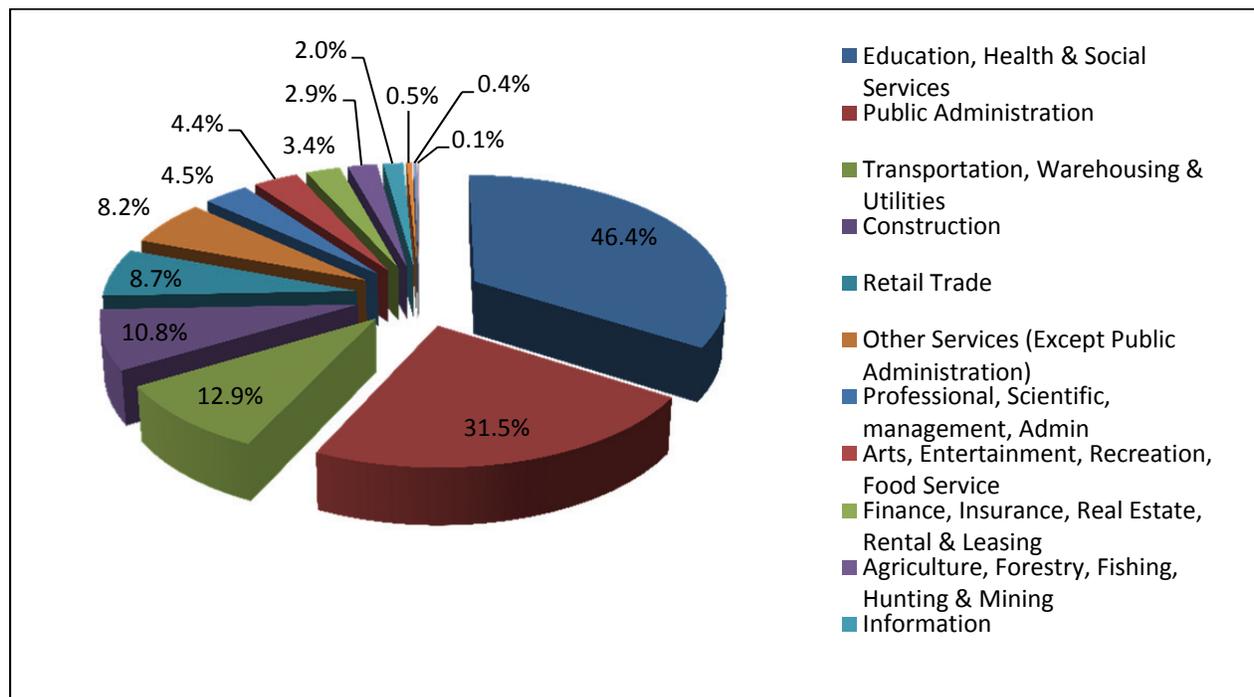


Figure 3.3-4b NSB Employment by Sector (2000).

Source: Alaska Department of Community & Regional Affairs, Community Database Online from 2000 Census

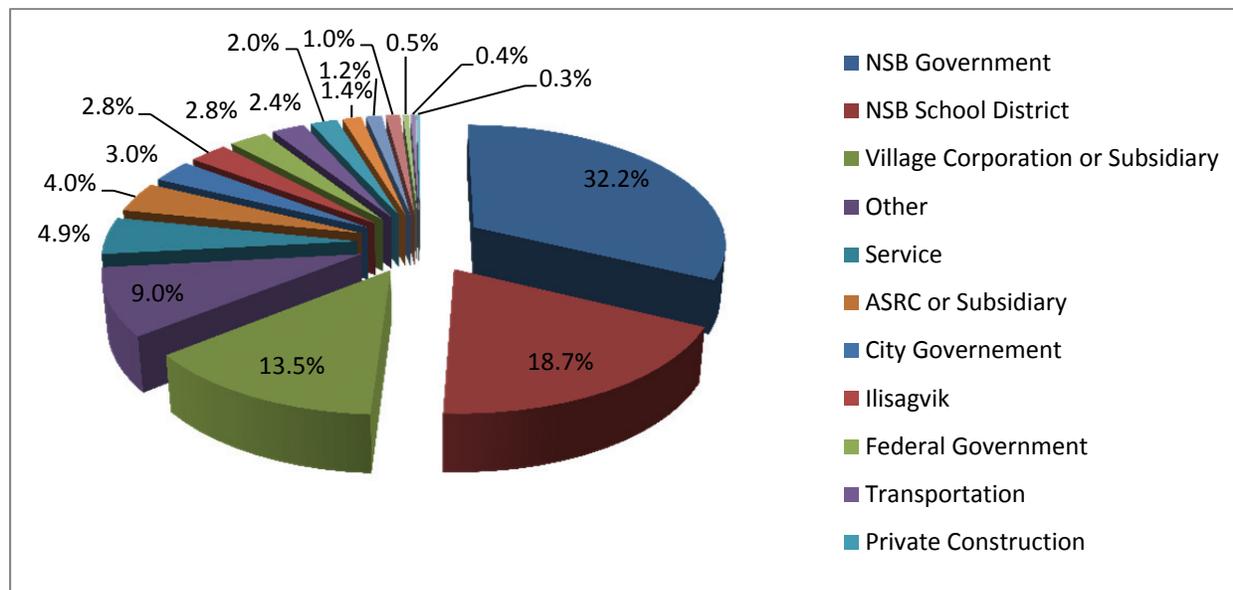


Figure 3.3-4c NAB Major Employment Sectors

Source: Alaska Department of Community & Economic Development, Community Database Online (from 2000 Census)

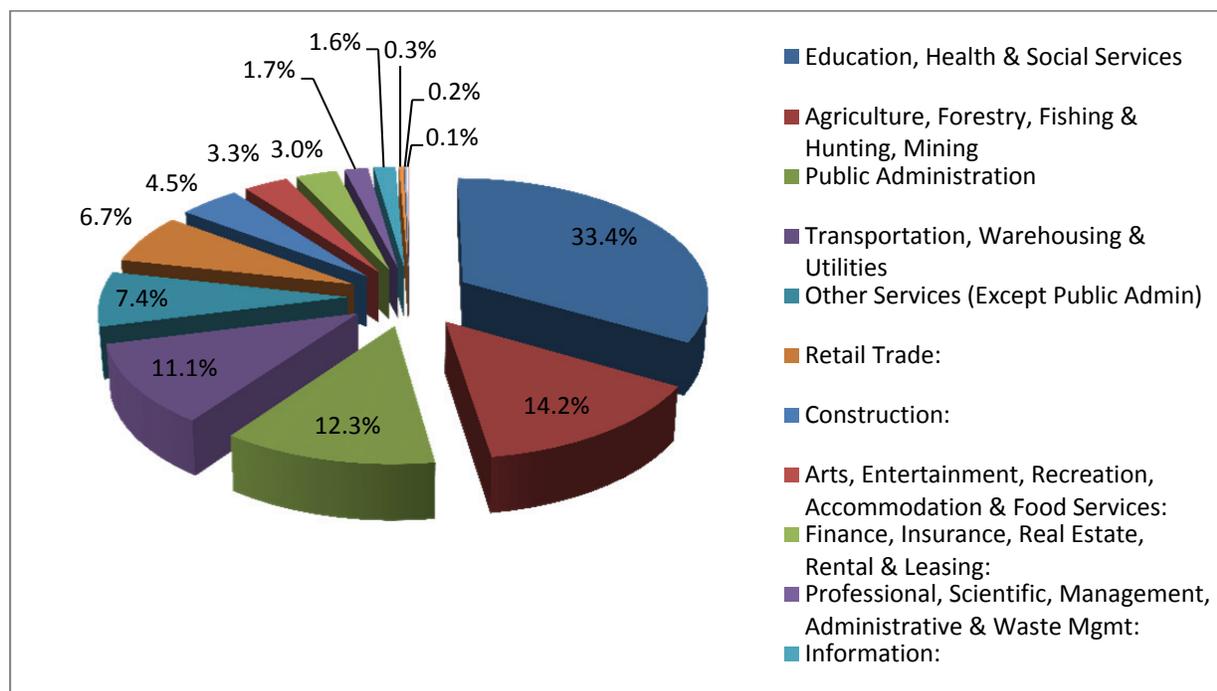


Figure 3.3-5 Percent of Resident Workers by Wage Range (2009).

Source: ADLWD 2011a

Note: Northern Region is indicated in blue (North Slope Borough, Northwest Arctic Borough, and Nome Census Area); State of Alaska is indicated in black.

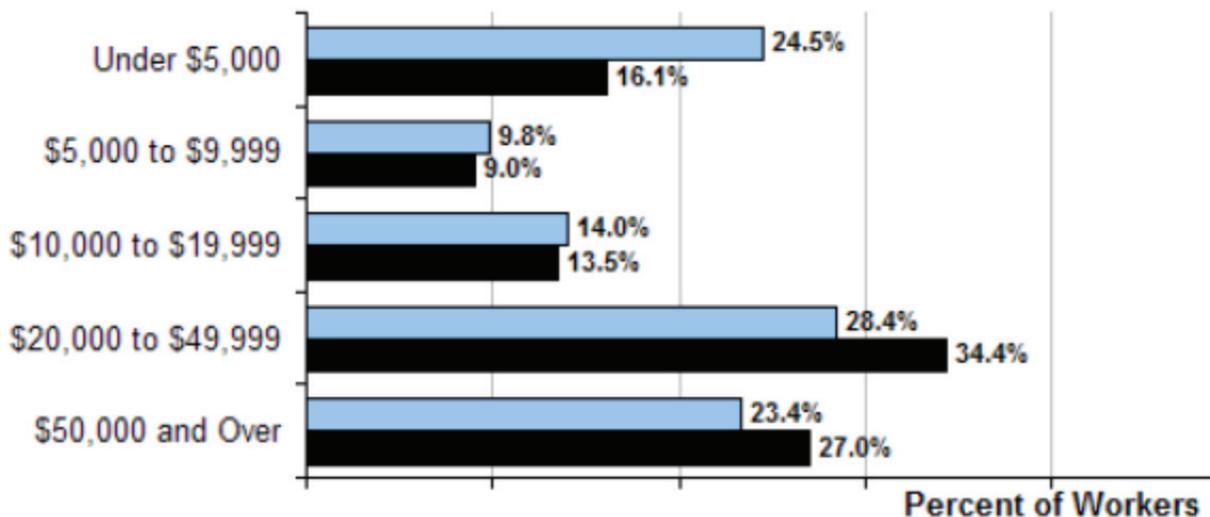


Figure 3.3-6 Efficiency (number landed / number struck) of the bowhead whale subsistence harvest 1973 to 2007.

Source: Suydam et al. 2007

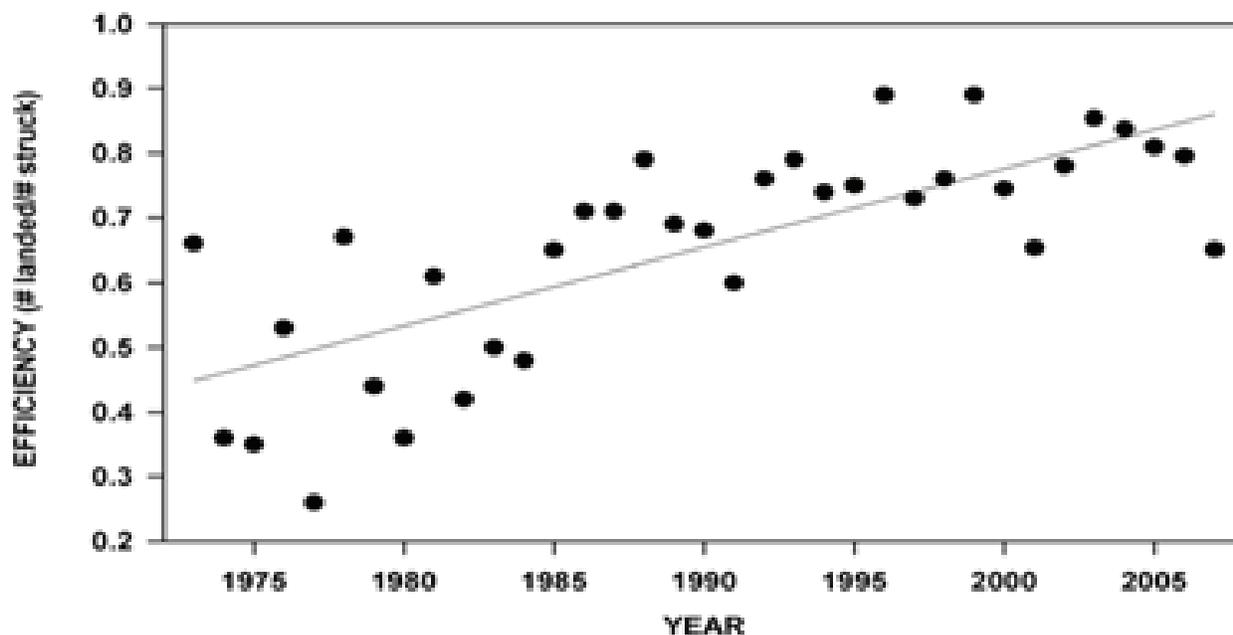


Figure 3.3-7 Number of bowheads landed, and struck by subsistence hunters in the U.S., Canada, and Russia from 1974 to 2006.

Source: NMFS 2008

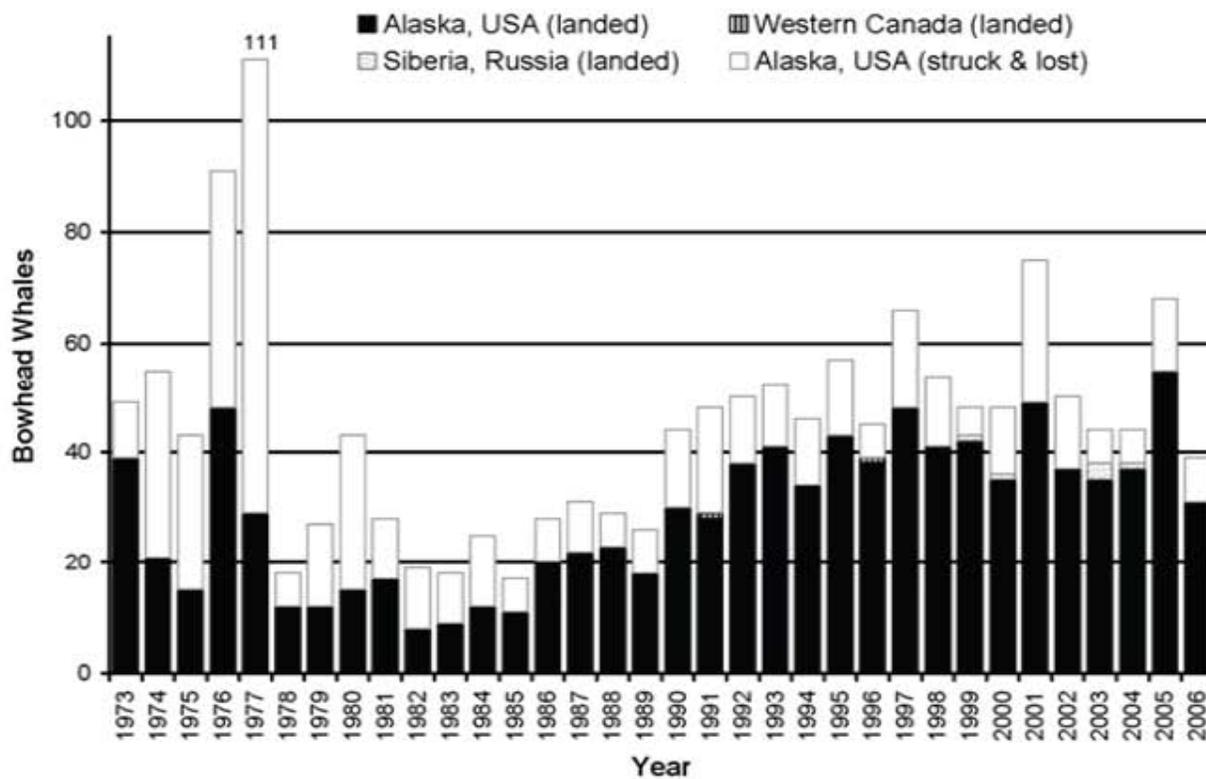


Figure 3.3-8 Winter sea ice in the Beaufort Sea

Source: <http://www.photolib.noaa.gov/bigs/corp1014.jpg>

Note: Stamukhi zone in the foreground and flatter, smoother, landfast ice in the background.



Figure 3.3-9 Ice floes in the Chukchi Sea

Source: <http://www.aslo.org/photopost/showphoto.php/photo/860/sort/1/size/medium/cat/all/page/2>



Figure 3.3-10 Coastal flow lead near Barrow, Alaska.

Source: <http://boemre-new.gina.alaska.edu/>

Note: Landfast ice is on the left and drifting pack ice on the right.



Figure 3.3-11 Open water off the coast of Barrow, Alaska (Summer).

Source: URS Corporation



Figure 3.3-12 Summer in Kotzebue, located on the Chukchi Sea.

Source: <http://www.alaska-in-pictures.com/kotzebue-and-chukchi-sea-3103-pictures.htm>



Figure 3.3-13 Vegetation located within the EIS project area.



Figure 3.3-14 Oil and Gas Development, Prudhoe Bay.

Source: URS Corporation



Figure 3.3-15 `Mars Ice Island, Beaufort Sea Alaska.

Source: <http://www.alaska.boemre.gov/kids/shorts/iceislnd/iceislnd.htm>

Image shows a 60 day exploratory well built offshore, 8 km off Cape Halkut near NPR-A.



Figure 3.3-16 Pioneer Natural Gas, Oooguruk exploratory drilling site.

Source: <http://qa.pennenergy.com/index/petroleum/display/337896/articles/offshore/volume-68/issue-8/Arctic-frontiers/oooguruk-project-offshore-alaska.html>

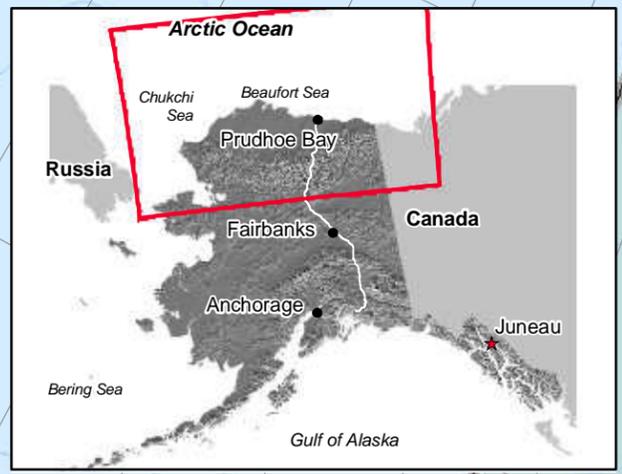


Figure 3.3-17 BP, Liberty exploratory drilling site.

Source: <http://www.onepennysheet.com/wp-content/uploads/2010/06/bp-liberty-project-in-ak-fake-island1.jpg>



180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W

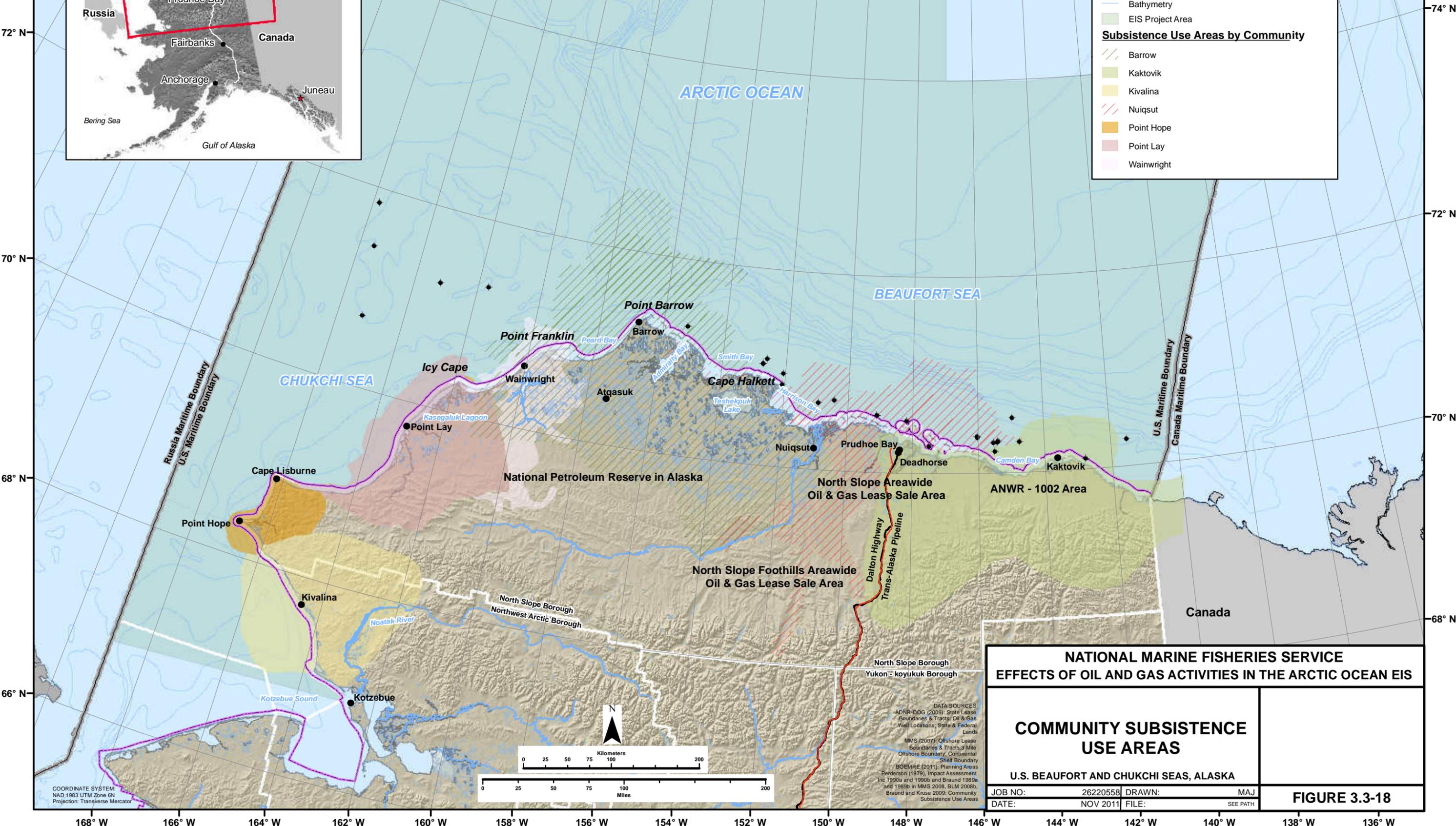


Map Symbols

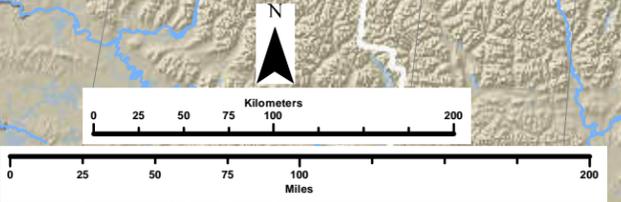
- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- EIS Project Area

Subsistence Use Areas by Community

- ▨ Barrow
- Kaktovik
- Kivalina
- ▨ Nuiqsut
- Point Hope
- Point Lay
- Wainwright



COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator



DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
MMS (2007): Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
BOEMRE (2011): Planning Areas
Parderson (1979), Impact Assessment Inc 1990a and 1990b and Braund 1989a and 1989b in MMS 2008, BLM 2008b, Braund and Kruse 2009: Community Subsistence Use Areas

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

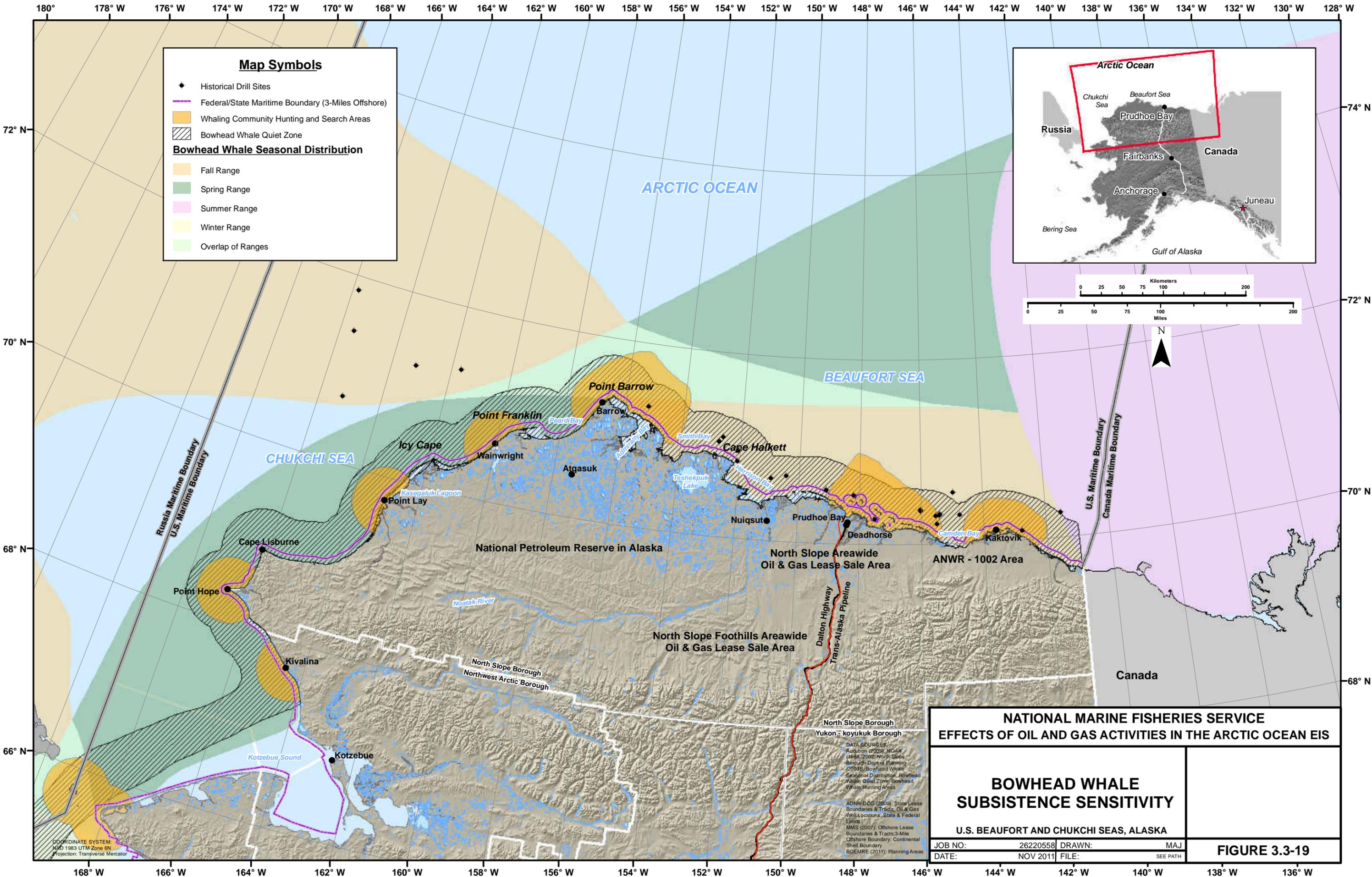
COMMUNITY SUBSISTENCE USE AREAS

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

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FIGURE 3.3-18

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-18 Community Subsistence Use Areas.mxd

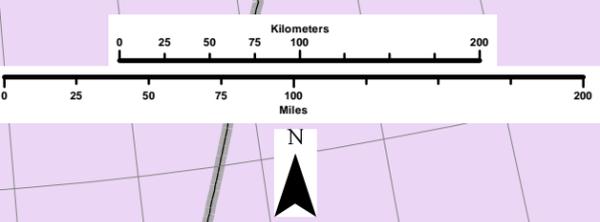


Map Symbols

- ◆ Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Whaling Community Hunting and Search Areas
- ▨ Bowhead Whale Quiet Zone

Bowhead Whale Seasonal Distribution

- Fall Range
- Spring Range
- Summer Range
- Winter Range
- Overlap of Ranges



**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

**BOWHEAD WHALE
SUBSISTENCE SENSITIVITY**

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO: 26220558 DRAWN: MAJ
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FIGURE 3.3-19

DATA SOURCES:
Aurubon (2009); NOAA (1988, 2002); North Slope Borough Dept of Planning (2003); Bowhead Whale Seasonal Distribution; Bowhead Whale Quiet Zone; Bowhead Whale Hunting Areas

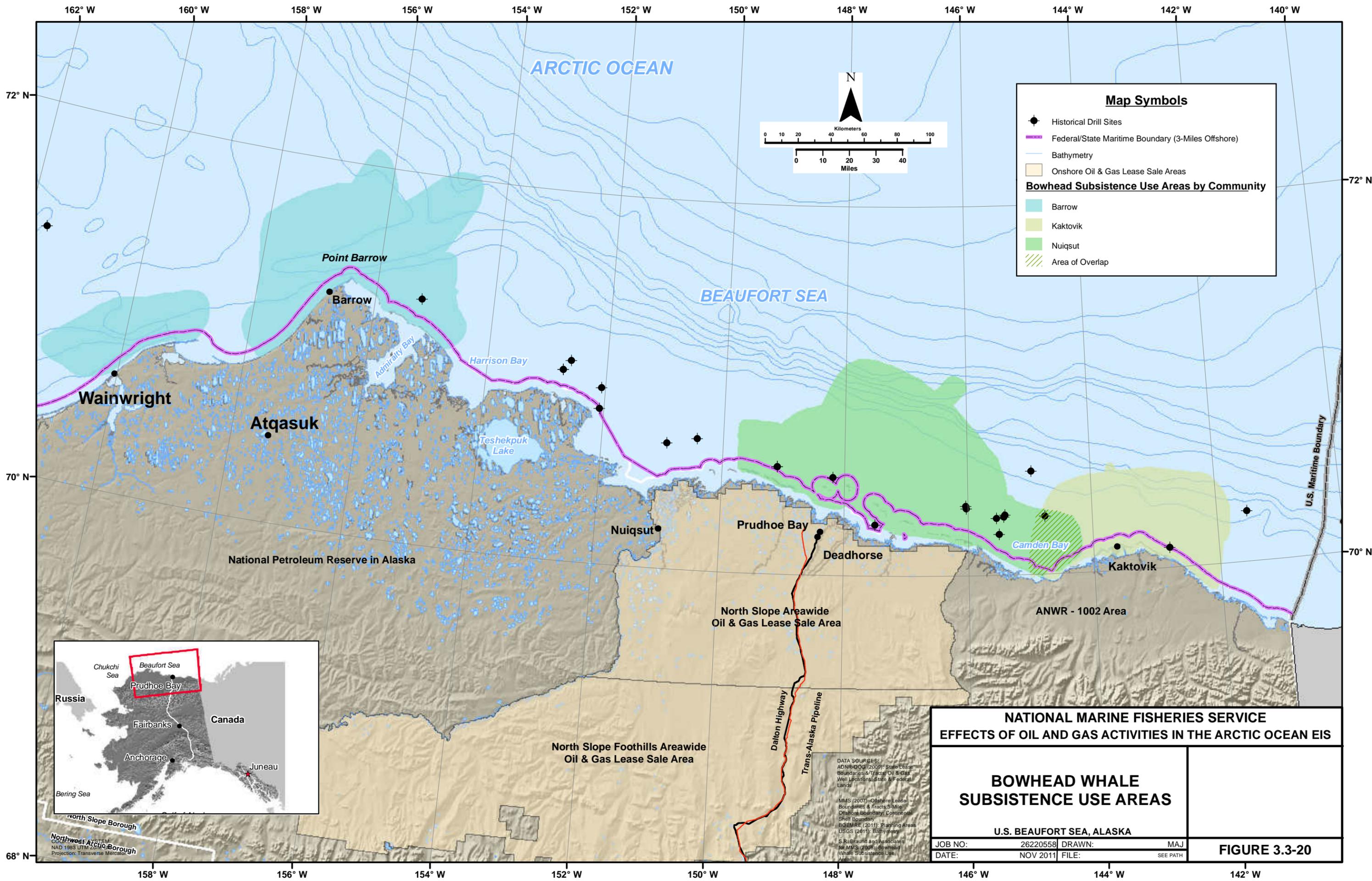
ADMIN: DOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands

MMS (2007); Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary

BOEMRE (2011); Planning Areas

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-19 Bowhead Whales Subsistence Sensitivity.mxd

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-20 Beaufort Sea - Bowhead Whale Subsistence Use Areas.mxd

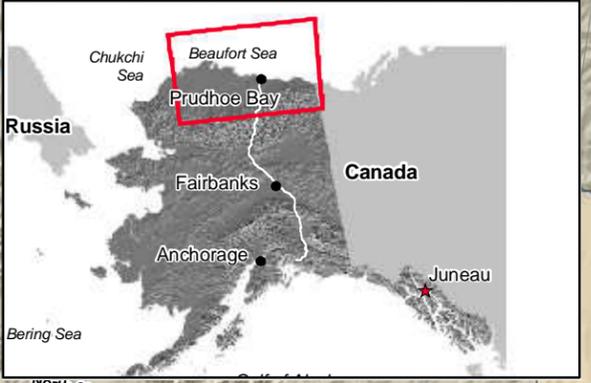
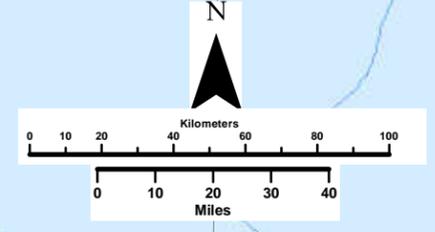


Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

Bowhead Subsistence Use Areas by Community

- Barrow
- Kaktovik
- Nuiqsut
- ▨ Area of Overlap



DATA SOURCES:
 ADNOR-DOG (2009): State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007): Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
 BOEMRE (2011): Planning Areas
 USGS (2011): Bathymetry
 S. R. Braund and Associates for MMS (2006): Bowhead Whale Subsistence Use Areas

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

BOWHEAD WHALE SUBSISTENCE USE AREAS

U.S. BEAUFORT SEA, ALASKA

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DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.3-20

174° E 176° E 180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W

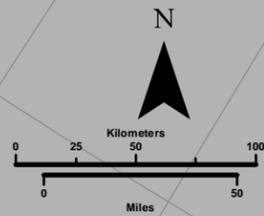


Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- EIS Project Area

Bowhead Subsistence Use Areas by Community

- Barrow
- Point Hope
- Wainwright
- Kivalina
- Areas of Overlap



68° N

66° N

64° N

72° N

70° N

68° N

**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

**BOWHEAD WHALE
SUBSISTENCE USE AREAS**

U.S. CHUKCHI SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
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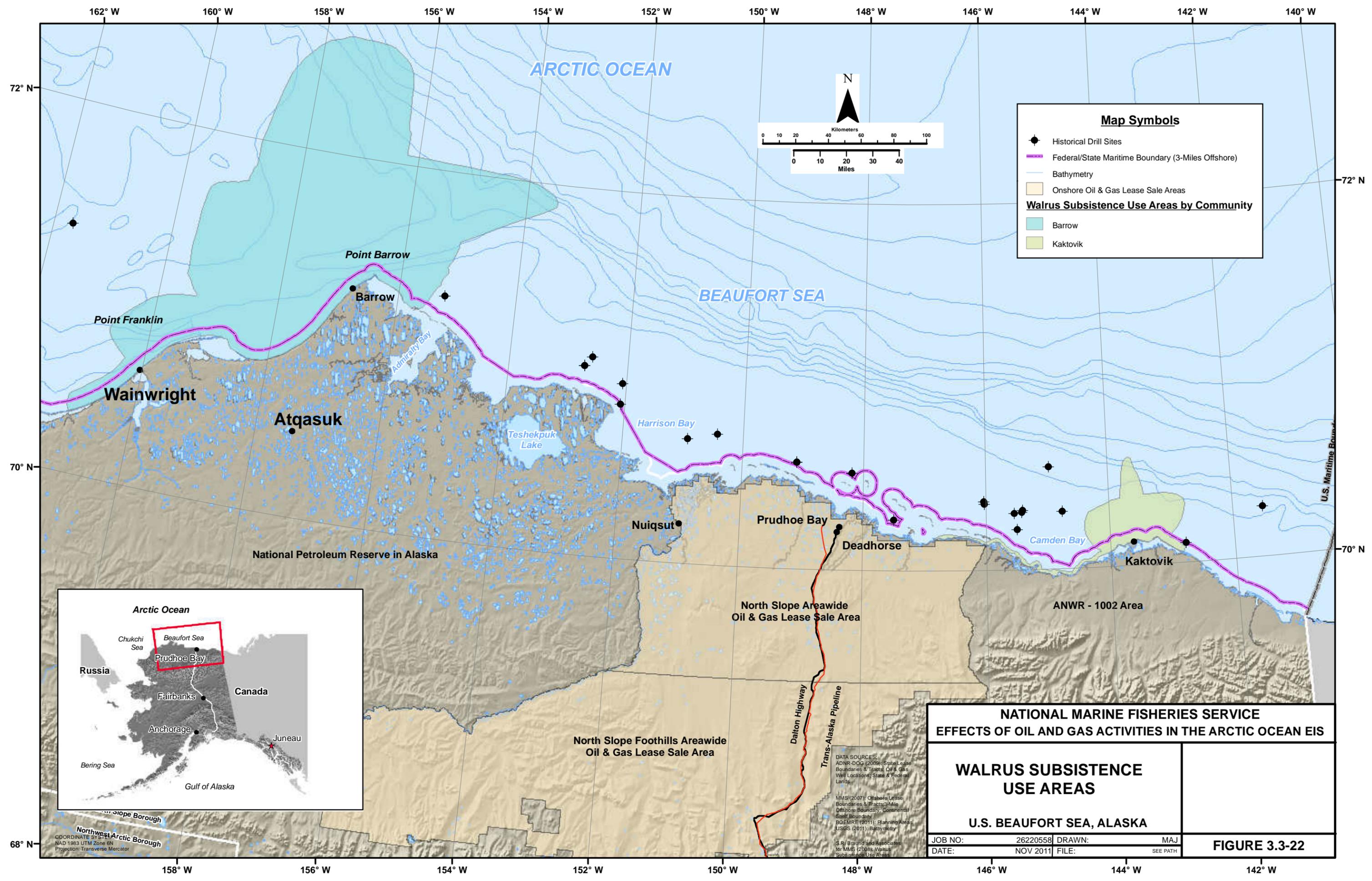
FIGURE 3.3-21

DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry
Brand and Burnham (1984)
Brand (2000) in MMS 2008
Brand 2009: Bowhead Subsistence Use Areas

176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-21 Chukchi Sea - Bowhead Whale Subsistence Use Areas.mxd

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-22 Beaufort Sea - Walrus Subsistence Use Areas.mxd



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

WALRUS SUBSISTENCE
USE AREAS

U.S. BEAUFORT SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.3-22

DATA SOURCES:
 ADNDR-DOG (2009) State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007) Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011) Planning Areas
 USGS (2011) Bathymetry
 S.R. Braund and Associates for MMS (2006) Walrus Subsistence Use Areas

174° E 180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W



Map Symbols

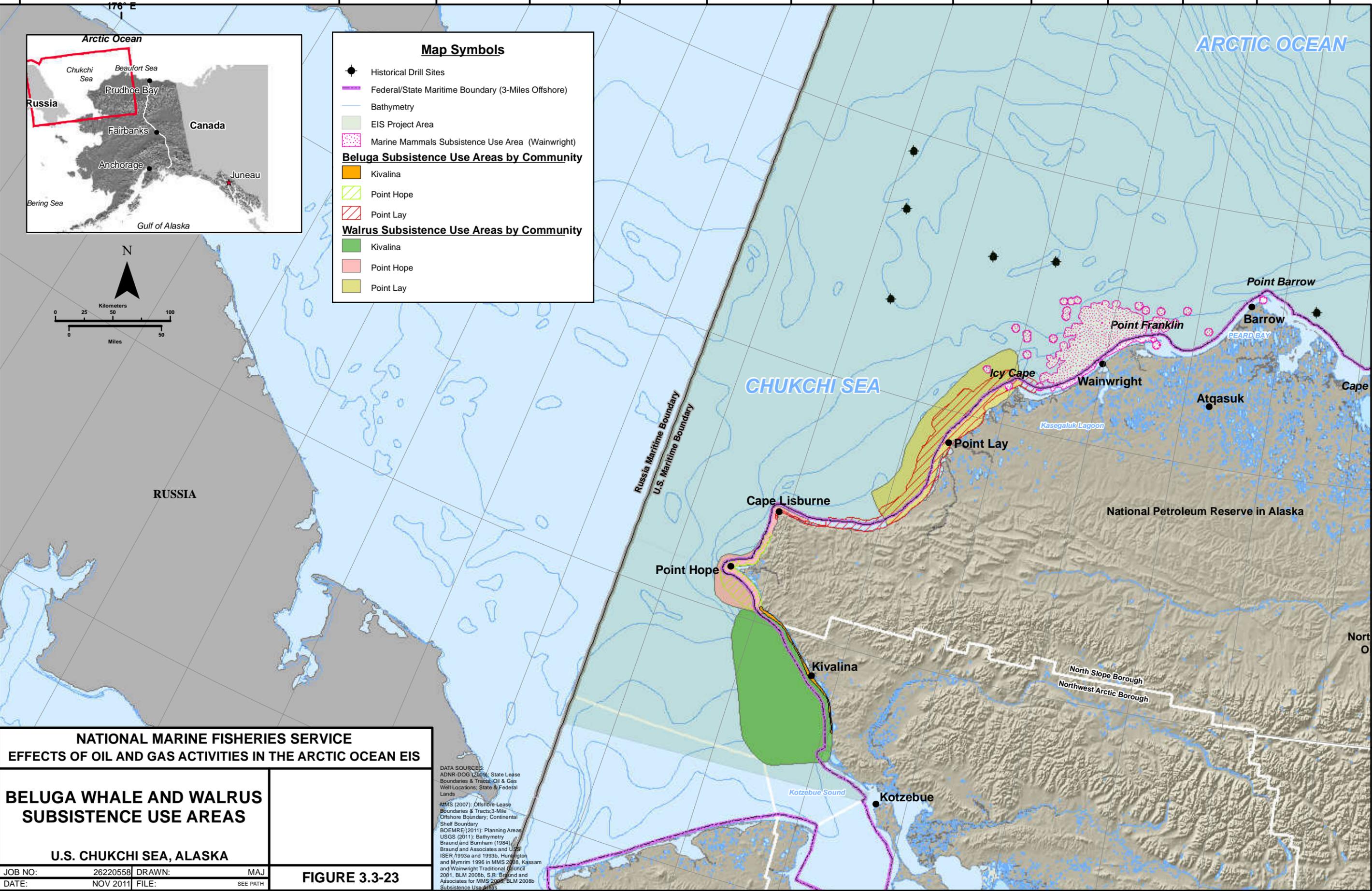
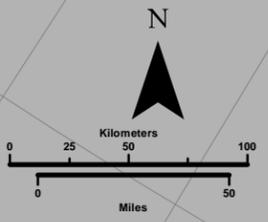
- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- EIS Project Area
- Marine Mammals Subsistence Use Area (Wainwright)

Beluga Subsistence Use Areas by Community

- Kivalina
- Point Hope
- Point Lay

Walrus Subsistence Use Areas by Community

- Kivalina
- Point Hope
- Point Lay



**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

**BELUGA WHALE AND WALRUS
SUBSISTENCE USE AREAS**

U.S. CHUKCHI SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.3-23

DATA SOURCES:
ADNR-DOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
ANIS (2007); Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011); Planning Areas
USGS (2011); Bathymetry
Braund and Burnham (1994); Braund and Associates and USGS ISER 1993a and 1993b; Huntington and Myrman 1996 in MMS 2008; Kassam and Wainwright Traditional Council 2001; BLM 2008b; S.R. Braund and Associates for MMS 2008; BLM 2008b Subsistence Use Areas

176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-23 Chukchi Sea - Beluga Whale and Walrus Subsistence Use Areas.mxd

162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W

72° N

72° N

70° N

70° N

ARCTIC OCEAN

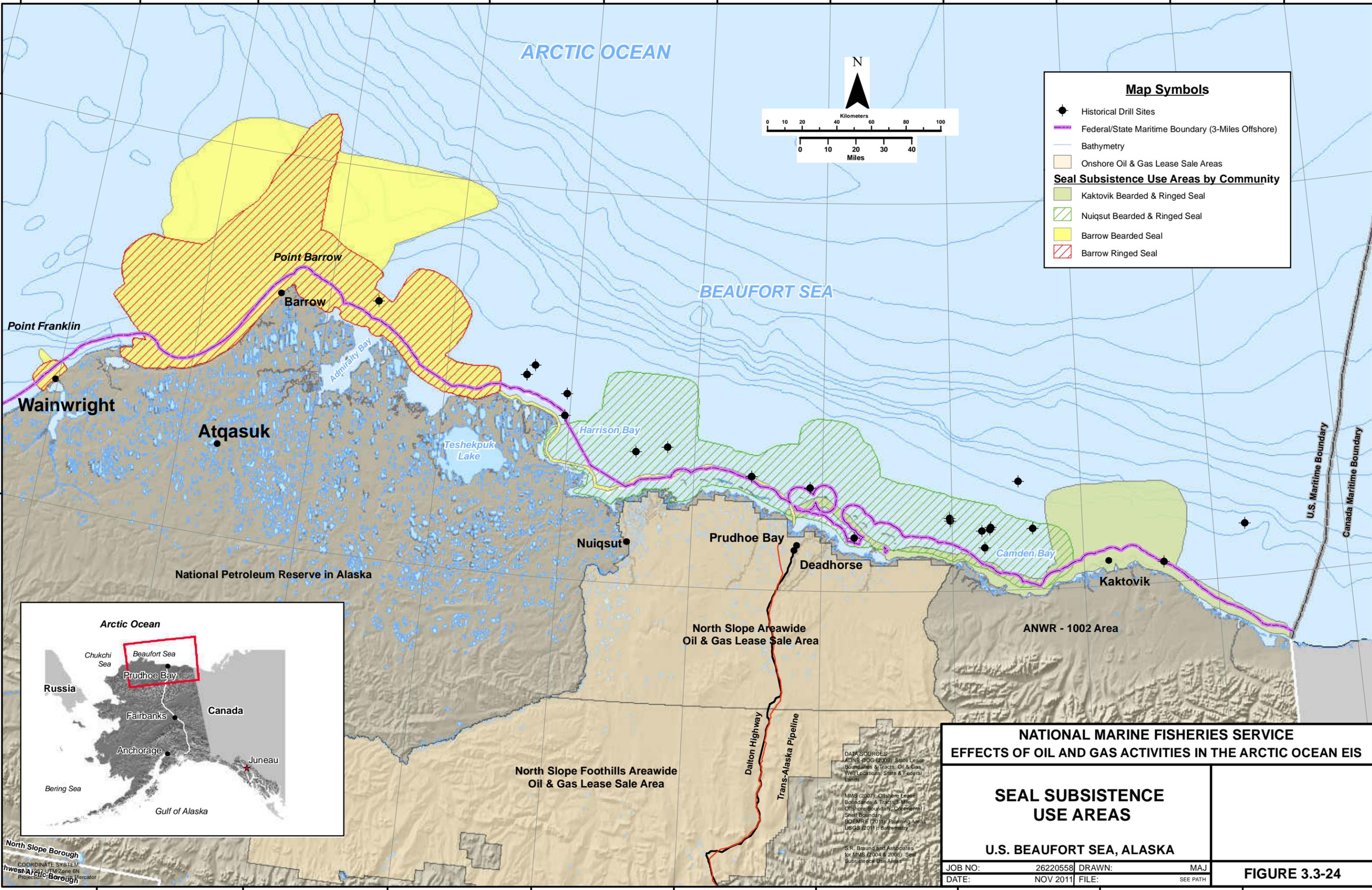
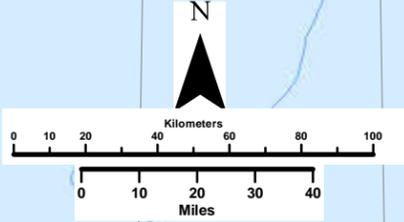
BEAUFORT SEA

Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas

Seal Subsistence Use Areas by Community

- Kaktovik Bearded & Ringed Seal
- Nuiqsut Bearded & Ringed Seal
- Barrow Bearded Seal
- Barrow Ringed Seal



DATA SOURCES:
 ADNRC (2008): State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007): Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Commercial Shelf Boundary
 BOENRE (2011): Planning Areas
 USGS (2011): Bathymetry
 S.R. Braund and Associates for MMS (2004 & 2006): Seal Subsistence Use Areas

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

SEAL SUBSISTENCE USE AREAS
U.S. BEAUFORT SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.3-24

158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W

M:\projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-24 Beaufort Sea - Seal Subsistence Use Areas.mxd

174° E 180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W

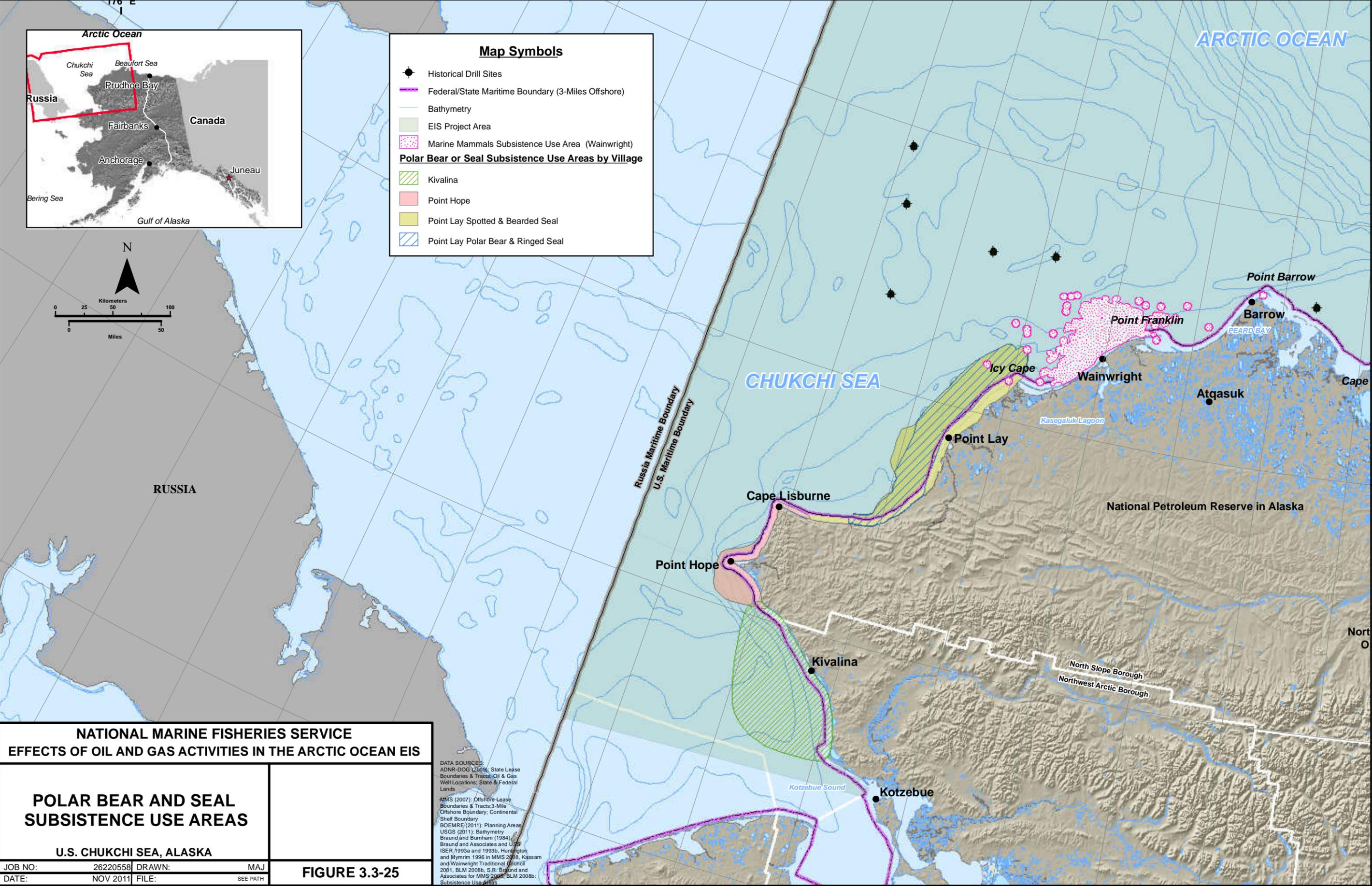
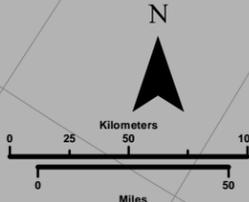


Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- EIS Project Area
- Marine Mammals Subsistence Use Area (Wainwright)

Polar Bear or Seal Subsistence Use Areas by Village

- Kivalina
- Point Hope
- Point Lay Spotted & Bearded Seal
- Point Lay Polar Bear & Ringed Seal



**NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS**

**POLAR BEAR AND SEAL
SUBSISTENCE USE AREAS**

U.S. CHUKCHI SEA, ALASKA

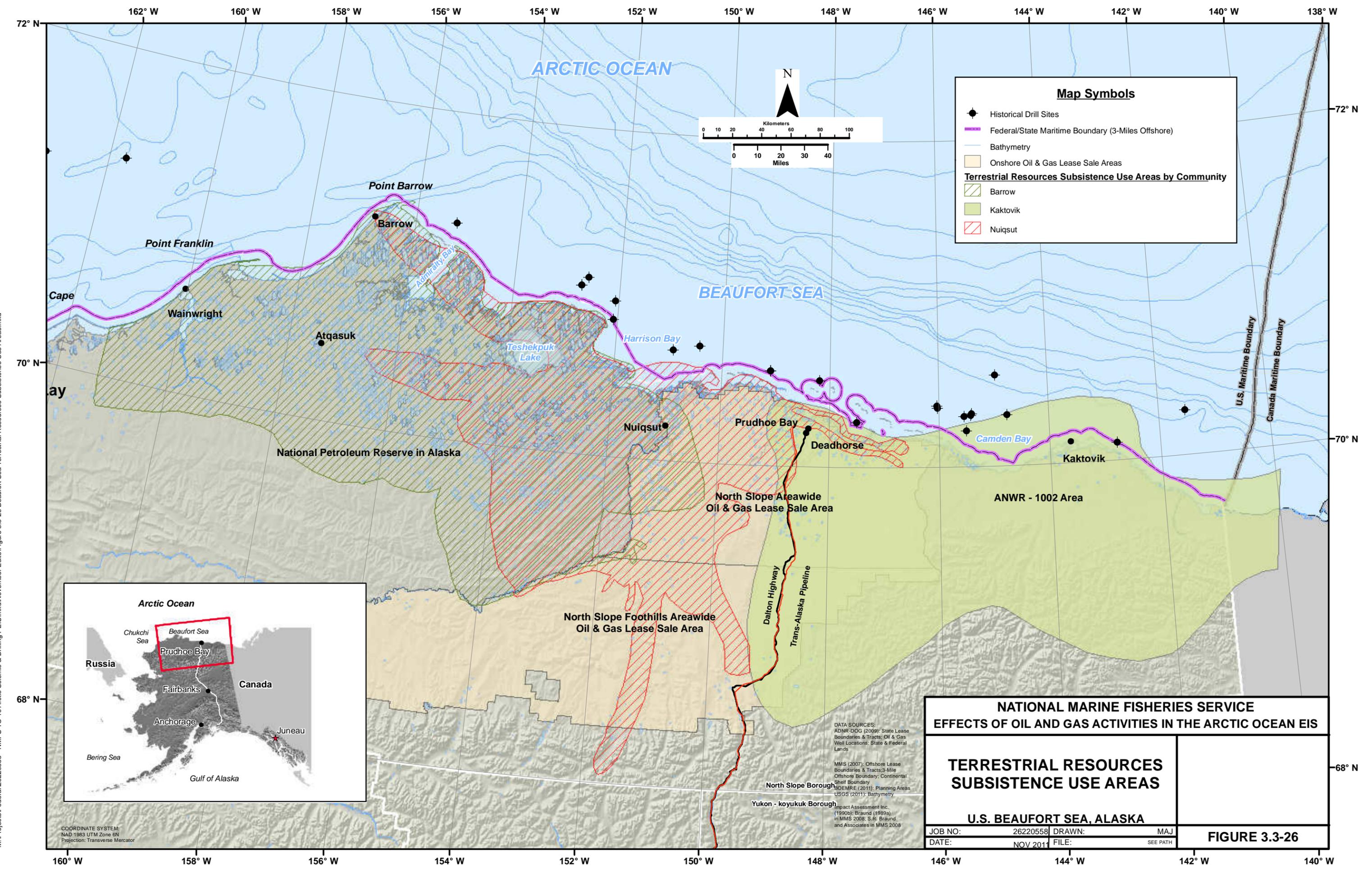
JOB NO: 26220558 DRAWN: MAJ
DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.3-25

DATA SOURCES:
ADNR-DOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
ANIS (2007); Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011); Planning Areas
USGS (2011); Bathymetry Braund and Burnham (1994); Braund and Associates and USGS ISER 1993a and 1993b; Huntington and Myrmm 1996 in MMS 2008; Kassam and Wainwright Traditional Council 2001; BLM 2008b; S.R. Braund and Associates for MMS 2008; BLM 2008b; Subsistence Use Areas

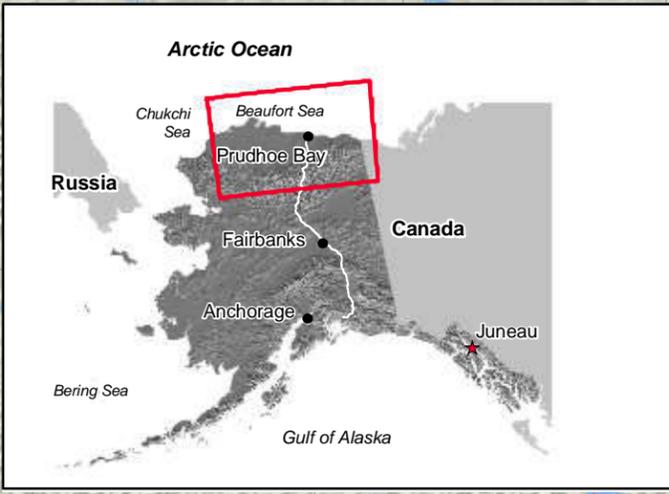
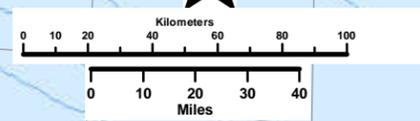
176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-25 Chukchi Sea Polar Bear and Seal Subsistence Use Areas.mxd



Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Onshore Oil & Gas Lease Sale Areas
- Terrestrial Resources Subsistence Use Areas by Community**
- ▨ Barrow
- Kaktovik
- ▨ Nuiqsut



DATA SOURCES:
 ADNDR-DOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007); Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011); Planning Areas
 USGS (2011); Bathymetry
 Impact Assessment Inc. (1990b); Braund (1999a) in MMS 2008; S.R. Braund and Associates in MMS 2008

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

TERRESTRIAL RESOURCES SUBSISTENCE USE AREAS

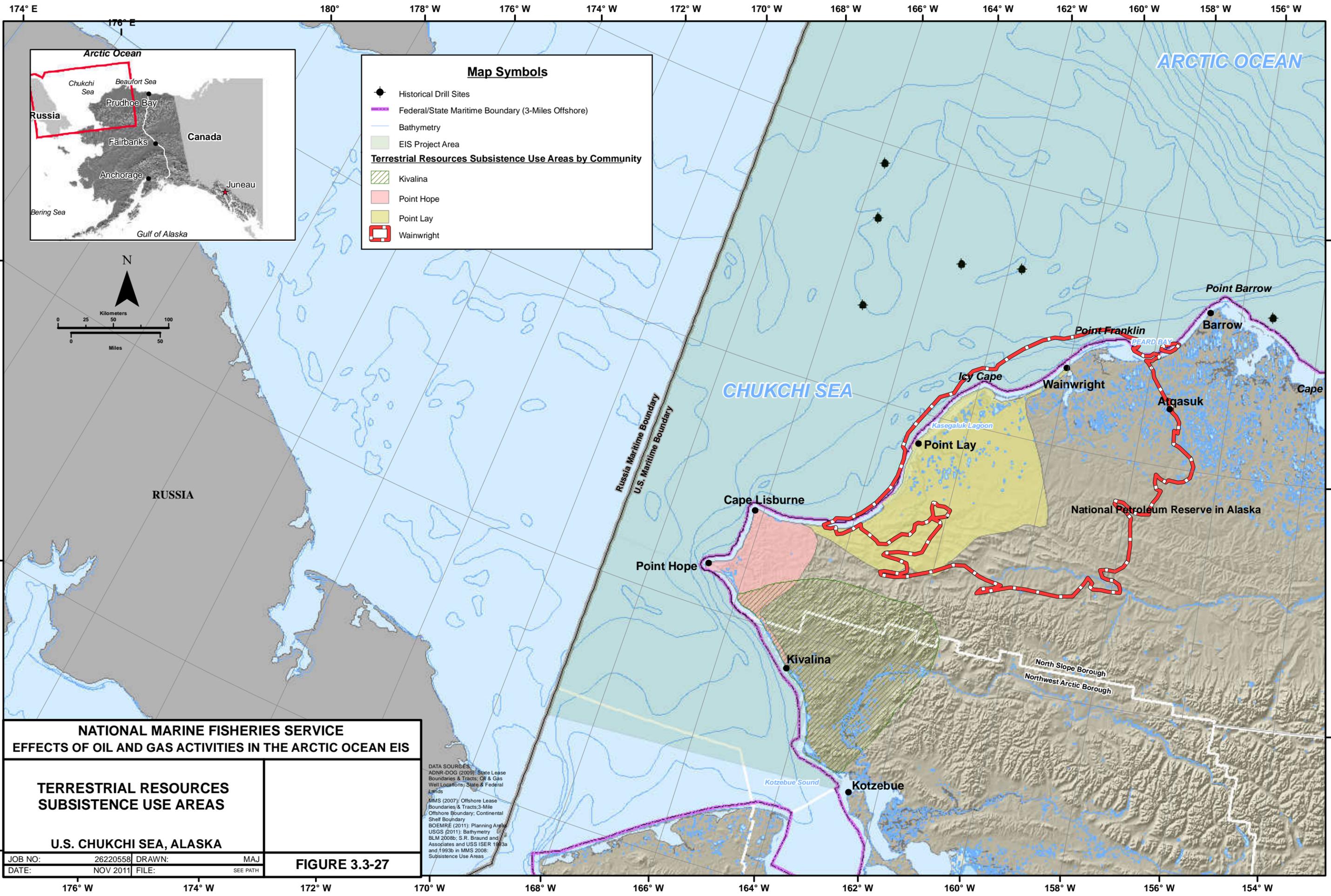
U.S. BEAUFORT SEA, ALASKA

JOB NO:	26220558	DRAWN:	MAJ
DATE:	NOV 2011	FILE:	SEE PATH

FIGURE 3.3-26

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-26 Beaufort Sea Terrestrial Resources Subsistence Use Areas.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

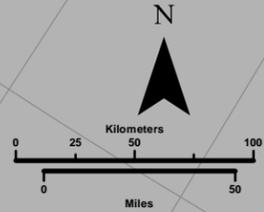


Map Symbols

- Historical Drill Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- EIS Project Area

Terrestrial Resources Subsistence Use Areas by Community

- Kivalina
- Point Hope
- Point Lay
- Wainwright



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

TERRESTRIAL RESOURCES
SUBSISTENCE USE AREAS

U.S. CHUKCHI SEA, ALASKA

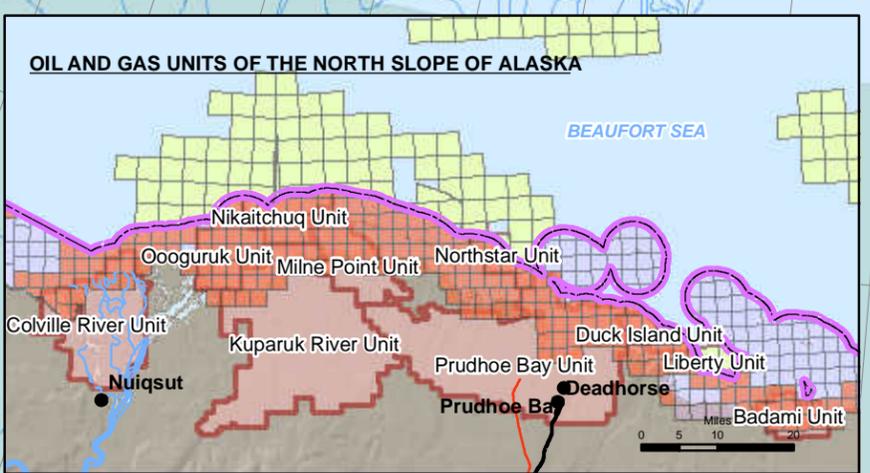
JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 3.3-27

DATA SOURCES:
 ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011): Planning Areas
 USGS (2011): Bathymetry
 BLM 2008b; S.R. Braund and Associates and USS ISER 1993a and 1993b in MMS 2008: Subsistence Use Areas

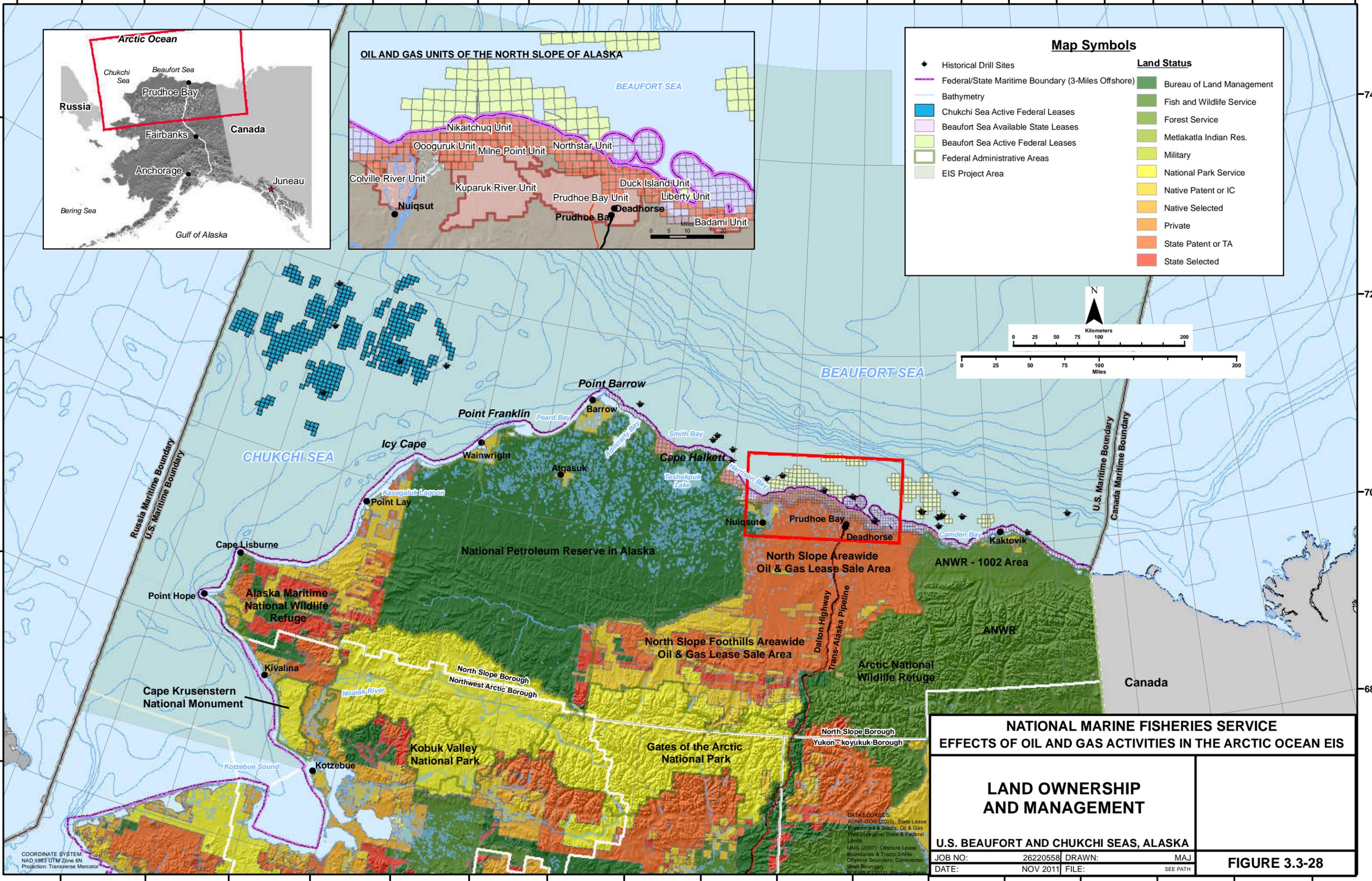
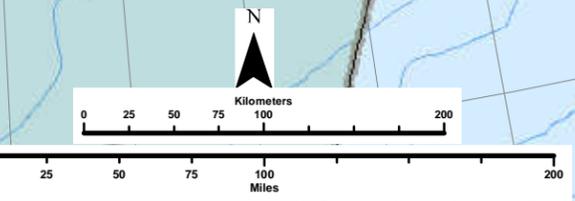
M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-27 Chukchi Sea Terrestrial Resources Subsistence Use Areas.mxd

180° 178° W 176° W 174° W 172° W 170° W 168° W 166° W 164° W 162° W 160° W 158° W 156° W 154° W 152° W 150° W 148° W 146° W 144° W 142° W 140° W 138° W 136° W 134° W 132° W 130° W 128° W



Map Symbols

◆	Historical Drill Sites	■	Bureau of Land Management
—	Federal/State Maritime Boundary (3-Miles Offshore)	■	Fish and Wildlife Service
—	Bathymetry	■	Forest Service
■	Chukchi Sea Active Federal Leases	■	Metlakatla Indian Res.
■	Beaufort Sea Available State Leases	■	Military
■	Beaufort Sea Active Federal Leases	■	National Park Service
■	Federal Administrative Areas	■	Native Patent or IC
■	EIS Project Area	■	Native Selected
		■	Private
		■	State Patent or TA
		■	State Selected



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

LAND OWNERSHIP AND MANAGEMENT

U.S. BEAUFORT AND CHUKCHI SEAS, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

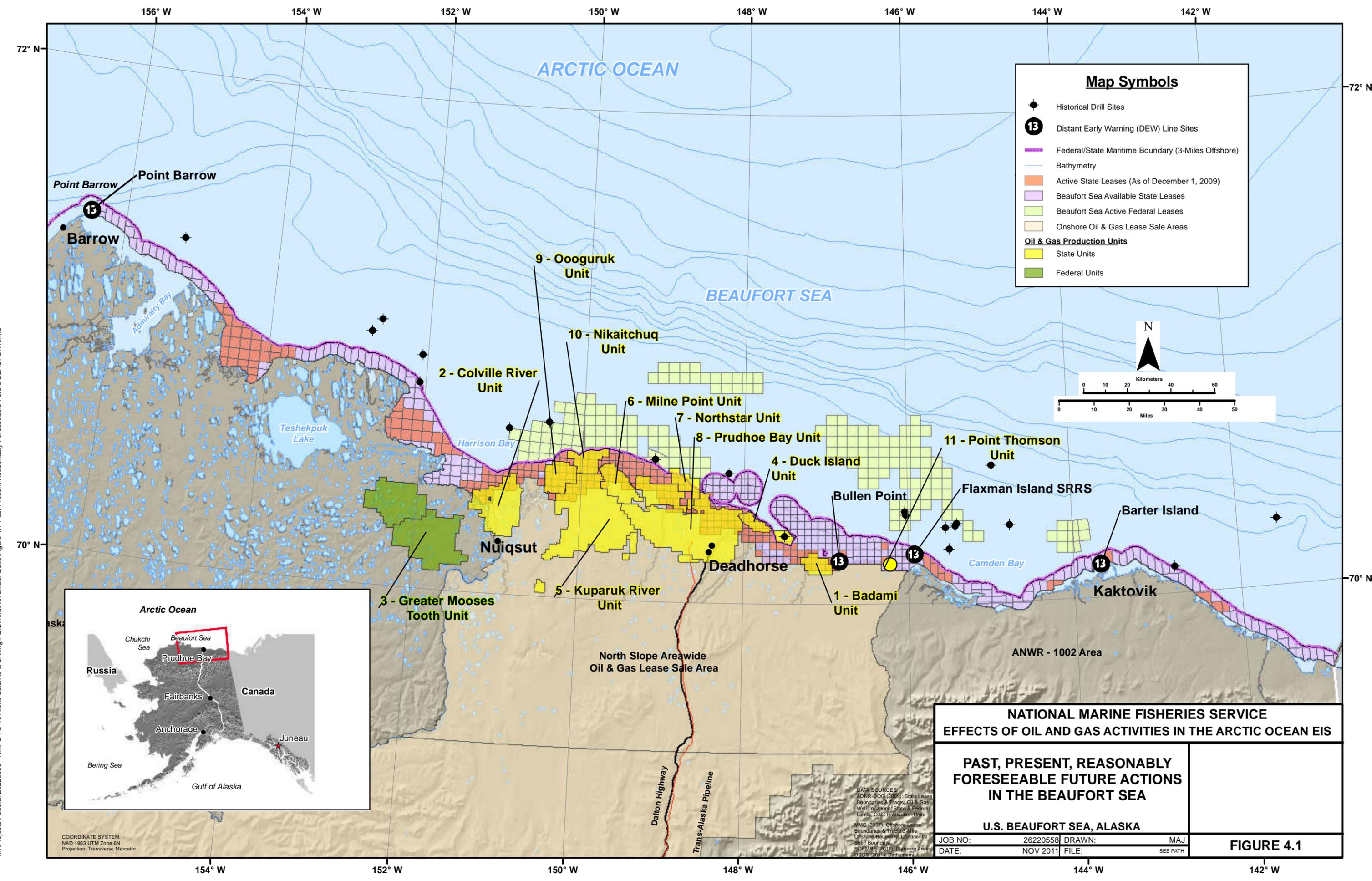
FIGURE 3.3-28

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 3.3-28 Land Ownership Management.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR-DOG (2009), State Lease Boundaries & Tracts, Oil & Gas Well Locations, State & Federal Lands
 MMS (2007), Offshore Lease Boundaries & Tracts, 3-Mile Offshore Boundary, Continental Shelf Boundary
 BOEM (2011), Planning Act

CHAPTER 4 FIGURES



Map Symbols

- Historical Drill Sites
- Distant Early Warning (DEW) Line Sites
- Federal/State Maritime Boundary (3-Miles Offshore)
- Bathymetry
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas

Oil & Gas Production Units

- State Units
- Federal Units

N

0 10 20 40 60
Kilometers

0 10 20 30 40 50
Miles



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

PAST, PRESENT, REASONABLY FORESEEABLE FUTURE ACTIONS IN THE BEAUFORT SEA

U.S. BEAUFORT SEA, ALASKA

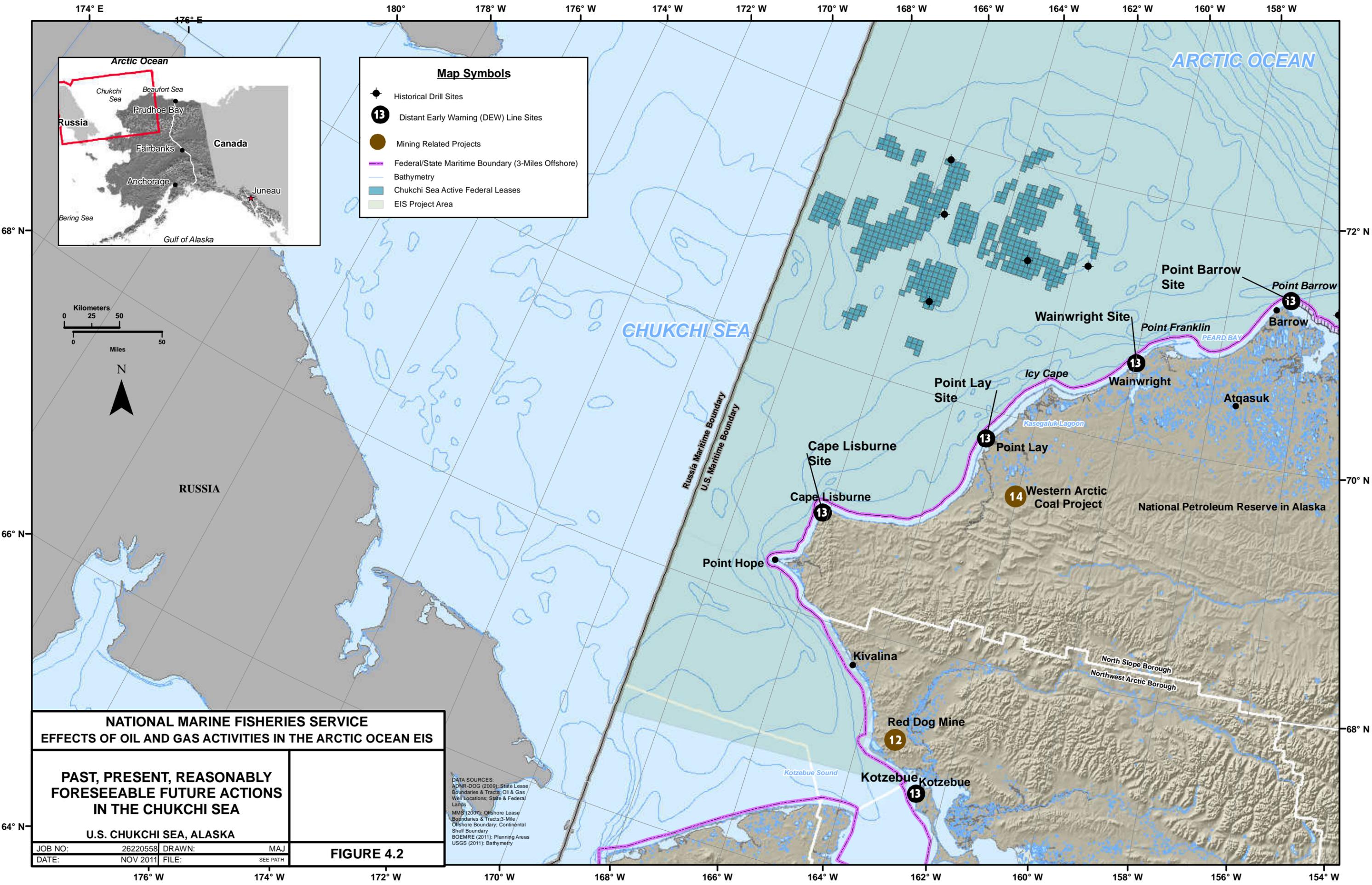
JOB NO: 26220558 DRAWN: MAJ
DATE: NOV 2011 FILE: SEE PATH

FIGURE 4.1

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

DATA SOURCES:
ADNR-BOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands, O&G Production Units
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\November Edits\Figure 4.1 Past, Present, Reasonably Foreseeable Future BEAUFORT.mxd



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

PAST, PRESENT, REASONABLY FORESEEABLE FUTURE ACTIONS IN THE CHUKCHI SEA

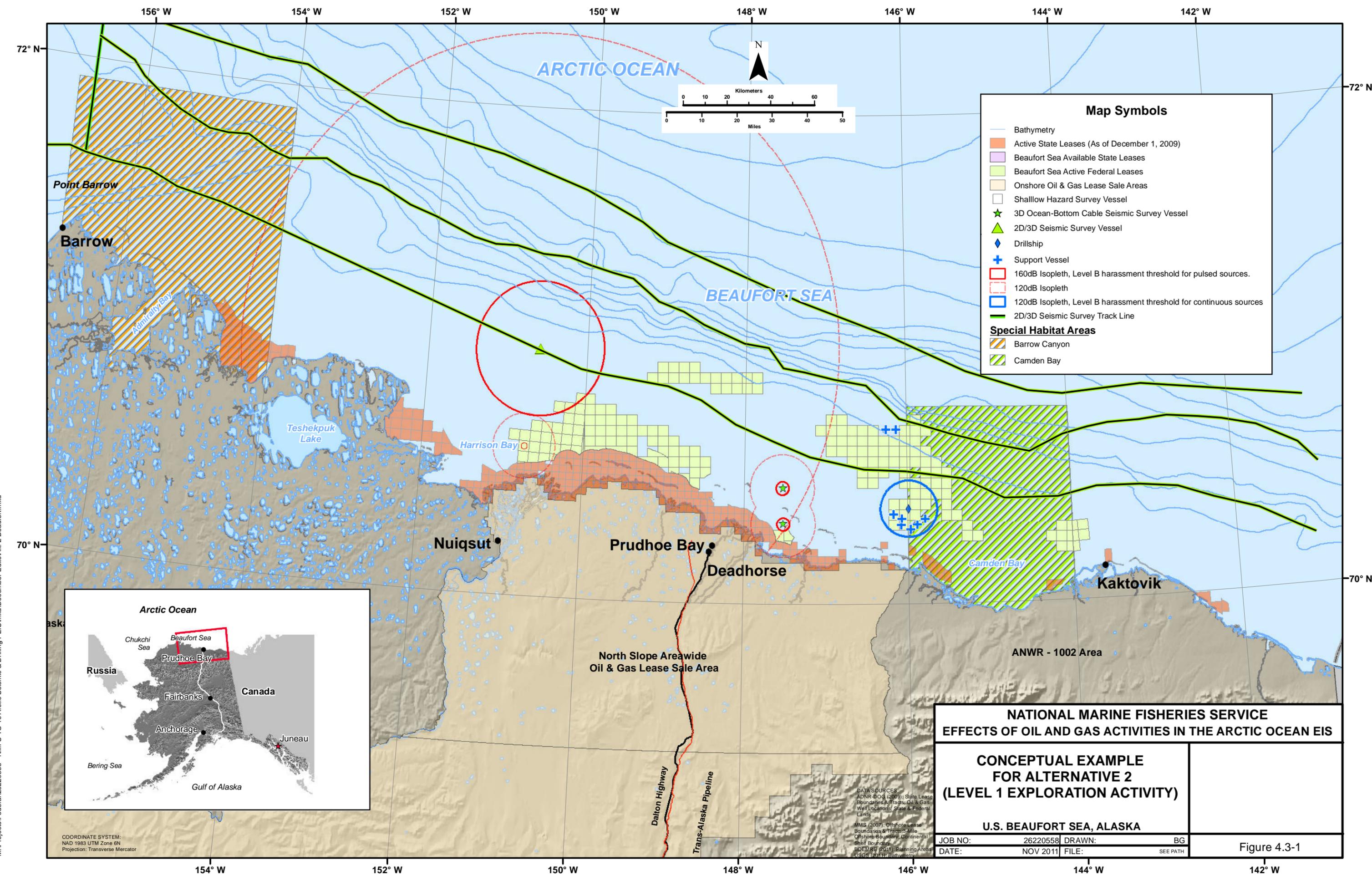
U.S. CHUKCHI SEA, ALASKA

JOB NO: 26220558 DRAWN: MAJ
 DATE: NOV 2011 FILE: SEE PATH

FIGURE 4.2

DATA SOURCES:
 ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2011): Planning Areas
 USGS (2011): Bathymetry

M:\Projects\Federal\26220558 - NIMFS TO 10 Arctic Seismic & Drilling PEI\Sims\November Edits\Figure 4.2 Past Present Reasonably Foreseeable Future CHUKCHI.mxd

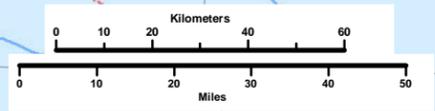


Map Symbols

- Bathymetry
- Active State Leases (As of December 1, 2009)
- Beaufort Sea Available State Leases
- Beaufort Sea Active Federal Leases
- Onshore Oil & Gas Lease Sale Areas
- Shallow Hazard Survey Vessel
- 3D Ocean-Bottom Cable Seismic Survey Vessel
- 2D/3D Seismic Survey Vessel
- Drillship
- Support Vessel
- 160dB Isopleth, Level B harassment threshold for pulsed sources.
- 120dB Isopleth
- 120dB Isopleth, Level B harassment threshold for continuous sources
- 2D/3D Seismic Survey Track Line

Special Habitat Areas

- Barrow Canyon
- Camden Bay



NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

CONCEPTUAL EXAMPLE
FOR ALTERNATIVE 2
(LEVEL 1 EXPLORATION ACTIVITY)

U.S. BEAUFORT SEA, ALASKA

JOB NO: 26220558 DRAWN: BG
 DATE: NOV 2011 FILE: SEE PATH

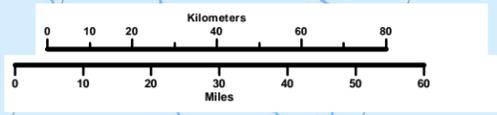
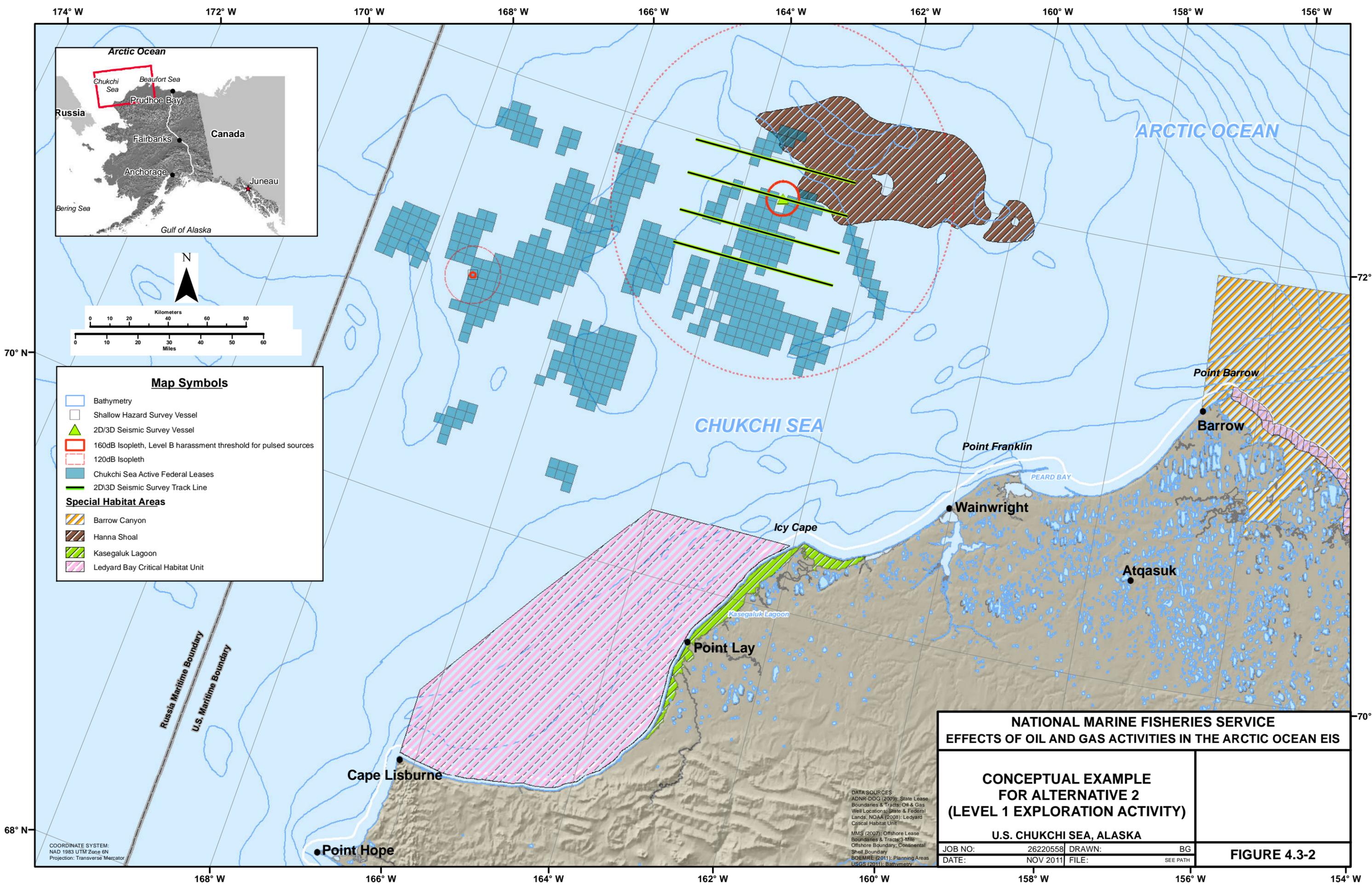
Figure 4.3-1

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COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR-BOG (2009): State Lease
 Boundaries & Tracts; Oil & Gas
 Well Locations; State & Federal
 Lands
 MMS (2007): Offshore Lease
 Boundaries & Tracts; 3-Mile
 Offshore Boundary; Continental
 Shelf Boundaries
 BOEMRE (2010): Planning Areas
 USGS (2011): Bathymetry

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Map Symbols

- Bathymetry
- Shallow Hazard Survey Vessel
- 2D/3D Seismic Survey Vessel
- 160dB Isoleth, Level B harassment threshold for pulsed sources
- 120dB Isoleth
- Chukchi Sea Active Federal Leases
- 2D/3D Seismic Survey Track Line

Special Habitat Areas

- Barrow Canyon
- Hanna Shoal
- Kasegaluk Lagoon
- Ledyard Bay Critical Habitat Unit

NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

CONCEPTUAL EXAMPLE
FOR ALTERNATIVE 2
(LEVEL 1 EXPLORATION ACTIVITY)

U.S. CHUKCHI SEA, ALASKA

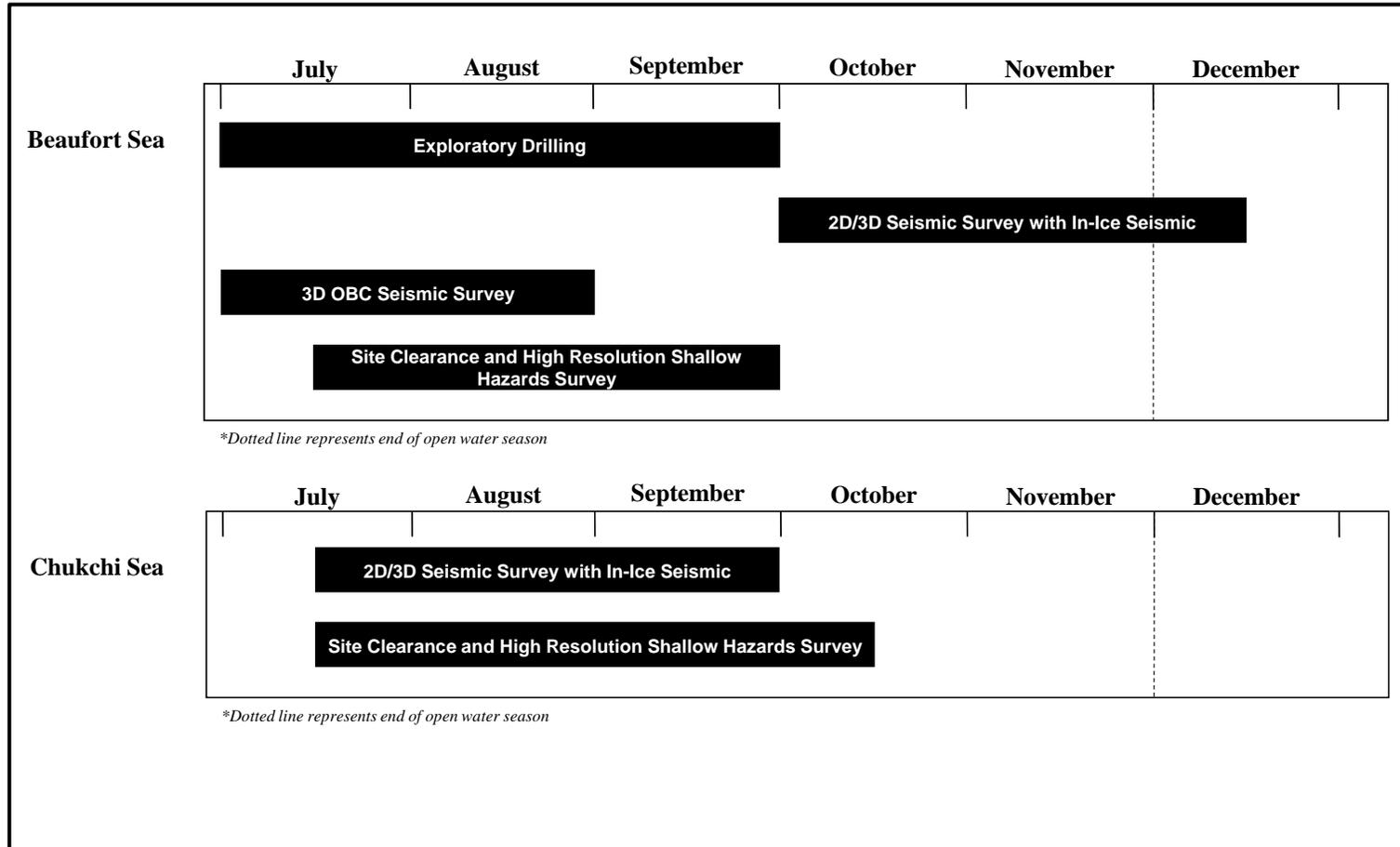
JOB NO:	26220558	DRAWN:	BG
DATE:	NOV 2011	FILE:	SEE PATH

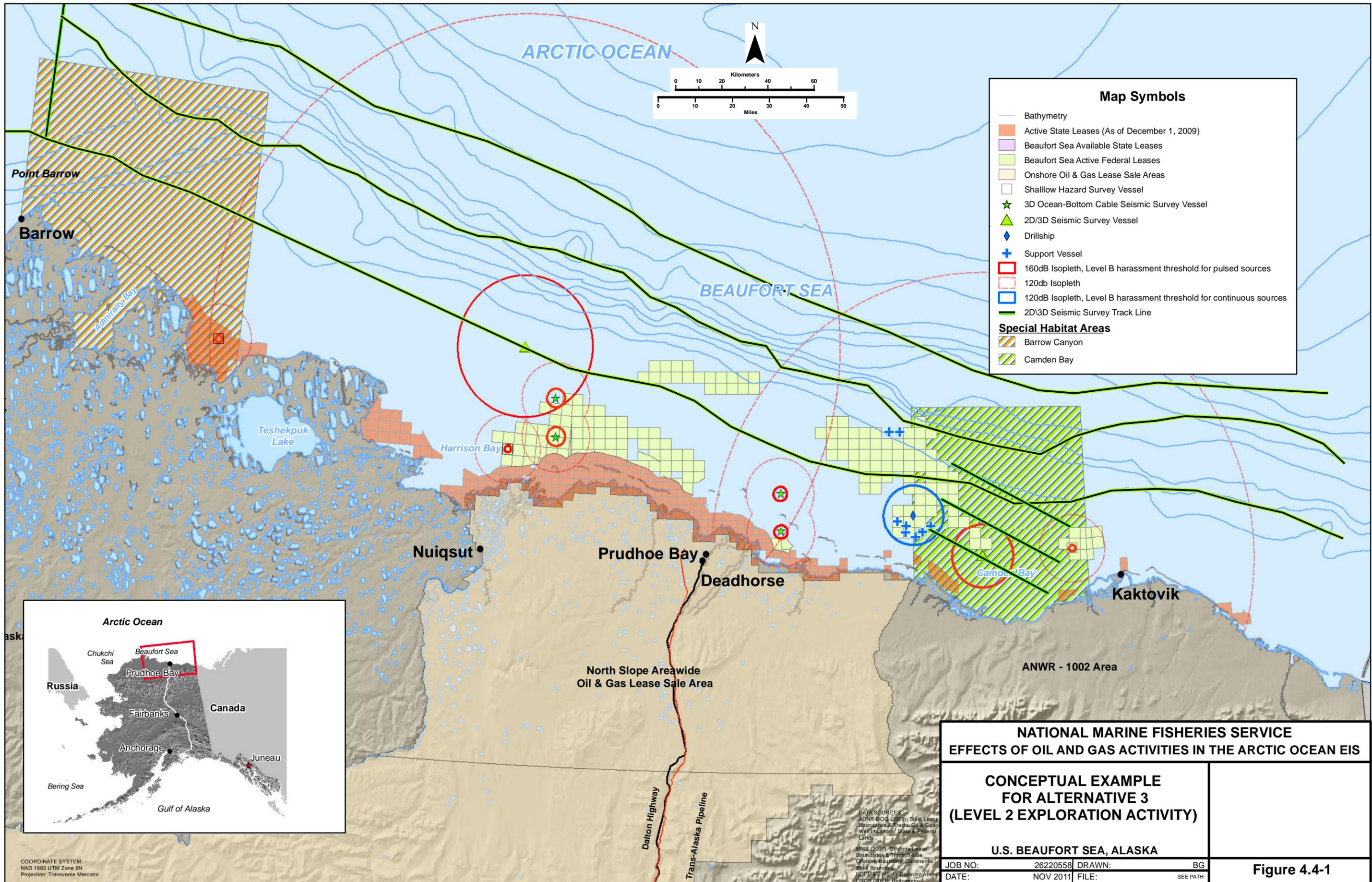
FIGURE 4.3-2

DATA SOURCES:
ADNR-DOG (2009): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands, NOAA (2008): Ledyard Critical Habitat Unit
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary, Continental Shelf Boundary
BOEMRE (2011): Planning Areas
USGS (2011): Bathymetry

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

Figure 4.3-3 Temporal Conceptual Example under Alternative 2 (Level 1 Exploration Activity)





NATIONAL MARINE FISHERIES SERVICE
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS

CONCEPTUAL EXAMPLE FOR ALTERNATIVE 3 (LEVEL 2 EXPLORATION ACTIVITY)

U.S. BEAUFORT SEA, ALASKA

JOB NO:	26220558	DRAWN:	BG
DATE:	NOV 2011	FILE:	SEE PATH

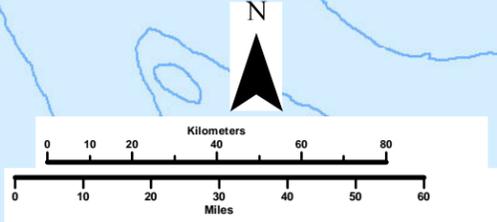
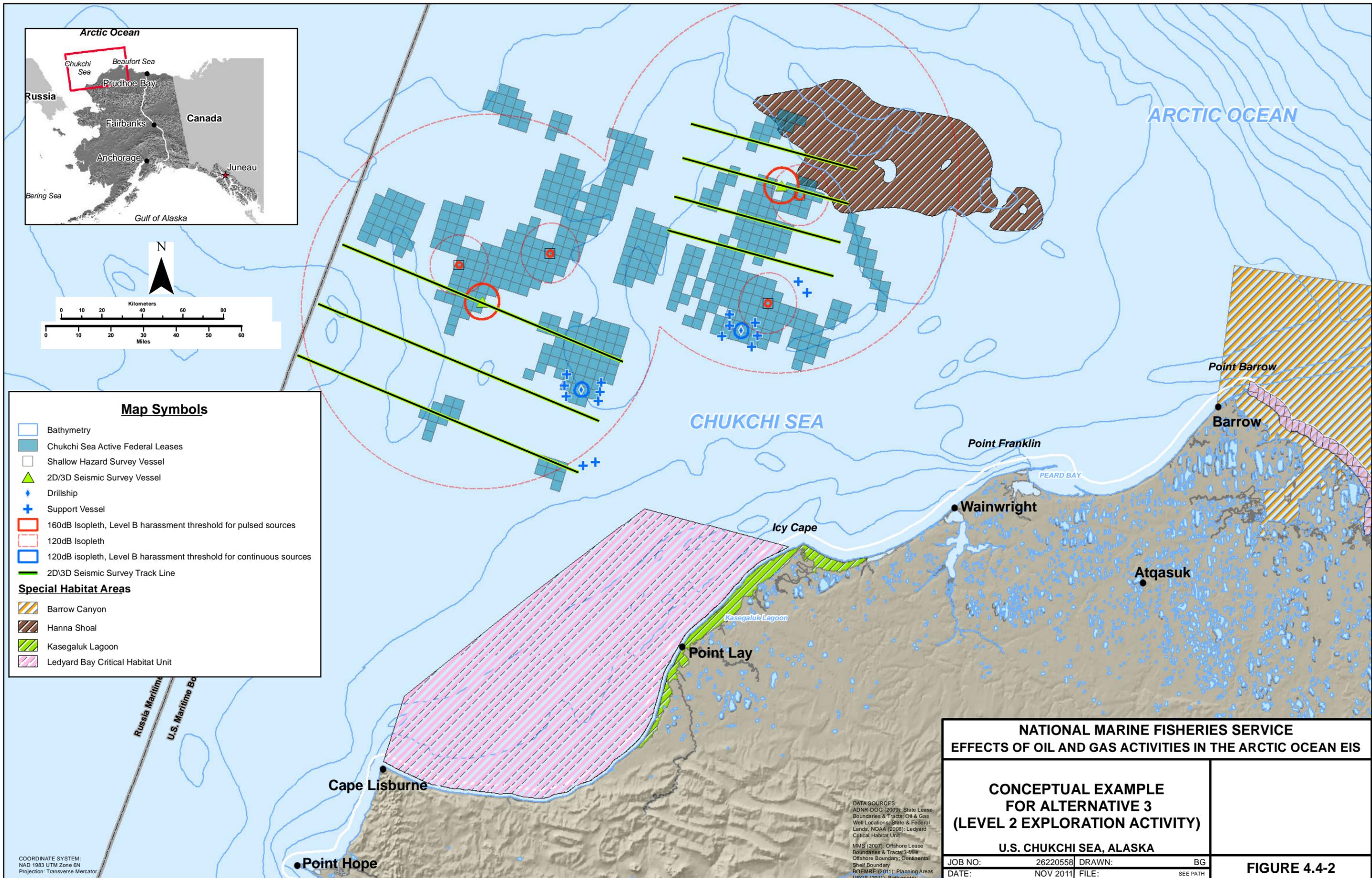
Figure 4.4-1

M:\Projects\Federal\26220558 - NMFS TO 10 Arctic Seismic & Drilling PEIS\mxd\December Edits\Alt. 3 Beaufort.mxd

COORDINATE SYSTEM:
 NAD 1983 UTM Zone 6N
 Projection: Transverse Mercator

DATA SOURCES:
 ADNR BOG (2009); State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
 MMS (2007); Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary
 BOEMRE (2010); Planning Areas
 USGS (2011); Bathymetry

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Map Symbols

- Bathymetry
- Chukchi Sea Active Federal Leases
- Shallow Hazard Survey Vessel
- 2D/3D Seismic Survey Vessel
- Drillship
- Support Vessel
- 160dB Isoleth, Level B harassment threshold for pulsed sources
- 120dB Isoleth
- 120dB isopleth, Level B harassment threshold for continuous sources
- 2D/3D Seismic Survey Track Line

Special Habitat Areas

- Barrow Canyon
- Hanna Shoal
- Kasegaluk Lagoon
- Ledyard Bay Critical Habitat Unit

NATIONAL MARINE FISHERIES SERVICE			
EFFECTS OF OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN EIS			
CONCEPTUAL EXAMPLE			
FOR ALTERNATIVE 3			
(LEVEL 2 EXPLORATION ACTIVITY)			
U.S. CHUKCHI SEA, ALASKA			
JOB NO:	26220558	DRAWN:	BG
DATE:	NOV 2011	FILE:	SEE PATH
			FIGURE 4.4-2

COORDINATE SYSTEM:
NAD 1983 UTM Zone 6N
Projection: Transverse Mercator

DATA SOURCES:
ADNR-DOG (2009); State Lease
Boundaries & Tracts; Oil & Gas
Well Locations; State & Federal
Lands, NOAA (2008); Ledyard
Critical Habitat Unit
MMS (2007); Offshore Lease
Boundaries & Tracts; 3-Mile
Offshore Boundary, Continental
Shell Boundary
BOEMRE (2011); Planning Areas
USGS (2011); Bathymetry

Figure 4.4-3 Temporal Conceptual Examples under Alternative 3 (Level 2 Exploration Activity)

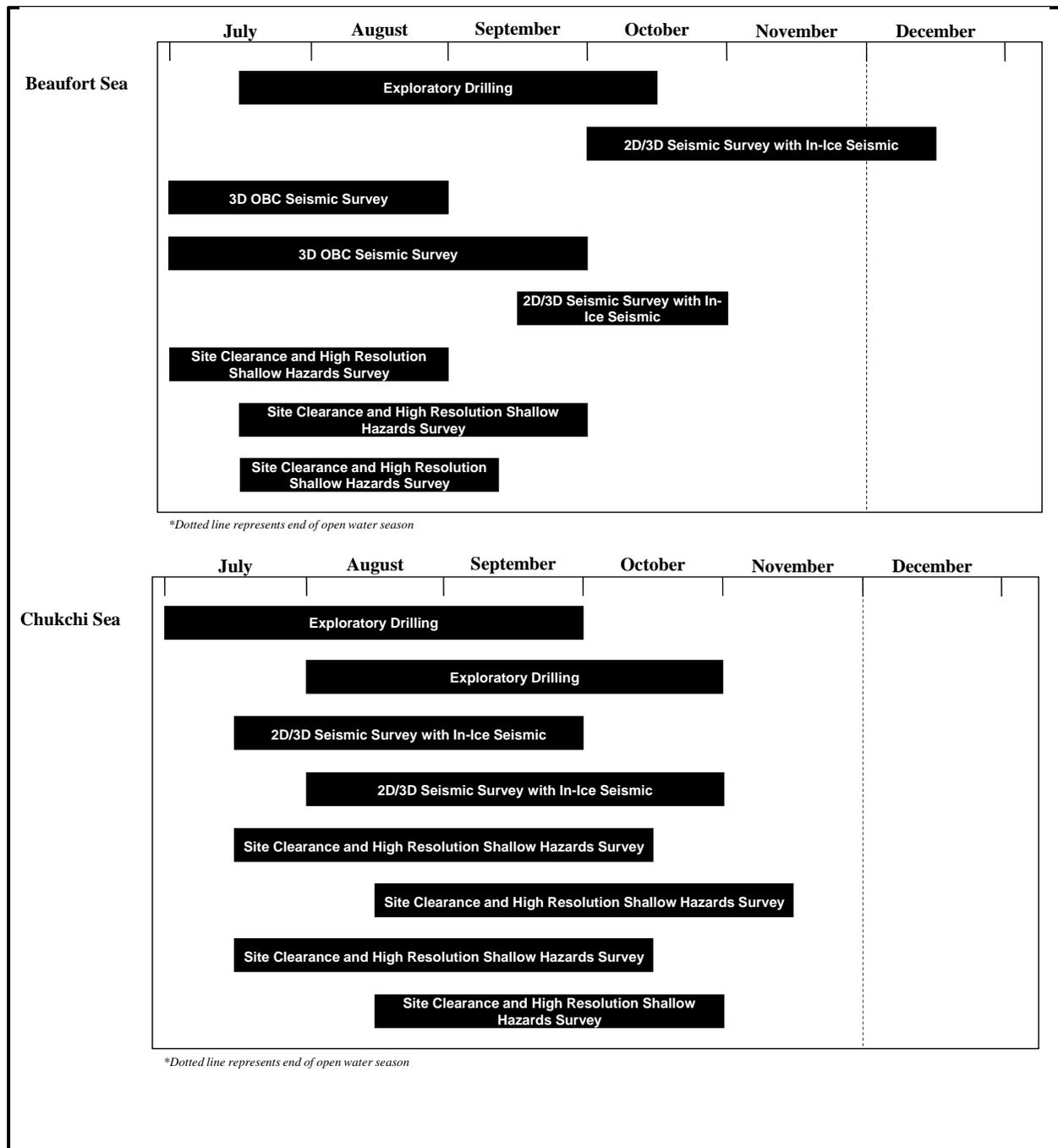


Figure 4.5-1 Dispersion and fate of water-based drill cuttings and drilling fluids discharged to the ocean. About 90% of the discharged solids settle rapidly and form a mud/cuttings pile within several hundred meters of the point of discharge.

Source: Neff 2005

This mud/cuttings pile would affect water depths near the drilling activity. The remaining 10% of the discharged solids remain suspended and drift with prevailing currents away from the drilling site to settle elsewhere.

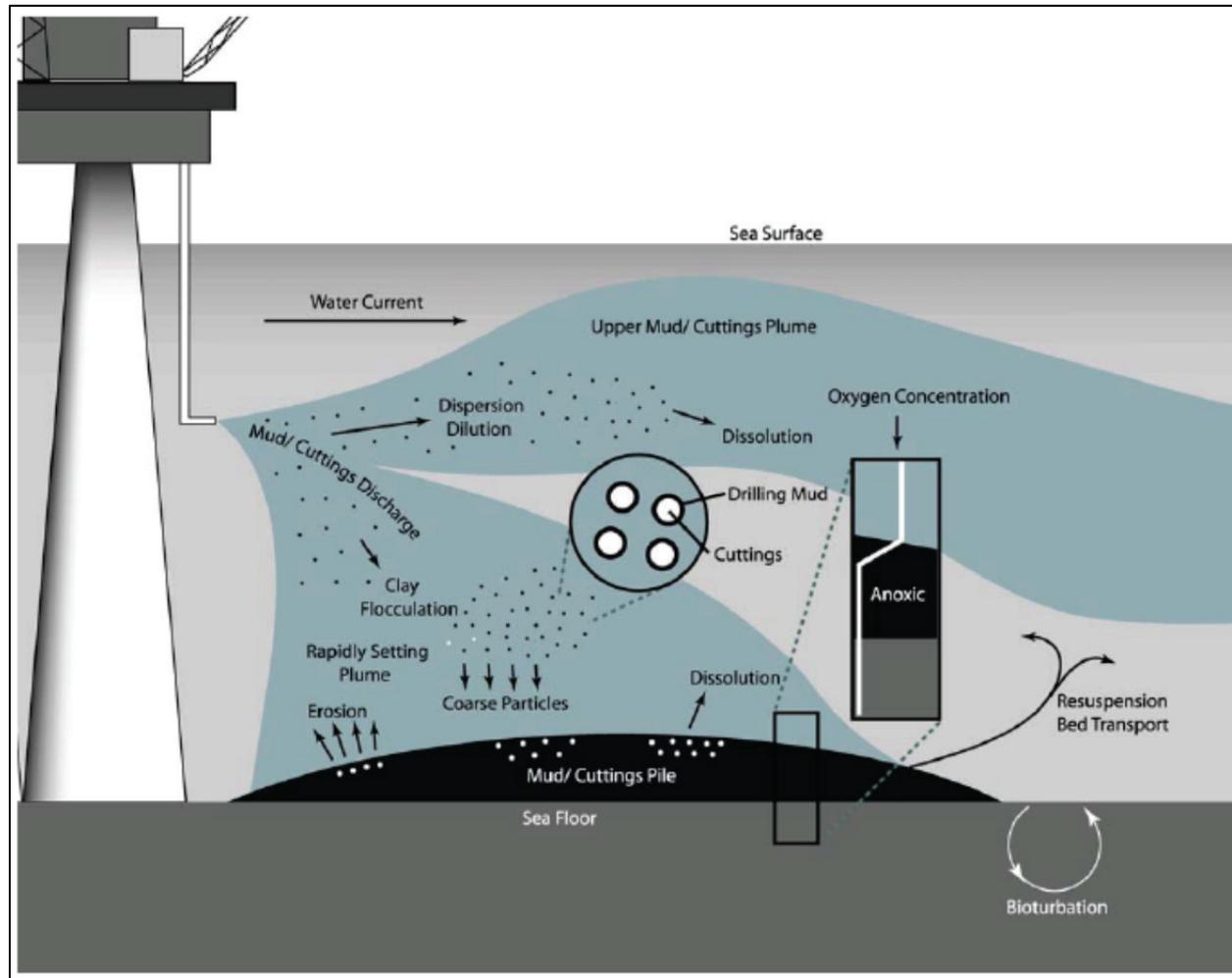
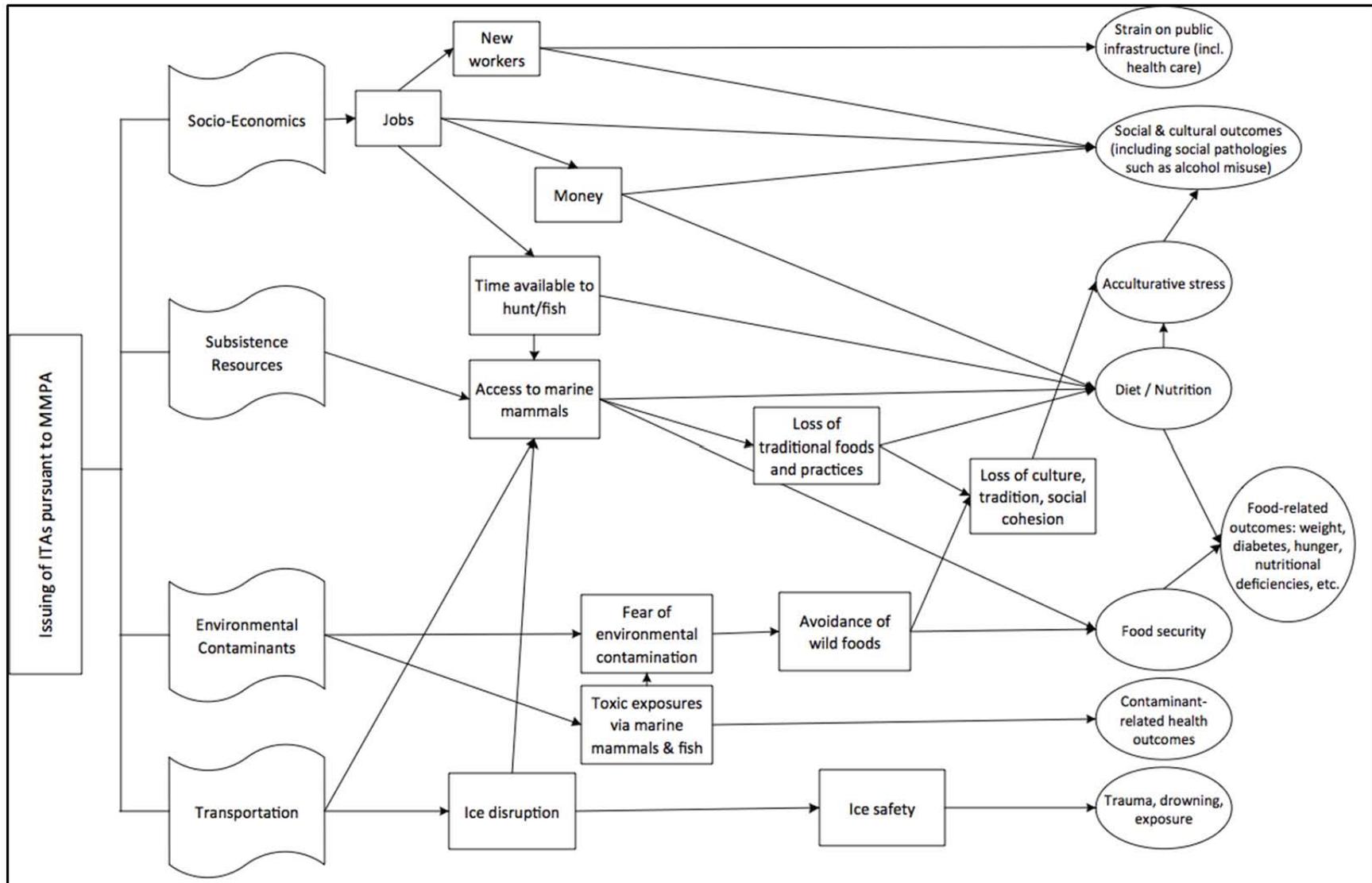


Figure 4.5-2 Logic framework for potential impacts to human health.



APPENDIX B FIGURES

Figure B-1 Measured temperature and salinity profiles, and derived sound speed profiles near 71°30'N 164°30'W in late August 2010. Source O'Neill et al. 2010.

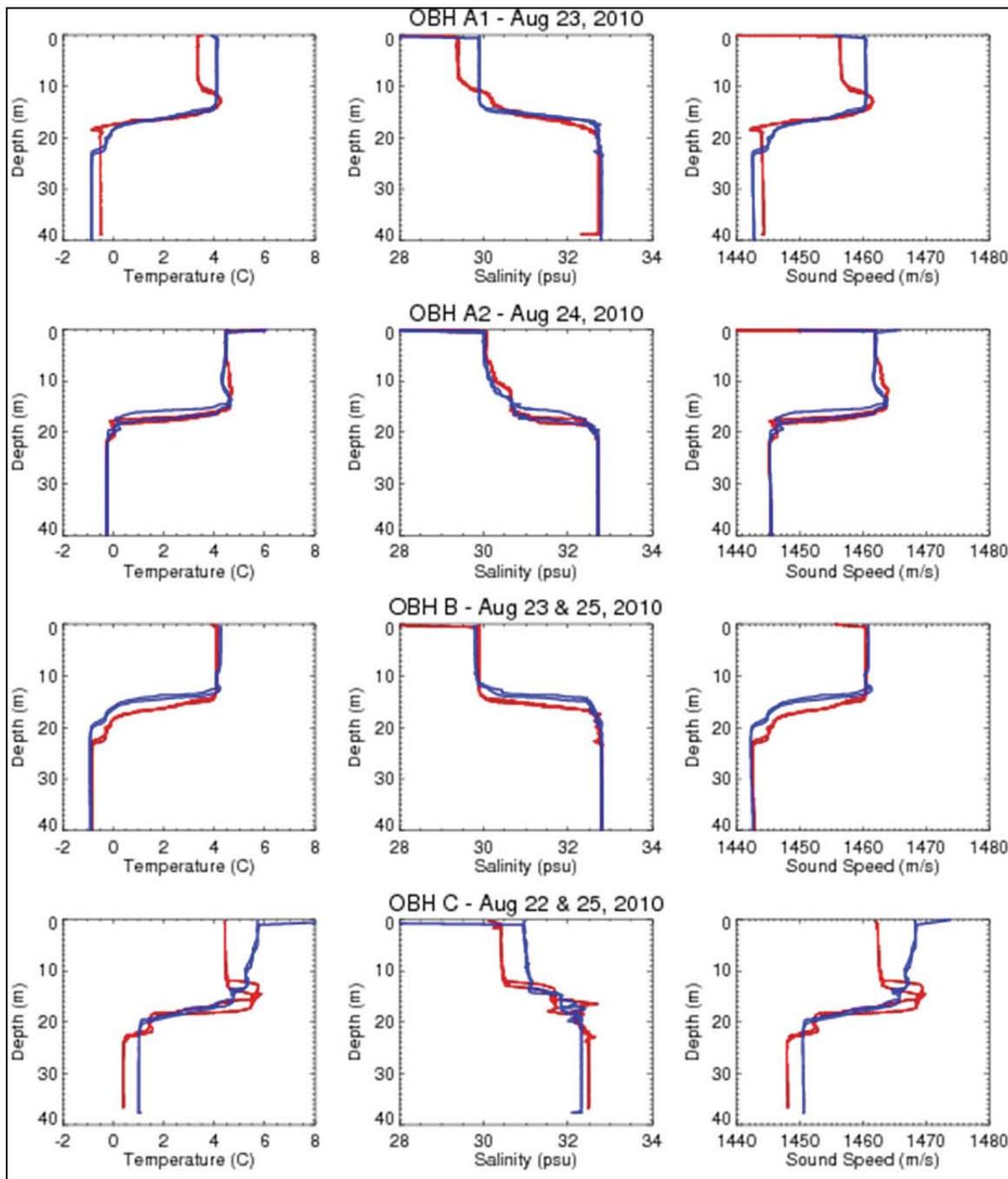


Figure B-2 Deep water Beaufort Sea sound speed profile for August at 70°40' N, 138°15' W in 1375 m (4510 ft) water depth. Source GDEM (Teague et al. 1990).

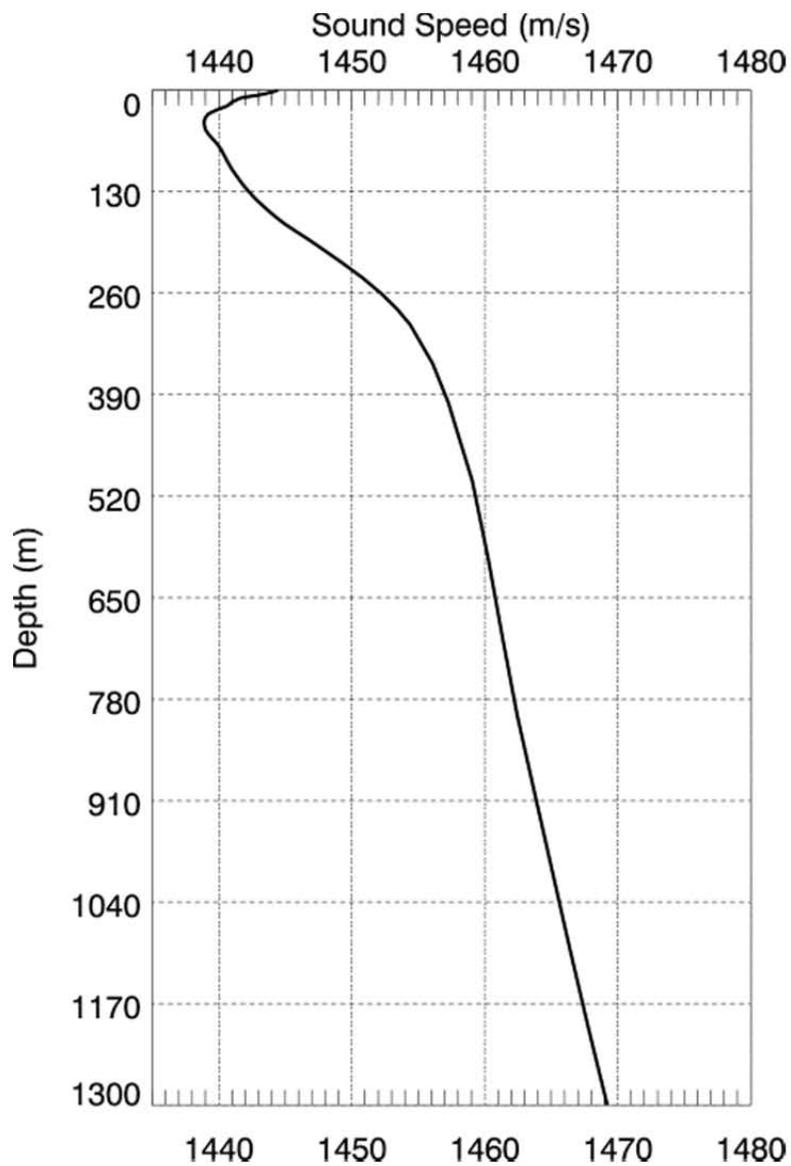


Figure B-3 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (L_E) in (a) endfire direction and (b) broadside direction from 3000 in3 airgun array, and (c) 60 in3 mitigation airgun used for Statoil’s 2010 3D Chukchi Sea seismic survey in 38-43 m (125-141 ft) water depth, measured 2 m (6.6 ft) above the seabed.

Source: O’Neill et al. 2010.

The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points.

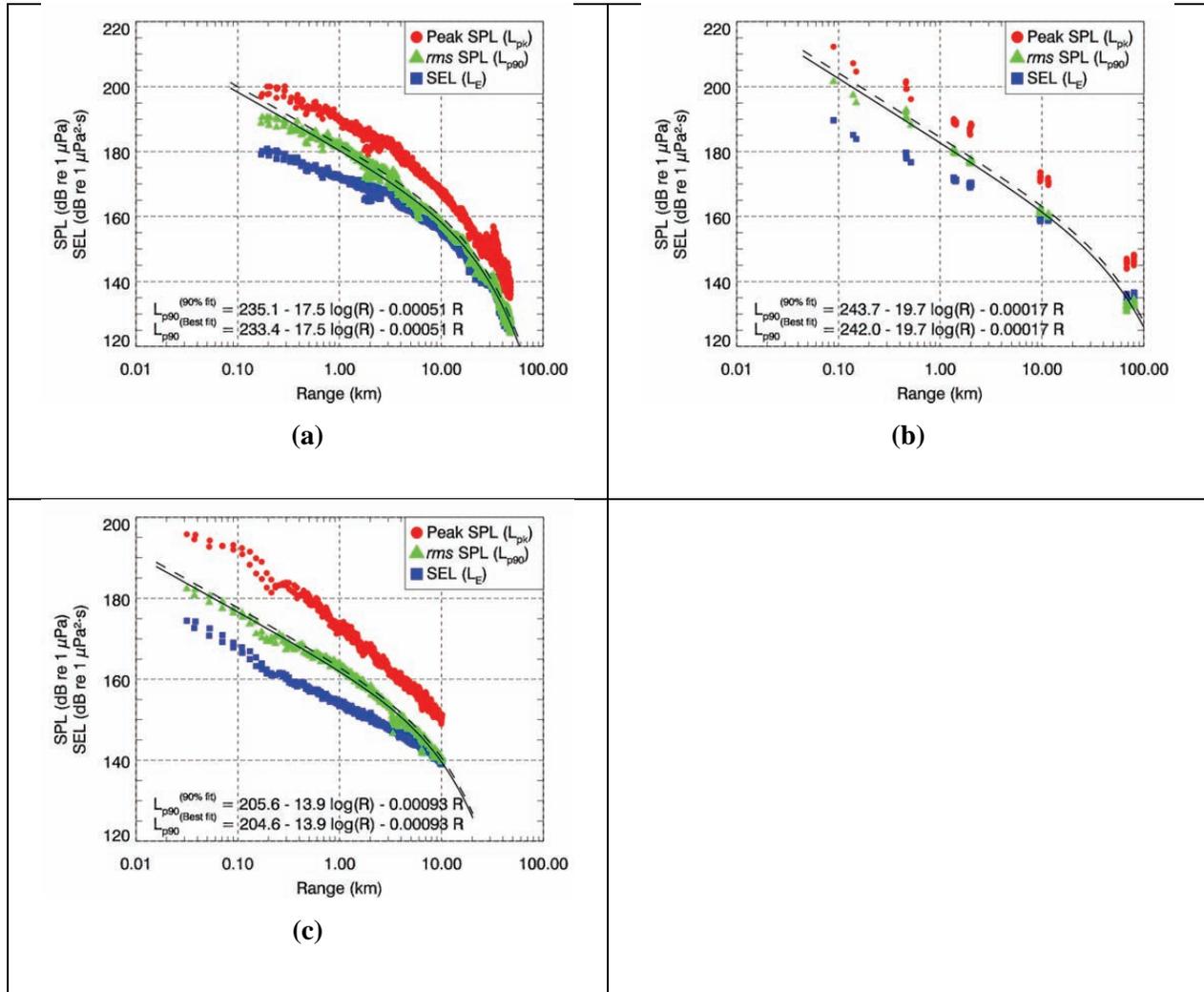


Figure B-4 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (L_E) in (a) endfire direction and (b) broadside direction from 3147 in³ airgun array used for Shell’s 2007 3D Camden Bay (Sivulliq Prospect) seismic survey in ~24 m (79 ft) water depth, measured 2 m (6.6 ft) above the seabed.

Source: Hannay et al. 2008.

The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points.

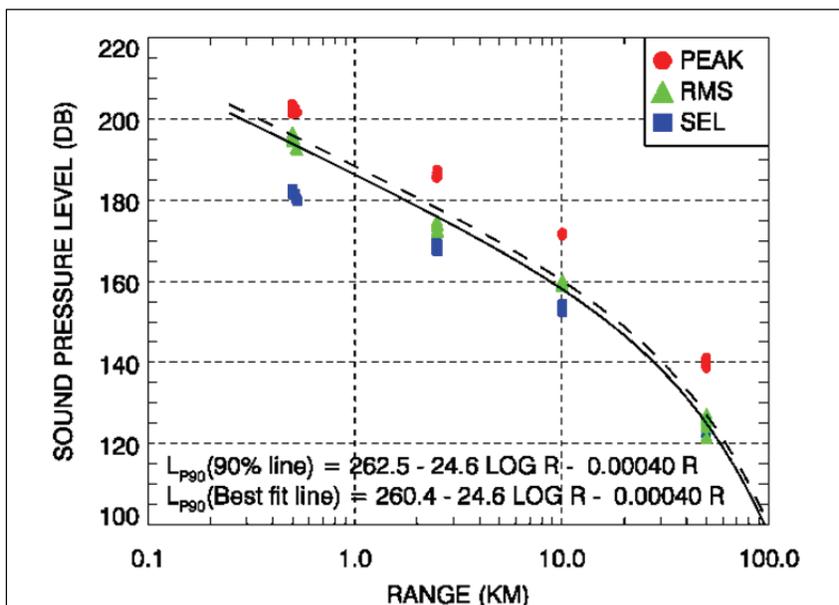
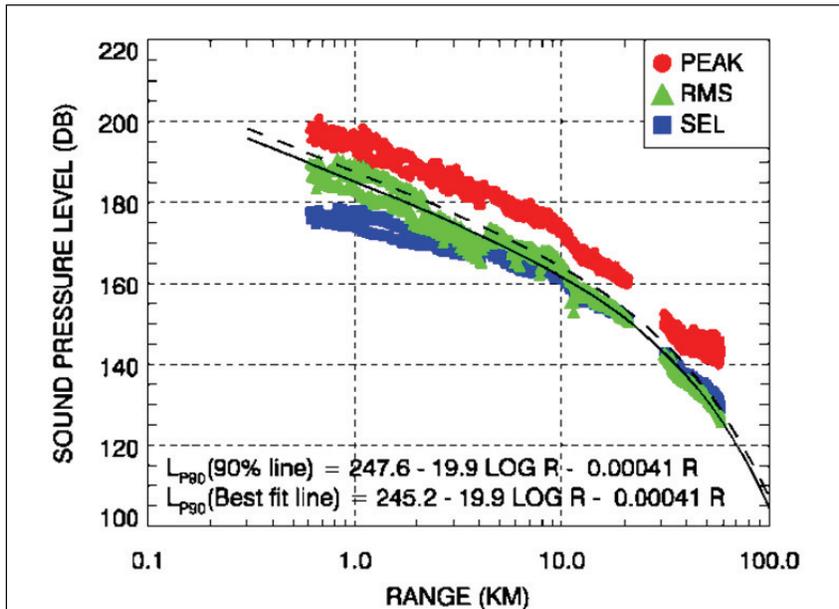


Figure B-5 Spectrograms of airgun array pulses produced by GXT's 2006 2D Chukchi Sea seismic survey using a 3320 in³ airgun array in 40 m (131 ft) water depth, measured 2 m (6.6 ft) above the seabed.

Source: Austin and Laurinolli 2007.

From top left to bottom right, the measurement ranges are 1 km (0.62 mi), 10 km (6.2 mi), 20 km (12.4 mi), and 40 km (25 mi). Striations in these figures are due to modal propagation.

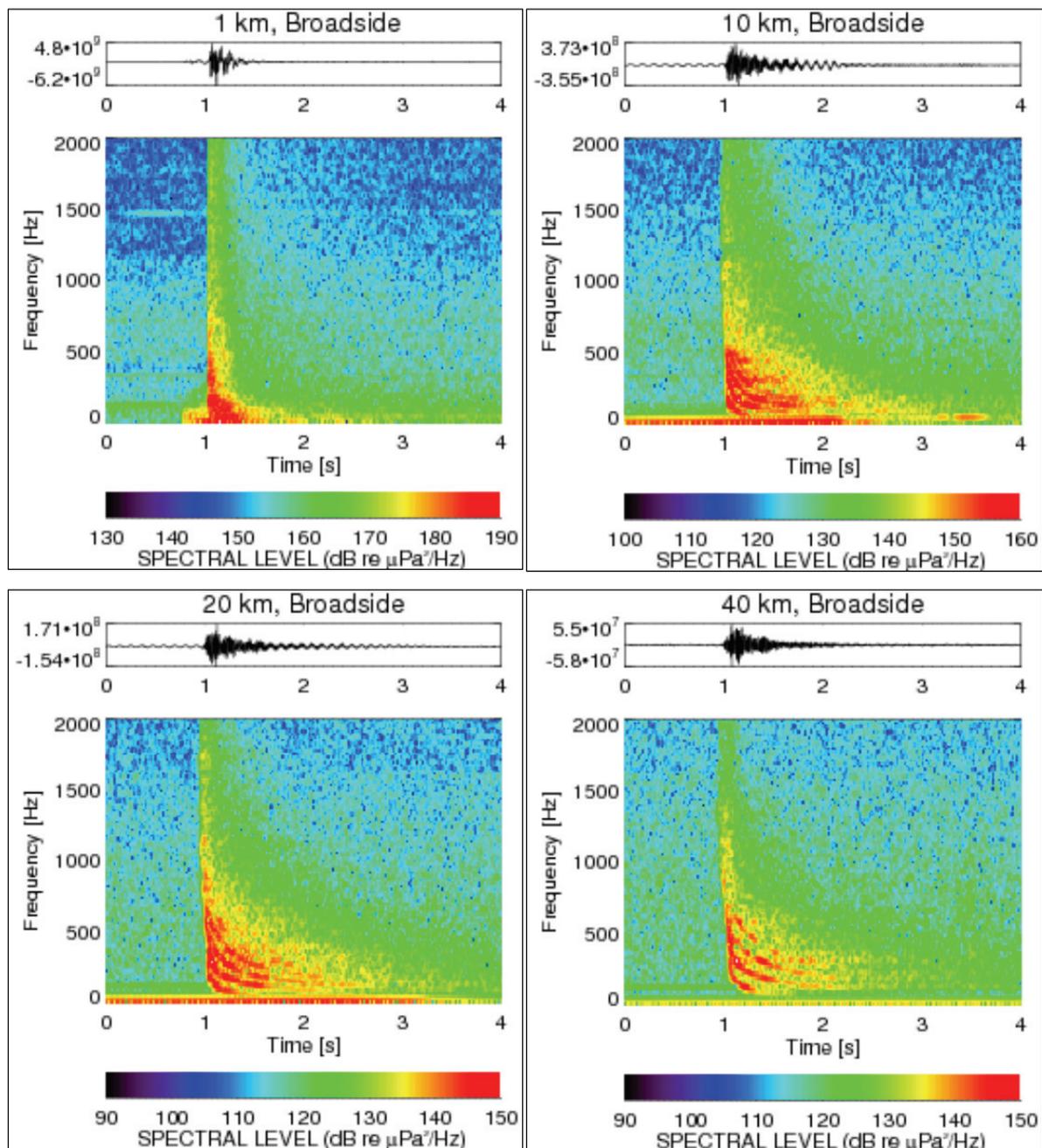


Figure B-6 Pressure versus time (left) and SEL spectral density (right) of single airgun array pulses received at three distances 460 m (1,509 ft) (top), 1,359 m (4,459 ft) (middle), 80 km (50 mi) (bottom), from Statoil’s 2010 3D Chukchi Sea seismic survey in 38-42 m (125-138 ft) water depth.

Source: O’Neill et al. 2010.

Measurements were made at 2 m (6.6 ft) above the seabed. The vertical red lines indicate the 90 percent time window used for L_{p90} (rms) sound level calculation.

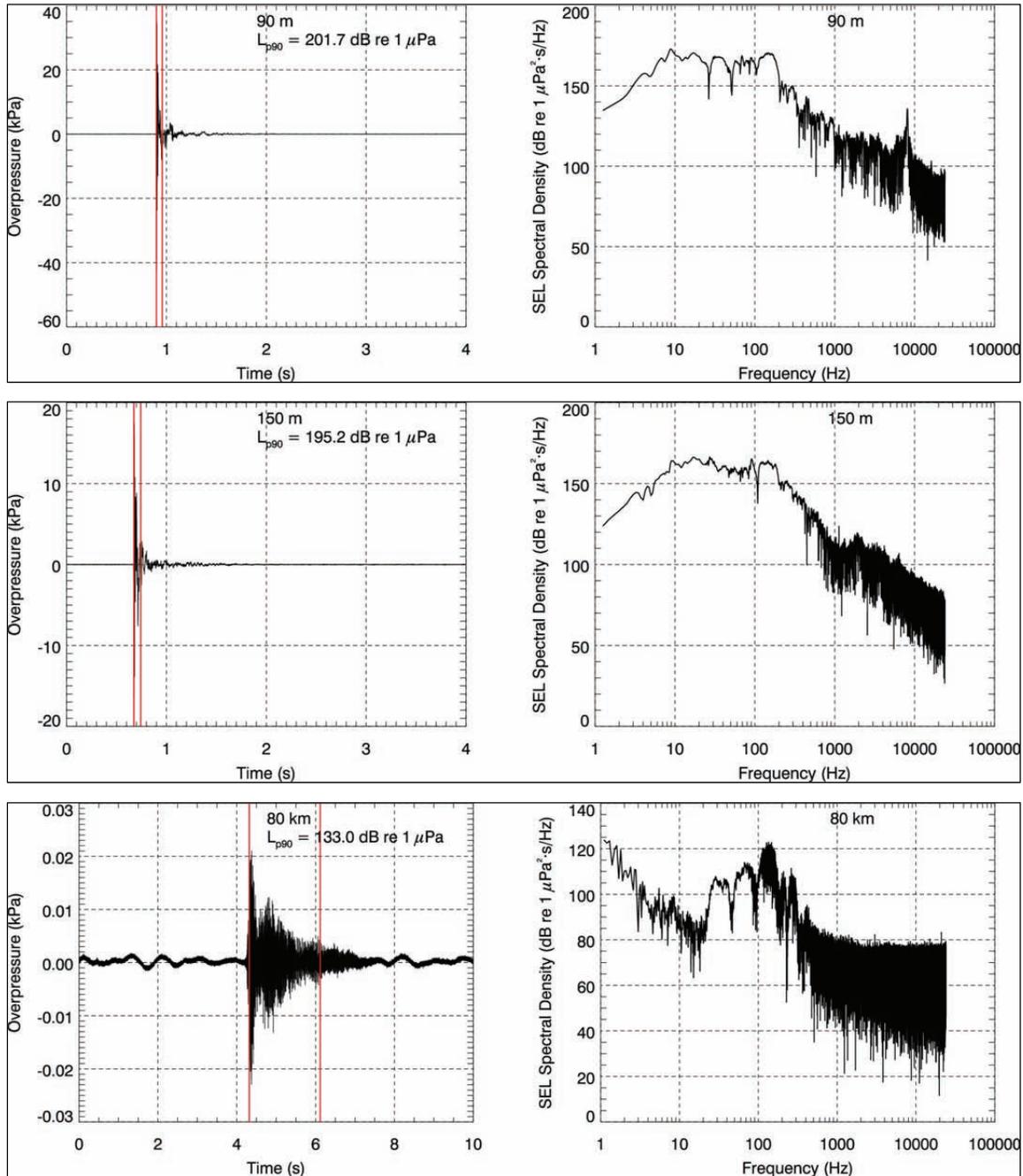


Figure B-7 One-third octave band per-pulse SEL (units are dB re 1 uPa2s) as a function of band center frequency and broadside distance from Statoil’s 3000 in³ airgun array used for its 2010 3D Chukchi Sea seismic survey in 38-43 m (125-141 ft) water depth.

Source: O’Neill et al. 2010.

Measurements were made 2m (6.6 ft) above the seabed. The 8-10 kHz signal is due to an echosounder.

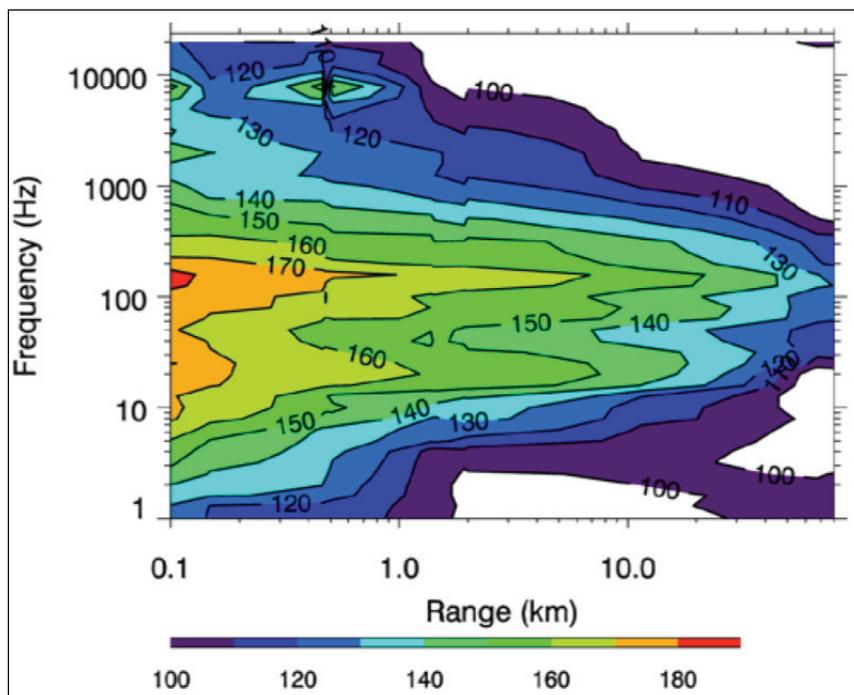


Figure B-8 RMS-90 integration time window length versus distance from GXT’s 2006 2D Chukchi Sea seismic survey.

Source: Austin and Laurinolli 2007.

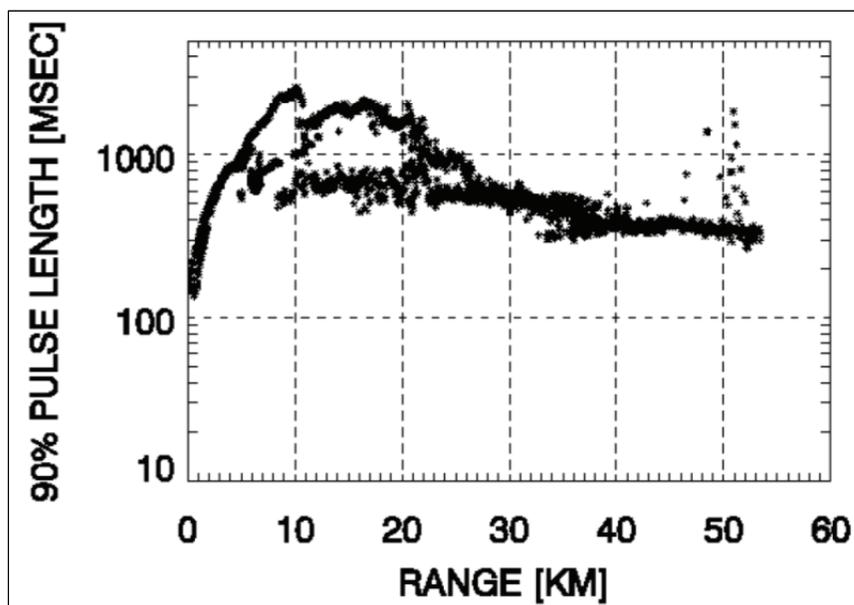


Figure B-9 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (LE) in endfire direction (top left) and broadside direction (top right) from an 880 in3 airgun array, and from the 20 in3 airgun (bottom) used for Eni/PGS’s 2008 OBC seismic survey in Harrison Bay in 2.5 m (8 ft) water depth.

Source: Warner et al. 2008.

Measurements were made at the seabed. The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points.

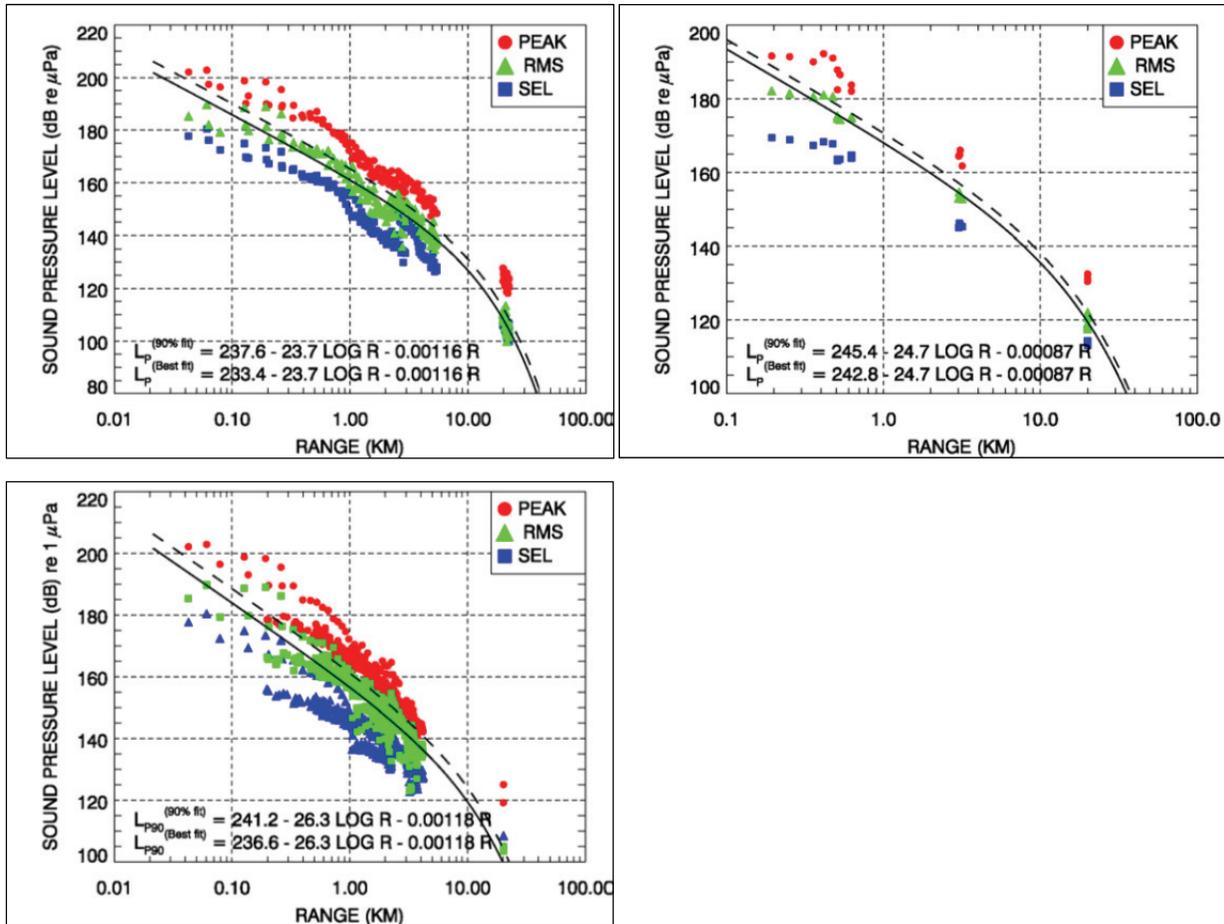


Figure B-10 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (LE) in endfire direction (top left) and broadside direction (top right) from an 880 in3 airgun array, and from the 20 in3 airgun (bottom) used for Eni/PGS’s 2008 OBC seismic survey in Harrison Bay in 9 m (30 ft) water depth.

Source: Warner et al. 2008.

Measurements were made at the seabed. The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points. At ranges less than 800 m (2,625 ft) from the mitigation airgun, the best empirical fit function was $RL = 220.2 - 21.0 \log R - 0.00088 R$. Beyond 800 m (2,625 ft), it was $RL = 158.4 - 30.5 \log (R/800) - 0.017 (R-800)$.

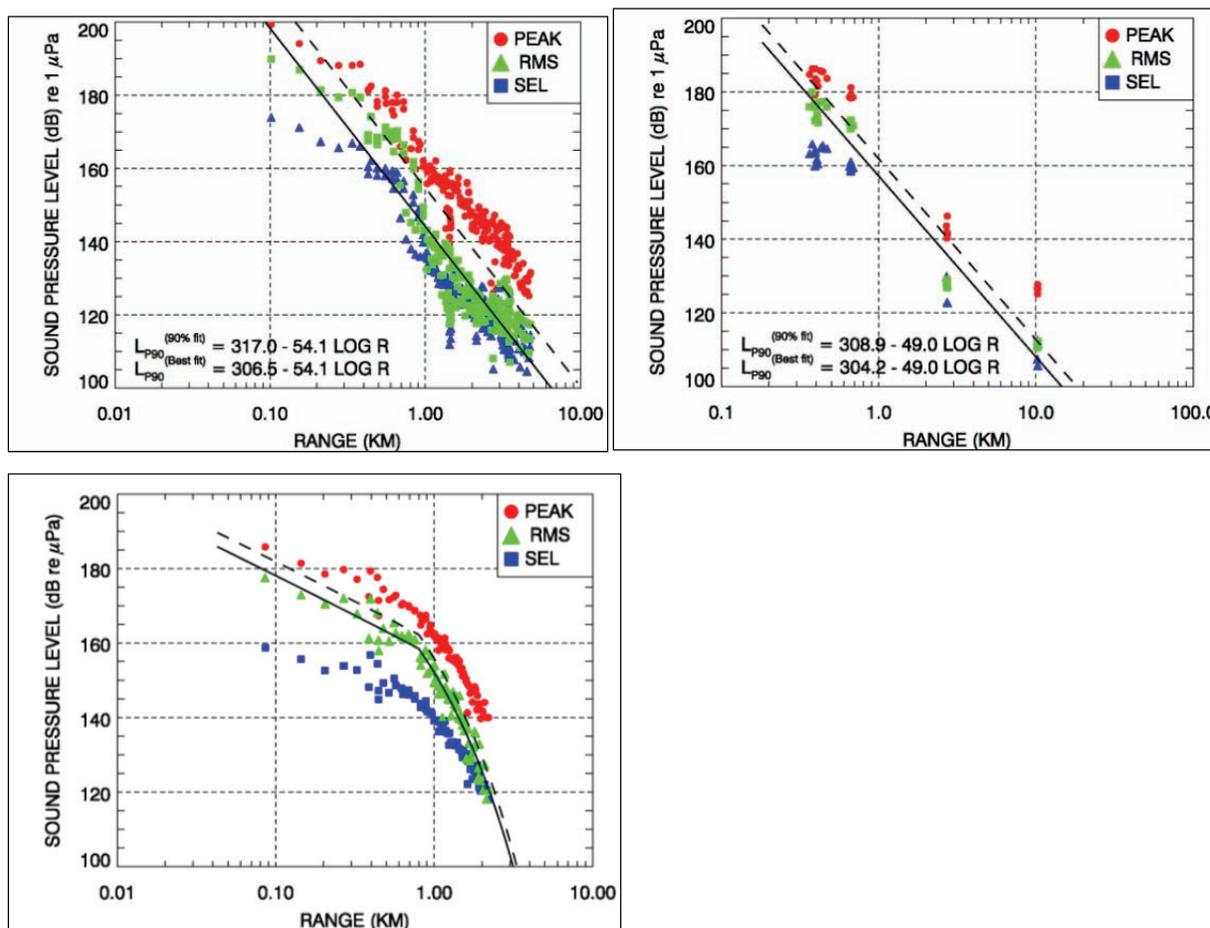


Figure B-11 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (LE) for 10 in3 airgun (top left), 20 in3 array (top right), and 40 in3 array (bottom) used for Shell’s 2009 Site Clearance survey at its

Source: Warner et al. 2010.

Honeyguide prospect in the Chukchi Sea, measured 2 m (6.6 ft) above the seabed in 48 m (157 ft) water depth. The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points.

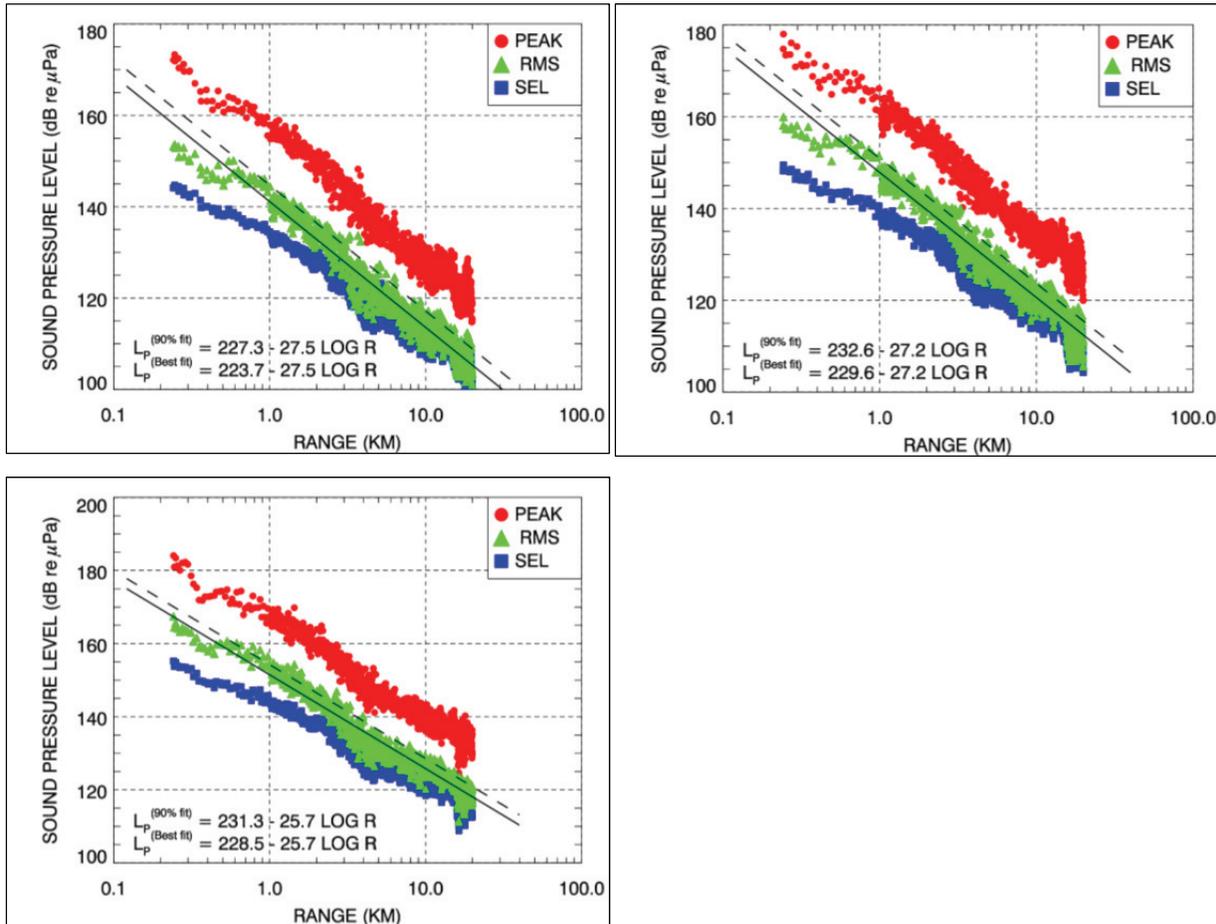
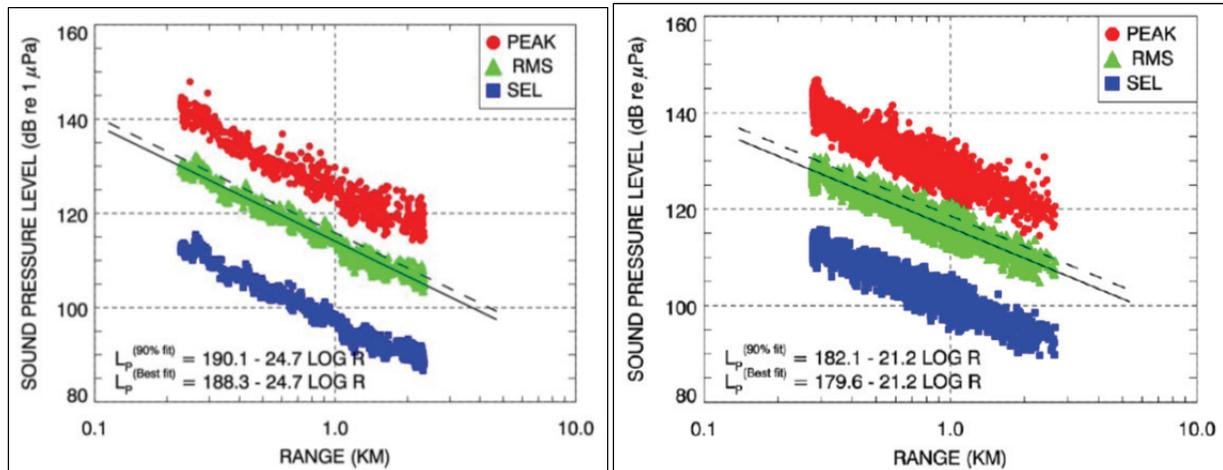


Figure B-12 Peak (L_p), RMS (L_{p90}) pressure levels and per-pulse SEL (LE) for GeoPulse 3.5 kHz sub-bottom profiler operating during Shell's 2009 (top left), 20 in3 array (top right), and 40 in3 array (bottom) used for Shell's 2009 Site Clearance surveys at its Honeyguide (left) and Burger (right) prospects in the Chukchi Sea, measured 2 m above the seabed in 40 and 46 m water depth respectively.

Source: Warner et al. 2010.

The smooth fit functions shown with solid lines are the least-square function fits to L_{p90} , and the dashed lines are the same functions shifted up to exceed 90 percent of the measurement points.



APPENDIX A
Standard and Additional Mitigation Measures

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Appendix A: Standard and Additional Mitigation Measures Addressing Impacts to Marine Mammals and Subsistence Activities

Standard Mitigation Measures

The mitigation measures¹ (and the identified mitigation monitoring needed to support them) listed below are planned for inclusion as a requirement under every ITA issued for the type of activity identified.

A. DETECTION-BASED MEASURES INTENDED TO REDUCE NEAR-SOURCE ACOUSTIC EXPOSURES AND IMPACTS ON MARINE MAMMALS WITHIN A GIVEN DISTANCE OF THE SOURCE

This measure would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic including in-ice surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Mitigation Measure A1. Establishment of 180 dB shutdown/power down radius for cetaceans and 190 dB shutdown/power down radius for pinnipeds.

NMFS has established acoustic thresholds that identify the received sound levels above which hearing impairment or other injury could potentially occur; these thresholds are 180 and 190 dB re 1 μ Pa (rms) for cetaceans and pinnipeds, respectively (NMFS 1995, 2000). All further received sound level criteria reported in this appendix will be re 1 μ Pa (rms). In view of a panel of bioacoustics specialists convened by NMFS, the 180- and 190-dB criteria are the received levels above which one could not be certain that there would be no injurious effects, auditory or otherwise, to marine mammals. Since the establishment of these acoustic criteria, NMFS has recommended and included shutdown/powerdown zones at the 180/190 dB isopleths as standard required mitigation measures in MMPA authorizations for seismic surveys. Typical language in past ITAs includes:

- Establish and have trained Protected Species Observers (PSOs) monitor a preliminary exclusion zone for cetaceans surrounding the airgun array on the source vessel where the received level would be 180 dB or greater. The radius for the zone will vary based on the airgun array used, water depth, and numerous other factors related to the water and seafloor properties. This final distance of the radius will be established by modeling and/or a sound source verification test.
- Establish and monitor a preliminary exclusion zone for pinnipeds surrounding the airgun array on the source vessel where the received level would be at or above 190 dB with trained PSOs. The radius for the zone will vary based on the airgun array used, water depth, and numerous other factors related to the water and seafloor properties. The final distance of the radius will be established by modeling and/or a sound source verification test.
- Immediately power-down the seismic airgun array and/or other acoustic sources, whenever any cetaceans or walrus are sighted approaching close to or within the area delineated by the 180 dB, or pinnipeds or polar bears are sighted approaching close to or within the area delineated by the 190 dB isopleth.

¹ These measures have been included in past ITAs issued by NMFS in the Arctic Ocean.

- If the power-down operation cannot reduce the received sound pressure level at the cetacean or pinniped to less than 180 dB or 190 dB, respectively, then the holder of the ITA must immediately shutdown the seismic airgun array and/or other acoustic sources.
- The seismic airgun array cannot be powered up unless the marine mammal exclusion zones are visible and no marine mammals are detected within the appropriate safety zones for a minimum of 15 minutes (small odontocetes, pinnipeds) or 30 minutes (for mysticetes). The seismic array can be ramped up once the PSOs have no further visual detection of the animal(s) within the exclusion zone, and they are confident that no marine mammals remain within the appropriate exclusion zone.

Mitigation Measure A2. Specified ramp-up procedures for airgun arrays.

Ramp-up is the gradual introduction of sound to deter marine mammals from potentially damaging sound intensities and from approaching the exclusion zone. This technique involves the gradual increase (usually approximately 5-6 dB per 5-minute increment) in emitted sound levels, beginning with firing a single airgun and gradually adding airguns over a period of 20 to 40 minutes, until the desired operating level of the full array is obtained. Ramp-up procedures are instituted based on the assumption that any marine mammals in the vicinity of seismic operations will become aware of the noise source before it rises to potentially harmful levels and to leave the area. The 180- and 190-dB exclusion zones described in the previous measure are used for the ramp-up procedures as well. Typical language in past ITAs includes:

- Conduct a 30-minute period of marine mammal observations by at least two trained PSOs to verify that the exclusion zone is clear prior to commencing ramp-up at the commencement of seismic operations and at any time the airgun array has been shut down for a certain period of time. The period of shutdown requiring a full ramp-up is based on the size of the airgun array but is typically between 8 and 10 minutes.
- Do not commence ramp-up if the entire exclusion zones are not visible for at least 30 minutes prior to ramp-up in either daylight or nighttime and do not commence ramp-up at night unless the seismic source has maintained a sound pressure level at the source of at least 180 dB during the interruption of full seismic survey operations. If a sound source of at least 180 dB has been maintained during the interruption of seismic operations, then the 30 minute pre-ramp-up visual survey is waived.
- Ramp-up the airgun arrays at no greater than 6 dB per 5-minute period starting with the smallest airgun in the array and then adding additional guns in sequence until the full array is firing if no marine mammals are observed in the safety zones and periods specified above. Ramp-up procedures should be used at the commencement of seismic operations and any time after the airgun array has been shut down for a certain period of time.

Mitigation Measure A3. Protected Species Observers (PSOs) required on all seismic source vessels and ice breakers, as well as on support (chase) vessels.

PSOs are a key component both for the purposes of implementing mitigation measures, such as shutdowns and ramp-ups, and for gathering information pursuant to the monitoring requirements of the ITA (latter addressed separately). Some of the mitigation monitoring requirements in past ITAs include:

- The holder of the ITA must designate trained, NMFS-approved, individuals (PSOs) to be onboard the source vessel to conduct the visual monitoring programs required under this

Authorization and to record the effects of seismic surveys and the resulting noise on marine mammals.

- To the extent possible, PSOs should be on duty for four consecutive hours or less, although more than-one four-hour shift per day is acceptable. PSOs will not work more than three shifts in a 24-hour period (i.e. 12 hours total per 24-hour period).
- Monitoring is to be conducted by the PSOs onboard the active seismic vessel (including in-ice surveys), to (A) ensure that no marine mammals enter the appropriate exclusion zone whenever the seismic sources are on, and (B) to record marine mammal activity. At least two observers must be on watch the 30 minutes prior to full ramp up, during ramp ups, and for as much of the other operating hours as possible. At all other times, at least one observer must be on active watch (1) whenever the seismic source is operating during the daytime; (2) during any nighttime power-ups of the airguns; and (3) at night, whenever one or more power-down situations the preceding day were due to marine mammal presence.
- At all times, the crew must be instructed to keep watch for marine mammals. If any are sighted, the bridge watch-stander must immediately notify the PSO(s) on-watch. If a marine mammal is within or closely approaching its designated exclusion zone, the seismic acoustic sources must be immediately powered down or shutdown.
- Monitoring will consist of recording: (A) the species, group size, age/size/sex categories (if determinable), the general behavioral activity, heading (if consistent), bearing and distance from seismic vessel, sighting cue, behavioral pace, and apparent reaction of all marine mammals seen near the seismic vessel and/or its airgun array (e.g. none, avoidance, approach, paralleling, etc.); (B) the time, location, heading, speed, and activity of the vessel (shooting or not), along with sea state, visibility, cloud cover and sun glare at (1) any time a marine mammal is sighted, (2) at the start and end of each watch, and (3) during a watch (whenever there is a change in one or more variable); and, (C) the identification of all vessels that are visible within 5 km (3.1 mi) of the seismic-vessel whenever a marine mammal is sighted, and the time observed, bearing, distance, heading, speed and activity of the other vessel(s).

On-ice Seismic Surveys

Mitigation Measure A4. All activities must be conducted at least 150 m (490 ft) from any observed ringed seal lair.

- PSOs are a key component of locating ringed seal lairs. During active seismic vibrator source operations, the 150 m (490 ft) exclusion zone shall be monitored for entry by marine mammals.
- Any locations of seal structures must be marked and protected by a 150 m (490 ft) exclusion distance from any existing routes and on-ice seismic activities.
- No ice roads may be built between the mobile camp and work site. Travel between mobile camp and work site shall also be monitored for marine mammals and be done by vehicles driving through on a snow road. Vehicles must avoid any pressure ridges, ice ridges, and ice deformation areas where seal structures are likely to be present.

Mitigation Measure A5. No energy source may be placed over a ringed seal lair.

- PSOs are a key component of locating ringed seal lairs. During active seismic vibrator source operations, the 150 m (490 ft) exclusion zone shall be monitored for entry by marine mammals.
- Any locations of seal structures must be marked and protected by a 150 m (490 ft) exclusion distance from any existing routes and on-ice seismic activities.
- No ice roads may be built between the mobile camp and work site. Travel between mobile camp and work site shall also be monitored for marine mammals and be done by vehicles driving through on a snow road. Vehicles must avoid any pressure ridges, ice ridges, and ice deformation areas where seal structures are likely to be present.

Exploratory Drilling Activities**Mitigation Measure A6. PSOs required on all drill ships (including rigs and ships) and ice management vessels.**

- PSO requirements would be the same as those identified for Standard Mitigation Measure A3. PSOs are required on all types of drilling units and all support vessels. PSOs will watch during active drilling operations and transits.

B. NON-DETECTION-BASED MEASURES INTENDED TO MORE BROADLY LESSEN THE SEVERITY OF ACOUSTIC IMPACTS ON MARINE MAMMALS OR REDUCE OVERALL NUMBERS TAKEN BY ACOUSTIC SOURCE

This measure would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic including in-ice surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Mitigation Measure B1. Specified flight altitudes for all support aircraft except for take-off, landing, and emergency situations.

- Aircraft shall not operate below 457 m (1,500 ft) unless the aircraft is engaged in approaching, landing or taking off, or unless engaged in providing assistance to a whaler or in poor weather (low ceilings) or any other emergency situations. Aircraft shall not operate below 305 m (1,000 ft) during marine mammal monitoring when operating outside of active subsistence areas. Aircraft engaged in marine mammal monitoring shall not operate below 457 m (1,500 ft) in areas of active subsistence use; such areas are to be identified through communications with the Communication Centers.
- Except for airplanes engaged in marine mammal monitoring, aircraft shall use a flight path that keeps the aircraft at least five miles inland until the aircraft is directly (south) of its offshore destination, then at that point it shall fly directly to its destination. This is applicable to the Beaufort Sea only.
- Helicopters shall not hover or circle above groups of marine mammals or within 457 m (1,500 ft) of such groups.

C. MEASURES INTENDED TO REDUCE/LESSEN NON-ACOUSTIC IMPACTS ON MARINE MAMMALS

These measures would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic including in-ice surveys, CSEM surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Mitigation Measure C1. Specified procedures for changing vessel speed and/or direction to avoid collisions with marine mammals.

General operation conditions include:

- Reduce vessel speed when within 274 m (900 ft) of whales and those vessels capable of steering around such groups should do so. Vessels may not be operated in such a way as to separate members of a group of whales from other members of the group.
- Avoid multiple changes in direction and speed when within 274 m (900 ft) of whales. In addition, operators should check the waters immediately adjacent to a vessel to ensure that no whales will be injured when the vessel's propellers (or screws) are engaged.
- Do not operate support vessels (including small boats), to the extent that they are being used, at a speed that would make collisions with whales likely. Vessel speeds shall be less than 10 knots in the proximity of feeding whales or whale aggregations.
- When weather conditions require, such as when visibility drops, adjust vessel speed accordingly to avoid the likelihood of injury to whales. Vessel speeds should be reduced to at least 10 knots.

Mitigation Measure C2. Lost equipment notification.

- The operator shall notify BOEM or BSEE (dependent upon the type of activity), NMFS, and the U.S. Fish and Wildlife Service in the event of any loss of cable, streamer, or other equipment that could pose a danger to marine mammals.

On-ice Seismic Surveys

Mitigation Measure C3. When traveling on ice roads, the area shall be monitored for marine mammals.

- PSOs are a key component of locating ringed seal lairs. During active seismic vibrator source operations, the 150 m (490 ft) exclusion zone shall be monitored for entry by marine mammals.
- Any locations of seal structures must be marked and protected by a 150 m (490 ft) exclusion distance from any existing routes and on-ice seismic activities.
- No ice roads may be built between the mobile camp and work site. Travel between mobile camp and work site shall also be monitored for marine mammals and be done by vehicles driving through on a snow road. Vehicles must avoid any pressure ridges, ice ridges, and ice deformation areas where seal structures are likely to be present.

Exploratory Drilling Activities ONLY

Mitigation Measure C4. Oil Spill Response Plan.

Operators are required to have a plan(s) in place that: a) minimize the likelihood of a spill; b) outline the response protocol in the event of a spill; and c) identify the means of minimizing impacts to marine mammals following a spill.

- Each operator is required to prepare an oil spill response plan (OSRP) for any facilities seaward of the coastline. In the OSRP, the operator must include an emergency response action plan, a worst-case-discharge (WCD) scenario, an inventory of response equipment to support a WCD response, contractual agreements with oil spill removal organizations (OSRO) who will provide response services, a dispersant-use plan, an in situ-burning plan, and a training and response drills plan.
- In developing the WCD scenario, operators are required to conduct an appropriate trajectory analysis for the area where the facility will be located. This analysis must identify onshore and offshore areas that a discharge potentially could impact and further identify resources of special economic or environmental concern that may be present. The operator must describe what strategies would be used to protect these areas and resources.
- Operators may be required to stage spill response equipment near areas of concern to facilitate more rapid deployment to protect critical resources and limit exposure to oil.

D. MEASURES INTENDED TO ENSURE NO UNMITIGABLE ADVERSE IMPACT TO SUBSISTENCE USES

These measures would be required for all activities that occur during the open-water season and in-ice (i.e. 2D/3D seismic including in-ice surveys, CSEM surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Mitigation Measure D1. Shutdown of exploration activities occurring in specific areas of the Beaufort Sea corresponding to the start and conclusion of the fall bowhead whale hunts in Nuiqsut (Cross Island) and Kaktovik beginning on or around August 25.

- Start dates for hunts are based on
- No geophysical activity from the Canadian Border to the Canning River (146 deg. 4 min. W) beginning on or around August 25 to close of the Kaktovik's and Nuiqsut's fall bowhead whale.
- The bowhead whale subsistence hunt will be considered closed for a particular village when the village Whaling Captains' Association declares the hunt ended or the village quota has been exhausted (as announced by the village Whaling Captains' Association or the Alaska Eskimo Whaling Commission [AEWC]), whichever occurs earlier.
- From August 10 to August 25, industry participants will communicate and collaborate with AEWC on any planned vessel movement in and around Kaktovik and Cross Island to avoid impacts to the whale hunt.

- From Pt. Storkerson (~148 deg. 42 min. W) to Thetis Island (~150 deg. 10.2 min. W);
 - Inside the Barrier Islands: No geophysical activity prior to August 5. Geophysical activity is allowed from August 5 until completion of operations. Geophysical activity allowed in this area after August 25 shall include a source array of no more than 12 airguns, a source layout no greater than 8 m x 6 m (26.2 ft x 19.7 ft), and a single source volume no greater than 14.4 liters (880 in³).
 - Outside the Barrier Islands: No geophysical activity from August 25 to close of fall bowhead whale hunting in Nuiqsut. Geophysical activity is allowed at all other times.
- From Canning River (~146 deg. 4 min. W) to Pt. Storkerson (~148 deg. 42 min. W), no geophysical activity from August 25 to the close of bowhead whale subsistence hunting in Nuiqsut.
- Around Barrow, no geophysical activity from Pitt Point on the east side of Smith Bay (~152 deg. 15 min. W) to a location about half way between Barrow and Peard Bay (~157 deg. 20 min. W) from September 15 to the close of the fall bowhead whale hunt in Barrow.
- Industry participants will contact the whaling captains' associations of Wainwright, Point Lay, and Point Hope to determine if the village is planning to participate in a fall whale hunt. If the village whaling captains indicate that they plan to participate in the fall whale hunt, before September 15, no more than two geophysical activities employing airguns will occur at any one time within 48.3 km (30 mi) of any point along the Chukchi Sea coast until the close of the fall bowhead whale hunt.

Mitigation Measure D2. Establishment and utilization of Communication Centers in subsistence communities to address potential interference with marine mammal hunts on a real-time basis throughout the season.

To address potential interference with marine mammal hunts on a real-time basis, exploration companies have been required to participate in the establishment and interaction with Communication Centers in affected subsistence communities. The Communication Centers are to be operated on a 24-hour basis during the fall bowhead whale hunt.

- Upon notification by a Communication Center operator of an at-sea emergency, the holder of the ITA shall provide such assistance as necessary to prevent the loss of life, if conditions allow the holder of the ITA to safely do so.
- Upon request for emergency assistance made by a subsistence whale hunting organization, or by a member of such an organization, in order to prevent the loss of a whale, the holder of the ITA shall assist towing of a whale taken in a traditional subsistence whale hunt, if conditions allow the holder of the ITA to safely do so.
- The Plan of Cooperation (as required by NMFS implementing regulations at 50 CFR 216.104(a)(12)) outlining the steps that will be taken to cooperate and communicate with the native communities to ensure the availability of marine mammals for subsistence uses must be implemented.

Mitigation Measure D3. Required flight altitudes and paths for all support aircraft in areas where subsistence occurs, except during take-off, landing, and emergency situations.

Aircraft shall avoid concentrations or groups of whales. Operators shall, at all times, conduct their activities at a maximum distance from such concentrations of whales.

- Aircraft shall not operate below 457 m (1,500 ft) unless the aircraft is engaged in, approaching, landing or taking off, or unless engaged in providing assistance to a whaler or in poor weather (low ceilings) or any other emergency situations.
- Aircraft engaged in marine mammal monitoring shall not operate below 457 m (1,500 ft).
- Except for airplanes engaged in marine mammal monitoring, aircraft operating in the Beaufort Sea shall use a flight path that keeps the aircraft at least five miles inland until the aircraft is directly (south) of its offshore destination, then at that point it shall fly directly (north) to its destination.
- When weather conditions do not allow a 457 m (1,500 ft) flying altitude, such as during severe storms or when cloud cover is low, aircraft may be operated below the 457 m (1,500 ft) altitude. However, when aircraft are operated at altitudes below 457 m (1,500 ft) because of weather conditions, the operator must avoid whale concentrations and concentration areas and should take precautions to avoid flying directly over or within 1,372 m (4,501 ft) of groups of whales.

Additional Mitigation Measures

The following mitigation measures (and mitigation monitoring needed to support them) will be evaluated in Chapter 4 and may be required by NMFS in ITAs or by BOEM in G&G permits or ancillary activity notices to make the necessary findings under the MMPA and OCS Lands Act, respectively, for the type of activity identified.

A. DETECTION-BASED MEASURES INTENDED TO REDUCE NEAR-ARRAY ACOUSTIC EXPOSURES AND IMPACTS ON MARINE MAMMALS WITHIN A GIVEN DISTANCE OF THE SOURCE

Additional Mitigation Measure A1. Sound source verification tests for sound sources and vessels at the start of the season.

Before conducting the activity, the operators shall conduct sound source verification (SSV) tests to verify the radii of the safety and monitoring zones within real-time conditions in the field, providing for more accurate radii to be used. When moving an operation into a new area, the operator shall re-verify the new radii of the exclusion zones. The purpose of this mitigation measure is to establish and monitor more accurate safety zones based on empirical measurements, as compared to the zones based on modeling and extrapolation from different datasets. Using a hydrophone system, the vessel operator is required to conduct SSV tests for all airgun arrays and vessels and, at a minimum, report the following results to NMFS within five days of completing the test:

- The empirical distances from the airgun array and other acoustic sources utilized during the effectiveness of the ITA to broadband received levels of 190 dB down to 120 dB in 10 dB increments and the radiated sounds vs. distance from the source vessel.
- Measurements are to be made at the beginning of the survey for locations not previously modeled in the Arctic Seas.

Additional Mitigation Measure A2. Measures to assess efficacy and improve detection capabilities in low visibility situations (e.g. Forward Looking Infrared [FLIR] imaging devices, 360° thermal imaging devices).

- All PSOs could be provided with and use appropriate night-vision devices, Big Eyes, and reticulated and/or laser range finding binoculars in order to detect marine mammals within the Exclusion Zone.

Additional Mitigation Measure A3. Limiting activities in situations of low visibility.

Additional Mitigation Measure A4. Measures to increase detection probability for real-time mitigation (e.g. to maintain 180 dB shutdown zones), such as passive and active acoustic monitoring.

Additional Mitigation Measure A5. Enhancement of monitoring protocols and mitigation shutdown zones to minimize impacts in specific biologic situations (e.g. cow/calf groups and feeding or resting aggregations).

Some characteristic mitigation language that has been used in past ITAs for these measures include:

- For seismic activities (including shallow hazards and site clearance and other marine surveys where active acoustic sources will be employed) in the Beaufort Sea after August 25, a 120-dB monitoring zone for bowhead whales will be established and monitored for the next 24 hours if four or more bowhead whale cow/calf pairs are observed at the surface during an aerial monitoring program within the area where an ensonified 120-dB zone around the vessel's track is projected. To the extent practicable, such monitoring should focus on areas upstream (eastward) of the bowhead migration. No seismic surveying shall occur within the 120-dB safety zone around the area where these whale cow-calf pairs were observed, until two consecutive surveys (aerial or vessel) indicate they are no longer present within the 120-dB safety zone of seismic-surveying operations.
- A 160-dB vessel monitoring zone for bowhead and gray whales will be established and monitored in the Chukchi Sea and after August 25 in the Beaufort Sea during all seismic surveys. Whenever an aggregation of bowhead whales or gray whales (12 or more whales of any age/sex class that appear to be engaged in a non-migratory, significant biological behavior (e.g. feeding, socializing)) are observed during an aerial or vessel monitoring program within the 160-dB safety zone around the seismic activity, the seismic operation will not commence or will shut down, until two consecutive surveys (aerial or vessel) indicate they are no longer present within the 160-dB safety zone of seismic-surveying operations.

B. NON-DETECTION-BASED MEASURES INTENDED TO MORE BROADLY LESSEN THE SEVERITY OF ACOUSTIC IMPACTS ON MARINE MAMMALS OR REDUCE OVERALL NUMBERS TAKEN BY ACOUSTIC SOURCE

These measures would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic surveys including in-ice seismic, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Additional Mitigation Measure B1. Temporal/spatial limitations to minimize impacts in particular important habitats, including Camden Bay, Barrow Canyon, Hanna Shoal, the shelf break of the Beaufort Sea, and Kasegaluk Lagoon/Ledyard Bay Critical Habitat Unit.

No oil and gas industry exploration activities would be permitted to occur in the areas specified here during the listed timeframes. Additionally, buffer zones around these time/area closures could potentially be included. Buffer zones would require that activities emitting pulsed sounds would need to operate far enough away from these closure areas so that sounds at 160 dB do not propagate into the area or that activities emitting continuous sounds would need to operate far enough away from these closure areas so that sounds at 120 dB do not propagate into the area. In the event that a buffer zone of this size was impracticable, a buffer zone avoiding the ensonification of the important habitat above 180 dB could be used.

- Camden Bay: minimizing disturbance of feeding and resting whales.
 - Bowhead whales: September 1 – October 15 for primary migration and feeding (Huntington and Quakenbush 2009; Koski and Miller 2009; Quakenbush et al. 2010a)
 - Subsistence (bowhead whale hunting): late August – early October (Huntington and Quakenbush 2009)
 - Except for emergencies or human/navigation safety, oil and gas exploration operations shall not occur within Camden Bay or the designated buffer zones during the dates noted here.
- Barrow Canyon and the Western Beaufort Sea: minimizing surface vessel and aircraft disturbance of feeding and resting whales.
 - Bowhead whales: late August – early October
 - Beluga whales: mid-July – late August
 - Except for emergencies or human/navigation safety, oil and gas exploration operations shall not occur within the Barrow Canyon area or the designated buffer zones from August 1 to the close of the fall bowhead whale hunt in Barrow.
- Shelf Break of the Beaufort Sea: minimizing surface vessel and aircraft disturbance of feeding whales
 - Beluga whales: mid-July – late-September
- Hanna Shoal: minimizing surface vessel and aircraft disturbance of feeding and resting marine mammals (gray whales, walrus, spotted seals)
 - Walrus: July – August (USGS 2011)
 - Gray whales: late August – early October
 - Except for emergencies or human/navigation safety, oil and gas exploration operations shall not occur within the Hanna Shoal area or the designated buffer zones from September 1 to October 15.
- Kasegaluk Lagoon/Ledyard Bay Critical Habitat Unit: minimizing surface vessel and aircraft disturbance of feeding and resting marine mammals (beluga whales, spotted seals) and spectacled eiders; subsistence hunting of beluga whales.
 - Subsistence (Kasegaluk Lagoon beluga whale hunting): mid-June – mid-July
 - Except for emergencies or human/navigation safety, oil and gas exploration operations shall not occur within the Unit or the designated buffer zones between July 1 and November 15.
 - To the maximum extent practicable, aircraft supporting seismic survey operations shall avoid operating below 457 m (1,500 ft) over the Unit between July 1 and November 15.
 - Vessel travel within the Unit and altitude deviations by aircraft over the Unit for emergencies or human safety shall be reported within 24 hours to BOEM.

Additional Mitigation Measure B2. NMFS restricting number of surveys (of same level of detail) that can be conducted in the same area in a given amount of time (i.e. to avoid needless collection of identical data).

- Require industry to organize a way to interact with one another to identify when and if duplicative surveys are likely to occur (survey type to gather same type of data within five years) and outline efforts to avoid or describe justification.

2D/3D Seismic Surveys, Including In-Ice Surveys ONLY

Additional Mitigation Measure B3. Separate seismic surveys are prohibited from operating within 145 km (90 mi) of one another.

C. MEASURES INTENDED TO REDUCE/LESSEN NON-ACOUSTIC IMPACTS ON MARINE MAMMALS

These measures would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic surveys including in-ice seismic, CSEM surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Additional Mitigation Measure C1. Vessels and aircraft avoidance of concentrations of groups of ice seals, walrus, and polar bears.

- Seismic survey and associated support vessels shall observe a 0.8 km (0.5 mi) safety radius around ice seal or Pacific walrus groups hauled out onto land or ice.
- Vessels must reduce speed when walrus are observed in the water. Vessels capable of steering around these animals must do so. Vessels may not be operated in such a manner as to separate members of a group of ice seals or walrus from other members of a group. Vessels should avoid multiple changes in direction and speed when ice seals or walrus are present.
- Under no circumstances, other than an emergency, should aircraft be operated at an altitude lower than 457 m (1,500 ft) when within 0.8 km (0.5 mi) of ice seal or Pacific walrus groups.
- Helicopters may not hover or circle above such areas or within 762 m (2,500 lateral ft) of such areas.
- Seismic survey operators shall adhere to any mitigation measures identified by the USFWS to protect polar bears from being harassed and/or injured.
- Vessels must reduce speed when polar bears are observed in the water. Vessels capable of steering around these animals must do so. Vessels may not be operated in such a manner as to separate members of a group of polar bears from other members of a group. Vessels should avoid multiple changes in direction and speed when polar bears are present.
- Currently, proposed polar bear critical habitat mitigation includes a 1.6 km (1 mi) no disturbance zone around the barrier islands, and sea ice habitat.

Additional Mitigation Measure C2. Specified shipping or transit routes to avoid important habitat in areas where marine mammals may occur in high densities.

Exploratory Drilling Activities ONLY

Additional Mitigation Measure C3. Requirements to ensure reduced, limited, or zero discharge of any or all of the specific discharge streams identified with potential impacts to marine mammals or marine mammal habitat.

Discharge streams identified with potential impacts to marine mammals or marine mammal habitat include the following:

- Drill cuttings;
- Drilling fluids;
- Sanitary waste;
- Bilge water;
- Ballast water; and
- Domestic waste (i.e. gray water).

Additional Mitigation Measure C4. Operators are required to recycle drilling muds.

- Operators are required to recycle drilling muds (e.g. use those muds on multiple wells) based on operational considerations to reduce discharges.

On-ice Seismic Surveys

Additional Mitigation Measure C5. Use trained seal-lair sniffing dogs for areas with water deeper than 3 m (9.8 ft) depth contour to locate seal structures under snow in the work area and camp site before initiation of activities.

Additional Mitigation Measure C6. Use trained seal-lair sniffing dogs to survey the ice road and establish a route where no ringed seal structures are present.

D. MEASURES INTENDED TO ENSURE NO UNMITIGABLE ADVERSE IMPACT TO SUBSISTENCE USES

These measures would be required for all activities that occur during the open-water season (i.e. 2D/3D seismic surveys, including in-ice seismic, CSEM surveys, site clearance and high resolution shallow hazards surveys, and exploratory drilling activities).

Additional Mitigation Measure D1. No transit of exploration vessels into the Chukchi Sea prior to July 15 or until the beluga hunt is completed at Point Lay.

- Any vessel conducting geophysical work in the Chukchi Sea should remain as far offshore as weather and ice conditions allow and, at all times, at least 8.05 km (5 mi) offshore during transit except for emergencies or human/navigation safety.
- Geophysical activity shall not be conducted within 96.56 km (60 mi) of any point on the Chukchi Sea coast.

Additional Mitigation Measure D2. Vessels transiting east of Bullen Point to the Canadian border should remain at least 8km (5 mi) offshore during transit along the coast, provided ice and sea conditions allow.

Additional Mitigation Measure D3. Shutdown of exploration activities in the Beaufort Sea for the Nuiqsut (Cross Island) and Kaktovik bowhead whale hunts based on real-time reporting of whale presence and hunting activity rather than a fixed date.

Additional Mitigation Measure D4. Shutdown of exploration activities in the Beaufort Sea for the Barrow bowhead whale hunts from Pitt Point on the east side of Smith Bay to a location about half way between Barrow and Peard Bay from September 15 to the close of the fall bowhead whale hunt in Barrow.

Additional Mitigation Measure D5. Shutdown of exploration activities in the Chukchi Sea for the Barrow (the area circumscribed from the mouth of Tuapaktushak Creek due north to the coastal zone boundary, to Cape Halkett due east to the coastal zone boundary) and Wainwright (the area circumscribed from Point Franklin due north to the coastal zone boundary, to the Kuk River mouth due west to the coastal zone boundary) bowhead whale hunts based on real-time reporting of whale presence and hunting activity rather than a fixed date.

Additional Mitigation Measure D6. Shutdown of exploration activities in the Chukchi Sea for the Point Hope and Point Lay bowhead whale hunts (within a 48 km [30 mi] buffer from the coast) based on real-time reporting of whale presence and hunting activity rather than a fixed date.

Additional Mitigation Measure D7. Transit restrictions into the Chukchi Sea modified to allow offshore travel under certain conditions (e.g. 32 km [20 mi] from the coast) if beluga whale, fall bowhead whale (Barrow and Wainwright), and other marine mammal hunts would not be affected.

Exploratory Drilling Activities ONLY

Additional Mitigation Measure D8. For exploratory drilling operations in the Beaufort Sea west of Cross Island, no drilling equipment or related vessels used for at-sea oil and gas operations shall be moved onsite at any location outside the barrier islands west of Cross Island until the close of the bowhead whale hunt in Barrow.

APPENDIX B

Seismic Survey Sound Propagation in the EIS Project Area

Effects of Oil and Gas Activities in the Arctic Ocean EIS
Appendix B - Seismic Survey Sound Propagation in the EIS Project Area

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Appendix B

Seismic Survey Sound Propagation in the EIS Project Area

Of all exploration sources, seismic survey airgun array sources generate the highest sound pressures. Further, a large number of measurements of airgun sound levels have been performed since 2006 in the EIS project area. This Appendix describes important findings of those measurements, and discusses the influence of project area physical environments have in general on low frequency sound propagation. While this information is related directly to airgun sounds and airgun sound propagation, it is useful also for understanding propagation of all low frequency (<1 kHz) noise in the project area environments. Key results include strong modal propagation in shallow environments and support for long-range sound propagation in sound channels of deep environments.

The figures associated with this appendix can be found in the Figures section of this EIS.

1.0 Sound Speed Profiles

1.1 Shallow Water Conditions

The majority of the EIS project area is characterized by shallow waters of less than 50 m (164 ft) depth. Sound speed profiles in the shallow waters of the EIS project area during summer months are dominated by the effects of gradients of salinity and temperature. Solar heating of surface waters and influx of lower salinity, warmer Pacific water sets up a stratified structure of low salinity warm water overlying high salinity cold water. This stratification forms in low sea states but mixing of water layers to the bottom can occur after storms, and the stratification can be temporarily lost. Stratification can reform after just a few days of calm weather. An example of stratified water profiles, and the resulting sound speeds, is given in Figure B-1 (O'Neill et al. 2010). When stratification exists, higher sound speeds occur in the upper water layers and this profile leads to downward refraction of propagating sounds. In general, downward-refracting profiles are expected to lead to lower sound levels near the surface, and higher rates of sound attenuation with range due to more sound interaction with the seabed. There does not appear to be a systematic examination of this effect for the industrial sound types employed for oil and gas exploration activities (primarily airgun arrays, vessels, drill rigs and various types of sonars) in the Chukchi and Beaufort seas.

1.2 Deep Water Conditions

Only the further offshore regions of the EIS project area, mainly in the Beaufort Sea, extend into deep water defined here by depths greater than a few hundred meters. In deep arctic waters the sound speed profile is described by increasing sound speed with depth due to pressure effects, but solar heating of the top layer in summer can lead to higher speeds in the surface 20 m (66 ft). Figure B-2 shows a typical Beaufort Sea sound speed profile for August in 1,375 m (4,511 ft) water depth as predicted by the U.S. Naval Oceanographic Office's Generalized Digital Environmental Model (GDEM) database (Teague et al. 1990).

The resulting effect of the deep water profile on acoustic propagation is the formation of a surface sound channel (or half channel) with upper boundary at the surface. When warming of the surface occurs a small full channel can form with axis at the base of the warmed layer (at approximately 20 m [66 ft] depth) that could trap high frequency (>200 Hz) sounds. The important feature of the deep water profile is that upward refraction over a large depth range leads to trapping of shallow-angle low frequency sounds in a channel that allows this sound to propagate large distances with relatively low attenuation.

2.0 2D and 3D Airgun Array Sound Propagation

Airgun array acoustic measurements have been performed for most seismic surveys in the Chukchi and Beaufort seas as required under IHA authorizations for those projects. The measurements have been performed only in water depths less than 50 m (164 ft). Acoustic measurements have been performed since 2008 for deeper water seismic surveys for BP Canada and Imperial Oil Canada in Canadian waters but those results are presently not published. Reporting requirements of the IHAs in U.S. waters include documenting the sound levels and acoustic characteristics of the airgun array signals. A list of recent seismic surveys in the EIS project area, with references to the measurement reports is given in Chapter 4, Section 4.5.1.5.

2.1 Airgun Array Sound Levels in Shallow Water

Airgun array acoustic measurements have recorded the airgun pressure signatures as a function of distance from the arrays in the EIS project areas to approximately 50 m water depth. The key metrics recorded are broadband peak pressure (L_p), 90th percent RMS (L_{p90}), and per-pulse SEL (L_E), and the formula for computing these metrics from the recorded pressure signatures are provided in all of the 90-day reports (e.g. O'Neill et al. 2010). Measurements are typically presented in level versus distance plots in broadside and entire directions from the arrays. The results from two production surveys in the Chukchi Sea and Beaufort Sea study areas are presented in Figures B-3 and B-4.

2.2 Spectral and Temporal Characteristics of Airgun Signals in Shallow Water

The spectral and temporal characteristics of airgun pulses change as they propagate in the relatively shallow water environments of the EIS project area. Low frequency sounds (less than 500 Hz) propagate largely as resonant modes in shallow water. The acoustic measurements of impulsive sources in the Chukchi and Beaufort seas have identified modal propagation in all cases. As an example, the spectrograms (graphs of spectral density versus frequency and time) from acoustic recording of airgun array signals from GXT's 2006 2D Chukchi Sea seismic program approximately 100 km (62 mi) north of Cape Lisburne in 40 m (131 ft) water depth at four distances from the airgun array are shown in Figure B-5. The down-sweeping striations in these spectrograms represent propagation in individual modes. Modal patterns in water depths of 20 to 40 m (66 to 131 ft) tend to develop in the first 2 to 5 km (1.2 to 3.1 mi) of propagation and are most strongly apparent between 8 and 20 km (5 and 12.4 mi) distance from the source. Some of the modes start to decay at longer ranges as discussed below.

The modal propagation observed in the EIS project area during seismic survey programs are strongest at frequencies between approximately 30 and 300 Hz. Mode energy outside of this range of frequencies can propagate to short or moderate distances but becomes more rapidly attenuated and eventually very weak after a few tens of kilometers propagation. At distances beyond approximately 50 km (31 mi) only a few modes are left with energy in the frequency band mentioned above. These remaining modes can support propagation of acoustic energy sufficiently well that it can often be detected above ambient levels to several hundred kilometers distance. The overall effect is that airgun sound energy at long distances is mainly restricted to the frequencies of modes that propagate well. Figure B-7 shows the pressure waveform and SEL spectral density of an airgun pulse measured at 80 km (50 mi) range from Statoil's 2010 Chukchi Sea seismic survey. The spectral density figure clearly shows that sound energy below 30 Hz and above 200 Hz has been lost, but that energy between these frequencies remains present.

A second effect of modal propagation is to extend the duration of impulsive sounds. Modal dispersion (the variation of group or horizontal propagation speed for different modes) causes the impulsive signals to spread out in time, with low frequencies arriving later than high frequencies. Frequency dispersion within modes also contributes to the time spread. The increase in pulse duration that results from

dispersion is clearly apparent in the signals in Figures B-5 and B-6. In fact, the 90 percent rms time window from which L_{p90} is computed increases from approximately 100 ms for the 90 m (295 ft) distance measurement to almost 2 s for the 80 km (50 mi) distance measurement (a factor of 20 times) in that example. The analysis of airgun pulses of GXT's survey included an examination of the 90 percent rms time window length variation with distance from the airgun array (Austin and Laurinolli 2007), and these results are reproduced in Figure B-8.

3.0 Sound Propagation in Shallow Water Environments

The Beaufort Sea portion of the EIS project area includes locations with water depths less than 10 m (33 ft). Sound propagation in these environments differs substantially from deepwater sound propagation, mainly because fewer acoustic modes are supported for the low frequencies of industrial sounds in very shallow water (below about 15 m [49 ft] depth). The modes that do propagate are forced to extend into the seabed where sound attenuation coefficients are higher than in the water. Shallower source depths, necessitated by proximity of the seafloor, also reduce mode excitations (the injection of sound energy into a mode) and therefore less sound energy propagates in the few modes that are supported. Finally, the shallower receiver depths (again limited by the depth of the seafloor) cannot receive highest mode pressure levels because those maxima exist in the seafloor. The overall effect is that lower industrial sound pressure levels occur in very shallow water than in deeper (15 m [49 ft] or more) water depths. Figure B-9 shows the shallow water airgun pulse level measurements from Eni/PGS's 2008 OBC seismic survey using an 880 in³ airgun array in Harrison Bay, Beaufort Sea in 9 m (30 ft) water depth. Figure B-10 shows the same results for the same source operating in 2.5 m (8 ft) water depth. The listed source depth in both cases is 2.5 m (8 ft) (Warner et al. 2008).

4.0 Sound Propagation in Deep Water Environments

None of the recent seismic surveys performed in the EIS project area have performed acoustic measurements, in deep water (>50 m [>164 ft] depth) locations. However, measurements of distant seismic pulses with level close to 120 dB re 1 μ Pa were made during Shell's 2008 acoustic characterization measurements of their Como prospect survey in early September (Hannay and Warner 2009). The recorder that detected those seismic pulses was located 80 km (50 mi) offshore, near the shelf edge. While the source of the distant pulses was not determined, they likely originated from surveys in deep water off the Mackenzie Delta, at more than 200 km (120 mi) distance. Interestingly the distant survey pulse levels were greater than those from the Shell survey that approached within 60 km (37 mi) of the recorder. The reason for the higher levels received from the much more distant survey is likely that the sound channel discussed in Section 1.2 of this Appendix supported long-range seismic pulse propagation with low attenuation, whereas propagation from Shell's survey sounds in 20 to 30 m (65 to 98 ft) water depth experienced much high attenuation.

While the project area deep water environments will support long-distance propagation, the greater seafloor depth will likely return less acoustic energy at short range than the shallow water environment, resulting in lower sound levels, at least at shallow depths, close to the source. Sound that does become trapped in the sound channel, however, is likely to remain at relatively high levels to significant distances as discussed above.

5.0 Site Clearance and High Resolution Shallow Hazards Survey Sounds

Shallow hazards seismic surveys use small airgun arrays, typically using one, two, or four airguns with total volume less than 100 in³. Some shallow hazards surveys use boomers or sparkers in place of airguns. The noise footprints of these sources are smaller than from 2D and 3D seismic surveys because the source levels are lower and the sources operate at shallower depths. Nevertheless, much of the propagation characteristics are similar to those for larger sources, including the modal propagation and time dispersion effects discussed above. Representative levels are presented in Figure B-11 from Shell's 2008 shallow hazards survey near its Honeyguide prospect in the Chukchi Sea for three airgun configurations: 10 in³, 20 in³ and 40 in³ operating at 2 m (6.6 ft) depth in 48 m (157 ft) water depth (Warner et al. 2010).

Site clearance surveys often use sub-bottom profilers operating in the 2 to 12 kHz frequency range. These typically produce acoustic energy in beams that point straight down, so smaller sound levels occur to the sides. Figure B-12 below shows sound pressure and SEL levels to the side of a GeoPulse 3.5 kHz sub-bottom profiler while operating at 3 m (10 ft) depth below sea surface at Shell's Honeyguide and Burger prospects in the Chukchi Sea in approximately 40 m (131 ft) and 46 m (151 ft) water depths respectively.

APPENDIX C

Final Scoping Report

Environmental Impact Statement on Effects of Oil & Gas Activities (Seismic and Exploratory Drilling) in the Arctic Ocean

FINAL
Scoping Report

For

**Environmental Impact Statement
on Effects of Oil & Gas Activities
(Seismic and Exploratory Drilling)
in the Arctic Ocean**

June 2010



Office of Protected Resources
NOAA Fisheries
National Marine Fisheries Service

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ACRONYMS AND ABBREVIATIONS

2D	Two-dimensional
3D	Three-dimensional
BOE	Bureau of Ocean Energy Management
CAR	Comment Analysis Report
CASy	Comment Analysis System
Comment ID	Automated Tracking Number
DPEIS	Draft Programmatic Environmental Impact Statement
EIS	Environmental Impact Statement
ITA	Incidental Take Authorizations
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
OCS	Outer Continental Shelf
PEA	Programmatic Environmental Assessment
PSA	Public Service Announcement
ROD	Record of Decision
SOCs	Statements of Concern
U.S.	United States

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1.0 INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) to analyze the environmental impacts of issuing Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act (MMPA). These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the United States (U.S.) Beaufort and Chukchi Seas off Alaska. NMFS is serving as the lead agency for this EIS and is responsible for the development of the EIS in collaboration with the cooperating agencies. The U.S. Bureau of Ocean Energy Management (BOE) (formerly the U.S. Minerals Management Service [MMS]) is a cooperating agency. As a result of the scoping process, the North Slope Borough and the Environmental Protection Agency (EPA) were invited to become cooperating agencies; their decisions were pending at the time of release of this document.

The Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on February 8, 2010 (75 FR 6175). The scoping period, during which issues and concerns are identified, was also initiated February 8, 2010. Scoping comments were received through April 9, 2010 as specified in the NOI.

1.1 Scoping Overview

NMFS hosted public scoping meetings for the Effects of Oil and Gas Activities in the Arctic Ocean EIS to disseminate information about the proposed project and to identify issues and concerns that should be addressed in the EIS (Table 1). The meetings consisted of an open house, a brief presentation, and then a public comment opportunity. Native language translation was provided upon request in Point Hope and Kaktovik. Transcripts of each public scoping meeting are available on the project website (<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>).

TABLE 1. SCOPING MEETINGS, LOCATIONS & DATES

Meeting	Date	Location
Kotzebue Public Scoping Meeting	February 18, 2010 6:00- 8 p.m.	Northwest Arctic Borough Assembly Chambers, Kotzebue, AK
Point Hope Public Scoping Meeting	February 19, 2010 5:00-7:00 p.m.	Point Hope Community Center, Point Hope, AK
Point Lay Public Scoping Meeting	February 22, 2010 7:00-9:00 p.m.	Point Lay Community Center, Point Lay, AK
Wainwright Public Scoping Meeting	March 9, 2010 7:00-9:00 p.m.	Wainwright Community Center, Wainwright, AK
Barrow Public Scoping Meeting	March 10, 2010 7:00-9:30 p.m.	Inupiat Heritage Center, Barrow, AK
Nuiqsut Public Scoping Meeting	March 11, 2010 7:00-9:00 p.m.	Nuiqsut Community Center, Nuiqsut, AK

Meeting	Date	Location
Kaktovik Public Scoping Meeting	March 12, 2010 6:30-8:30 p.m.	Kaktovik Community Center, Kaktovik, AK
Anchorage Public Scoping Meeting	March 23, 2010 7:00-9:00 p.m.	Egan Center, 555 West 5 th Avenue, Anchorage, AK

In a separate, but parallel process for government to government consultation, Tribal governments in each community, with the exception of Anchorage, were notified of the EIS process and invited to participate. The first contact was via letter, dated January 29, 2010; follow-up calls were made with the potentially affected Tribal governments, and each was visited during the scoping process. The Comment Analysis Report (CAR) includes comments received in the scoping period during government to government consultation between NMFS, BOE, and the Tribal governments. Comments submitted in writing by Tribal governments during the scoping period are also included in the CAR.

This document is a public record of the scoping activities conducted for the Effects of Oil and Gas Activities on the Arctic Ocean EIS from the issuing of the NOI through the close of the scoping period. Comments received prior to April 9, 2010 are summarized and presented in this document. Comments received after the close of scoping will be considered during the development of the EIS but are not part of this report.

The organization of this report begins with an overview of the outreach to notify the public and convene the scoping meetings. The body of this report then provides a brief summary of comments offered during the scoping period. The concluding section describes the next steps in the planning process.

A series of appendices compile the supporting materials for the summaries provided in this report. Materials regarding public notice and outreach, meeting materials, and the comment analysis report are provided in the appendices.

1.2 Project Background and Overview

In 2006, the BOE prepared a Programmatic Environmental Assessment (PEA) for Arctic Outer Continental Shelf (OCS) Seismic Surveys. NMFS was a cooperating agency in the preparation of the PEA. Afterwards, in accord with NOAA Administrative Order 216-6 (Environmental Review Procedures for Implementing the National Environmental Policy Act, 1999), NMFS adopted the PEA and issued one-year Incidental Harassment Authorizations to oil and gas companies for the taking of marine mammals during seismic surveys.

In 2007, the BOE began a Draft Programmatic EIS (DPEIS); NMFS agreed to be a cooperating agency and adopt the document as its own NEPA analysis. This project assessed the impacts of BOE's issuance of permits and authorizations under the OCS Lands Act for seismic surveys in the U.S. Beaufort and Chukchi Seas and NMFS' authorizations to take marine mammals incidental to conducting those surveys. The intent of the DPEIS was to try to address the potential effects of concurrent offshore seismic survey activities and the potential for an increase in such activities.

The DPEIS was halted because new information became available, such as scientific study results and changes in projections of levels of proposed offshore activity. This new information altered the scope of the study, range of possible alternatives, and analyses. This led to the need for a new NEPA process, and the start of the Effects of Oil and Gas Activities in the Arctic Ocean EIS. This EIS will analyze the

impacts of issuing marine mammal ITAs under the MMPA related to oil and gas industry exploration activities (including both seismic surveys and exploration drilling), and the issuance of permits for seismic surveys in the Beaufort and Chukchi Sea by BOE under the OCS Lands Act.

NMFS issues these authorizations to the oil and gas industry during offshore exploration activities (primarily seismic surveys and exploratory drilling). In order to issue authorizations, NMFS must determine that the taking:

- will have a negligible impact on the species or stock(s); and
- will not have an unmitigable adverse impact on the availability of such species or stock(s) for taking for subsistence uses (where relevant)

Additionally, the authorization shall prescribe the permissible methods of taking, other means of affecting the least practicable adverse impact on such species or stock(s), and requirements pertaining to the mitigation, monitoring, and reporting of such takings.

The term “take,” under the MMPA, means “to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal.” Except with respect to activities not pertinent here, the MMPA defines “harassment” as:

“any act of pursuit, torment, or annoyance which:

(i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or

(ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].”

This EIS will consider seismic and drilling activities in Federal and state waters of the U.S. Beaufort and Chukchi Seas. The EIS will identify potential impacts that seismic surveys (including two dimensional [2D] and three-dimensional [3D] streamer and ocean bottom cable surveys, and shallow hazard seismic surveys) and exploratory drilling in the Beaufort and Chukchi Seas could have on the physical, biological, and social environments. Methods to mitigate impacts will also be considered. In addition, the EIS will contain an analysis of secondary and cumulative effects of the alternatives.

The effects of 2D and 3D streamer and ocean bottom cable surveys (also referred to as seismic surveys) and shallow hazard and site clearance surveys will be analyzed in this EIS. 2D and 3D seismic surveys are conducted to obtain data on geological formations from the sediment near-surface to several thousand meters deep (below the sediment surface). This information enables the industry to accurately assess potential hydrocarbon reservoirs and helps to optimally locate exploration and development wells that can maximize the extraction and production from a reservoir. High resolution seismic surveys are also used to locate shallow geological hazards. Such information allows BOE to fulfill its statutory responsibilities to ensure safe operations, support environmental impact analyses, protect benthic resources through avoidance measures, and perform other statutory responsibilities.

The EIS will also analyze effects of offshore exploratory drilling operations during the open water season so that oil companies can drill exploration targets on their OCS leases in the Beaufort and Chukchi Seas. NMFS would also analyze the effects of obtaining geotechnical data for pre-feasibility analyses of shallow sub-sea sediments as part of its proposed exploratory drilling operations by drilling a series of boreholes, each up to 400 feet (122 m) in depth.

1.3 Purpose of the Project

The Effects of Oil and Gas Activities in the Arctic Ocean EIS will analyze the potential effects of geophysical surveys and exploratory drilling activities and the issuance of ITAs under the MMPA for the taking of marine mammals incidental to these activities, conduct a cumulative effects analysis, consider a reasonable range of alternatives consistent with NMFS' statutory mandates, reanalyze the range of practicable mitigation and monitoring measures for marine mammals, and evaluate the availability of marine mammals for subsistence uses.

In order to comply with NEPA and to achieve increased administrative efficiency on the ITA program, NMFS has determined that this EIS will analyze a range of oil and gas exploratory actions and that will also satisfy the Council on Environmental Quality's NEPA regulations and the NOAA NEPA Administrative Order 216-6. This EIS would cover known and reasonably foreseeable projects requiring ITAs in the U.S. Arctic regions for future years, until at which time a revision to the document becomes necessary. NMFS has determined that an EIS would serve a more beneficial use in terms of agency decision making and would allow greater public participation in future decisions related to ITAs for the oil and gas industry.

2.0 SCOPING METHODS

Scoping is designed to be an open, public process for identifying the scope of physical, biological, and social environmental issues related to the proposed project that should be addressed through NEPA. The scoping process provides people potentially affected by the project an opportunity to express their views and offer any suggestions they may have regarding the project. Scoping is typically accomplished through written correspondence, public scoping meetings, use of electronic media, and formal and informal consultation with agency officials, interested individuals, and groups.

The scoping process is the first phase of an ongoing public participation program, which keeps relevant agencies and the interested public engaged in the project's progress and informed of opportunities to participate in preparation of the EIS. In the scoping phase, individuals, Tribes, agencies, non-governmental organizations, and the resource development industry have an opportunity to bring local issues and concerns within the project area to light and make comments and suggestions that will help develop a reasonable range of alternatives to be evaluated within the EIS.

The scoping process utilized a number of techniques to ensure that agencies, officials, and members of the public were informed of the project, including:

- Development of a project mailing list
- Distribution of an initial newsletter with project information and a public comment form to parties on the mailing list
- Agency scoping consultation and coordination letters
- Government to government consultation and coordination letters
- Newspaper and online notices of scoping meetings
- Public service announcements of scoping meetings
- *Federal Register* notices announcing scoping meetings
- Public scoping meetings in Kotzebue, Point Hope, Point Lay, Wainwright, Barrow, Nuiqsut, Kaktovik, and Anchorage.
- Project email address for comments (arcticeis.comments@noaa.gov).
- Project website for project information and electronic comment forms (<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>).

2.1. Scoping Announcements and Newsletters

The Effects of Oil and Gas Activities in the Arctic Ocean EIS process began with publication of the NOI in the *Federal Register* on February 8, 2010. A copy of the NOI is included in Appendix A.

A newsletter with project information, public scoping meeting announcements, and public comment forms was mailed on February 12, 2010 to agencies, organizations, and individuals identified on the mailing list. NMFS sent letters on January 29, 2010 initiating government to government consultation in the communities of Kotzebue, Point Hope, Point Lay, Wainwright, Barrow, Nuiqsut, and Kaktovik.

Newspaper announcements for the scoping meetings were advertised in the *Arctic Sounder* on February 11 and March 4, 2010; the *Nome Nugget* on February 11, February 18 and March 4, 2010; and the *Anchorage Daily News* on March 7 and March 21, 2010. Public service announcements (PSAs) were faxed on February 10, 2010 to KICY 805 AM, KBRW, K268 AA, K201 AV, KNOM 780 AM and KOTZ radio stations. PSAs were also faxed on March 3 and March 5, 2010 to KSKA, KBFX, KMXS, KBRJ, KBRW, K201AG and K201AH radio stations. Press releases were sent to the

Arctic Sounder and *Nome Nugget* on March 4, 2010. A press release was sent to the *Anchorage Daily News* on March 5, 2010. This information is included in Appendix A. Online advertisements of the public scoping meetings were also submitted to the What's Up list serve.

2.2 Public Scoping Meetings

Eight public scoping meetings were conducted in February and March 2010, with the dates and locations detailed in Table 1. The scoping meeting format and the information presented was the same at each public meeting. During the open house session, attendees had the opportunity to view presentation boards and maps that displayed project information and were able to ask questions of the project team. A project overview, including an introduction to the NEPA process, was then presented. The public question and comment period followed with a court reporter recording public testimony.

Comment forms were made available at the meetings so that attendees could submit written comments during the meeting or mail them in at a later date. Supporting information for the public scoping meetings, including display boards and the formal presentation, is included in Appendix B.

The Effects of Oil and Gas Activities in the Arctic Ocean EIS scoping meetings were generally well attended, with many public comments in some locations. Those attending the meetings were typically aware of on-going discussions regarding proposed activities in the Chukchi and Beaufort Seas.

3.0 SUMMARY OF COMMENTS RECEIVED

Public scoping comments were received in several ways:

- Oral discussion or testimony from the public meeting transcripts;
- Written comments received by mail or by fax; and
- Written comments submitted electronically by e-mail or through the project website.

There were a total of 73 submissions during the scoping period, including all formats described above. Comments were assigned subject category codes to describe the content of the comment. The issue categories and codes are listed in Table 2. The issues were grouped by general topics, including effects, available information, regulatory compliance, Inupiat culture, and general. The relative distribution of comments by issue is shown in Figure 1.

Group affiliations of those that submitted comments include: Federal agencies, Tribal governments, state agencies, local governments, businesses, special interest groups/non-governmental organizations, and individuals. The complete text of public comments received is included in the Administrative Record for the EIS.

All unique submissions were read and analyzed for substantive comments. Substantive comments were assigned a single **Issue Code** in the Comment Analysis System database (CASy). Each comment coded also received an automatic tracking number (**Comment ID**) by CASy.

The public comment submissions generated 721 coded comments, which were then grouped into **Statements of Concern** (SOCs). SOCs are summary statements intended to capture the different themes identified in the substantive comments. Every substantive comment was assigned to an SOC; 178 SOCs were developed. Each SOC is represented by an issue category code followed by a number: NMFS will use the SOCs to develop alternatives and mitigation measures in the EIS, as appropriate.

3.1 Issues Identified During Scoping

The comments received during the scoping period were coded into 14 issue categories, described as follows:

FIGURE 1. COMMENTS BY ISSUE

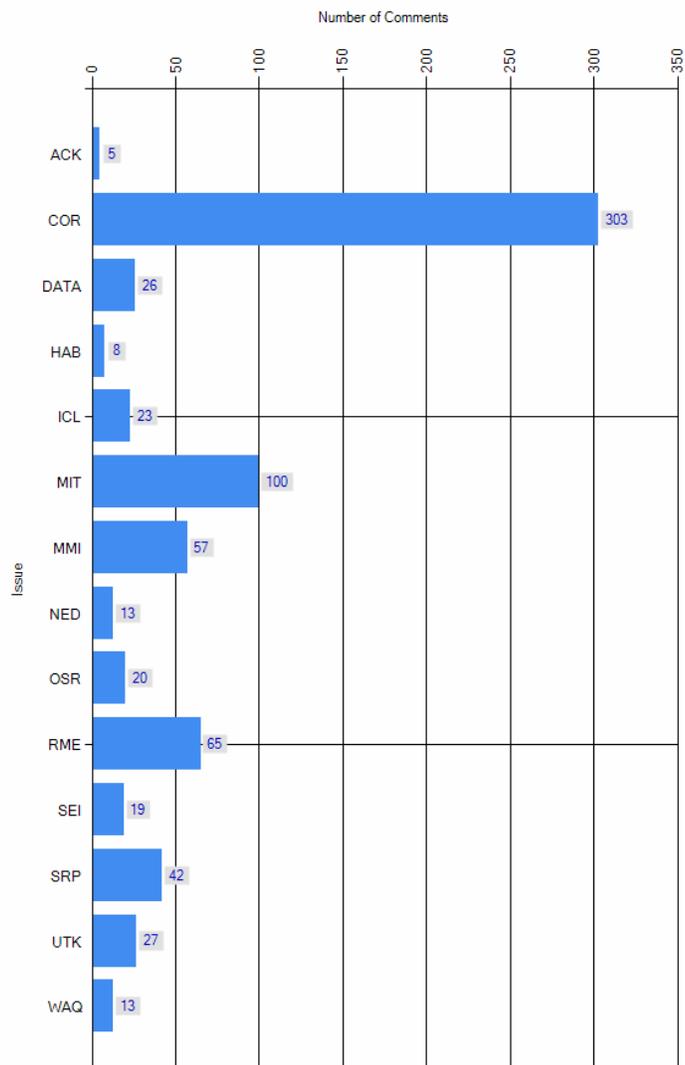


TABLE 2. ISSUE CATEGORY CODES

GROUP	Issue Category	Code	Summary
Effects	Habitat	HAB	Comments associated with habitat requirements, or potential habitat impacts from seismic activities and exploratory drilling. Comment focus is habitat, not animals.
	Marine Mammal and other Wildlife Impacts	MMI	General comments related to potential impacts to marine mammals or wildlife, unrelated to subsistence resource concepts.
	National Energy Demand and Supply	NED	Comments related to meeting national energy demands, supply of energy.
	Oil Spill Risks	OSR	Concerns about potential for oil spill, ability to clean up spills in various conditions, potential impacts to resources or environment from spills.
	Socioeconomic Impacts	SEI	Comments on economic impacts to local communities, regional economy, and national economy, can include changes in the social or economic environments (MONEY, JOBS).
	Subsistence Resource Protection	SRP	Comments on need to protect subsistence resources and potential impacts to these resources. Can include ocean resources as our garden, contamination (SUBSISTENCE ANIMALS, HABITAT).
	Water and Air Quality	WAQ	Comments regarding water and air quality, including potential to impact or degrade these resources.
Available Information	Data	DATA	Comments referencing scientific studies that should be considered.
	Research, Monitoring, Evaluation Needs	RME	Comments on baseline research, monitoring, and evaluation needs
Regulatory Compliance (Process: NEPA, Permits, this EIS)	Coordination and Compatibility	COR	Comments on compliance with other statutes, laws or regulations that should be considered; coordinating with Federal, state, local agencies or organizations; permitting requirements.
	Mitigation Measures	MIT	Comments related to suggestions for or implementation of mitigation measures.
Inupiat Culture	Inupiat Culture and Way of Life	ICL	Comments related to potential cultural impacts or desire to maintain traditional practices (PEOPLE).
	Use of Traditional Knowledge	UTK	Comments regarding how traditional knowledge (TK) is used in the document or decision making process, need to incorporate TK, or processes for documenting TK.
General	Comment Acknowledged	ACK	Entire submission determined not to be substantive and warranted only a “comment acknowledged” response.

3.2 Public Comments

All comments received at public scoping meetings were assigned to issue categories, as previously discussed, based on the content of the comment. The summarized comments, grouped by issue, can be seen in the Comment Analysis Report in Appendix C. Below is a very brief summary of issues; it is recommended to review the CAR to understand the range of issues identified during scoping. The most frequently coded topics were related to regulatory compliance, including the issue categories of coordination and compatibility and mitigation measures. However, as illustrated in the CAR, a broad set of issues was identified during scoping, including concerns regarding potential impacts to the Inupiat culture and way of life, use of traditional knowledge, and potential environmental effects. There were also many comments regarding available data and mitigation measures. Several individual submissions included extremely detailed information.

TABLE 3. SUMMARY OF STATEMENTS OF CONCERN

GROUP	Issue Category	Summary of Statements of Concern
Effects	Habitat	Three SOC's were developed for HAB. Several focus on the concepts that habitat may be affected by climate change/loss of sea ice and potential increases in human activities. Another SOC reflects that there is important habitat in the Beaufort Sea for bowhead whales.
	Marine Mammal and other Wildlife Impacts	The 16 SOC's for MMI are divergent. Some indicate that oil and gas activities negatively impact marine species; even low levels of sound can be disruptive. Acidification, increased vessel traffic, and the cumulative effects of projects also pose threats to marine mammals. Other SOC's indicate that offshore exploration and production activities have not had adverse effects on marine mammal stocks, and research indicates that the health or reproductive fitness of populations has not been impacted.
	National Energy Demand and Supply	Three SOC's were identified for NED. Concerns include the need for stable domestic energy supplies, the potential for undiscovered resource potential in the outer continental shelf, and the disproportionate impact to Inupiat people due to national energy demands.
	Oil Spill Risks	The 11 SOC's identified for OSR are divergent. Some highlight the risks of oil spills, need for spill plans, difficulty of cleaning up oil spills in Arctic waters, and the lack of resources in the Arctic for response to a spill. Other SOC's indicate that technology and industry standards have prevented spills and that most spills have resulted from tankers, not pipelines.
	Socioeconomic Impacts	Three SOC's were developed for SEI. Concerns focus on benefits to the state and nation from oil and gas development, the benefits to the oil and gas industry from predictability in permitting processes, and increases in the cost of whaling activities due to oil and gas activities.
	Subsistence Resource Protection	The 11 SOC's developed for SRP are divergent. One statement indicates that industrial activities should not impact subsistence in the Chukchi Sea, as proposed activities are far offshore. The other concerns are related to potential impacts to subsistence resources due to aircraft disturbance, increased vessel traffic, ice breaking, noise

GROUP	Issue Category	Summary of Statements of Concern
		and cumulative impacts. There are also concerns about contamination from drilling muds and potential contamination from spills. Risks to hunters include increased travel time due to deflected animals from industry activities.
	Water and Air Quality	The 6 SOC's developed for WAC focus on sources and levels of pollutants, potential for bioaccumulation, and lack of technology to eliminate contamination threats.
Available Information	Data	Ten SOC's developed for DATA highlight numerous reports, studies, and sources of information recommended for review by NMFS.
	Research, Monitoring, Evaluation Needs	The 14 SOC's developed for RME are divergent. Some indicate the need for additional research and monitoring, while others state that sufficient data exists to support proposed activities. Concerns are expressed that the environmental baseline is changing and that industry authorizations should be delayed until additional research is conducted.
Regulatory Compliance (Process: NEPA, Permits, this EIS)	Coordination and Compatibility	There were 58 SOC's generated for COR, or approximately one-third of all SOC's produced during the scoping period. Statements focus on compliance with laws, statutes, and regulations; agency processes and interagency coordination, the scope of this EIS, and permitting requirements.
	Mitigation Measures	The 27 SOC's identified for MIT suggest a diversity of mitigation measures, including use of technology, activity restrictions/caps, area restrictions, ballast/hull cleaning requirements, designation of shipping lanes, speed restrictions, activity restrictions during periods of low visibility/inclement weather that inhibits marine mammal observations, and others. Suggestions include monitoring the effectiveness of existing mitigation measures, and the use of local residents for monitoring activities. Other statements indicate that existing measures are sufficient to mitigate impacts from proposed oil and gas activities, and that arbitrary restrictions could impair industry's ability for exploration of leases.
Inupiat Culture	Inupiat Culture and Way of Life	The 6 SOC's developed for ICL are divergent. One statement indicates that a benefit from industrial noise could be to cause whales to move closer to shore for easier subsistence access. The other statements indicate concern for potential impacts to subsistence communities and activities, including human health impacts and potential for impacts to subsistence foods. Other concerns are that communities are not compensated for impacts related to oil and gas activities, and a compromise is needed between protection of subsistence resources and providing local jobs.
	Use of Traditional Knowledge	The 10 SOC's developed for UTK highlight the importance of incorporating Traditional Knowledge in the planning process and encouraged use of Traditional Knowledge provided during prior projects. There is also concern that information provided by communities is not incorporated or considered valid.
General	Comment Acknowledged	Entire submission determined not to be substantive; no SOC's were developed.

4.0 NEXT STEPS IN THE PLANNING PROCESS

4.1 Develop Alternatives

A reasonable range of alternatives that meet the purpose and need of the project will be identified and examined in the EIS. Pertinent input from the scoping process will be incorporated into the range of potential alternatives. This ensures that the full spectrum of positions expressed by participants in the scoping process has been considered. Alternatives that were eliminated from further consideration and not brought forward for formal analysis in the EIS will be identified, along with justifications for elimination. Each viable alternative will be developed with conceptual plans by utilizing available information or by identifying additional information to be obtained in order to evaluate all of the alternatives on an equal basis. This step is underway, beginning after the scoping comments were analyzed.

4.2 Describe the Affected Environment

Available environmental information associated with the identified issue categories will be reviewed and summarized. The summary will include the most recent scientific research available and all pertinent studies and surveys required for areas that would be potentially impacted by all viable alternatives. This information will be presented in the *Affected Environment* chapter of the EIS. This step is scheduled to begin in June 2010.

4.3 Assess Environmental Consequences of Alternatives

The potential environmental consequences of alternatives carried forward for analysis will be evaluated, including direct, indirect, and cumulative effects. NEPA compliance associated with Federal, state, and local agency permits will be identified and incorporated into the analysis of potential effects. This step will be conducted concurrently with the Affected Environment summary and is scheduled to begin in July 2010.

4.4 Issue the Draft EIS

A Draft EIS will be prepared and made available for review by the public, government to government, local, state, and Federal agencies. The Draft EIS will be available for a 60-day review after the Notice of Availability has been published in the *Federal Register*. The public hearings will offer another opportunity for public comment on the Draft EIS. Currently, the public comment period is estimated to begin in December 2010 and run through February 2011. Public Hearings for the Draft EIS are estimated to occur in January 2011.

4.5 Issue the Final EIS and Record of Decision

After analyzing public comments received on the Draft EIS, the document will be revised to prepare a Final EIS. The Final EIS will include the comments submitted on the Draft EIS, including changes made to the EIS in response to comments. This step will include public notice of document availability, the distribution of the document, and a 30-day comment/waiting period on the final document. This step is projected to occur between May and June 2011.

NMFS and BOE are expected to each issue a separate Record of Decision (ROD) which will then conclude the EIS process in July 2011. The selected alternative will be identified in each ROD, as well as the agency's rationale for their conclusions regarding the environmental effects and appropriate mitigation measures for the proposed project.

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5.0 CONTACTS

Lead Agency

National Marine Fisheries Service

Mr. Michael Payne
Chief – Permits, Conservation & Education Division
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20190
Phone: (301) 713-2289 ext. 110
Fax: (301) 713-0376

Cooperating Agency

Bureau of Ocean Energy Management

Mr. Jeffery Loman
Acting Regional Director
Alaska OCS Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823
Phone: (907) 334-5205

Project Website: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>

Project Email: arcticeis.comments@noaa.gov

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APPENDIX A

Scoping Outreach Materials

Notice of Intent

Notice of Public Scoping Meetings

Project Mailing List

Newsletter #1 and Comment Form

Newspaper Advertisements

Press Release

Online Advertisements

Radio Public Service Announcements

Notice of Intent

DC 20230 (or via the Internet at dhynek@doc.gov).

Written comments and recommendations for the proposed information collection should be sent within 30 days of publication of this notice to Brian Harris-Kojetin, OMB Desk Officer either by fax (202-395-7245) or e-mail (bharrisk@omb.eop.gov).

Dated: February 2, 2010.

Glenna Mickelson,

Management Analyst, Office of the Chief Information Officer.

[FR Doc. 2010-2658 Filed 2-5-10; 8:45 am]

BILLING CODE 3510-07-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XU06

Notice of Intent to Prepare an Environmental Impact Statement on the Effects of Oil and Gas Activities in the Arctic Ocean

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

ACTION: Notice of Intent to prepare an Environmental Impact Statement; request for comments.

SUMMARY: The National Marine Fisheries Service (NMFS) announces its intent to prepare an Environmental Impact Statement (EIS) to analyze the environmental impacts of issuing Incidental Take Authorizations (ITAs) pursuant to the Marine Mammal Protection Act (MMPA) to the oil and gas industry for the taking of marine mammals incidental to offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas off Alaska.

DATES: All comments, written statements, and questions regarding the scoping process and preparation of the EIS must be received no later than April 9, 2010.

ADDRESSES: Written comments and statements should be addressed to Mr. P. Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20190-3225. The mailbox address for providing e-mail comments is arcticeis.comments@noaa.gov.

Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size. Comments and statements may also be submitted via

fax to (301) 713-0376. Information on this project can also be found on the Protected Resources webpage at: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

FOR FURTHER INFORMATION CONTACT: Michael Payne, Office of Protected Resources, NMFS, (301) 713-2289 ext. 110.

SUPPLEMENTARY INFORMATION:

Background

Sections 101 (a)(5)(A) and (D) of the MMPA (16 USC 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of proposed authorization is provided to the public for review. The term “take” under the MMPA means “to harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect.” Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as “any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].”

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

Summary of Previous National Environmental Policy Act (NEPA) Documents

In 2006, the U.S. Minerals Management Service (MMS) prepared a Programmatic Environmental Assessment (PEA) for the 2006 Arctic

Outer Continental Shelf (OCS) seismic surveys. NMFS was a cooperating agency and adopted the Final PEA on June 28, 2006. Under this PEA, NMFS issued Incidental Harassment Authorizations under Section 101(a)(5)(D) of the MMPA to oil and gas companies for the taking of marine mammals incidental to seismic surveys in 2006. This PEA analyzed the effects of four concurrent seismic surveys in the Beaufort Sea and four concurrent seismic surveys in the Chukchi Sea. At that time, NMFS indicated that increased activity and new available science would result in a need to prepare an EIS for future authorizations.

On April 6, 2007, NMFS and MMS published a Notice of Availability for a Draft Programmatic EIS (DPEIS) and a schedule of public hearings (72 FR 17117) to assess the impacts of MMS’ issuance of permits and authorizations under the Outer Continental Shelf Lands Act (OCSLA) for the conduct of seismic surveys in the Chukchi and Beaufort Seas off Alaska and NMFS’ authorizations under the MMPA to incidentally harass marine mammals while conducting those surveys. The proposed scope and effects of the seismic survey activities analyzed in the DPEIS were based on the best available information at the time. Since then, new information (e.g., scientific study results, changes in projections of level of activity) has become available that alters the scope, range of possible alternatives, and analyses in the DPEIS. Therefore, MMS and NMFS filed a Notice of Withdrawal of the DPEIS on October 28, 2009 (74 FR 55539) and announced our decision to begin a new NEPA process.

Objectives of the EIS

This NOI announces NMFS’ intent, as lead agency, to prepare a new EIS to analyze the potential effects of both geophysical surveys and exploratory drilling, address cumulative effects over a longer time frame, consider a more reasonable range of alternatives consistent with our statutory mandates, and reanalyze the range of practicable mitigation and monitoring measures for protecting marine mammals and availability of marine mammals for subsistence uses. MMS will be a cooperating agency on this EIS.

Specifically, this EIS would:

(1) Assess the environmental impacts to the physical, biological, cultural, economic, and social resources from deep-penetration, two-dimensional (2D) and three-dimensional (3D) streamer and ocean bottom cable surveys (hereafter referred to as seismic surveys)

and shallow hazard and site clearance surveys;

(2) Assess the environmental impacts to the physical, biological, cultural, economic, and social resources from open water offshore exploratory drilling operations during the open water season in order for the industry to drill priority exploration drill sites on MMS OCS leases in the Chukchi and Beaufort Seas. Also, as part of this EIS, NMFS will analyze the effects of obtaining geotechnical data for pre-feasibility analyses of shallow sub-sea sediments as part of its proposed exploratory drilling operations; and

(3) Assess whether alternatives developed would allow for the implementation of a long-term planning process pursuant to section 101(a)(5)(A) of the MMPA through the development and implementation of regulations that would be in place for 5 year time periods.

For the purposes of complying with NEPA and to achieve greater administrative efficiency in its ITA program, NMFS has determined the need to prepare an EIS that will analyze a range of oil and gas exploratory actions and that will satisfy the requirements of the Council on Environmental Quality's NEPA regulations and the NOAA NEPA administrative order 216-6. The proposed EIS would cover known and reasonably foreseeable projects requiring ITAs in the U.S. Arctic regions for future years, until such time that a revision of the document is necessary. NMFS has determined, based on the following factors, that an EIS would serve a more beneficial use in terms of agency decisionmaking and would allow greater public participation in future decisions related to ITAs for the oil and gas industry:

- NMFS and MMS have received preliminary information from industry that suggests an additional increase in seismic survey applications beyond recent levels;
- NMFS has received applications for exploratory drilling and expects more in the future, the effects of which were not analyzed in the withdrawn DPEIS;
- Understanding that both drilling and seismic activities could be expected to continue in the immediate years, both agencies determined that a longer timeframe needed to be analyzed in order to most effectively and fully evaluate the potential for cumulative impacts; and
- NMFS prepares environmental analyses under NEPA to support the issuance of ITAs under sections 101(a)(5)(A) and (D) of the MMPA. Therefore, this EIS will also be used to

support future MMPA authorizations issued by NMFS for seismic and exploratory drilling activities in state and Federal waters in the U.S. Arctic Ocean in the Beaufort and Chukchi Seas.

Finally, the environmental analysis will assist NMFS and MMS in carrying out other statutory responsibilities relating to the agencies' role in authorizing seismic survey and exploratory drilling activities or incidental take of marine mammals (e.g., assessing environmental impacts on listed species under the Endangered Species Act [Section 7 consultation] and effects of the proposed action on essential fish habitat [EFH] under the Magnuson-Stevens Fishery Conservation and Management Act [EFH consultation]).

Overview of Proposed Activities

Seismic Activities

This EIS would analyze effects of seismic activities during the open water season in the Beaufort and Chukchi Seas. Seismic surveys are conducted to obtain data on geological formations from the sediment near-surface to several thousand meters deep (below the sediment surface). This information enables industry to accurately assess potential hydrocarbon reservoirs, helps to optimally locate exploration and development wells, maximizing extraction and production from a reservoir, and to locate shallow geologic hazards. It also allows MMS to fulfill its statutory responsibilities to ensure safe operations, support environmental impact analyses, protect benthic resources through avoidance measures, and perform other statutory responsibilities.

Seismic surveys are most often characterized by the type of data being collected. Seismic surveys may be described in very general terms by when the surveys occur (pre-lease, post-lease) because the timing can indicate the type of data likely to be collected. Surveys may be described by the acoustic sound source (air gun, water gun, sparker, pinger, etc.) or by the purpose for which the data is being collected (speculative shoot, exclusive shoot, site clearance).

Each seismic vessel may be accompanied by other support vessels for provision re-supply and crew change. In addition, fixed-wing aircraft may be used for marine mammal surveillance over-flights.

Drilling Activities

This EIS would also analyze effects of offshore exploratory drilling operations during the open water season in order

that oil companies can drill exploration targets on their OCS leases in the Beaufort and Chukchi Seas. Also, as part of this EIS, NMFS would analyze the effects of obtaining geotechnical data for pre-feasibility analyses of shallow sub-sea sediments as part of its proposed exploratory drilling operations by drilling a series of boreholes, each up to 400 feet (122 m) in depth.

Each drilling vessel is typically accompanied by up to two Arctic class ice management vessels which also serve duty as anchor tenders and other drill ship support tasks, as well as additional support vessels, oil spill response vessels, and aircraft. Additional support vessels will be used for provision re-supply and crew change. In addition, fixed-wing aircraft may be used for marine mammal surveillance over-flights, as well as for activities such as crew change and provision re-supply.

Scoping

Publication of this notice begins the official scoping period that will help clarify previously identified issues of concern and determine the range and structure of alternatives to be considered in the EIS. NMFS invites comments and input from the public, organizations and interest groups, local governments, and Federal and state agencies on issues surrounding the proposal. The scoping period will end on April 9, 2010; for consideration in the development of the EIS, all written statements and questions must be received by this date, via contact means identified above (see **ADDRESSES**).

NMFS will consider all comments received during the scoping period. All hardcopy submissions must be unbound and suitable for copying and electronic scanning. Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size. NMFS requests that you include in your comments:

- (1) Your name and address;
- (2) Whether or not you would like a copy of the Draft EIS; and
- (3) Any background documents to support your comments as you feel necessary.

Instructions: All comments received are a part of the public record. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

This notice requests public participation in the scoping process, provides information on how to

participate, and identifies a set of preliminary alternatives to serve as a starting point for discussions. The public will have additional opportunities to comment on the Draft EIS and any applications received under the MMPA as part of this action. In particular, NMFS is soliciting information on:

(1) Effects of oil and gas exploration on marine mammal behavior and use of habitat;

(2) Effects of oil and gas exploration on availability of species for subsistence uses;

(3) Available new science on the Arctic ecosystem; and

(4) Available new technology for monitoring or obtaining seismic/drilling data.

The scoping comments will help inform NMFS' formulation of a range of reasonable alternatives considered in the EIS. The scope and structure of the alternatives evaluated will reflect the combined input from the public, industry, stakeholders, affected state and Federal agencies, and NMFS administrative and research offices. The range of reasonable alternatives that are analyzed in this EIS will be determined based on information gathered during scoping and will be consistent with the purpose and need of NMFS' and MMS' actions and with applicable law.

Issues and concerns associated with oil and gas related activities in the Arctic marine environment have been documented by the scientific community, government publications, at scientific symposia, through the scoping and public hearings/comments, and other NEPA analyses. In addition, public testimony and traditional knowledge from Alaskan Natives have provided valuable information about the potential impacts to marine mammals and on subsistence hunting of such species from seismic surveying and drilling operations. Based on information from these sources, the following prominent issues and concerns on which NMFS is seeking public comments have been identified and will be included in an alternatives framework and analysis of effects:

- Protection of subsistence resources and Inupiat culture and way of life
- Disturbance to bowhead whale migration patterns
- Impacts of seismic operations on marine fish reproduction, growth, and development
- Harassment and potential harm of wildlife, including marine mammals and marine birds, by vessel operations, movements, and noise
- Impacts on water quality

- Changes in the socioeconomic environment
 - Impacts to threatened and endangered species
 - Impacts to marine mammals, including disturbance and changes in behavior
 - Incorporation of traditional knowledge in the decision-making process
 - Effectiveness and feasibility of marine mammal monitoring and other mitigation and monitoring measures
- To provide a framework for public comments, the range of reasonable alternatives will include the Proposed Action and several other action alternatives, as well as a No Action alternative. The action alternatives analyzed will represent a range of levels of activities from unrestricted to no seismic or exploratory drilling and could address the following, although this list is not exhaustive:

Levels of Activity

- Number, scale/size, location, and duration of seismic activities
- Number, scale/size, location, and duration of drilling activities
- Number, scale/size, location, and duration of shallow hazard/site clearance activities
- Number, scale/size, location, and duration of associated support activities (vessel, aircraft, shore)
- The degree to which those activities can overlap in space and time

Mitigation

- Exclusion zones based on received levels of sounds;
- Exclusion zones based on presence of specific biological factors in combination with received levels of sound;
- Exclusion zones based on presence and timing of subsistence activities;
- Time/area closures for biological and subsistence reasons; and
- Limitations on certain combinations of activities in specific temporal/spatial circumstances.

The EIS will assess the direct and indirect effects of the alternative approaches to authorizing oil and gas seismic surveys under the OCSLA and the taking of marine mammals incidental to seismic surveys and exploratory drilling activities under the MMPA. The EIS will assess the effects on the marine mammal species and availability of those species for subsistence uses, as well as other components of the marine ecosystem and human environment. The EIS will assess the contribution of these activities to the cumulative effects on these resources, including effects from

past, present, and reasonably foreseeable future events and activities in the U.S. Arctic. Anyone having relevant information they believe NMFS should consider in its analysis should provide a description of that information along with complete citations for supporting documents.

For additional information on the withdrawn MMS and NMFS 2007 DPEIS, please visit the MMS website at: http://www.mms.gov/alaska/ref/EIS%20EA/draft_arctic_peis/draft_peis.htm.

Scoping Meetings Agenda

Public scoping meetings will be held at the following locations in February and March, 2010: Anchorage, Barrow, Kaktovik, Kotzebue, Nuiqsut, Point Hope, Point Lay, and Wainwright. Public scoping meetings will be held at the following dates, times, and locations:

(1) February 18, 2010, 6 – 8 p.m., Northwest Arctic Borough Assembly Chambers, Kotzebue, Alaska;

(2) February 19, 2010, 5 – 7 p.m., Point Hope Community Center, Point Hope, Alaska; and

(3) February 22, 2010, 7 – 9 p.m., Point Lay Community Center, Point Lay, Alaska.

The final dates, times, and locations are not yet finalized for the public scoping meetings in Anchorage, Barrow, Kaktovik, Nuiqsut, and Wainwright; a supplement to this NOI will be published with the final meeting dates, times, and locations. Comments will be accepted at all public scoping meetings, as well as during the scoping period and can be submitted via the methods described earlier in this document (see **ADDRESSES**).

Special Accommodations

These meetings are accessible to people with disabilities. Requests for sign language interpretation or auxiliary aids should be directed to Sheyna Wisdom by telephone at (907) 261-6705 or by email at Sheyna_Wisdom@URSCorp.com at least 7 days before the scheduled meeting date.

Dated: February 2, 2010.

James H. Lecky,

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

[FR Doc. 2010-2681 Filed 2-5-10; 8:45 am]

BILLING CODE 3510-22-S

Notice of Public Scoping Meetings

Dated: February 18, 2010.

Tammy C. Adams,

Acting Chief, Permits, Conservation and Education Division, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2010-3742 Filed 2-23-10; 8:45 am]

BILLING CODE 3510-22-S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XS88

Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identification Workshops; Correction

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

ACTION: Notice of public workshops; correction.

SUMMARY: Due to an unanticipated temporary closure of the Princess Bayside Hotel in Ocean City, MD, NMFS is changing the location of its March 24, 2010, Protected Species Safe Handling, Release, and Identification Workshop that was announced in the **Federal Register** on December 8, 2009. The locations of the remaining workshops in February and March 2010 remain unchanged. The Protected Species Safe Handling, Release, and Identification Workshops are mandatory for vessel owners and operators who use bottom longline, pelagic longline, or gillnet gear, and have also been issued shark or swordfish limited access permits. Additional free workshops will be held in 2010 and announced in the **Federal Register**.

DATES: The dates and times for the remaining Protected Species Safe Handling, Release and Identification Workshops in February and March 2010 have not been changed and will be held February 24, March 10, and March 24, 2010. See **SUPPLEMENTARY INFORMATION** for further details.

ADDRESSES: The remaining Protected Species Safe Handling, Release, and Identification workshops will be held in Boston, MA; Galveston, TX; and Ocean City, MD. See **SUPPLEMENTARY INFORMATION** for the corrected Ocean City, MD, workshop location.

FOR FURTHER INFORMATION CONTACT: Richard A. Pearson by phone:(727) 824-5399, or by fax: (727) 824-5398.

SUPPLEMENTARY INFORMATION:

Correction

In the **Federal Register** of December 8, 2009, in FR Doc. E9-29258, on page 64665, in the third column, correct the location of the sixth workshop listed under the heading "Workshop Dates, Times, and Locations" to read:

Workshop Dates, Times, and Locations

6. March 24, 2010, from 9 a.m. - 5 p.m., Princess Royal Hotel, 9100 Coastal Highway, Ocean City, MD 21842.

Atlantic Shark Identification Workshop

Since January 1, 2007, shark limited access and swordfish limited access permit holders who fish with longline or gillnet gear have been required to submit a copy of their Protected Species Safe Handling, Release, and Identification Workshop certificate in order to renew either permit (71 FR 58057; October 2, 2006). These certificate(s) are valid for three years. As such, vessel owners who have not already attended a workshop and received a NMFS certificate, or vessel owners whose certificate(s) will expire prior to the next permit renewal, must attend a workshop to fish with, or renew, their swordfish and shark limited access permits. Additionally, new shark and swordfish limited access permit applicants who intend to fish with longline or gillnet gear must attend a Protected Species Safe Handling, Release, and Identification Workshop and submit a copy of their workshop certificate before either of the permits will be issued. Approximately 78 free Protected Species Safe Handling, Release, and Identification Workshops have been conducted since 2006.

At least one operator on vessels using longline or gillnet gear must be issued, and possess on board, a valid Protected Species Safe Handling, Release, and Identification Workshop certificate issued to that operator, in addition to having on board a valid workshop certificate issued to the vessel owner. Both vessel owner and operator certificates are valid for three years. As such, vessel operators who have not already attended a workshop and received a NMFS certificate, or vessel operators whose certificate(s) will expire prior to their next fishing trip, must attend a workshop to operate a vessel with swordfish and shark limited access permits.

Registration

To register for a scheduled Protected Species Safe Handling, Release, and Identification Workshop, please contact Angler Conservation Education at (386) 852-9137.

Registration Materials

To ensure that workshop certificates are linked to the correct permits, participants will need to bring the following items with them to the workshop:

Individual vessel owners must bring a copy of the appropriate swordfish and/or shark permit(s), a copy of the vessel registration or documentation, and proof of identification.

Representatives of a business owned or co-owned vessel must bring proof that the individual is an agent of the business (such as articles of incorporation), a copy of the applicable swordfish and/or shark permit(s), and proof of identification.

Vessel operators must bring proof of identification. Workshop Objectives

The protected species safe handling, release, and identification workshops are designed to teach longline and gillnet fishermen the required techniques for the safe handling and release of entangled and/or hooked protected species, such as sea turtles, marine mammals, and smalltooth sawfish. The proper identification of protected species will also be taught at these workshops in an effort to improve reporting. Additionally, individuals attending these workshops will gain a better understanding of the requirements for participating in these fisheries. The overall goal of these workshops is to provide participants with the skills needed to reduce the mortality of protected species, which may prevent additional regulations on these fisheries in the future.

Dated: February 18, 2010.

Emily Menashes,

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

[FR Doc. 2010-3733 Filed 3-23-10; 8:45 am]

BILLING CODE 3510-22-S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XU53

Notice of Public Scoping Meetings for the Environmental Impact Statement on the Effects of Oil and Gas Activities in the Arctic Ocean

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

ACTION: Notice of public scoping meetings.

SUMMARY: NMFS will hold five public scoping meetings in March 2010 to

receive public comments on NMFS' intent to prepare an environmental impact statement (EIS) on the effects of oil and gas activities (e.g., seismic surveys and exploratory drilling) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas).

DATES: The comment period for the scoping process is from February 8, 2010, through April 9, 2010. See SUPPLEMENTARY INFORMATION under the "Meeting Dates, Times, and Locations" heading for the dates and locations of the public scoping meetings.

ADDRESSES: The public has the opportunity to submit comments and statements regarding NMFS' intent to prepare this EIS using the following methods:

- Mail: P. Michael Payne, Chief, Permits, Conservation and Education Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910;

- Facsimile (fax) to: (301) 713-0376;
- E-mail to:

arcticeis.comments@noaa.gov; or

- Public hearings: submit oral or written comments at public scoping meetings.

Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size. Information on this project can also be found on the Protected Resources webpage at: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

FOR FURTHER INFORMATION CONTACT: Michael Payne, Office of Protected Resources, NMFS, (301) 713-2289 ext. 110.

SUPPLEMENTARY INFORMATION:

Background

On February 8, 2010 (75 FR 6175), NMFS announced its intent to prepare an EIS on the effects of oil and gas activities in the U.S. Chukchi and Beaufort Seas. In that notice, NMFS announced that it would hold a total of eight public scoping meetings in February and March 2010. However, the February 8, 2010 (75 FR 6175), notice only provided dates, times, and locations for the first three meetings.

NMFS has scheduled additional public scoping meetings to be held in Wainwright, Barrow, Nuiqsut, Kaktovik, and Anchorage. The purposes of these meetings are to provide an opportunity for the public to learn about the proposed action, identify issues to be addressed in the EIS process, and to submit oral or written comments on this proposal.

Meeting Dates, Times, and Locations

The dates, times, and locations of the public scoping meetings are as follows:

(1) March 9, 2010, 7 - 9 p.m., Wainwright Community Center, Wainwright, Alaska;

(2) March 10, 2010, 7:30 - 9:30 p.m., Inupiat Heritage Center, Barrow, Alaska;

(3) March 11, 2010, 7 - 9 p.m., Nuiqsut Community Center, Nuiqsut, Alaska;

(4) March 12, 2010, 6:30 - 8:30 p.m., Kaktovik Community Center, Kaktovik, Alaska; and

(5) March 23, 2010, 7 - 9 p.m., Egan Center, 555 West Fifth Avenue, Anchorage, Alaska 99501.

Special Accommodations

These meetings are accessible to people with disabilities. Requests for sign language interpretation or auxiliary aids should be directed to Sheyna Wisdom by telephone at (907) 261-6705 or by e-mail at Sheyna_Wisdom@URSCorp.com at least 7 days before the scheduled meeting date.

Dated: February 18, 2010.

Wanda L. Cain,

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

[FR Doc. 2010-3750 Filed 2-23-10; 8:45 am]

BILLING CODE 3510-22-S

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XU10

Taking of Threatened or Endangered Marine Mammals Incidental to Commercial Fishing Operations; Proposed Permit

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

ACTION: Notice; request for comments.

SUMMARY: NMFS proposes to issue a permit for a period of three years to authorize the incidental, but not intentional, taking of individuals from the Central North Pacific (CNP) stock of endangered humpback whales (*Megaptera novaeangliae*) by the Hawaii-based longline fisheries (deep-set and shallow-set). In accordance with the Marine Mammal Protection Act (MMPA), NMFS has made a preliminary determination that incidental taking from commercial fishing will have a negligible impact on CNP humpback whales; a recovery plan was completed

in 1991; and vessels have been registered, a monitoring plan is in place, and a NMFS has insufficient funds to develop a Take Reduction Plan (TRP) at this time to address taking in these fisheries. Accordingly, NMFS proposes to issue the required permits to the Hawaii-based longline fisheries. NMFS solicits public comments on the negligible impact determination and on the proposal to issue this permit.

DATES: Comments must be received by March 26, 2010.

ADDRESSES: A draft of the negligible impact determination is available on the Internet at the following address: <http://fpir.noaa.gov/>. Written copies of the determination may be requested from, and comments on the determination and proposed permit should be sent to: Lisa Van Atta, Assistant Regional Administrator, Protected Resources Division, NMFS Pacific Islands Region, 1601 Kapiolani Boulevard, Suite 1110, Honolulu, HI 96814. Comments may also be sent by e-mail to: MMPA.permit-PIR@noaa.gov or by fax to (301) 427-2533. Comments received after the 30-day comment period may not be considered or made part of the record.

The recovery plan for humpback whales is available on the Internet at the following address: <http://www.nmfs.noaa.gov/pr/recovery/plans.htm#mammals>.

FOR FURTHER INFORMATION CONTACT: Lisa Van Atta, Assistant Regional Administrator, Protected Resources Division, Pacific Islands Region, (808) 944-2257 or Tom Eagle, Office of Protected Resources, (301) 713-2322, ext. 105.

SUPPLEMENTARY INFORMATION: NMFS is now considering the issuance of a permit under MMPA section 101(a)(5)(E) to vessels registered in the Hawaii-based longline fisheries (deep-set and shallow-set) to incidentally take individuals from the CNP stock of humpback whales (*Megaptera novaeangliae*), which are listed as endangered under the Endangered Species Act (ESA).

The Hawaii-based longline fisheries do not take other species or stocks of threatened or endangered marine mammals; therefore, no other species or stocks are considered for this proposed permit. The information available from the Hawaii-based deep-set longline fishery since 1994 indicates that there has never been incidental mortality or serious injury of CNP humpback whales; therefore, none is anticipated in the 3-year duration of the permit. Since 1994, there has been only one serious injury of a CNP humpback whale in the Hawaii-based shallow-set longline

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: February 18, 2010

Time: 6:00-8:00 pm

Location: Northwest Arctic
Borough Assembly Chambers

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: February 19, 2010

Time: 5:00-7:00 pm

Location: Point Hope

Community Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: February 22, 2010

Time: 7:00-9:00 pm

Location: Point Lay

Community Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: March 9, 2010

Time: 7:00-9:00 pm

Location: Wainwright
Community Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: March 10, 2010

Time: 7:30-9:30 pm

Location: Barrow Inupiat
Heritage Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: March 11, 2010

Time: 7:00-9:00 pm

Location: Nuiqsut
Community Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

SCOPING MEETING – OIL AND GAS ACTIVITIES IN THE ARCTIC OCEAN



Date: March 12, 2010

Time: 6:30-8:30 pm

Location: Kaktovik
Community Center

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

The meeting will have an informal open house, followed by a presentation, and an opportunity to offer comments.

Please join us!

Project Mailing List

Master Mailing List Newsletter #1 with Blackout of Personal Addresses

Salutation	First	Last	Title	Organization	Department	Address1	Address2	City	State	Zip	Zip2	Country
MR	CHRIS	TOMPSETT	NEPA NATURAL RESOURCES	NAVY		1176 HOWELL STREET CODE 551 BLDG	11 NUWCDIVNP T	NEWPORT	RI	02841		
			DEPUTY UNDERSECRETARY	DEPARTMENT OF DEFENSE	INSTALLATIONS AND ENVIRONMENT	3400 DEFENSE PENTAGON	Room 3B856A	WASHINGTON	DC	20301	3400	
MR	JOHN W	KATZ	ALASKA'S WASHINGTON REPRESENTATIVE			444 N CAPITOL ST NW STE 518	Washington, DC 20301- 3400	WASHINGTON	DC	20001		
MS	CINDY	SHOGAN	EXECUTIVE DIRECTOR	ALASKA WILDERNESS LEAGUE		122 C STREET NW STE 240		WASHINGTON	DC	20001		
			UPSTREAM GENERAL MANAGER	AMERICAN PETROLEUM INSTITUTE	EXPLORATION AFFAIRS DEPT	1220 L STREET NW		WASHINGTON	DC	20005		
			LIBRARIAN	AMERICAN PETROLEUM INSTITUTE	LIBRARY	1220 L STREET NW		WASHINGTON	DC	20005		
MR	MATT	CROMWELL		TERRIS, PRAVIK AND MILLIAN		1121 12TH STREET		WASHINGTON	DC	20005		
MS	NICOLETTE	NYE	DIRECTOR	NATIONAL OCEAN INDUSTRIES ASSOCIATION	GOVERNMENT AFFAIRS	1120 G STREET NW SUITE 900		WASHINGTON	DC	20005		
			DIRECTOR	US FISH AND WILDLIFE SERVICE	FEDERAL ACTIVITES BRANCH	1849 C ST, NW		WASHINGTON	DC	20240		
			LIBRARIAN	US DEPARTMENT OF ENERGY	TECHNICAL INFORMATION CENTER	1000 INDEPENDENCE AVE SW		WASHINGTON	DC	20858		
				OCEAN CONSERVANCY	WASHINGTON DC OFFICE	1300 19TH ST, NW	8TH FLOOR	WASHINGTON	DC	20036		
MR	BILL	MEADOWS	PRESIDENT	WILDERNESS SOCIETY		1615 M STREET, NW		WASHINGTON	DC	20036		
			DIRECTOR	NATIONAL PARKS AND CONSERVATION ASSOCIATION		1300 19TH STREET NW, SUITE 300		WASHINGTON	DC	20036		
MS	RENEE	ORR	CHIEF, LEASING DIVISION	MINERALS MANAGEMENT SERVICE		MS-4010	381 ELDEN STREET	HERNDON	VA	20170	4817	
				NATIONAL PARK SERVICE	DIVISION OF ENVIRONMENTAL QUALITY	1849 C STREET NW		WASHINGTON	DC	20240		
MR	HENRI	BISSON	SENIOR ADVISOR TO THE SECRETARY	FOR ALASKAN AFFAIRS	DEPT OF THE INTERIOR	1849 C STREET NW		WASHINGTON	DC	20240		
			DIRECTOR	US ENVIRONMENTAL PROTECTION AGENCY	OFFICE OF FEDERAL ACTIVITIES	1200 PENNSYLVANIA, NW		WASHINGTON	DC	20460	1	
MS	ANGELA	MAZZULLO	BUDGET ANALYST	MINERALS MANAGEMENT SERVICE		MS-2320	1849 C STREET NW	WASHINGTON	DC	20240		
			DIRECTOR	US DEPARTMENT OF TRANSPORTATION	OFFICE OF PIPELINE SAFETY	1200 NEW JERSEY AVE, SE	EAST BLDG, 12 FLOOR	WASHINGTON	DC	20590		
HONORABLE	MARK	BEGICH	SENATOR	US CONGRESS	UNITED STATES SENATE			WASHINGTON	DC	20510	0204	
HONORABLE	LISA	MURKOWSKI	SENATOR	US CONGRESS	UNITED STATES SENATE			WASHINGTON	DC	20510		
HONORABLE	DON	YOUNG	CONGRESSMAN	US CONGRESS	US HOUSE OF REPRESENTATIVE S			WASHINGTON	DC	20515		
				LYNX, INC		33 BEDFORD ST		LEXINGTON	MA	2420		

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Salutation	First	Last	Title	Organization	Department	Address1	Address2	City	State	Zip	Zip2	Country
			SCIENTIFIC PROGRAM DIRECTOR	MARINE MAMMAL COMMISSION		4340 EAST WEST HWY STE 700		BETHESDA	MD	20814	4498	
MS	CANIESHA	WASHINGTON	CONTENT AND LICENSING SPECIALIST	LEXISNEXIS ACADEMIC AND LIBRARY SOLUTIONS	EXECUTIVE SOURCES	7500 OLD GEORGETOWN RD STE 1300		BETHESDA	MD	20814	6198	
MR	STEVE	KOKKINAKIS	NEPA COORDINATION & COMPLIANCE	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION		1325 EAST WEST HWY	SSMC3 ROOM 15723	SILVER SPRING	MD	20910	3283	
				NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	PLANNING AND INTEGRATION	1325 EAST WEST HWY		SILVER SPRING	MD	20910		
				US ARCTIC RESEARCH COMMISSION	WASHINGTON DC OFFICE	4350 N FAIRFAX DRIVE, SUITE 510		ARLINGTON	VA	22203		
MS	SARAH	JENSEN		LAW OFFICE OF JESSICA LAFEVRE		429 N SAINT ASAPH STR		ALEXANDRIA	VA	22314		
MS	JESSICA S	LEFEVRE	ATTORNEY AT LAW			429 N SAINT ASAPH STR		ALEXANDRIA	VA	22314		
			DIRECTOR	NATURAL RESOURCES DEFENSE COUNCIL		40 WEST 20TH STREET		NEW YORK	NY	10011		
MS	BRENDA	MORGAN										
MS	DENISE	STEPHENSON HAWK	CHAIRMAN	THE STEPHENSON GROUP		1201 PEACHTREE STR	400 COLONY SQUARE STE 200	ATLANTA	GA	30361		
				I.H.S. ENERGY		321 INVERNESS DR, SOUTH		ENGLEWOOD	CO	80112		
				ENCANA OIL AND GAS (USA) INC		370 17TH STREET, SUITE 1700		DENVER	CO	80202		
				FOREST OIL CORPORATION		707 17TH STREET, SUITE 3600		DENVER	CO	80202		
MS	KRISTEN	METZGER	CONTINENTAL SHELF ASSOCIATES			8502 SW KANSAS AVE		STUART	FL	34997	7120	
MR	STEVE	VIADA	CONTINENTAL SHELF ASSOCIATES INTERNATIONAL			8502 SW KANSAS AVE		STUART	FL	34997	7120	
MS	STEPHANIE	HAZLETT										
	MANIKA	SCHULTZ										
MS	MARY	HAAN										
MR	WALLACE	TAYLOR										
PROFESSOR	PAUL	FRIESEMA		NORTHWESTERN UNIVERSITY	INSTITUTE FOR POLICY RESEARCH	601 UNIVERSITY PLACE	340 SCOTT HALL	EVANSTON	IL	60208	1006	
MR	KEITH	COUVILLION		CHEVRONTEXACO CORP		935 GRAVIER STR		NEW ORLEANS	LA	70112		
			REGIONAL DIRECTOR	MINERALS MANAGEMENT SERVICE	GULF OF MEXICO REGION	1201 ELMWOOD PARK BLVD		NEW ORLEANS	LA	70123		
DR	BOB	GRAMLING		UNIVERSITY OF LOUISIANA LAFAYETTE	DEPT OF SOCIOLOGY AND ANTHROPOLOGY	PO BOX 40198		LAFAYETTE	LA	70504	0198	

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Salutation	First	Last	Title	Organization	Department	Address1	Address2	City	State	Zip	Zip2	Country
MS	ERIN	KOZAKIEWICZ	LAND ASSISTANT	DEVON ENERGY PRODUCTION COMPANY LP	WESTERN DIVISION	20 NORTH BROADWAY STE 1500		OKLAHOMA CITY	OK	73102	8260	
MR	W P	MCALISTER		DEVON ENERGY PRODUCTION COMPANY		20 NORTH BROADWAY		OKLAHOMA CITY	OK	73102	8260	
				OIL AND GAS JOURNAL		PO BOX 2002		TULSA	OK	74101		
MR	JAMES	SHERRARD										
MR	G S	NADY	SENIOR STAFF LAND REPRESENTATIVE	SHELL OFFSHORE INC		PO BOX 576		HOUSTON	TX	77001	0576	
MR	J Y	CHRISTOPHER	VICE PRESIDENT	HESS CORPORATION		500 DALLAS STREET		HOUSTON	TX	77002		
MR	JOHN L	DAVIS	LAND CONSULTANT	TOTAL E&P USA INC		PO BOX 4397		HOUSTON	TX	77002	4397	
MR	RANDALL D	JONES	MANAGER LAND & NEGOTIATIONS	AURORA GAS LLC		2500 CITY WEST BLVD STE 2500		HOUSTON	TX	77002		
MS	LORI	PRICE	LAND COORDINATOR	ENI PETROLEUM EXPLORATION CO INC		1201 LOUISIANA STE 3500		HOUSTON	TX	77002		
MR	PAUL G	YALE		EXXONMOBIL PRODUCTION COMPANY		800 BELL STREET	CORP-EMB-3061J	HOUSTON	TX	77002		
MR	WILLIAM	RISSER, MD										
MS	CHERYL	SAHA		PETROBRAS AMERICA INC		10350 RICHMOND AVE STE 1400		HOUSTON	TX	77042		
				WESTERN GEOPHYSICAL COMPANY		3900 ESSEX LANE, SUITE 1200		HOUSTON	TX	77027		
MR	SCOTT	CORNWELL		BHP BILLITON PETROLEUM (AMERICAS)		1360 POST OAK BLVD STE 150		HOUSTON	TX	77056	3020	
			LIBRARIAN	AMOCO PRODUCTION COMPANY	LIBRARY	501 WESTLAKE PARK BLVD		HOUSTON	TX	77079	2604	
MR	JAMES	MIKESCH	EXPLORATION MANAGER	BURLINGTON RESOURCES	NEW VENTURES	600 N DAIRY ASHFORD STR		HOUSTON	TX	77079	1100	
MR	BOB	GAGE	SENIOR STAFF LANDSMAN	MURPHY EXPLORATION & PRODUCTION COMPANY	INTERNATIONAL	16290 KATY FREEWAY STE 600		HOUSTON	TX	77094		
MR	TODD	KRATZ	SENIOR LAND REP	CHEVRON USA INC	EXPLORATION AND PRODUCTION	PO BOX 36366		HOUSTON	TX	77236		
MR	TODD L	LIEBL	MANAGER, US ONSHORE LAND	ANADARKO PETROLEUM CORPORATION	DELAWARE CORP	PO BOX 1330		HOUSTON	TX	77251	1330	
MR	JIM	CARLTON		CONOCOPHILLIPS ALASKA INC		PO BOX 2197	3 WL-STE 3052	HOUSTON	TX	77252	2197	
				TEXACO INC		4800 FOURNACE PLACE		HOUSTON	TX	77401		
MR	STUART	GUSTAFSON	VICE PRESIDENT	ARMSTRONG OIL AND GAS INC	OPERATIONS	1421 BLAKE STR		DENVER	CO	80202		
MR	ED	KERR	VP FOR LAND	ARMSTRONG OIL AND GAS INC		1421 BLAKE STR		DENVER	CO	80202		
MR	LANE	FRANKS	PRESIDENT	LIBERTY PETROLEUM CORP		10851 NORTH BLACK CANYON HIGHWAY STE 540		PHOENIX	AZ	85029		
MR	A LAURENCE	D'ANNA	NORTH AMERICAN CIVIL RECOVERIES	ARBITRAGE CORP		377 SOUTH NEVADA STR		CARSON CITY	NV	89703	4290	
MS	KAY R	MUNGER	PRESIDENT	MUNGER OIL INFORMATION SERVICES		PO BOX 45738		LOS ANGELES	CA	90045	0738	
MS	ELLEN	ARONSON	REGIONAL MANAGER	MINERALS MANAGEMENT SERVICE	PACIFIC OCS REGION	770 PASEO CAMARILLO (MS 7000)		CAMARILLO	CA	93010		

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MR	RICHARD	CHARTER	MARINE CONSERVATION ADVOCATE	ENVIRONMENTAL DEFENSE		123 MISSION ST FL 28		SAN FRANCISCO	CA	94105	5142	
DR	EDGAR	WAYBURN MD	CHAIRMAN	SIERRA CLUB	ALASKA TASK FORCE	85 SECOND STREET 2ND FLOOR		SAN FRANCISCO	CA	94105	3441	
DR	W M	MARQUETTE		NATIONAL MARINE FISHERIES SERVICE	BOWHEAD WHALE PROJECT	18805 89TH AVENUE N		EDMONDS	WA	98020		
			LIBRARIAN	ENVIRONMENTAL PROTECTION AGENCY	REGION 10	1200 SIXTH AVE OMP- 104		SEATTLE	WA	98101		
MR	ELBERT	MOORE	DIRECTOR, OFFICE OF ECOSYSTEMS AND COMMUNITIES	ENVIRONMENTAL PROTECTION AGENCY	REGION 10	1200 SIXTH AVE MS ECO-088		SEATTLE	WA	98101	1128	
MR	RUSSELL E	NELSON JR		ALASKA FISHERIES SCIENCE CENTER	RACE DIVISION	7600 SAND POINT WY NE BLDG 4		SEATTLE	WA	98115	0070	
MR	BRIAN	ROSS	LIBRARIAN	NOAA LIBRARY		7600 SAND POINT WY NE BLDG 3 E/OC43		SEATTLE	WA	98115	0070	
MR	STEVEN	BRAUND		STEVEN R. BRAUND AND ASSOCIATES		308 G STREET		ANCHORAGE	AK	99501		
			LEGAL DIRECTOR	TRUSTEES FOR ALASKA		1026 W 4TH AVENUE STE 201		ANCHORAGE	AK	99501		
				US FISH AND WILDLIFE SERVICE	ANCHORAGE ECOLOGICAL SERVICES	605 W 4TH AVE RM G- 62		ANCHORAGE	AK	99501		
			REGIONAL DIRECTOR	NATIONAL PARKS AND CONSERVATION ASSOCIATION		750 WEST 2ND AVENUE STE 205		ANCHORAGE	AK	99501		
				INDIGENOUS PEOPLES COUNCIL FOR MARINE MAMMALS		1577 C STREET, SUITE 300		ANCHORAGE	AK	99501		
			DIRECTOR	ALASKA FEDERATION OF NATIVES		1577 C STREET, SUITE 300		ANCHORAGE	AK	99501		
			DIRECTOR	STATE OF ALASKA	AK OIL AND GAS CONSERVATION COMMISSION	333 W 7TH AVE, SUITE 100		ANCHORAGE	AK	99501		
				OCEAN CONSERVANCY	ALASKA OFFICE	1775 MORNINGTIDE CT		ANCHORAGE	AK	99501		
			EXECUTIVE DIRECTOR	ALASKA INTER-TRIBAL COUNCIL	ENVIRONMENTAL PROGRAM	445 EAST FIFTH AVE		ANCHORAGE	AK	99501		
			COMMANDER	US COAST GUARD SECTOR		510 L STREET SUITE 100		ANCHORAGE	AK	99501	1946	
			REGIONAL DIRECTOR	NATIONAL PARK SERVICE		240 WEST 5TH AVENUE #114		ANCHORAGE	AK	99501	2327	
			EXECUTIVE DIRECTOR	ALASKA CONSERVATION FOUNDATION		441 WEST 5TH AVE STE 402		ANCHORAGE	AK	99501	2340	
			SPECIAL ASSISTANT TO THE SECRETARY FOR ALASKA	US DEPARTMENT OF THE INTERIOR	OFFICE OF THE SECRETARY	1689 C STREET STE 100		ANCHORAGE	AK	99501	5151	
				OFFICE OF SENATOR LISA MURKOWSKI		510 L STREET STE 550		ANCHORAGE	AK	99501		
			DIRECTOR	NATIONAL WILDLIFE FEDERATION		750 WEST 2ND AVE STE 200		ANCHORAGE	AK	99501		

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Salutation	First	Last	Title	Organization	Department	Address1	Address2	City	State	Zip	Zip2	Country
			OFFICE DIRECTOR	US ARCTIC RESEARCH COMMISSION		420 L STREET STE 315		ANCHORAGE	AK	99501		
			EXECUTIVE DIRECTOR	EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL		441 WEST 5TH SUITE 500		ANCHORAGE	AK	99501		
				MARINE ADVISORY PROGRAM		1007 WEST 3RD AVE STE 100		ANCHORAGE	AK	99501		
				DEPT OF NATURAL RESOURCES	OFFICE OF PROJECT MANAGEMENT AND PERMITTING	550 WEST 7TH AVE STE 1600		ANCHORAGE	AK	99501	1000	
				WILDLIFE FEDERATION OF ALASKA	ALASKA OFFICE	750 WEST 2ND AVE, STE 200		ANCHORAGE	AK	99501		
MS	ELAINE	ABRAHAM	CHAIRPERSON	ALASKA NATIVE SCIENCE COMMISSION		429 L STREET		ANCHORAGE	AK	99501		
			DIRECTOR	DEPARTMENT OF NATURAL RESOURCES	DIVISION OF OIL & GAS	550 WEST 7TH AVENUE STE 800		ANCHORAGE	AK	99501	3560	
MR	JAMES D	ARLINGTON		PACIFIC ENERGY RESOURCES LTD	ALASKA BUSINESS UNIT	310 K STREET STE 700		ANCHORAGE	AK	99501		
MS	PAMELA	BERGMANN	REGIONAL ENVIRONMENTAL OFFICER	US DEPARTMENT OF THE INTERIOR	OFFICE OF ENVIRONMENTAL POLICY	1689 C STREET RM 119		ANCHORAGE	AK	99501	5126	
MR	KEITH	BOGGS	PROGRAM MANAGER	ALASKA NATURAL HERITAGE PROGRAM		707 A STREET STE 208		ANCHORAGE	AK	99501		
MR	BRIAN	BOYD	ATTORNEYS AT LAW	BOYD, CHANDLER & FALCONER LLP		911 W 8TH AVE STE 302		ANCHORAGE	AK	99501		
MR	STEPHEN R	BRAUND				308 G STREET STE 323		ANCHORAGE	AK	99501		
MR	JIM	COWAN		AK DEPT OF NATURAL RESOURCES	DIVISION OF OIL AND GAS	550 WEST 7TH AVE STE 800		ANCHORAGE	AK	99501	3560	
MS	MELANIE	DUCHIN	CLIMATE CAMPAIGNER	GREENPEACE	ALASKA OFFICE	125 CHRISTENSEN DRIVE STE 2		ANCHORAGE	AK	99501		
MR	J PATRICK	FOLEY		PIONEER NATURAL RESOURCES USA INC	LAND DEPT	700 G STR STE 600		ANCHORAGE	AK	99501		
MS	ELSIE M.	HENDRIX	PRESIDENT	CULLY CORPORATION		405 E. FIREWEED, SUITE 203		ANCHORAGE	AK	99503		
MS	ELEANOR	HUFFINES	REGIONAL DIRECTOR	THE WILDERNESS SOCIETY		705 CHRISTENSEN DRIVE		ANCHORAGE	AK	99501		
MR	PAUL	LAIRD	GENERAL MANAGER	ALASKA SUPPORT INDUSTRY ALLIANCE		646 W 4TH AVE STE 200		ANCHORAGE	AK	99501		
			DIRECTOR	MARINE ADVISORY PROGRAM		1007 WEST 3RD, SUITE 100		ANCHORAGE	AK	99501		
MR	BILL	LAMOREAUX	ANCHORAGE DISTRICT OFFICE	DEPARTMENT OF ENVIRONMENTAL CONSERVATION	STATE OF ALASKA	555 CORDOVA STREET		ANCHORAGE	AK	99501	2617	
MS	KAREN	MATTHIAS	CONSUL	CANADIAN CONSULATE		310 K STREET STE 220		ANCHORAGE	AK	99501		
MR	JOHN	NORMAN	CHAIR	ALASKA OIL AND GAS CONSERVATION COMMISSION		333 WEST 7TH AVENUE STE 100		ANCHORAGE	AK	99501		
MR	CHAD	PADGETT	SPECIAL ASSISTANT TO CONGRESSMAN YOUNG	OFFICE OF CONGRESSMAN DON YOUNG		510 L STREET STE 580		ANCHORAGE	AK	99501	1964	

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MR	JOSEPH J	PERKINS JR ESQ		GUESS & RUDD P C		510 L STREET STE 700		ANCHORAGE	AK	99501		
MS	TRISH	ROLFE	ALASKA REPRESENTATIVE	SIERRA CLUB ALASKA FIELD OFFICE		333 WEST 4TH AVE STE 307		ANCHORAGE	AK	99501	2341	
DR	STAN	SENNER		NATIONAL AUDUBON SOCIETY		441 WEST FIFTH AVE STE 300		ANCHORAGE	AK	99501		
MR	CLARENCE	SUMMERS		NATIONAL PARK SERVICE	SUBSISTENCE DIVISION	241 WEST 5TH AVENUE #114		ANCHORAGE	AK	99501	2327	
MR	PETER	VAN TUYN		TRUSTEES FOR ALASKA		1026 W 4TH AVE STE 201		ANCHORAGE	AK	99501		
			LIBRARIAN	ALASKA RESOURCES LIBRARY & INFORMATION SERVICES		3150 C STREET, SUITE 100		ANCHORAGE	AK	99503		
				PRINCE WILLIAM SOUND RCAC		3709 SPENARD RD STE 100		ANCHORAGE	AK	99503		
				US FISH AND WILDLIFE SERVICE	MIGRATORY BIRD MANAGEMENT	1011 EAST TUDOR ROAD		ANCHORAGE	AK	99503	6199	
			LIBRARIAN	US FISH AND WILDLIFE SERVICE	LIBRARY	1011 EAST TUDOR ROAD		ANCHORAGE	AK	99503		
			ASSISTANT REGIONAL DIRECTOR	US FISH AND WILDLIFE SERVICE	SUBSISTENCE AND FISHERIES	1011 EAST TUDOR ROAD		ANCHORAGE	AK	99503		
			LIBRARIAN	ANCHORAGE MUNICIPAL LIBRARIES	Z.J. LOUSSAC LIBRARY	3600 DENALI ST		ANCHORAGE	AK	99503		
				ANADARKO PETROLEUM CORP		3201 C STREET STE 603		ANCHORAGE	AK	99503		
			PROJECT MANAGER	PRINCE WILLIAM SOUND RCAC	REGIONAL CITIZEN'S ADVISORY COUNCIL	3709 SPENARD ROAD STE 100		ANCHORAGE	AK	99503		
MS	MARILYN	CROCKETT	EXECUTIVE DIRECTOR	ALASKA OIL AND GAS ASSOCIATION		121 WEST FIREWEED LANE STE 207		ANCHORAGE	AK	99503		
MR	JOHN R	DAVIS	SUPERVISOR	WESTERN GECO		2525 GAMBELL STR STE 400		ANCHORAGE	AK	99503	2838	
MR	RICH	FOX	LAND MANAGER ALASKA	SHELL FRONTIER OIL AND GAS INC		3601 C STREET SUITE 1334		ANCHORAGE	AK	99503		
MR	GEOFF	HASKETT	REGIONAL DIRECTOR	US FISH AND WILDLIFE SERVICE	REGION 7	1011 EAST TUDOR ROAD		ANCHORAGE	AK	99503	6199	
MR	STEVE	KROHN	PRODUCTION MANAGER	EXXONMOBIL CORPORATION		3301 C STR STE 400		ANCHORAGE	AK	99503		
MR	PAUL	RAMERT		ASRC ENERGY SERVICES		2700 GAMBELL STR STE 200		ANCHORAGE	AK	99503		
MS	TAMARA	SHEFFIELD		ALASKA OIL AND GAS ASSOCIATION		121 WEST FIREWEED LANE #207		ANCHORAGE	AK	99503		
MR	EUGENE	VIRBEN	SUPERINTENDENT OF ADMINISTRATION	BUREAU OF INDIAN AFFAIRS	WEST CENTRAL ALASKA FIELD OFFICE	3601 C STREET STE 1258		ANCHORAGE	AK	99503	5947	
MR	JOHN	ZAGER	MANAGER	CHEVRON USA INC		3800 CENTERPOINT DRIVE STE 100		ANCHORAGE	AK	99503		
MS	TERRY	CUMMINGS										
			LIBRARIAN	ELMENDORF AFB LIBRARY		10480 22ND ST		ELMENDORF AFB	AK	99506		

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			LIBRARIAN	US ARMY CORPS OF ENGINEERS	LIBRARY	PO BOX 898		ANCHORAGE	AK	99506		
				US ARMY CORPS OF ENGINEERS	REGULATORY BRANCH - ALASKA DISTRICT	PO BOX 898		ANCHORAGE	AK	99506	0898	
MR	TOM	LOHMAN	ENVIRONMENTAL RESOURCE SPECIALIST	DEPT OF WILDLIFE MGMT	NORTH SLOPE BOROUGH	4011 WINCHESTER LOOP		ANCHORAGE	AK	99507		
			EDITOR	ALASKA PUBLIC RADIO NETWORK	EDITORIAL DEPT	3877 UNIVERSITY DR		ANCHORAGE	AK	99508		
			DIRECTOR ALASKA SCIENCE CENTER	US GEOLOGICAL SURVEY		4210 UNIVERSITY DRIVE		ANCHORAGE	AK	99508	4664	
			CONSORTIUM LIBRARY	UNIVERSITY OF ALASKA ANCHORAGE	GOVERNMENT DOCUMENTS	3211 PROVIDENCE DRIVE		ANCHORAGE	AK	99508	8176	
MR	TONY	DEGANGE	BIOLOGICAL OFFICE CHIEF	US GEOLOGICAL SURVEY		4230 UNIVERSITY DRIVE STE 201		ANCHORAGE	AK	99508	4650	
DR	GUNNAR	KNAPP		UNIVERSITY OF ALASKA ANCHORAGE	INSTITUTE OF SOCIAL & ECONOMIC RESEARCH	3211 PROVIDENCE DRIVE		ANCHORAGE	AK	99508		
MR	MICHAEL	PELIKAN	DIRECTOR	ALASKA PACIFIC UNIVERSITY	ACADEMIC SUPPORT CENTER LIBRARY	4101 UNIVERSITY DRIVE RM 310		ANCHORAGE	AK	99508	4672	
MS	CELIA	ROZEN		ALASKA RESOURCES LIBRARY & INFORMATION SERVICES	ACQUISITIONS	3211 PROVIDENCE DRIVE STE 111	LIBRARY BLDG	ANCHORAGE	AK	99508	4614	
MS	PAULETTA	SAWYER	ACQUISITIONS	UNIVERSITY OF ALASKA ANCHORAGE	CONSORTIUM LIBRARY	3211 PROVIDENCE DRIVE		ANCHORAGE	AK	99508		
MS	SUZANNE	SHARP	RESEARCHER	UNIVERSITY OF ALASKA ANCHORAGE	INSTITUTE OF SOCIAL AND ECONOMIC RESEARCH	3211 PROVIDENCE DRIVE, 5TH FLOOR	DIPLOMACY BLDG	ANCHORAGE	AK	99508		
			DIRECTOR	CENTER FOR BIOLOGICAL DIVERSITY	ALASKA OFFICE	PO BOX 100599		ANCHORAGE	AK	99510		
MS	DOROTHY	CHILDERS	EXECUTIVE DIRECTOR	ALASKA MARINE CONSERVATION COUNCIL		PO BOX 101145		ANCHORAGE	AK	99510	1145	
MR	STEPHEN	CONN	EXECUTIVE DIRECTOR	ALASKA PUBLIC INTEREST RESEARCH GROUP		PO BOX 101093		ANCHORAGE	AK	99510		
MR	MICHAEL	GALGINAITIS		APPLIED SOCIOCULTURAL RESEARCH		PO BOX 101352		ANCHORAGE	AK	99510	1352	
MR	PAT	NOAH		CONOCOPHILLIPS ALASKA INC	LAND DEPT	PO BOX 100360		ANCHORAGE	AK	99510	0360	
MR	DAVID	W BROWN	LAND MANAGER	CONOCOPHILLIPS ALASKA INC	LAND DEPARTMENT	PO BOX 100360 ATO 1470		ANCHORAGE	AK	99510	0360	
MS	MARCIA	COMBES	DIRECTOR	ENVIRONMENTAL PROTECTION AGENCY	ALASKA OPERATIONS OFFICE	222 W 7TH AVENUE BOX 19		ANCHORAGE	AK	99513	7588	
MS	JENNIFER	CURTIS		ENVIRONMENTAL PROTECTION AGENCY		222 WEST 7TH AVE #19		ANCHORAGE	AK	99513		
MS	JEANNE	HANSON		NATIONAL MARINE FISHERIES SERVICE		222 WEST 7TH AVENUE BOX 43		ANCHORAGE	AK	99513	7577	
MR	THOMAS	LONNIE	STATE DIRECTOR	BUREAU OF LAND MANAGEMENT		222 WEST 7TH AVE STE 13		ANCHORAGE	AK	99513		

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MR	REX	ROCK	PRESIDENT	TIGARA CORPORATION		2121 ABBOTT ROAD		ANCHORAGE	AK	99507		
MR	THEODORE L	ROCKWELL		ENVIRONMENTAL PROTECTION AGENCY	ALASKA OPERATIONS OFFICE	222 WEST 7TH AVENUE BOX 14		ANCHORAGE	AK	99513	7588	
			DIRECTOR	NATIONAL MARINE FISHERIES SERVICE	ALASKA REGIONAL OFFICE, ANCHORAGE	222 WEST 7TH AVE BOX 43		ANCHORAGE	AK	99513		
MR	BRAD	SMITH	MARINE MAMMAL BIOLOGIST	NATIONAL MARINE FISHERIES SERVICE		222 WEST 7TH AVE BOX 43		ANCHORAGE	AK	99513	7577	
			ENERGY REPORTER	ANCHORAGE DAILY NEWS		PO BOX 149001		ANCHORAGE	AK	99514	9001	
MS	MEDA	SNYDER		ALASKA NANUUQ COMMISSION		1951 JARVIS		ANCHORAGE	AK	99515		
			STATE PIPELINE COORDINATOR	JOINT PIPELINE OFFICE		411 WEST 4TH AVE		ANCHORAGE	AK	99517		
				ALASKA NEWSPAPERS INC		301 CALISTA CT STE B		ANCHORAGE	AK	99518		
			REGION II, H&R CHIEF	STATE OF ALASKA	DEPT OF FISH & GAME	333 RASPBERRY ROAD		ANCHORAGE	AK	99518	1599	
				ARCTIC SOUNDER		301 CALISTA COURT SUITE B		ANCHORAGE	AK	99518	3000	
				ALASKA JOURNAL OF COMMERCE		301 ARCTIC SLOPE SUITE 350		ANCHORAGE	AK	99518		
MR	JIM	FALL	PROGRAM MANAGER SUBSISTENCE DIVISION	STATE OF ALASKA	DEPT OF FISH AND GAME	333 RASPBERRY ROAD		ANCHORAGE	AK	99518	1599	
MS	BETH	HALEY		LGL ALASKA RESEARCH ASSOCIATES INC		1101 EAST 76TH AVENUE SUITE B		ANCHORAGE	AK	99518		
			LAND MANAGER ALASKA	BP EXPLORATION (ALASKA) INC		PO BOX 196612		ANCHORAGE	AK	99519	6612	
MS	JUDY	BUONO	LAND & TITLE CORDINATOR	BP EXPLORATION (ALASKA) INC		PO BOX 196612		ANCHORAGE	AK	99519	6612	
MR	KEVIN A	TABLER		UNION OIL COMPANY OF CALIFORNIA		PO BOX 196247		ANCHORAGE	AK	99519	6247	
MR	CHARLES	UNDERWOOD JR	LANDSMAN	MARATHON OIL COMPANY	TEAM	PO BOX 196168		ANCHORAGE	AK	99519	6168	
				RURAL CAP	URAL RESOURCES	PO BOX 200908		ANCHORAGE	AK	99520		
MR	PAUL	DAVIS										
MS	PATRICIA LONGLEY	COCHRAN	EXECUTIVE DIRECTOR	ALASKA NATIVE SCIENCE COMMISSION		PO BOX 244305		ANCHORAGE	AK	99524		
MR	GABE	SCOTT		CASCADIA WILDLANDS PROJECT		PO BOX 853		CORDOVA	AK	99574		
MS	FRANCES ANN	DEGNAN	SECRETARY/TREASURER	RESOURCES SERVICE AREA		PO BOX 33		UNALAKLEET	AK	99684		
				US FISH AND WILDLIFE SERVICE	NORTHERN ALASKA ECOLOGICAL SVCS	101 12TH AVE BOX 19 RM 110		FAIRBANKS	AK	99701		
MR	DOUG	DASHER	NORTHERN ALASKA DISTRICT OFFICE	STATE OF ALASKA	DEPT OF ENVIRONMENTAL CONSERVATION	610 UNIVERSITY AVE		FAIRBANKS	AK	99701	4980	
				FAIRBANKS DAILY NEWS MINER		PO BOX 710		FAIRBANKS	AK	99707		
			DIRECTOR	ALASKA NATIVE KNOWLEDGE NETWORK		PO BOX 756730		FAIRBANKS	AK	99775		
			DIRECTOR	ARCTIC CONNECTIONS				FAIRBANKS	AK			

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MR	JOHN J	BURNS	MMS/SCI COMM MEMBER	LIVING RESOURCES INC		PO BOX 83570		FAIRBANKS	AK	99708		
MS	PAMELA A	MILLER	NORTHERN ALASKA ENVIRONMENTAL	NORTHERN ALASKA ENVIRONMENTAL CENTER		830 COLLEGE ROAD		FAIRBANKS	AK	99708		
			LIBRARIAN	NORTHERN ALASKA ENVIRONMENTAL CENTER		830 COLLEGE ROAD		FAIRBANKS	AK	99708		
MR	BOB	KARLEN		BUREAU OF LAND MANAGEMENT	NORTHERN FIELD OFFICE	1150 UNIVERSITY AVENUE		FAIRBANKS	AK	99709		
MR	JACK	KERIN	DIVISION OF WATER	STATE OF ALASKA	DEPT OF NATURAL RESOURCES	3700 AIRPORT WAY		FAIRBANKS	AK	99709		
MR	STANLEY	LEAPHART		CITIZENS' ADVISORY COMMISSION ON FEDERAL AREAS	DEPT OF NATURAL RESOURCES	3700 AIRPORT WAY		FAIRBANKS	AK	99709	4699	
			LIBRARIAN	TUZZY CONSORTIUM LIBRARY		114 ILLINIOIS AVE		ANAKTUVUK PASS	AK	99721		
			VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 21010		ANAKTUVUK PASS	AK	99721		
			DIRECTOR	NUNAMIUT CORPORATION		PO BOX 21009		ANAKTUVUK PASS	AK	99721		
MR	GEORGE	PANEAK	MAYOR	CITY OF ANAKTUVUK PASS		PO BOX 21030		ANAKTUVUK PASS	AK	99721		
MR	THOMAS	RULLAND	PRESIDENT	NAGSRAGMUIT TRIBAL COUNCIL		PO BOX 21065		ANAKTUVUK PASS	AK	99721		
			ENVIRONMENTAL PROGRAM MANAGER	NATIVE VILLAGE OF BARROW		PO BOX 215		BARROW	AK	99723		
			PRESIDENT	BARROW WHALING CAPTAINS ASSOCIATION		PO BOX 492		BARROW	AK	99723		
			MAYOR	CITY OF BARROW		PO BOX 629		BARROW	AK	99723		
				TUZZY CONSORTIUM LIBRARY		PO BOX 749		BARROW	AK	99723		
			PRESIDENT	ILISAGVIK COLLEGE		PO BOX 749		BARROW	AK	99723		
			INUPIAT HERITAGE CENTER			PO BOX 69		BARROW	AK	99723		
			NEWS DIRECTOR	KBRW NEWS		PO BOX 109		BARROW	AK	99723		
			NEWS DIRECTOR	BARROW CABLE TV		PO BOX 489		BARROW	AK	99723		
			NATURAL RESOURCES DIRECTOR	INUPIAT COMMUNITY OF THE ARCTIC SLOPE		PO BOX 934		BARROW	AK	99723		
				NORTH SLOPE BOROUGH	PLANNING DEPARTMENT	PO BOX 69		BARROW	AK	99723		
MR	JOHNNY	ADAMS										
MS	MARIE	ADAMS CARROLL		NORTH SLOPE BOROUGH	PUBLIC INFORMATION OFFICE	PO BOX 69		BARROW	AK	99723		
MS	MAGGIE	AHMAOGAK	EXECUTIVE DIRECTOR	ALASKA ESKIMO WHALING COMMISSION		PO BOX 570		BARROW	AK	99723		
MS	KATHY	AHGEAK	LIAISON OFFICER IHLC	NORTH SLOPE BOROUGH	PLANNING DEPT	PO BOX 69		BARROW	AK	99723		
			DIRECTOR	ARCTIC DEVELOPMENT COUNCIL		PO BOX 1353		BARROW	AK	99723		
MR	JOSEPH K	AKPIK										
MR	CHARLES	BROWER	CHAIRMAN	UKPEAGVIK INUPIAT CORPORATION		PO BOX 623		BARROW	AK	99723	0890	
MS	CHARLOTTE	BROWER										
Mr.	EUGENE	BROWER	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX 1084		BARROW	AK	99723		
MR	GORDON	BROWER										

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MR	ARNOLD	BROWER JR		BARROW WHALING CAPTAINS ASSOCIATION		BOX 402		BARROW	AK	99723		
MR	HARRY	BROWER JR	CHAIRMAN	ALASKA ESKIMO WHALING COMMISSION		PO BOX 712		BARROW	AK	99723		
MR	HARRY	BROWER JR	CHAIRMAN	ALASKA ESKIMO WHALING COMMISSION		PO BOX 570		BARROW	AK	99723		
MR	GEORGE	EDWARDSON	PRESIDENT	INUPIAT COMMUNITY OF THE ARCTIC SLOPE		PO BOX 934		BARROW	AK	99723		
MR	ANTHONY	EDWARDSSEN	PRESIDENT	UKPEAGVIK INUPIAT CORPORATION		PO BOX 890		BARROW	AK	99723		
MR	TONY	EDWARDSSEN		ALASKA ESKIMO WHALING COMMISSION		PO BOX 596		BARROW	AK	99723		
MR	CRAIG	GEORGE		NORTH SLOPE BOROUGH	DEPT OF WILDLIFE MANAGEMENT	PO BOX 69		BARROW	AK	99723		
MR	RICHARD	GLENN	VICE PRESIDENT LAND	ARCTIC SLOPE REGIONAL CORPORATION		PO BOX 129		BARROW	AK	99723		
MS	RAYNITA "TAQULIK"	HEPA	DIRECTOR	DEPT OF WILDLIFE MANAGEMENT	NORTH SLOPE BOROUGH	PO BOX 69		BARROW	AK	99723		
MR	BOB	HARCHAREK	MAYOR	CITY OF BARROW		PO BOX 629		BARROW	AK	99723		
MR	EDWARD	HOPSON										
MR	CHARLES	HOPSON	CHAIRMAN	ALASKA ESKIMO WHALING COMMISSION		PO BOX 172		BARROW	AK	99723		
MS	MARTHA	HOPSON										
MR	EDWARD	ITTA SR	MAYOR	NORTH SLOPE BOROUGH		PO BOX 69		BARROW	AK	99723		
MR	HERMAN	KIGNAK SR	CHAIRMAN	ARCTIC SLOPE NATIVE ASSOCIATION		PO BOX 1232		BARROW	AK	99723		
MS	DOREEN	LAMPE	PRESIDENT	INUPIAT COMMUNITY OF THE ARCTIC SLOPE		PO BOX 934		BARROW	AK	99723		
MR	PRICE	LEAVITT	EXECUTIVE DIRECTOR	INUPIAT COMMUNITY OF THE ARCTIC SLOPE		PO BOX 934		BARROW	AK	99723	0934	
MS	JANICE	MEADOWS	EXECUTIVE DIRECTOR	ALASKA ESKIMO WHALING COMMISSION		PO BOX 570		BARROW	AK	99723		
MR	PERCY	NUSUNGINYA	TRIBAL COUNCIL PRESIDENT	NATIVE VILLAGE OF BARROW		PO BOX 1130		BARROW	AK	99723	1130	
MR	THOMAS	OLEMAUN	PRESIDENT	NATIVE VILLAGE OF BARROW	INUPIAT TRADITIONAL GOVERNMENT	PO BOX 1130		BARROW	AK	99723		
MR	JOE	SAGE		NATIVE VILLAGE OF BARROW	WILDLIFE DIRECTOR	PO BOX 1130		BARROW	AK	99723		
MR	JAMES	PATKOTAK										
MS	ROSABELLE	REXFORD										
MS	ROBERTA	QUINTAVELL	PRESIDENT, CEO, DIRECTOR	ARCTIC SLOPE REGIONAL CORPORATION		PO BOX 129		BARROW	AK	99723		
MR	JOSEPH	UPICKSON										
			LIBRARIAN	NORTH SLOPE BOROUGH	LIBRARY/MEDIA SCHOOL DISTRICT	PO BOX 169		BARROW	AK	99723		
	WASKU	WILLIAMS										
			MANAGER, PLANNING AND DEVELOPMENT	ALASKA CLEAN SEAS		POUCH 340022		PRUDHOE BAY	AK	99734	0022	

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MR	REGINAL	ANINGAYOU SR		ALASKA ESKIMO WHALING COMMISSION		PO BOX 23		GAMBELL	AK	99742		
MR	LEONARD	APANGALOOK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 93		GAMBELL	AK	99742		
MR	MICHAEL	APATIKI	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX		GAMBELL	AK	99742		
MR	MERLIN	KOONOOKA	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 67		GAMBELL	AK	99742		
			LIBRARIAN	KAVEOLOK SCHOOL LIBRARY		PO BOX 10		KAKTOVIK	AK	99747		
HONORABLE	ANNIE	TIKLUK	MAYOR	CITY OF KAKTOVIK	CITY OFFICE	PO BOX 27		KAKTOVIK	AK	99747		
			PRESIDENT	KAKTOVIK INUPIAT CORPORATION		PO BOX 73		KAKTOVIK	AK	99747		
MR	THOMAS	AGIAK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 24		KAKTOVIK	AK	99747		
MR	FREDDIE	AISHANNA										
			LIBRARIAN	KAVEOLOK SCHOOL LIBRARY		2001 BARTER AVE		KAKTOVIK	AK	99747		
	BERDELL	AKOOTCHOOK	VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 102		KAKTOVIK	AK	99747		
MR	ISAAC	AKOOTCHOOK	PRESIDENT	NATIVE VILLAGE OF KAKTOVIK		PO BOX 130		KAKTOVIK	AK	99747		
MR	ISAAC	AKOOTCHOOK										
MS	IDA E	ANGASAN										
MR	WALT	AUDI										
MR	JOSEPH	KALEAK	PRESIDENT	KAKTOVIK WHALING CAPTAINS		PO BOX 83		KAKTOVIK	AK	99747		
MR	JOSEPH	KALEAK	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 83		KAKTOVIK	AK	99747		
MR	JAMES	LAMPE SR		ALASKA ESKIMO WHALING COMMISSION		PO BOX 7		KAKTOVIK	AK	99747		
MR	FENTON	REXFORD	PRESIDENT	KAKTOVIK INUPIAT CORPORATION		010 A STREET		KAKTOVIK	AK	99747		
MR	FENTON	REXFORD	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX 137		KAKTOVIK	AK	99747		
MR	NOLAN	SOLOMAN										
MR	LON	SONSALLA										
MR	GEORGE	TAGAROOK										
HONORABLE	ANNIE	TIKLUK	MAYOR	CITY OF KAKTOVIK		PO BOX 27		KAKTOVIK	AK	99747		
MS	MERYLIN	TRAYNOR										
MR	RAYMOND	HAWLEY	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 50075		KIVALINA	AK	99750		
MR	ORAN	KNOX SR		ALASKA ESKIMO WHALING COMMISSION		PO BOX 50045		KIVALINA	AK	99750		
MR	CALEB	WESLEY	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX		KIVALINA	AK	99750		
MR	LOWELL	SAGE JR	PRESIDENT	NATIVE VILLAGE OF KIVALINA		PO BOX 50051		KIVALINA	AK	99750		
MR	EUGENE	SMITH	MAYOR	CITY OF KOTZEBUE		PO BOX		KOTZEBUE	AK	99752		
			VICE PRESIDENT	NANA REGIONAL CORPORATION	LANDS DEPARTMENT	PO BOX 49		KOTZEBUE	AK	99752		
			LIBRARIAN	CHUKCHI CONSORTIUM LIBRARY		604 THIRD STREET		KOTZEBUE	AK	99752		
			CHAIRPERSON	NATIVE VILLAGE OF KOTZEBUE		PO BOX 296		KOTZEBUE	AK	99752		
	MARIE	GREENE	PRESIDENT	NANA REGIONAL CORPORATION		PO BOX 49		KOTZEBUE	AK	99752		

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Salutation	First	Last	Title	Organization	Department	Address1	Address2	City	State	Zip	Zip2	Country
MR	WILLIE	GOODWIN	CHAIRMAN	ALASKA BELUGA WHALE COMMITTEE		PO BOX 334		KOTZEBUE	AK	99752		
MR	JEFF	HADLEY		CITY OF KOTZEBUE	PLANNING DIVISION	PO BOX 46		KOTZEBUE	AK	99752		
MR	GUY	ADAMS	EXECUTIVE DIRECTOR	NATIVE VILLAGE OF KOTZEBUE IRA		PO BOX 296		KOTZEBUE	AK	99752	0296	
MR	REGGIE	JOULE	REPRESENTATIVE	ALASKA STATE LEGISLATURE		PO BOX 673		KOTZEBUE	AK	99752		
MR	KRIS	LETHIN	PRESIDENT/CEO	KIKIKTAGRUK INUPIAT CORP		PO BOX 1050		KOTZEBUE	AK	99752		
	SIIKAURAQ	WHITING	MAYOR	NORTHWEST ARCTIC BOROUGH		PO BOX 1110		KOTZEBUE	AK	99752		
MR	LEO	FERREIRA III	VILLAGE COORDINATOR	NATIVE VILLAGE OF POINT LAY		PO BOX 59031		POINT LAY	AK	99759		
			LIBRARIAN	KALI COMMUNITY SCHOOL/COMMUNITY LIBRARY		1029 UGRUK AVE		POINT LAY	AK	99759		
MS	ANNE	MARTIN		NATIVE VILLAGE OF POINT LAY		PO BOX 101		POINT LAY	AK	99759		
MR	THOMAS	NUKAPIGAK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 59101		POINT LAY	AK	99759		
MR	JULIUS	REXFORD	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 59016		POINT LAY	AK	99759		
MR	JULIUS	REXFORD	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX 59016		POINT LAY	AK	99759		
MR	JULIUS	REXFORD	PRESIDENT	NATIVE VILLAGE OF POINT LAY		PO BOX 59031		POINT LAY	AK	99759		
MS	FREDRICKA	STALKER	PRESIDENT	NATIVE VILLAGE OF POINT LAY		PO BOX 59031		POINT LAY	AK	99759		
MS	ALMA	UPICKSOUN	CHAIRMAN	CULLY CORPORATION		PO BOX 59089		POINT LAY	AK	99759		
			LIBRARIAN	KEGOYAH KOZGA PUBLIC LIBRARY		PO BOX 165		NOME	AK	99762		
MR	CHARLES	BROWER		ESKIMO WALRUS COMMISSION		PO BOX 948		NOME	AK	99762		
			CITY MANAGER	CITY OF NOME		PO BOX 281		NOME	AK	99762		
MR	ORVILLE	AHKINGA SR	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 7025		DIOMEDE	AK	99762		
MR	ORVILLE	AHKINGA JR	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX 7046		DIOMEDE	AK	99762		
MR	ORVILLE	AHKINGA JR	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 7046		DIOMEDE	AK	99762		
MR	RONALD	OZENNA		ALASKA ESKIMO WHALING COMMISSION		PO BOX 7023		DIOMEDE	AK	99762		
MR	CHARLES	MENADELOOK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 7043		LITTLE DIOMEDE	AK	99762		
			LIBRARIAN	KEGOYAH KOZGA PUBLIC LIBRARY		223 FRONT STREET		NOME	AK	99762		
MR	CHARLES D.N.	BROWER	CHAIRMAN	ICE SEAL COMMITTEE		PO BOX 946		NOME	AK	99762		
MR	CHARLES	JOHNSON	EXECUTIVE DIRECTOR	ALASKA NANUUQ COMMISSION		PO BOX 946		NOME	AK	99762		
MS	VERA	METCALF	DIRECTOR	ESKIMO WALRUS COMMISSION		PO BOX 94		NOME	AK	99762		
MS	DENISE	MICHELS	MAYOR	CITY OF NOME		PO BOX 281		NOME	AK	99762		
MR	BENJAMIN P	NAGEAK	CHAIRMAN	ESKIMO WALRUS COMMISSION		PO BOX 948		NOME	AK	99762		
DR	RICHARD	STERN	GENERAL MANAGER	BERING AIR INC		PO BOX 1650		NOME	AK	99762		
MR	JIM	STIMPFLE										
MS	CAROLINE	CANNON	PRESIDENT	NATIVE VILLAGE OF POINT HOPE		PO BOX 266		POINT HOPE	AK	99766		
MS	LILY	TUZROYLUKE	PRESIDENT	NATIVE VILLAGE OF POINT HOPE		PO BOX 109		POINT HOPE	AK	99766		
			LIBRARIAN	TIKIGAQ LIBRARY		PO BOX 148		POINT HOPE	AK	99766		

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			VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 108		POINT HOPE	AK	99766		
MR	ISAAC	KILLIGVUK, SR		ALASKA ESKIMO WHALING COMMISSION		PO BOX 710		POINT HOPE	AK	99766		
MR	JAKE	KOONUK										
MR	RAY	KOONUK SR	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 192		POINT HOPE	AK	99766		
MR	RAY	KOONUK SR	PRESIDENT	POINT HOPE WHALING CAPTAINS ASSOCIATION		PO BOX 350		POINT HOPE	AK	99766		
MR	GEORGE	KINGIK	MAYOR	CITY OF POINT HOPE		PO BOX 169		POINT HOPE	AK	99766		
MR	ELIJAH	ROCK SR	SECRETARY	ALASKA ESKIMO WHALING COMMISSION		PO BOX 68		POINT HOPE	AK	99766		
MR	REX	ROCK SR		ALASKA ESKIMO WHALING COMMISSION		PO BOX 107		POINT HOPE	AK	99766		
MR	JACK	SCHAEFER										
MR	SAYERS	TUZROYKUK SR	CHAIRMAN	TIKIGAQ CORP		PO BOX 9		POINT HOPE	AK	99766		
			LIBRARIAN	TIKIGAK SCHOOL/COMMUNITY LIBRARY		1837 TIKIGAK AVE		POINT HOPE	AK	99766		
MR	REX	TUZROYLUKE JR										
MR	ISAAC	KULOWIYI	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX		SAVOONGA	AK	99769		
MR	GEORGE	NOONGWOOK	VICE-CHAIRMAN	ALASKA ESKIMO WHALING COMMISSION		PO BOX 81		SAVOONGA	AK	99769		
MR	PERRY	PUNGOWIYI		ALASKA ESKIMO WHALING COMMISSION		PO BOX 77		SAVOONGA	AK	99769		
			PRESIDENT	NATIVE VILLAGE OF SHISHMAREF		PO BOX 72110		SHISHMAREF	AK	99772		
MS	KARLA	NAYUKPUK	PRESIDENT	NATIVE VILLAGE OF SHISHMAREF IRA		PO BOX 72110		SHISHMAREF	AK	99772		
MS	NELLIE	WEYIOUSANNA		ILISAGVIK LIBRARY		PO BOX 90		SHISHMAREF	AK	99772		
			LIBRARIAN	UNIVERSITY OF ALASKA FAIRBANKS	ELMER E RASMUSON LIBRARY	310 TANANA DR		FAIRBANKS	AK	99775		
			LIBRARIAN	UNIVERSITY OF ALASKA FAIRBANKS	INSTITUTE OF ARCTIC BIOLOGY	311 IRVING BLDG		FAIRBANKS	AK	99775		
			DIRECTOR	UNIVERSITY OF ALASKA FAIRBANKS	GEOPHYSICAL INSTITUTE	PO BOX 757320		FAIRBANKS	AK	99775	7320	
DR	VERA	ALEXANDER	DIRECTOR, COASTAL MARINE INSTITUTE	UNIVERSITY OF ALASKA FAIRBANKS	SCHOOL OF FISHERIES & OCEAN SCIENCES	245 O'NEILL BUILDING		FAIRBANKS	AK	99775	7220	
MR	RAY	BARNHARDT		ALASKA NATIVE KNOWLEDGE NETWORK	ALASKA RSI	PO BOX 756730		FAIRBANKS	AK	99775	6730	
					DIVISION OF GEOLOGICAL AND GEOPHYSICAL SURVEYS	3354 COLLEGE ROAD		FAIRBANKS	AK	99709		
			DIRECTOR	STATE OF ALASKA		PO BOX 82803		FAIRBANKS	AK	99708		
			DIRECTOR	ARCTIC CONNECTIONS								
MR	RICHARD	MILLER	ELMER E RASMUSON LIBRARY	UNIVERSITY OF ALASKA FAIRBANKS	GOVERNMENT DOCUMENTS/MAPS	PO BOX 756817		FAIRBANKS	AK	99775	6817	
			VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 128		WAINWRIGHT	AK	99782		

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MR	FREDRICK	AHMAOGAK										
MR	RANSOM	AGNASSAGGA		ALASKA ESKIMO WHALING COMMISSION		PO BOX 161		WAINWRIGHT	AK	99782		
MR	BARRY	BODFISH SR										
			LIBRARIAN	ALAK COMMUNITY/SCHOOL LIBRARY		567 MAIN ST		WAINWRIGHT	AK	99782		
MS	JUNE	CHILDRESS	PRESIDENT	OLGOONIK CORPORATION		PO BOX 29		WAINWRIGHT	AK	99782		
MS	JUNE	CHILDRESS	PRESIDENT	VILLAGE OF WAINWRIGHT		PO BOX 184		WAINWRIGHT	AK	99782		
MS	JUNE	CHILDRESS	PRESIDENT	WAINWRIGHT TRADITIONAL COUNCIL		PO BOX 143		WAINWRIGHT	AK	99782		
MR	WALTER	NAYAKIK	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX		WAINWRIGHT	AK	99782		
MR	ENOCH	OKTOLLIK	MAYOR	CITY OF WAINWRIGHT		PO BOX 9		WAINWRIGHT	AK	99782		
MR	JACK	PANIK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 4		WAINWRIGHT	AK	99782		
MR	HOWARD	PATKOTAK	CHAIRMAN	OLGOONIK CORPORATION		PO BOX 29		WAINWRIGHT	AK	99782		
MR	ROSSMAN	PEETOOK	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 43		WAINWRIGHT	AK	99782		
MR	KENNETH	TAGAROOK										
MR	HARRY	TAZRUK										
MR	LUTHER	KOMONASEAK	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 54		WALES	AK	99783		
MR	RAYMOND	SEETOOK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 553		WALES	AK	99783		
MR	JACOB	SOOLOOK		ALASKA ESKIMO WHALING COMMISSION		PO BOX 507		WALES	AK	99783		
MR	WINTON	WEYAPUK	PRESIDENT	WHALING CAPTAINS ASSOCIATION		PO BOX		WALES	AK	99783		
			VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 329		NUIQSUT	AK	99789		
MR	ARCHIE	AHKIVIANA		ALASKA ESKIMO WHALING COMMISSION		PO BOX 22		NUIQSUT	AK	99789		
MS	MARJORIE	AHNUPKANA										
MS	ROSEMARY	AHTUANGARUAK										
MR	JIM T	ALLEN										
HONORABLE	CARL	BROWER	MAYOR	CITY OF NUIQSUT		PO BOX 89148		NUIQSUT	AK	99789		
MR	CARL	BROWER	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 89033		NUIQSUT	AK	99789		
MS	FLORES	ELFOEELOUK										
MS	EMMA	EUDILIAK										
MS	MAGGIE	HOPSON										
MR	HERBERT	IPALOOK	PRESIDENT	WHALING CAPTAINS ASSOCIATION		BOX 329		NUIQSUT	AK	99789		
MS	BERNICE	KAIGELAK	PRESIDENT	NATIVE VILLAGE OF NUIQSUT		PO BOX 89169		NUIQSUT	AK	99789		
MR	LYDIN	KISOADIK										
MS	MAGGIE	KORALDY										
MS	SARAH	KUNAKNONY										
MR	LEONARD	LAMPE SR	PRESIDENT	NATIVE VILLAGE OF NUIQSUT		PO BOX 89169		NUIQSUT	AK	99789		
MS	MARTHA	LAREPE										
MR	ROGER	LOCKWOOD	LIBRARIAN	TRAPPER SCHOOL COMMUNITY LIBRARY		3310 3RD AVE		NUIQSUT	AK	99789		

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MR	FRANK	LONG										
MR	GORDAN	MATUMACK										
MR	ELI	NUKAPIGAK										
MR	ISAAC	NUKAPIGAK	PRESIDENT	KUUKPIK CORPORATION		PO BOX 89187		NUIQSUT	AK	99789		
MR	ISAAC	NUKAPIGAK										
MR	ISAAC	NUKAPIGAK	COMMISSIONER	ALASKA ESKIMO WHALING COMMISSION		PO BOX 84054		NUIQSUT	AK	99789		
MR	JOE	NUKAPIGAK	CHAIRMAN	KUUKPIK VILLAGE CORPORATION		PO BOX 89187		NUIQSUT	AK	99789		
MS	RUTH	NUKAPIGAK										
MS	EMILY	PANIGER										
MR	WILLIE	SIELAK JR										
	AUNUPTANA	SIMIKTUG										
MS	ALICE	TPALOOK										
MS	EMILLY	WILSON										
MR	JOEB	WOODSON										
					MEADE RIVER SCHOOL/COMMUNITY LIBRARY							
				TUZZY CONSORTIUM LIBRARY		4001 KIPPI ST		ATQASUK	AK	99791		
			VILLAGE COORDINATOR	NORTH SLOPE BOROUGH		PO BOX 99		ATQASUK	AK	99791		
			PRESIDENT	ATQASUK INUPIAT CORPORATION		PO BOX 91021		ATQASUK	AK	99791		
MS	CANDACE	ITTA	MAYOR	CITY OF ATQASUK		PO BOX 91119		ATQASUK	AK	99791		
MR	JIMMY	NAYUKOK	PRESIDENT	ATQASUK CORPORATION		TIKIGLYK & AKPIK ST		ATQASUK	AK	99791		
GOVERNOR	SEAN	PARNELL	GOVERNOR	STATE OF ALASKA	OFFICE OF THE GOVERNOR	PO BOX 11000		JUNEAU	AK	99811		
			DIRECTOR	STATE OF ALASKA	DIVISION OF GOVERNMENT COORDINATION	PO BOX 110030		JUNEAU	AK	99811		
			DIRECTOR	STATE OF ALASKA	DIVISION OF BUDGET AND MANAGEMENT	PO BOX 110020		JUNEAU	AK	99811		
			DOCUMENTS LIBRARIAN	JUNEAU PUBLIC LIBRARY		292 MARINE WAY		JUNEAU	AK	99801		
				UNIVERSITY OF ALASKA SOUTHEAST	LIBRARY - MAILSTOP BEI	11120 GLACIER HIGHWAY		JUNEAU	AK	99801	8676	
MS	KATTANYNA	BENNETT										
MS	LAYLA	HUGHES		WORLD WILDLIFE FUND		419 SIXTH STR STE 317		JUNEAU	AK	99801		
MR	TOM	IRWIN	COMMISSIONER	DEPT OF NATURAL RESOURCES	STATE OF ALASKA	400 WILLOUGHBY AVE 5TH FLOOR		JUNEAU	AK	99801	1724	
MR	ERIC	JORGENSEN	MANAGING ATTORNEY	EARTHJUSTICE		325 FOURTH STREET		JUNEAU	AK	99801		
MS	IRIS	KORHONEN-PENN		EARTHJUSTICE		325 4TH STREET		JUNEAU	AK	99801		
			REGIONAL ADMINISTRATOR	NATIONAL MARINE FISHERIES SERVICE	ALASKA REGIONAL OFFICE	PO BOX 21668		JUNEAU	AK	99802	1668	
			DIRECTOR	DEPARTMENT OF FISH AND GAME	HABITAT DIVISION	PO BOX 115526		JUNEAU	AK	99811	5526	
				ALASKA STATE LIBRARY	GOVERNMENT PUBLICATIONS	PO BOX 110571		JUNEAU	AK	99811	0571	

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			COMMISSIONER	DEPT OF COMMUNITY AND REGIONAL AFFAIRS		PO BOX 112100		JUNEAU	AK	99811	2100	
MR	RANDY	BATES	DIRECTOR	DIVISION OF COASTAL AND OCEAN MANAGEMENT	DEPARTMENT OF NATURAL RESOURCES	302 GOLD STREET STE 202		JUNEAU	AK	99811	1030	
MR	MICHAEL	CUSHING		STATE OF ALASKA	DEPT OF COMMUNITY & REGIONAL AFFAIRS	PO BOX 112100		JUNEAU	AK	99811	2100	
MR	RANDY	RUARO	DEPUTY CHIEF OF STAFF	STATE OF ALASKA	OFFICE OF THE GOVERNOR	PO BOX 110001		JUNEAU	AK	99811		
					LIBRARIAN	VALDEZ CONSORTIUM LIBRARY		VALDEZ	AK	99686		
MR	JOHN	WALSH		JM WALSH COMPANY INC		PO BOX 240952		DOUGLAS	AK	99824		
				CANADIAN WILDLIFE SERVICE	NATIONAL WILDLIFE RESEARCH CENTER	100 GAMELIN STREET		HULL	PQ	K1A 0H3		CANADA
DR	W JOHN	RICHARDSON	EXECUTIVE VICE PRESIDENT	LGL LIMITED	ENVIRONMENTAL RESEARCH ASSOCIATES	22 FISHER STREET PO BOX 280		KING CITY	ON	L7B 1A6		CANADA
			MANAGER, LAND NEGOTIATIONS	PETRO-CANADA (ALASKA) INC		150 - 6TH AVENUE SW		CALGARY	AB	T2P 3E3		CANADA
MR	JEFF	BEVER	TEAM LEADER	PETRO-CANADA (ALASKA) INC	NORTH AMERICAN FRONTIERS	PO BOX 2844		CALGARY	AB	T2P 3E3		CANADA
MR	NEAL	ALEXANDER		ENCANA OIL AND GAS (USA) INC		3900 421 7TH AVENUE, SW		CALGARY	AB	T2P 4K9		CANADA
MS	HELGA	GRAU	CANADIAN CIRCUMPOLAR LIBRARY - CAMERON	UNIVERSITY OF ALBERTA	SCIENCE AND TECHNOLOGY LIBRARY			EDMONTON	AB	T6G 2J8		CANADA
MR	ART	RAMIREZ		RADARSAT INTERNATIONAL		13800 COMMERCE PARKWAY	MCDONALD DETTWILER BLDG	RICHMOND	BC	V86V2J 3		CANADA
				INSTITUTE OF OCEAN SCIENCES	DEPT OF FISHERIES AND OCEANS	PO BOX 6000		SIDNEY	BC	V8L 4B2		CANADA
			LIBRARIAN	JOINT SECRETARIAT	LIBRARY	PO BOX 2120		INUVIK	NT	X0E 0T0		CANADA
			LIBRARIAN	CANADIAN CIRCUMPOLAR LIBRARY	LIBRARY			EDMONTON	AB	T8G2JB		CANADA
			LIBRARIAN	DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS		PO BOX 1500		YELLOWKNIFE	NT	X1A3RZ		CANADA
				DEPARTMENT OF INDIAN AND NORTHERN AFFAIRS	NATURAL RESOURCES AND ECONOMIC DEVELOPMENT	PO BOX 1500		YELLOWKNIFE	NT	X1A3RZ		CANADA

Newsletter #1 and Comment Form

Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement



February 2010

Newsletter #1

This is the first in a series of newsletters concerning the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement. It is being mailed to Federal, state, and local agencies; elected and appointed officials; Alaska Native groups; other interested organizations; and individual citizens to inform people about the EIS project and to solicit comments. This and subsequent newsletters can be found on the project website at <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

Scoping Notice

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS). The project will analyze the impacts of issuing marine mammal Incidental Take Authorizations, under the Marine Mammal Protection Act (MMPA).

The term “take” under the MMPA means “to harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect.” The MMPA defines “harassment” as:

“any act of pursuit, torment, or annoyance which:

- (i) has the potential to injure a marine mammal or marine mammal stock in the wild; 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.”*

NMFS issues these authorizations to the oil and gas industry during offshore exploration activities (primarily seismic surveys and exploratory drilling). In order to issue authorizations, NMFS must determine that the taking:

- will have no more than a negligible impact on the species or stock(s)
- will not have an adverse impact that cannot be mitigated regarding the availability of the species or stock(s) for subsistence uses (where relevant)
- the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are identified.

This EIS will consider activities in Federal and state waters of the U.S. Beaufort and Chukchi Seas.

The scoping period for the Effects of Oil and Gas Activities in the Arctic Ocean EIS begins February 8, 2010 and ends April 9, 2010.

Scoping is a formal process that requires the lead agency to reach out to all interested parties early in the development of an EIS. The intent is to identify areas of concern associated with the proposed action that should be fully addressed in the EIS, including cumulative impacts, and ask for guidance on alternatives to the proposed action that should be considered. The scoping process provides opportunities for people potentially affected by the proposed action to express their views and concerns, and offer suggestions.

The purposes of this newsletter are to:

- Provide background information on the proposed action to issue incidental take authorizations.
- Provide an overview of the EIS process, and invite you to participate!

ABOUT THE ENVIRONMENTAL IMPACT STATEMENT

NMFS is serving as the lead agency for this EIS. The U.S. Minerals Management Service (MMS) joins the effort as a cooperating agency. The EIS will analyze the environmental impacts to the physical, biological, and social resources from seismic activities and exploratory drilling in the Beaufort and Chukchi Seas.

Previous issues and concerns associated with oil and gas related activities in the Arctic marine environment have been documented by the scientific community, government publications, at scientific symposia, through the scoping and public hearings/comments, and other National Environmental Policy Act (NEPA) analyses. In addition, public testimony and traditional knowledge from Alaska Natives has provided valuable information about the potential impacts to marine mammals and on subsistence hunting of such species from seismic surveying and drilling operations. This EIS will build upon these efforts.

The EIS will address long-term cumulative effects, consider a reasonable range of alternatives consistent with NMFS’ legal mandates, and analyze the range of practical mitigation and monitoring measures for protecting marine mammals and the availability of marine mammals for subsistence uses.

PROJECT HISTORY

In 2006, the MMS prepared a Programmatic Environmental Assessment (PEA) for Arctic Outer Continental Shelf (OCS) seismic surveys. Afterwards, in accord with the MMPA, NMFS conducted its own Environmental Assessments and issued annual Incidental Harassment Authorizations to oil and gas companies for the taking of marine mammals during seismic surveys.

In 2007, the MMS began a Draft Programmatic EIS (DPEIS). This project assessed the impacts of MMS' issuance of permits and authorizations under the OCS Lands Act for seismic surveys in the Beaufort and Chukchi Seas near Alaska, and NMFS' authorizations to incidentally harass marine mammals while conducting those surveys. The intent of the DPEIS was to try to address the potential effects of concurrent offshore exploration activities and the potential for an increase in such activities.

The DPEIS was halted because new information became available, such as scientific study results and changes in projections of levels of offshore activity. This new information altered the scope of the study, range of possible alternatives, and analyses. This led to the need for a new NEPA process, and the start of the **Effects of Oil and Gas Activities in the Arctic Ocean EIS**.



Beluga whale pod (Source: National Marine Mammal Laboratory)

PREPARING THE ENVIRONMENTAL IMPACT STATEMENT

The EIS will identify potential impacts that seismic surveys and exploratory drilling in the Beaufort and Chukchi Seas could have on the physical, biological, and social environments. Methods to mitigate impacts will also be considered. In addition, the EIS will contain an analysis of secondary and cumulative effects of the alternatives.

As the lead agency, NMFS is responsible for the development of the EIS, in cooperation with the MMS.

The process for the Effects of Oil and Gas Activities in the Arctic Ocean EIS is summarized in ten broad steps:



OBJECTIVES OF THE PUBLIC INVOLVEMENT PROCESS

All interested parties are invited to participate in the EIS process. This includes members of the general public, Alaska Native organizations, local and regional interest groups, the oil and gas industry, and state and Federal agencies are encouraged to participate. Objectives of the public involvement process include:

- Share information about NEPA requirements
- Obtain and analyze comments and suggestions from interested parties that will help determine issues and concerns
- Use comments and suggestions to help define a reasonable range of alternatives to be evaluated in the EIS, and to develop suitable mitigation and monitoring measures
- Incorporate relevant issues in the analysis process
- Respond to public comments and incorporate public comments into the document

HOW CAN YOU PARTICIPATE IN THE EIS?

Your comments are very important to us, particularly at this early stage in the project. There are several ways to participate in the EIS process. In February and March, 2010 there will be public scoping meetings in several communities. Comments can be provided in-person at the meeting locations below:

Scoping Meetings

Date	Time	Location
February 18	6:00-8:00pm	Kotzebue – Northwest Arctic Borough Assembly Chambers
February 19	5:00-7:00pm	Point Hope Community Center
February 22	7:00-9:00pm	Point Lay Community Center
March 9	7:00-9:00pm	Wainwright Community Center
March 10	7:30-9:30pm	Barrow – Inupiat Heritage Center
March 11	7:00-9:00pm	Nuiqsut Community Center
March 12	6:30-8:30pm	Kaktovik Community Center
March 23	7:00-9:00pm	Anchorage – Egan Center

To request accommodation of a disability or special need at a public meeting (e.g., sign language interpreter), please contact Sheyna Wisdom, seven (7) days prior to the meeting, via:

Fax: (907) 562-1297

Telephone: (907) 562-3366 or (800) 909-6787

Email: sheyne_wisdom@urscorp.com

NMFS will make a reasonable effort to provide effective accommodations for all participants.

OTHER OPPORTUNITIES TO PARTICIPATE

Public involvement will continue throughout the EIS process. The goal is to receive public and agency comments, identify key issues of concern, and improve analysis. Additional newsletters will be distributed to provide updates.

Once the Draft EIS is complete, the document will be released to the public for an estimated review period of 45 days. During the review period, NMFS will conduct public hearings to accept comments on the Draft EIS. Public testimony, written comments, and electronic comments will be accepted during the review period. Future newsletters will provide information on how you can receive a copy of the Draft EIS, schedule public hearings, and opportunities for comment.

Visit the project website for on-going information updates: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>. We are all interested in ensuring that offshore development in the Arctic is conducted in a safe manner, and minimizes adverse impacts to stocks of marine mammals and their availability for subsistence harvest.

HOW TO SUBMIT COMMENTS

In addition to attending scoping meetings and providing verbal comments, there are several ways to submit written comments:

- Bring them to a scoping meeting
- Use the comment form on the project website, <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>
- Email us at arcticeis.comments@noaa.gov
- Fax comments to: (301) 713-0376
- Mail comments to:
Mr. P. Michael Payne
Chief – Permits, Conservation & Education Division
Office of Protected Resources, NMFS
1315 E West Hwy Room 13705
Silver Spring, MD 20910-6233

Let us know what aspects of this EIS process are important to you!

Written scoping comments can be submitted until April 9, 2010.

Comments received after this time will be considered, but will not be included in the scoping report. Comments will be reviewed and incorporated into the Draft EIS. A summary of scoping comments will be provided in the next newsletter.

Mr. P. Michael Payne
Chief – Permits, Conservation & Education Division
Office of Protected Resources, NMFS
1315 E West Hwy Room 13705
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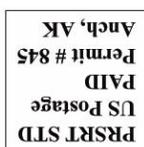
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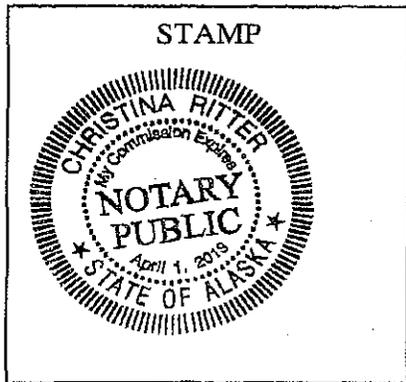
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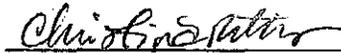
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LEGISLATURE

Omnibus energy bills target lower expenses

Efficiency proposals extend from cities to villages

BOB THACZ
For Alaska Newspapers

After a year of work, including unprecedented formal legislative hearings in a dozen rural communities including Ruby, Quzinkie and Kotzebue among other Bush villages, committees of the Alaska House and Senate are grinding through the mundane work of passing a state energy policy and packages of bills to lower energy costs in the government and private sector.

Parts of eight Senate bills were rolled into SB 220 and elements of six House measures were repackaged as HB 305. All had been introduced last year. The House Special Committee on Energy also introduced HB 306, declaring a state energy policy. No Senate policy bill was introduced but language like that in HB 306 was included in SB 220.

"We have a bill we think will go long a way in moving the State of Alaska forward," said Sen. Lesli McGuire, R-Anchorage, head of the Energy Committee and co-chair with Sen. Bill Wielechowski, D-Anchorage, of the Senate Resources Committee.

The policy proposals call for a 15 percent per capita increase in state energy efficiency by 2020 and the use of renewable energy to supply 50 percent of its electrical needs by 2025.

Funding for the score of new and continuing programs in the omnibus bills will be considered in separate proposals, but the

Senate co-chairs asked for \$929 million to fund their plans. No estimate of House bill costs is yet available.

A \$700 million deposit into the Railbelt Energy Fund, for improvements to the energy grid in the central corridor over the next 50 years, accounts for most of the money request. The fund now holds about \$50 million but a study by consultants Black and Veatch identified \$2 billion in near-term and out-year work needed to modernize the Railbelt grid.

Other recommendations include \$50 million for the popular home weatherization program and \$25 million for the Renewable Energy Fund established in 2003. Gov. Sean Parnell said enough money is already "in the pipeline" and asked for only \$25 million for alternative energy projects.

The Senate co-chairs also want \$10 million for Southeast hydrogeneration and transmission lines; \$9 million for village power system upgrades; \$4 million for bulk fuel storage facilities in rural communities; \$3 million for the Power Project Loan Fund, available to utilities, independent power producers and local governments; and \$8 million to match \$9 million in federal grants for public transportation projects.

The total request is \$40 million more than the governor's budget proposal for the same items. The co-chairs also ask for unspecified "full funding" for the Power Cost Equalization Program and for support for a "regional integrated resource plan" for Southeast, which is also in the governor's budget.

Both bills require the Department of Transportation to prepare annual energy conservation targets for public buildings that their occupant agencies would work to achieve. The Senate bill requires DOT to improve the energy efficiency of the state's 1,800 public facilities and report its achievements annually to the Legislature.

Other language establishes a procurement preference for equipment or appliances bought by the state that qualified under the federal EPA's Energy Star Program.

Fuel-buying cooperative

A new initiative that could save millions of dollars for rural villages requires the Alaska Energy Authority to establish a state fuel-buying cooperative. It would be open to schools, municipalities and private businesses. The AEA would also be required to hire an economist who would evaluate every project receiving alternative energy grants and the bill amends grant program methodology.

The Alaska Housing Finance Corp. would be required to provide technical assistance to local governments that are adopting their own energy efficiency codes.

HB 305 would create a new Department of Energy. SB 220 doesn't include that pro-

posal, and Parnell opposes it. The governor has said he wants existing agencies to share the work under the general direction of Gene Theriault, formerly a senator from Fairbanks who was hired as the governor's special assistant on energy issues last year.

Major elements from existing bills in the omnibus packages include:

- HB 196: Revival of the Alternative Energy Loan Fund, created in the 1980s for construction of small-scale alternative energy projects with interest rates between 5 and 8 percent.

- SB 31: Creation of a renewable energy production tax credit program that expires in 2025.

- SB 350: Establishment of an Emerging Energy Technology Fund to support energy research and development.

- SB 186: Requires projects funded by the Renewable Energy Fund include a "verifiable" financial benefit that exceeds their grant amounts.

- SB 71: Requires the state to consider the administration to consider alternative energy systems in all new public works projects.

Through Feb. 3 the Senate Resources Committee had held two hearings on SB 220 with a third set for Feb. 11. The House Energy Committee had one hearing on HB 305 on Jan. 26 and scheduled a second, also on Feb. 11.

NEWS IN BRIEF

School construction bill moves forward

The Alaska Senate Education Committee recently approved extending the current school construction debt reimbursement program for another three years from Nov. 30, 2010 to Nov. 30, 2013.

The school construction debt reimbursement program has been in existence for more than 30 years with the objective to help provide high quality educational facilities for Alaska's students.

Co-chair Kevin Meyer, R-Anchorage, who is one of the sponsors of SB 237, announced "this program allows projects on the Department of Education and Early

Development's approved list to be reimbursed for up to 70 percent of their costs by the state. This way, local governments share in the cost of school construction they might not otherwise be able to afford without assistance."

Additionally, the announcement outlined in a letter from the Senate Education Committee stated that "by extending the program for three years, the bill will allow future reauthorizations to occur within the opening days of a new Legislature rather than during the waning days of a Legislature's second session."

PUBLIC SCOPING MEETINGS

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5:00-8:00pm

POINT HOPE
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5:00-7:00pm

POINT LAY
Monday, February 22, 2010
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Friday, February 19
5 p.m. - 7 p.m.

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Monday, February 19
7 p.m. - 9 p.m.

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Feb 11 & 18, 2010

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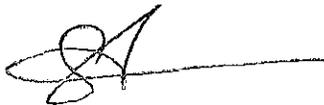
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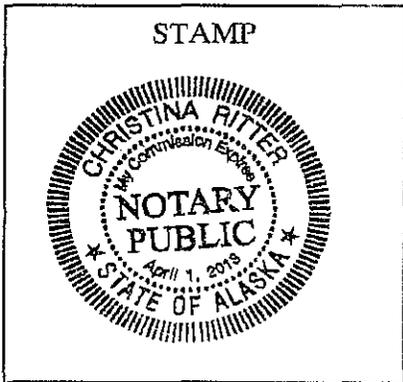
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SPELLERS OF DISTINCTION



Left: Northwest Arctic School District spelling bee champion Jenny Westlake of Klana is all smiles after her championship. Westlake will represent the district at the state spelling Bee on Feb. 26 in Anchorage.

Far left: Northwest Arctic School District spelling bee contestants (front row) Autumn Barr (Deering), Ember Eck (Kotzebue Middle School), Emily Hoke (June Nelson Elementary), Marlene Gray (Ambler), Billy Zibell (Noorvik) and (back row) Brack McDonald (Noatak), Jenny Westlake (Klana). Not pictured but participating via audio conference: Sarah Washington (Buckland), Cheyenne Davis (Selawik).

JAKE STOPS/COURTESY PHOTOS

HIGH SCHOOL BASKETBALL

Barrow boys win Valdez Elks Tournament

Whalers beat Nome 80-61 in Saturday's championship

VAN WILLIAMS
vwilliams@arcticnews.com

Eager to avenge a loss to arch rival Nome from seven days earlier, the Barrow boys basketball team didn't disappoint in the rematch.

This time around the Whalers controlled the action from the very beginning en route to a 70-61 victory in the championship game of last week's Valdez Elks Tournament.

Tournament MVP Tyler Adams pumped in 23 points, Albert Gerke added 18 points and Victor Unuina delivered a double-double with 14 points and 10 rebounds. The win improved Barrow's record to 16-2 on the year.

More importantly, though, it was the second victory over reigning state runner-up Nome in three games this season, a vast improvement from last season when the Whalers dropped three of four to the Nanooks.

"Confidence wise, it's good," Barrow coach Jeremy Arnhart said. "To get the finals we had to defeat some good teams. It was like a state tournament atmosphere as far as the caliber of teams there."

In the title tilt, Barrow extended its lead to 22-15 after Adams drilled a half-court shot at the first-quarter buzzer. The advantage was 36-26 at halftime, although the score was even in the second half.

Nome's player-of-the-year candidate Jeremy Head netted a game-high 35 points. Still, though, Arnhart was happy with how his team limited what his teammates could do.

"The thing I think that helped us win is we defended well," the coach said. "If we

want to be good and we can beat anybody, we have to defend well and we did that pretty much the whole tournament."

"We're not leveling off. We're getting better and better."

Arnhart was especially pleased with the aggressive mind-set Adams brought to the court, something he's been trying to get the 6-foot-1 junior guard to do more often.

"He was wanting the ball and taking the ball to the rim, not just becoming a 3-point shooter," the coach said. "He actually played a complete basketball game, especially against Cordova and Nome."

Against Cordova, Adams poured in a season-high 30 points, many of the late, to help Barrow rally from a double-digit deficit to win 63-55.

"He pretty much kept us in the game," Arnhart said.

In the semifinals, Barrow beat Houston 60-49 behind double-figure scorers Daniel Thomas (19) and Gerke (14).

Adams was quiet that game but he made lots of noise in the championship game against Nome, using his dribble penetration and cause breakdowns in the defense.

"It's handling the ball a lot, that allows us to get Albert down low where he can rebound and where he is more effective," Arnhart said. "When he penetrates, his vision is very good and he creates opportunities for a lot of players, and I think we got away from that earlier."

"For us to be good, that's the kind of style we need to play in the half-court set."

Barrow girls finish 2-1

The Lady Whalers weren't going to let a disappointment of losing the first game in overtime of the Valdez Elks Tournament.

So they took out their frustrations on Nome and Hutchison.

The Barrow girls bounced back after a tough OT loss to eventual champion North Pole to win two straight games and place third in the eight-team event.

Kivvaq Nungasak and Jaleen Simmonds were both named to the all-tournament team. Nungasak also was the 3-point winner after making the most 3-pointers in three games.

The Lady Whalers walked away with the Sportsmanship Award as well.

In the opener, North Pole beat Barrow 45-43 despite 17 points from Simmonds.

Barrow beat up Nome 67-34 to secure the No. 1 seed at the upcoming Western Conference regional tournament. The Lady Whalers put the game away with a 24-1 advantage in the second quarter.

Nungasak sank seven 3-pointers en route to scoring a season-high 27 points.

In the third-place game, Barrow beat Hutchison 52-40.

"We had a couple girls getting sick and played pretty poorly, but we found ways to score when it mattered," Barrow coach Ryan Meyers said.

Van Williams can be reached at 907-348-2452 or 800-770-9830, ext. 452.



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BARROW

Wed., March 10, 2010
Inupiat Heritage Center
7:30 p.m. - 9:30 p.m.

NUIQSUT

Thur., March 11, 2010
Community Center
7 p.m. - 9 p.m.

KAKTOVIK

Fri., March 12, 2010
Community Center
6:30 p.m. - 8:30 p.m.

3/4

Publisher's Affidavit

UNITED STATES OF AMERICA,

State Of Alaska

Second Division

SS:

Mary Straub, being first duly sworn on oath deposes and says:

That I am and was at all times herein this affidavit mentioned, Adman Assest

_____ of THE NOME NUGGET, a newspaper of general circulation and published

weekly at Nome, Second Division, State of Alaska, that

the Public Scoping Meeting
Wainwright, Barrow, Nekegait, Kaktovik

a printed copy of which is hereto annexed, was published in said paper once and every week for one successive

and consecutive weeks in the issues of the following dates:

March 1, 2010

Mary Straub

SUBSCRIBED and SWORN to before me this

4th day of March, 2010

NOTARY PUBLIC in and for the

State of Alaska.

02/07/12
My commission expires

Nancy G. Wallace

ALASKA NEWSPAPERS, INC.

301 CALISTA COURT, SUITE B
ANCHORAGE, ALASKA 99518-3028

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URS Corporation
Attn: Michelle Harper
P.O. Box 203970
Austin, TX 78720

Date: May 5, 2010
CASE/PO/AIO:
INVOICE(S): 031000381601
PAPER: ARCTIC SOUNDER

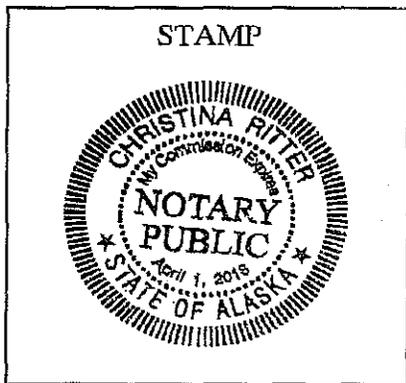
AFFIDAVIT OF PUBLICATION

UNITED STATES OF AMERICA, STATE OF ALASKA, THIRD DIVISION

BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC THIS DAY PERSONALLY APPEARED STACY N. DEACON WHO, BEING FIRST DULY SWORN, ACCORDING TO LAW, SAYS THAT SHE IS THE ADMINISTRATIVE ASSISTANT OF ALASKA NEWSPAPERS, INC. DBA THE ARCTIC SOUNDER PUBLISHED AT ANCHORAGE IN SAID DIVISION THREE AND STATE OF ALASKA AND THAT THE ADVERTISEMENT, OF WHICH THE ANNEXED IS A TRUE COPY, WAS PUBLISHED IN SAID PUBLICATION ON 3/4/2010 AND THEREAFTER FOR A TOTAL OF 1 CONSECUTIVE ISSUE(S), THE LAST PUBLICATION APPEARING ON 3/4/2010, AND THAT THE RATE CHARGED THEREON IS NOT IN EXCESS OF THE RATE CHARGED TO PRIVATE INDIVIDUALS.



STACY N. DEACON
ADMINISTRATIVE ASSISTANT, AK NEWSPAPERS INC.



SUBSCRIBED AND SWORN BEFORE ME ON
May 5, 2010


CHRISTINA RITTER
NOTARY PUBLIC FOR THE STATE OF ALASKA
MY COMMISSION EXPIRES ON APRIL 1, 2013



INVOICE

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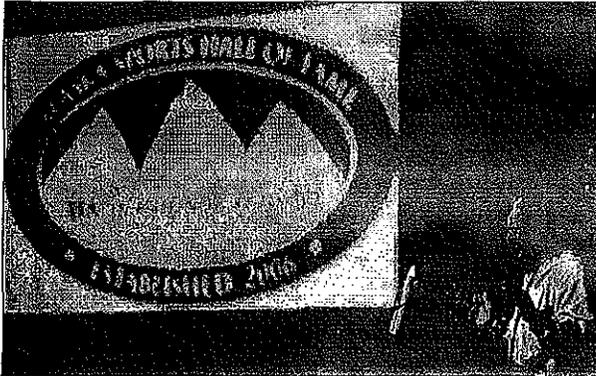
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Advertiser Name	URS CORPORATION	Issue Date	3/4/2010
Publication	The Arctic Sounder	Page Num	
Description	B&W , 2x6.5 , Display Ad.	Tears	2
Headline	Public Scoping 4-9-10	Affidavits	0
Column Inches	13.00	\$ per Column Inch	\$26.00

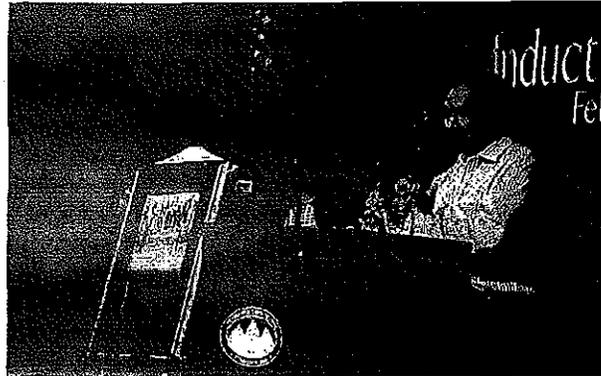
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Ad Cost for this Insertion :	\$338.00
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CELEBRATING BUSH SPORTSMEN



Reggio Jouto gives a speech during his induction to the Alaska Sports Hall of Fame during ceremonies in Anchorage on Feb. 25. Jouto's athletic feats in Native olympic games led to his nomination for this year's class.



Elliott Sampson's family accepted the award for him for the moment of his victory at the 1991 state high school cross-country championship. Sampson died in 2005. PHOTOS BY BETH SKABAR/ALASKA NEWSPAPERS

Lawmakers reduce goals for polar bear conference

Cost of species listing, PR assessment on agenda

ASSOCIATED PRESS

The federal listing of polar bears as a threatened species so outraged Alaska lawmakers, they considered spending more than a million dollars for a public relations effort to reverse the decision.

A request for proposals from public relations firms now has more modest goals: a conference assessing what the Endangered Species Act will cost Alaska, and whether a public relations campaign would be useful.

A legislative request for proposals from public relations firms was modified three times since mid-December. Proposals have been in hand since Jan. 20.

For a fee of up to \$1.5 million, lawmakers are looking for someone who can put on a conference in Anchorage, gather panelists

to speak on the effects of the ESA and recommend whether Alaska should embrace a public relations effort to counter its negative economic effects.

"We're not going to reverse the listing," said John Bittney, an aide to Rep. John Harris, chairman of the Legislative Council, which will make a decision on proposals. "I don't think we expected that."

With recent success by environmental groups petitioning for Alaska species to be listed, and seeking to block offshore petroleum exploration with lawsuits demanding that federal agencies do proper environmental reviews, Alaska lawmakers worry that the state's primary source of revenue is threatened.

As much as 90 percent of Alaska's general fund revenue is generated by the petroleum industry. Lawmakers fear restrictions to protect polar bears, Cook Inlet beluga whales or other listed species could diminish prospects for oil that could be shipped south through the 800-mile trans-Alaska

pipeline or for natural gas that could fill a proposed multibillion dollar pipeline.

Majority opinion

Majority lawmakers in the Alaska Legislature have been frank about their skepticism that polar bears are in danger from global warming, which they have characterized as a blip in the Earth's weather history. Both the House and Senate in 2007 passed resolutions urging the Bush administration to reject listing polar bears.

"The application for this listing is based on the unfounded, unproven scientific hypothesis that climate change is caused by human activity, in the form of increased release of carbon dioxide into the atmosphere," said Harris, who was House speaker at the time.

Lawmakers later appropriated money to back a petition filed by former Gov. Sarah Palin to reverse the listing.

Harris, who recently pulled out of the race for the GOP gubernatorial nomination, declined to be interviewed about the public relations contract. Bittney said Harris is reticent to speak about proposals under review.

A conference to review the polar bear listing process and the science behind it has been criticized as a sham with preordained conclusions.

The state's largest newspaper, the Anchorage Daily News, called it a public relations campaign likely to have credibility problems from the start. Kassie Siegel, the

Center for Biological Diversity attorney who drafted the petition to list polar bears, said lawmakers likely would tap into professional climate skeptics.

"It's been really well demonstrated that there's an orchestrated disinformation campaign to confuse people about climate change. There has been for years," she said.

The Legislature's first request called for a conference that would have drummed up ammo to be used by state attorneys in the polar bear lawsuit. Respondents were to outline how they would support the state's position, enlist the assistance of other states' wildlife agencies and help prepare testimony before Congress.

That may have strayed into the governor's jurisdiction, Bittney said, and the proposal request was modified.

The final version asks companies to evaluate whether a public relations campaign based on the conclusions reached by the conference panel could diminish negative economic effects of the Endangered Species Act.

The conference would still review how the federal government concluded polar bears are endangered. The state claims polar bears should not be listed because their numbers have not crashed.

Palin's view rejected

Palin raised the same issue. George W.

See Page 18, BEARS

 **PUBLIC SCOPING MEETINGS**
Effects of Oil and Gas Activities in the Arctic Ocean
Environmental Impact Statement

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) invites the public to open house and scoping meetings. NMFS is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas. Scoping comments must be received by April 9, 2010.

The public scoping meetings provide an opportunity to express your views and identify issues to address in the EIS process. The meetings will include background information on the proposed project as well as the EIS process. Each meeting will have an informational open house, followed by a presentation, and an opportunity to offer comments.

Please contact Michael Payne, NMFS Office of Protected Resources, (301) 713-2289 ext. 110 or visit the project website for more information: <http://www.nmfs.noaa.gov/protectedresources/eis/arctic.htm>

Requests for sign language interpretation or auxiliary aids should be made at least 7 days before the scheduled meeting to Sheyna Wisdom at (907) 261-6705 or Sheyna.Wisdom@urscorp.com.

WAINWRIGHT Tuesday, March 9, 2010 Community Center 7:00-9:00pm	NUQSUT Thursday, March 11, 2010 Community Center 7:00-9:00pm
BARROW Wednesday, March 10, 2010 Inupiat Heritage Center 7:30-9:30pm	KARTOVIK Friday, March 12, 2010 Community Center 6:30-8:30pm

BIRTH

Jaiden Ruth Panik-Bordeaux, Sharinda Teryn Bordeaux and Sammy Panik, of Wainwright, announce the birth of their daughter, Jaiden Ruth Panik-Bordeaux, at 10:10 a.m. Feb. 12, 2010, at the Samuel Simmons Memorial Hospital in Barrow. She weighed 8 pounds, 10.7 ounces and measured 21-1/2 inches. Her maternal great-grandmother is Elizabeth Hollingsworth, paternal great-grandparents are Sharron and Joe Kippi, maternal grandparents are Mary Ann Strickland and Arthur Bordeaux, and paternal grandparents are Ida and Jack Panik.

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745029	03/07/2010	26220558.	URSC0705	\$149.40				
	03/21/2010	26220558.	URSC0705	\$149.40				
				\$298.80	\$0.00	\$0.00	\$0.00	\$298.80

STATE OF ALASKA THIRD JUDICIAL DISTRICT

Shane Drew, being first duly sworn on oath deposes and says that he is an advertising representative of the Anchorage Daily News, a daily newspaper.

That said newspaper has been approved by the Third Judicial Court, Anchorage, Alaska, and it now and has been published in the English language continually as a daily newspaper in Anchorage, Alaska, and it is now and during all said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a copy of an advertisement as it was published in regular issues (and not in supplemental form) of said newspaper on the above dates and that such newspaper was regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is not in excess of the rate charged private individuals.

Signed Shane Drew

Subscribed and sworn to me before this date:

3/30/10

Notary Public in and for the State of Alaska.
Third Division. Anchorage, Alaska

MY COMMISSION EXPIRES: 12/17/13

Cynthia A. Grove





PUBLIC SCOPING MEETING
Effects of Oil and Gas Activities in the Arctic Ocean
Environmental Impact Statement

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) invites the public to an open house and scoping meeting to be held in Anchorage on Tuesday, March 23, 2010 at the Egan Center, 555 W. 5th Ave. from 7:00 to 9:00pm.

NMFS is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal incidental take authorizations to the oil and gas industry during offshore exploration activities (e.g., seismic surveys and exploratory drilling) in Federal and state waters of the U.S. Chukchi and Beaufort Seas. Scoping comments must be received by April 9, 2010.

The public scoping meeting provides an opportunity to express your views and identify issues to address in the EIS process. The meeting will include background information on the proposed project as well as the EIS process. There will be an informational open house, followed by a presentation, and an opportunity to offer comments. Please contact Michael Payne, NMFS Office of Protected Resources, (301) 713-2289 ext. 110 or visit the project website for more information: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

Requests for sign language interpretation or auxiliary aids should be made at least 7 days before the scheduled meeting to Sheyna Wisdom at (907) 261-6705 or Sheyna.Wisdom@urscorp.com.

Published: March 7 & 21, 2010

Press Release

Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement – Public Scoping Meetings

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is hosting several public scoping meetings focusing on a plan to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act (MMPA). These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Beaufort and Chukchi Seas. The first three scoping meetings will be held in Kotzebue on Thursday, February 18th, Point Hope on Friday, February 19th, and Point Lay on Monday, February 22nd. Additional scoping meetings in Wainwright, Barrow, Nuiqsut, Kaktovik and Anchorage will be held in March.

NMFS is serving as the lead agency for this Environmental Impact Statement (EIS). The U.S. Minerals Management Service (MMS) joins the effort as a cooperating agency. The EIS will analyze the environmental impacts to the physical, biological, and social resources from seismic activities and exploratory drilling. Methods to mitigate impacts will also be considered. In addition, the EIS will contain an analysis of secondary and cumulative effects of the alternatives.

NMFS issues ITAs to the oil and gas industry during offshore exploration activities (primarily seismic surveys and exploratory drilling). The term “take” under the MMPA means “to harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect.” In order to issue authorizations, NMFS must determine that the taking: 1) will have no more than a negligible impact on the species or stock(s), 2) will not have an adverse impact that cannot be mitigated regarding the availability of the species or stock(s) for subsistence uses (where relevant), and 3) the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are identified.

In 2007, MMS began a Draft Programmatic EIS to address the potential effects of concurrent offshore exploration activities and the potential for an increase in such activities. This EIS was altered because new information became available, such as scientific study results and changes in projections of levels of offshore activity. This led to the need for a new analysis, and the start of the Effects of Oil and Gas Activities in the Arctic Ocean EIS.

The scoping meetings provide an opportunity for the public to learn about the proposed action, express their views and concerns, and identify issues to be addressed in the EIS process.

KOTZEBUE	POINT HOPE	POINT LAY
February 18, 2010	February 19, 2010	February 22, 2010
Arctic Borough Assembly Chambers	Point Hope Community Center	Point Lay Community Center
6:00-8:00pm	5:00-7:00pm	7:00-9:00pm

Each meeting will have an informational open house, followed by a presentation, and an opportunity for the public to ask questions and offer comments.

News Release – Arctic Sounder and Nome Nugget

Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement – Public Scoping Meetings

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) is hosting several public scoping meetings focusing on a plan to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act (MMPA). These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Beaufort and Chukchi Seas. Scoping meetings will be held in Wainwright on Tuesday, March 9th, Barrow on Wednesday, March 10th, Nuiqsut on Thursday, March 11th, and Kaktovik on Friday, March 12th. Three scoping meetings were held in February in Kotzebue, Point Hope, and Point Lay. A scoping meeting will also be held in Anchorage on March 23rd.

NMFS is serving as the lead agency for this Environmental Impact Statement (EIS). The U.S. Minerals Management Service (MMS) joins the effort as a cooperating agency. The EIS will analyze the environmental impacts to the physical, biological, and social resources from seismic activities and exploratory drilling. Methods to mitigate impacts will also be considered. In addition, the EIS will contain an analysis of secondary and cumulative effects of the alternatives.

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Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement – Public Scoping Meetings

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NMFS is serving as the lead agency for this Environmental Impact Statement (EIS). The U.S. Minerals Management Service (MMS) joins the effort as a cooperating agency. The EIS will analyze the environmental impacts to the physical, biological, and social resources from seismic activities and exploratory drilling. Methods to mitigate impacts will also be considered. In addition, the EIS will contain an analysis of secondary and cumulative effects of the alternatives.

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Please contact Michael Payne, NMFS Office of Protected Resources, (301) 713-2289 ext. 110 or visit the project website for more information:
<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm> .

Online Advertisements

Submit to Peg Tileston pegt@gci.net

February 18

KOTZEBUE - An Open House/Public Scoping Meeting will be held from 6:00 p.m. to 8:00 p.m. at the Northwest Arctic Borough Assembly Chambers. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit:

<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

February 19

POINT HOPE – An Open House/Public Scoping Meeting will be held from 5:00 p.m. to 7:00 p.m. at the Point Hope Community Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

February 22

POINT LAY – An Open House/Public Scoping Meeting will be held from 7:00 p.m. to 9:00 p.m. at the Point Lay Community Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

Submit to Peg Tileston pegt@gci.net

March 9

WAINWRIGHT - An Open House/Public Scoping Meeting will be held from 7:00 p.m. to 9:00 p.m. at the Wainwright Community Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

March 10

BARROW – An Open House/Public Scoping Meeting will be held from 7:30 p.m. to 9:30 p.m. at the Inupiat Heritage Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

March 11

NUIQSUT – An Open House/Public Scoping Meeting will be held from 7:00 p.m. to 9:00 p.m. at the Nuiqsut Community Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

March 12

KAKTOVIK – An Open House/Public Scoping Meeting will be held from 6:30 p.m. to 8:30 p.m. at the Kaktovik Community Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

March 23

ANCHORAGE – An Open House/Public Scoping Meeting will be held from 7:00 p.m. to 9:00 p.m. at the Egan Center. The National Marine Fisheries Service (NMFS) is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act. These

authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas. The meeting will present background information on the proposed action to issue ITAs and an overview of the EIS process. For more information, visit: <http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>.

Radio Public Service Announcement



560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

**TO: Director of Public Service
Announcements**

FROM: Amy Lewis

FIRM: KOTZ

DATE: February 10, 2010

FAX NO: (907) 442-2292

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

This fax includes an announcement for a scoping meeting to be held for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement in Kotzebue on February 18th from 6:00 p.m. to 8:00 p.m.

If it is possible, please announce the location and time of the meeting on KOTZ, particularly on the day of the meeting. If there are any questions, please call me at 503-948-7223 or Joan Kluwe at 907-374-0303.

Thank you,

Amy Lewis
URS Corporation

CONFIDENTIALITY NOTICE

The information in this facsimile transmission is intended solely for the stated recipient of this transmission. If you have received this fax in error, please notify the sender immediately by telephone. If you are not the intended recipient, please be advised the dissemination, distribution, or copying of the information contained in this fax is strictly prohibited.

Public Service Announcement

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) invites you to an open house and public scoping meeting. NMFS is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

A Public scoping meeting will be held in **Kotzebue** on **Thursday, February 18th, 2010**.

The public scoping meetings provide an opportunity to learn about the project, express your views, and identify issues to be addressed in the EIS process. Each meeting will have an informational open house, followed by a presentation, and an opportunity to offer comments.

- **The meeting in Kotzebue on Thursday, February 18th will be held at the Northwest Arctic Borough Assembly Chambers from 6:00-8:00pm.**

Please come join us!



560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

**TO: Director of Public Service
Announcements**

FROM: Amy Lewis

FIRM: KBRW

DATE: February 10, 2010

FAX NO: (907) 852-2274

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

This fax includes an announcement for scoping meetings to be held for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement in Point Hope on February 19th, and Point Lay on February 22nd. The meeting time in Point Hope from 5:00 p.m. to 7:00 p.m, and in Point Lay is from 7:00 p.m. to 9:00 p.m.

If it is possible, please announce the locations and times of the meetings on KBRW, K268AA and K201AV, particularly on the days of the meetings. If there are any questions, please call me at 503-948-7223 or Joan Kluwe at 907-374-0303.

Thank you,

Amy Lewis
URS Corporation

CONFIDENTIALITY NOTICE

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560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

TO: Candace Weidler

FROM: Amy Lewis

FIRM: KICY 850 AM

DATE: February 10, 2010

FAX NO: (907) 443-2344

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

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Thank you,

Amy Lewis
URS Corporation

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560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

TO: Laurell Kinneen

FROM: Amy Lewis

FIRM: KNOM 780 AM

DATE: February 10, 2010

FAX NO: (907) 443-5757

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

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Thank you,

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Public Service Announcement

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) invites you to open house and public scoping meetings. NMFS is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

Public scoping meetings will be held in **Point Hope** on **Friday, February 19th**, and **Point Lay** on **Monday, February 22nd**.

The public scoping meetings provide an opportunity to learn about the project, express your views, and identify issues to be addressed in the EIS process. Each meeting will have an informational open house, followed by a presentation, and an opportunity to offer comments.

- **The meeting in Point Hope on Friday, February 19th will be held at the Point Hope Community Center from 5:00-7:00pm.**
- **The meeting in Point Lay on Monday, February 22nd will be held at the Point Lay Community Center from 7:00-9:00pm.**

Please come join us!



560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

**TO: Director of Public Service
Announcements**

FROM: Amy Lewis

FIRM: KBRW

DATE: March 3, 2010

FAX NO: (907) 852-2274

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

This fax includes an announcement for scoping meetings to be held for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement. Meetings will be held in Wainwright, Barrow, Nuiqsut, and Kaktovik.

If it is possible, please announce the locations and times of the meetings on KBRW, K201AG and K201AH, particularly on the days of the meetings. If there are any questions, please call me at 503-948-7223 or Joan Kluwe at 907-374-0303.

Thank you,

Amy Lewis
URS Corporation

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Public scoping meetings will be held in **Wainwright, Barrow, Nuiqsut, and Kaktovik.**

The public scoping meetings provide an opportunity to learn about the project, express your views, and identify issues to be addressed in the EIS process. Each meeting will have an informational open house, followed by a presentation, and an opportunity to offer comments.

- **The meeting in Wainwright on Tuesday, March 9th will be held at the Wainwright Community Center from 7:00-9:00pm.**
- **The meeting in Barrow on Wednesday, March 10th will be held at the Inupiat Heritage Center from 7:30-9:30pm.**
- **The meeting in Nuiqsut on Thursday, March 11th will be held at the Nuiqsut Community Center from 7:00-9:00pm.**
- **The meeting in Kaktovik on Friday, March 12th will be held at the Kaktovik Community Center from 6:30-8:30pm.**

Please come join us!



560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

TO: Director of PSAs

FROM: Amy Lewis (503) 948-7223

FIRM: KBRJ and KMXS – Anchorage Media Group

DATE: March 5, 2010

FAX NO: (907) 275-2292

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

This fax includes an announcement for a scoping meeting to be held for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement. The meeting will be held in Anchorage on Tuesday March 23 at the Eagan Center. The meeting time is from 7:00 p.m. to 9:00 p.m.

If it is possible, please announce the location and time of the meeting on KBRJ and KMXS, particularly on the day of the meeting. If there are any questions, please call me at 503-948-7223 or Joan Kluwe at 907-374-0303.

Thank you,

Amy Lewis
URS Corporation

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560 E. 34th Ave., Suite 100
ANCHORAGE, ALASKA 99501
TEL: (907) 562-3366 FAX (907) 562-1297

TO: Director of PSAs

FROM: Amy Lewis (503) 948-7223

FIRM: KSKA

DATE: March 5, 2010

FAX NO: (907) 550-8403

PAGE: 1 of 2

SUBJECT: Scoping Meeting Announcement for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement

MEMO: **PSA ANNOUNCEMENT**

Hello,

This fax includes an announcement for a scoping meeting to be held for the Effects of Oil and Gas Activities in the Arctic Ocean Environmental Impact Statement. The meeting will be held in Anchorage on Tuesday March 23 at the Eagan Center. The meeting time is from 7:00 p.m. to 9:00 p.m.

If it is possible, please announce the location and time of the meeting on KSKA, particularly on the day of the meeting. If there are any questions, please call me at 503-948-7223 or Joan Kluwe at 907-374-0303.

Thank you,

Amy Lewis
URS Corporation

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Public Service Announcement

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) invites you to an open house and public scoping meeting. NMFS is preparing an Environmental Impact Statement (EIS) to analyze the impacts of issuing marine mammal Incidental Take Authorizations under the Marine Mammal Protection Act. These authorizations are issued to the oil and gas industry during offshore exploration activities, such as seismic surveys or exploratory drilling, that take place in Federal and state waters of the U.S. Chukchi and Beaufort Seas.

A public scoping meeting will be held in **Anchorage** on Tuesday, **March 23, 2010** at the Egan Center, 555 W. 5th Ave. from **7:00 to 9:00pm.**

The public scoping meeting provides an opportunity to learn about the project, express your views, and identify issues to be addressed in the EIS process. The meeting will have an informational open house, followed by a presentation, and an opportunity to offer comments.

Please come join us!

APPENDIX B

Public Scoping Meeting Materials

Presentation

Display Boards

Sign In Sheets

Presentation

Environmental Impact Statement on Effects of Oil & Gas Activities (Seismic and Exploratory Drilling) in the Arctic Ocean

**Public Scoping Meeting
Anchorage, AK
March 23, 2010**



Welcome and Introductions

National Marine Fisheries Service

Jim Lecky
Michael Payne
Jolie Harrison
Candace Nachman
Shane Guan

Minerals Management Service

John Goll
Jeffery Loman
Kimberly Skrupky

URS

Jon Isaacs
Joan Kluwe
Sheyna Wisdom
Amy Lewis



Scoping Meeting Agenda

- Information on Scoping Process
- Review of Proposed Action
- NEPA Process
- Activities covered by EIS
- Issues and Concerns
- Next Steps
- Public Comment Period



Statement of Intent

- Analyze the environmental impacts of issuing Incidental Take Authorizations (ITAs) pursuant to sections 101(a)(5)(A) and (D) of the Marine Mammal Protection Act (MMPA)
- Issue ITAs to the oil and gas industry for the taking of marine mammals incidental to offshore exploration activities in Federal and state waters of the U.S. Chukchi and Beaufort Seas



MMPA Definitions

- *Take* = to harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect
- *Harassment* = any act of pursuit, torment, or annoyance which:
 - has the potential to injure (Level A)
 - has the potential to disturb by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B)



Purpose of NEPA

The National Environmental Policy Act (NEPA) promotes efforts to:

- Minimize impacts to the environment, including the human environment
- Assess environmental impacts of proposed action and a reasonable range of alternatives
- Solicit public comments on issues and alternatives during scoping process



Proposed Action

- Authorize incidental takes allowing industry “the incidental, but not intentional, taking of small numbers of marine mammals” within the Chukchi and Beaufort Seas
- NMFS and MMS must understand consequences of this action on the environment before issuing authorizations
 - Effects on marine mammal species or stocks
 - Effects on communities and subsistence



Requirements of MMPA

Authorizations shall be granted if:

- taking will have a negligible impact on the species or stock(s)
- taking will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses
- the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are set forth



Previous NEPA Documents

- June 28, 2006 – MMS Programmatic Environmental Assessment (PEA) for 2006 Arctic OCS seismic surveys
 - Analyzed effects of 8 concurrent surveys in Beaufort and Chukchi Seas (4 in each planning area)
 - NMFS indicated increased activity and new available science would warrant an EIS
- April 6, 2007 – NMFS and MMS published Draft Programmatic EIS (DPEIS)



Why is new EIS needed?

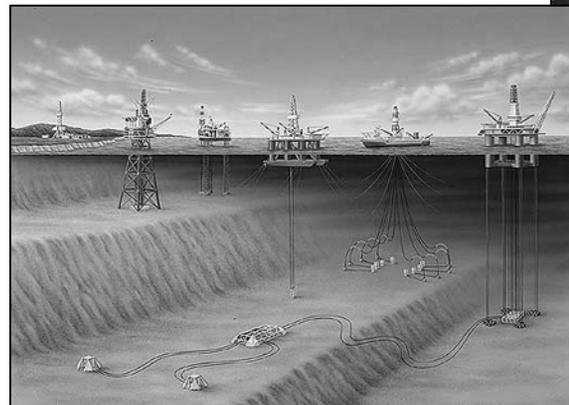
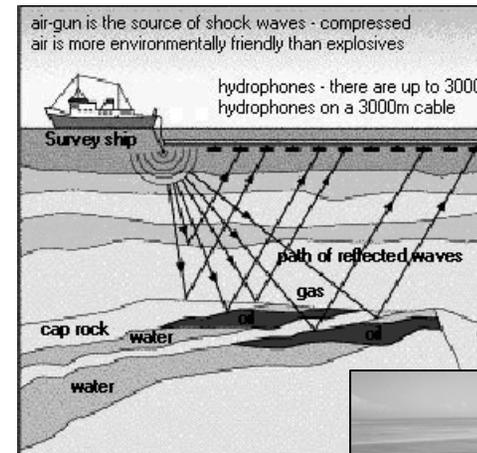
- New information that alters scope, alternatives, and analyses
- Industry suggests increased seismic activity
- Applications have been received for exploratory drilling
- Cumulative impact analysis to address a longer time frame
 - October 2009 – 2007 EIS withdrawn
 - February 2010 – NMFS announces notice of intent to prepare new EIS

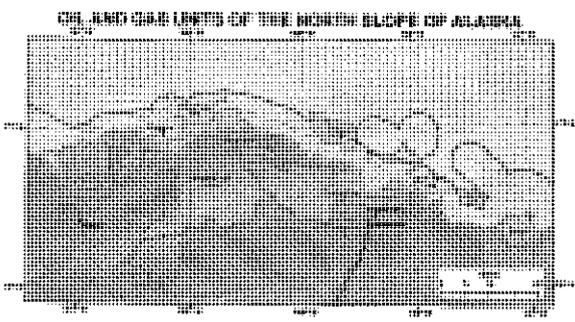
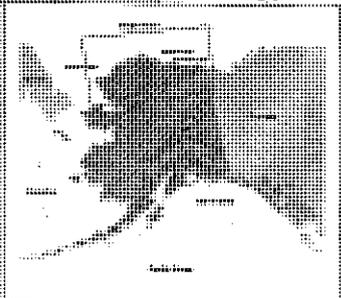
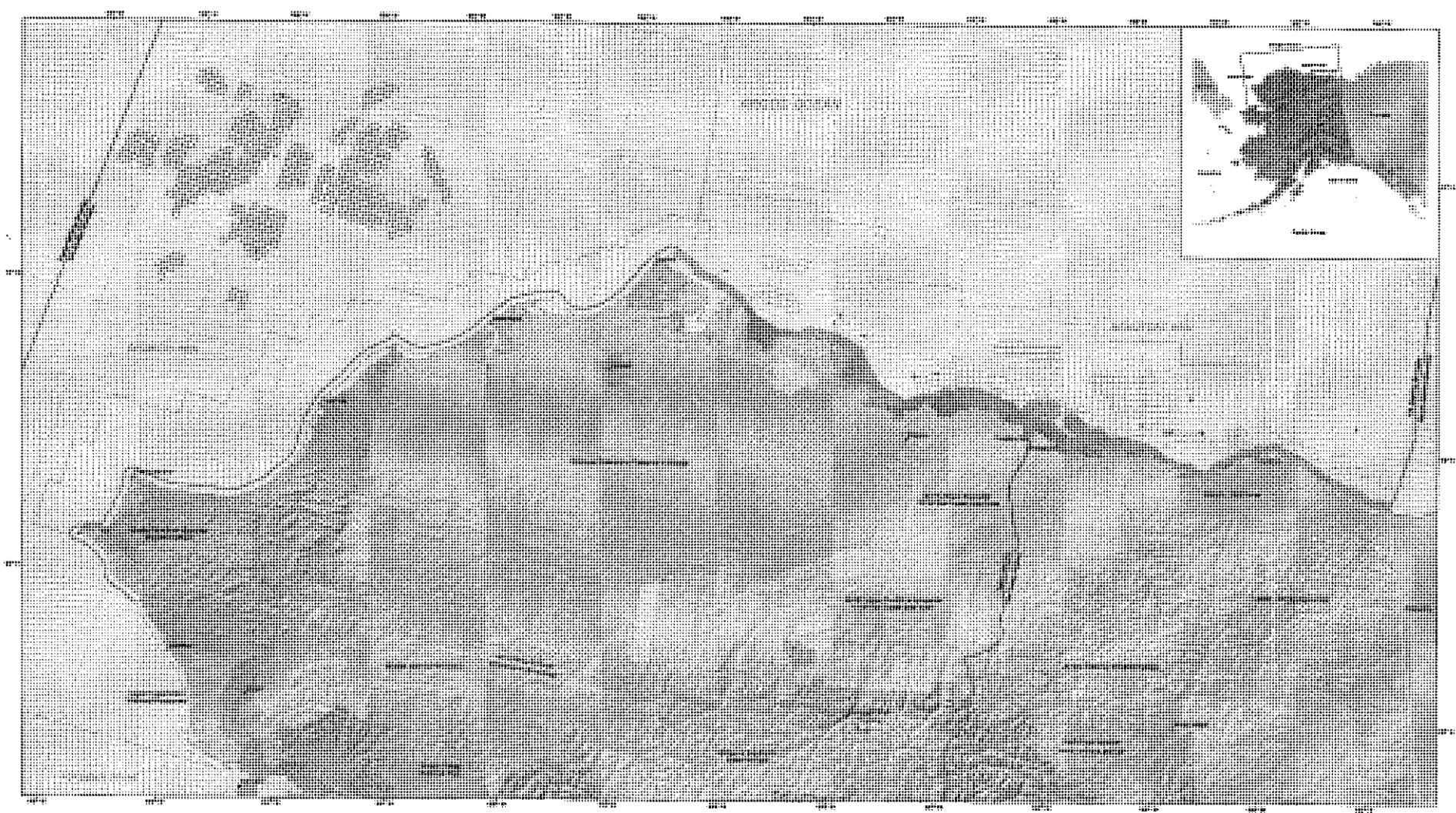


What will EIS include?

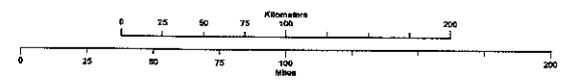
Exploratory activities

- Shallow hazard/site clearance surveys
- 2D/3D seismic surveys
- Exploratory drilling





FEDERAL AND STATE OFFSHORE OIL & GAS LEASES BEAUFORT & CHUKCHI SEAS



Map Symbols

- Offshore Oil & Gas Wells
- Federal/State Maritime Boundary (3-Miles Offshore)
- Active State Leases (As of December 1, 2006)
- Beaufort Sea Available State Leases
- Beaufort Sea Lease Sale Boundary
- Active Federal Leases
- Pending Federal Leases
- Beaufort and Chukchi Federal Lease Sale Boundary
- Onshore Oil & Gas Lease Sale Areas
- Federal Administrative Areas

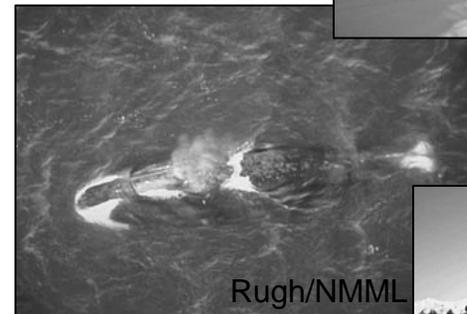
COORDINATE SYSTEM:
NAD 1983 UTM, Zone 18N
Projection: Transverse Mercator
False Easting: 600000.000000
False Northing: 0.000000
Central Meridian: -147.000000
Scale Factor: 0.999600
Latitude of Origin: 0.000000
Linear Unit: Meter

DATA SOURCES:
ANR-DOG (2006): State Lease Boundaries & Tracts; Oil & Gas Well Locations; State & Federal Lands
MMS (2007): Offshore Lease Boundaries & Tracts; 3-Mile Offshore Boundary; Continental Shelf Boundary

Map Project: Federal/26220669 - NWS TO 10 Arctic Science & Drilling PE/26220669/Offshore O&G Lease Map.mxd

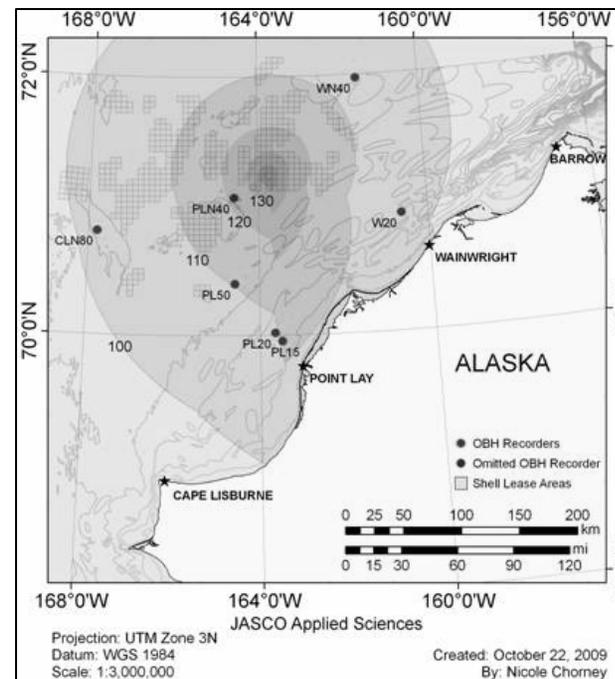
What will EIS include?

- Consider Impacts on Resources
 - Physical
 - Biological
 - Social
- Types of Impacts
 - Direct and Indirect
 - Short and Long-term
 - Cumulative



Impacts on Physical

- Physical Oceanography
 - Sea Ice
 - Water Column/Water Quality
 - Sediments
- Climate
- Air Quality
- Acoustics



Impacts on Biological

- Marine mammals
- Seabirds
- Other marine species
 - Marine fish
 - Plankton
 - Benthic
- Threatened and Endangered



Impacts on Sociocultural

- Coastal communities
- Subsistence uses
- Historic and cultural sites
- Inupiat way of life
- Human health
- Land and water use
- Transportation
- Recreation and tourism
- Visual
- Environmental Justice



Development of Alternatives

- Input from scoping process
- Levels of Activity
(Number, scale/size, location, and duration of):
 - seismic activities
 - exploratory drilling activities
 - shallow hazard/site clearance activities
 - anticipated support activities (vessel, aircraft, shore)



Development of Alternatives

- Mitigation

- Exclusion zones based on received levels of sound
- Exclusion zones based on presence of specific biological factors in combination with received levels of sound
- Exclusion zones based on presence and timing of subsistence activities
- Time/area closures for biological and subsistence reasons



Issues and Concerns

- Protection of subsistence resources and Inupiat culture and way of life
- Disturbance to marine mammal migration patterns (bowhead, beluga, etc.)
- Impacts on marine fish, reproduction, growth, and development
- Oil and gas activity impacts on marine mammals and seabirds, including noise, movement, operations



Issues and Concerns (cont.)

- Impacts to threatened & endangered species (including polar bear, walrus)
- Incorporation of Traditional Knowledge in the decision-making process
- Effectiveness and feasibility of marine mammal monitoring and other mitigation measures
- Provide adequate lead time for communities to understand activities and respond



Requesting Information

- Effects of oil and gas seismic and exploration on:
 - marine mammal behavior and use of habitat
 - availability of species for subsistence uses and success of subsistence harvesting
- New Arctic ecosystem science
- New technology for monitoring seismic/drilling activity
- Recommendations for monitoring and mitigation



Option for Rulemaking

- NMFS is considering a long-term planning process under MMPA for 5-year regulations
 - Rather than annual Incidental Harassment Authorization (IHA)
 - Industry will submit petition
 - Implementation goal is 2012
 - EIS would provide NEPA compliance with either annual or 5-year ITAs



Next Steps in EIS Process

- Review comments received during meetings and comment period
- Issue scoping report
- Develop alternatives based on comments
- Prepare Draft EIS
 - Describe environment affected by proposed action
 - Evaluate environmental consequences of proposed action
 - Release Draft EIS for public comment
(*estimated* December 2010)
 - Public comment period (*estimated* through March 2011)
- Prepare Final EIS (June 2011)



Scoping Meeting Locations

- February 18 – Kotzebue
- February 19 – Point Hope
- February 22 – Point Lay
- March 9 – Wainwright
- March 10 – Barrow
- March 11 – Nuiqsut
- March 12 – Kaktovik
- March 23 – Anchorage



Scoping Meeting Procedures

- Oral Comments
 - Please sign in at the registration table
 - Please be concise
 - Transcripts of today's meeting are being captured by a court reporter



Scoping Meeting Procedures

- Written Comments

- Comments due no later than April 9, 2010
- May be turned in today, mailed, e-mailed, or faxed
- Submit e-mail comments to: *arcticeis.comments@noaa.gov*
- Submit written comments to:

Michael Payne
NOAA/NMFS
Office of Protected Resources
Permits and Conservation Division
1315 East-West Highway
Silver Spring, MD 20910
Fax: (301) 713-0376



Additional Information

- Available on NMFS web page:

<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>

- To receive a copy of the DEIS, please register and indicate your interest. The DEIS will also be posted on the website for electronic review.



Thank You for Participating

in the
Effects of Oil and Gas Activities
(Seismic Surveys and Exploratory Drilling)
in the Arctic Ocean
Scoping Process

Display Boards

WELCOME!

Environmental Impact Statement
on Effects of Oil & Gas Activities
(Seismic and Exploratory Drilling)
in the Arctic Ocean

Public Scoping Meeting



Office of Protected Resources



NOAA Fisheries

National Marine Fisheries Service

Arctic EIS Objectives

- What is purpose of Arctic EIS?
 - Analyze the environmental impacts of issuing Incidental Take Authorizations (ITAs) pursuant to sections 101(a)(5)(A) and (D) of the Marine Mammal Protection Act (MMPA)
 - Issue ITAs to the oil and gas industry for the taking of marine mammals incidental to offshore exploration activities in Federal and state waters of the U.S. Chukchi and Beaufort Seas

- Authorizations shall be granted if:
 - taking will have a negligible impact on the species or stock(s)
 - taking will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses
 - the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such takings are set forth



Purpose of NEPA

The National Environmental Policy Act (NEPA) promotes efforts to:

- Prevent damage to environment, including the human environment
- Assess environmental impacts of proposed action and a reasonable range of alternatives
- Solicit public comments on issues and alternatives during scoping process

Proposed Action

- Authorize incidental takes allowing industry “the incidental, but not intentional, taking of small numbers of marine mammals” within the U.S. Chukchi and Beaufort Seas
- Understand consequences of this action on the environment before issuing authorizations
 - Effects on marine mammal species or stock(s)
 - Effects on communities and subsistence



Development of Alternatives

- **Levels of Activity**
(Number, scale/size, location, and duration of):
 - seismic activities
 - exploratory drilling activities
 - shallow hazard/site clearance activities
 - anticipated support activities (vessel, aircraft, shore)
- **Mitigation**
 - Exclusion zones based on received levels of sound
 - Exclusion zones based on presence of specific biological factors in combination with received levels of sound
 - Exclusion zones based on presence and timing of subsistence activities
 - Time/area closures for biological and subsistence reasons



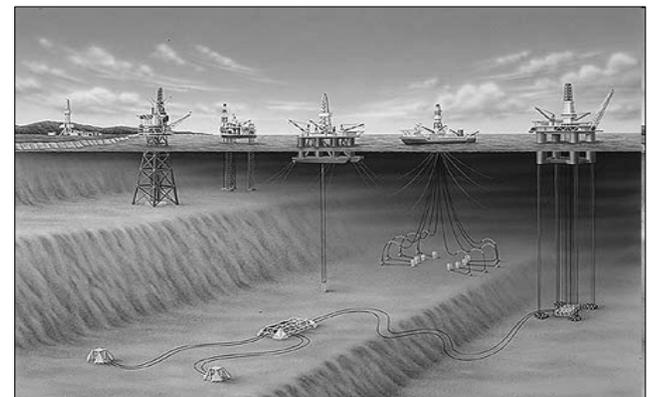
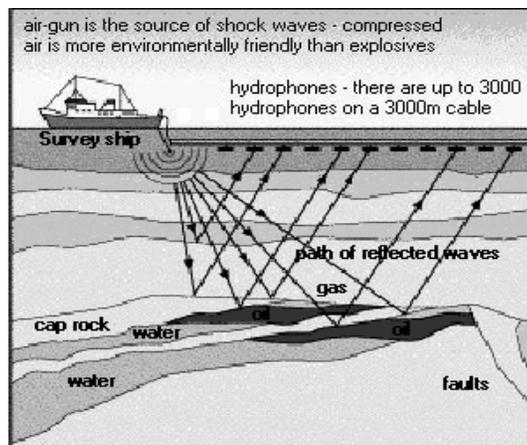
What will EIS include?

■ Activities

- Shallow hazard/site clearance surveys
- 2D/3D seismic surveys
- Exploratory drilling

■ Types of Impacts

- Direct and Indirect
- Short and Long-term
- Cumulative (past, present, reasonably foreseeable future)



What will EIS include?

Impacts

Physical Resources

Physical Oceanography

Sea Ice

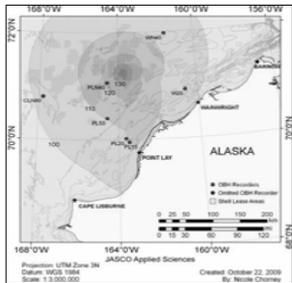
Water Column/Water Quality

Sediments

Climate

Air Quality

Acoustics



Sociocultural Resources

Subsistence Uses

Coastal Communities

Historic Sites

Human Health

Transportation

Land Use

Visual

Recreation & Tourism

Environmental Justice



Biological Resources

Marine Mammals



Seabirds

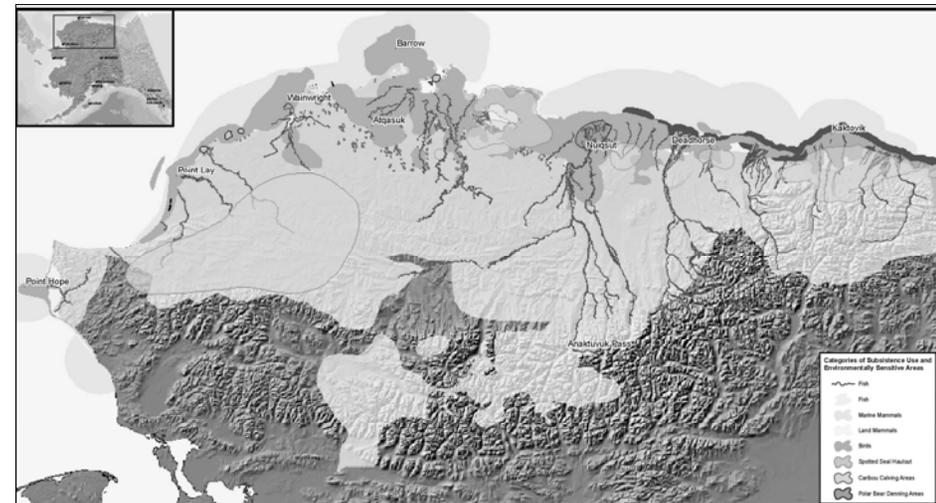
Marine Fish

Plankton

Benthic

Terrestrial Wildlife

Threatened & Endangered



Steps in the NEPA Process

1	Federal Notice of Intent (NOI) February 8, 2010
2	Scoping Scoping period: February 8 to April 9, 2010 Public Scoping Meetings: February 18 to March 23, 2010 Scoping Report, Estimated: May 2010
3	Analysis of Alternatives
4	NMFS Selects Preferred Alternative
5	Issue Draft EIS Estimated release: mid-December 2010 Available for 45-day public review, through early February 2011
6	Public Hearing on Draft EIS Estimated: January 2011
7	Public Comment Review and Synthesis Comment Analysis Report Available, Estimated: March 2011
8	Respond to Comments/Prepare Final EIS Estimated: June 2011
9	Issue Final EIS Estimated: late June 2011, Minimum 30-day public review
10	Record of Decision Public statements of agency decisions Estimated: July 2011

Scoping Meeting Schedule

- February 18 – Kotzebue
- February 19 – Point Hope
- February 22 – Point Lay
- March 9 – Wainwright
- March 10 – Barrow
- March 11 – Nuiqsut
- March 12 – Kaktovik
- March 23 – Anchorage



How can you participate?

■ Oral Comments

- Please sign in at the registration table
- Please keep comments to 4 minutes
- Transcripts of today's meeting are being captured by a court reporter



■ Written Comments

- Comments due no later than April 9, 2010
- May be turned in today, mailed, e-mailed, or faxed
- Submit e-mail comments to: *arcticeis.comments@noaa.gov*
- Submit written comments to:

Michael Payne
NOAA/NMFS
Office of Protected Resources
Permits, Conservation, and Education Division
1315 East-West Highway
Silver Spring, MD 20910
Fax: (301) 713-0376

Project web page:

<http://www.nmfs.noaa.gov/pr/permits/eis/arctic.htm>



Sign-in Sheets



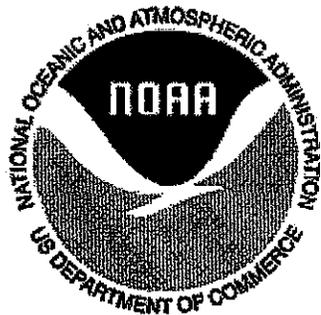
NMFS
EFFECTS OF OIL AND GAS ACTIVITIES ON ARCTIC OCEAN EIS
PROJECT SCOPING MEETING

①

URS

Anchorage
 March 23, 2010
SIGN-IN SHEET

PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Mike Levine	Oceana			yes
DAVID DICKSON	ALASKA WILDERNESS LEAGUE			YES
Eleanor Huffines	PEW			YES
Marilyn Herman	Pew			



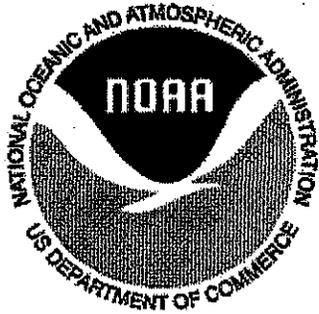
(2)

NMFS
EFFECTS OF OIL AND GAS ACTIVITIES ON ARCTIC OCEAN EIS
PROJECT SCOPING MEETING

URS

Anchorage
 March 23, 2010
SIGN-IN SHEET

PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Chris Krenz	Oceana (Scientist)			yes
William G. Kelly Jr. 1850 Fall Line Dr. Driggs, ID 83422	Center for Regulatory Effectiveness			yes
JEFF CHILDS	←			yes
Sarah Rider	NAVFAC Atlantic Biologist			no



NMFS
EFFECTS OF OIL AND GAS ACTIVITIES ON ARCTIC OCEAN EIS
PROJECT SCOPING MEETING

Anchorage
March 23, 2010
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Jennifer Nist	NOAA GC			
Shane Guan	NMFS			
Stewart Seaberg	ASRC Energy Services			
Nicole Whittington Evans	The Wilderness Society			



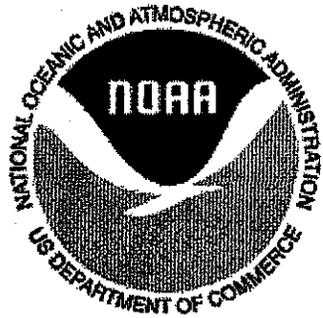
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Roychelle Daniel	PEW			
ANDREW HARTSIG	OCEAN CONSERVANCY			YES
DUNCAN ELEY	POLARUS			n.
Michael Galguitis	Applied Sociocultural Research			no



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
<i>Lucas Frances</i>	<i>Shell</i>			<i>n</i>
<i>Carl Portman</i>	<i>RDC</i>			<i>yes</i>
<i>Marilyn Crockett</i>	<i>AOGA</i>			<i>yes</i>
<i>Robert Snyder</i>	<i>NSR</i>			<i>yes</i>



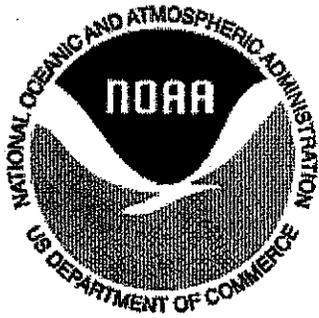
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Jeff Johnson 900 E. Benson MATOG 9-2 Anchorage 99508	BP			
Emily Lindow	NOAA			
Evel KINGUK	NUPHO Point Hope			
SARAH TSOFLIAS	IAGC geologist			

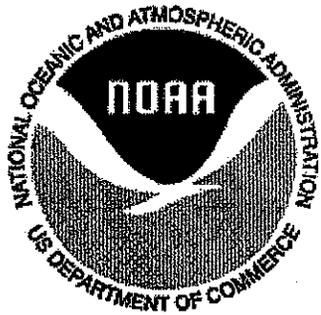


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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Janet Clarke				
Dave Rugh	NMML, NMFS			
Lisa Baraff	URS			
KEW BOLD	STAG VL			No



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Jolie Harrison NAMES	NMFS			N
Anne Southam	ERM			N
KARIN BERENTSEN	STATOIL			N
Charles Greene Greenridge Sciences 6160-C Walden Road Santa Barbara CA 93117	Greenridge Sciences			N



(9)

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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Brandon Southall 911 Center Street Suite B Santa Cruz CA 95060	SEA, Inc. more scrubst			yes
MARTIN COHEN 2301B HAZARD STREET, HOUSTON, TX 77019.	STATOIL (EXPLORATION MGR.)			No.
Wayne Wooster 2700 Gambell St, Ste 200 Anchorage, AK 99503	ASRC Energy Services			NO
Cary N Rea 7041 Potter Heights Anchorage, AK 99516				N



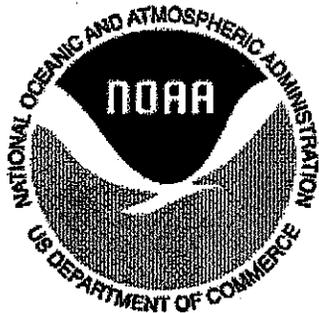
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
STEINAR ELDOY STATOIL, N-4035 Starang	Statoil			?
Tom BOYD URS 504 34th AVE ANCH. AK	URS			
BRUCE ST. PIERRE CONOCO PHILLIPS, AK 700 G ₂ ST. ANCH. AK 99501	CONOCO PHILLIPS			YES.
Bill Koski	LGL LTD			
Darren Ireland	LGL AK			



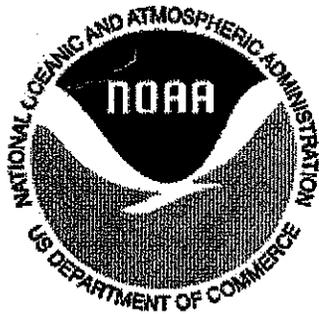
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Craig Peiser 1101 E 76th Ave Suite B Anchorage, AK 99518	LGL Biologist			?
Craig George	NSB			
Eric Myers	Audubon Alaska			
John Hopson Jr	Wainwright			Yes
David Hannay	JASCO Acoustician			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Michael Link Nale Funk	LGL LGL	[REDACTED]	[REDACTED]	~ ~



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
NEIL BGSIF P.O. BOX 501 Dellingham, WA, 98227				
Brienne Ehlers P.O. Box 1774 Barrow, AK 99723	NSB			
Jessica Doyle Box 1872 Barrow AK	NSB Census			
Johnnie Kung Brower	Self			
Charles Okubok Tupig Nation	Self Tupig Nation			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?	
Rachel Edwards Box 694 Barrow, AK 99723	Univisual Films Director				
Shawna Larson 308 G Street, #202 Anch. AK 99501	Pacific Environment				
Emma Hopson Box 1677 Barrow, AK					
Adeline Hopson Box 172 Barrow, AK 99723	Self				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT NO?
Rick L Rice PO Box 1230 BRW 99723	self			
Jana Herremon PO Box 69 Barrow, AK 99703	NSB Wildlife Dept.			
Edward Iitta PO Box 49 BRW, AK 99723	NSB Mayor			
Karla Kolash PO Box 69 BRW, 99723	NSB Mayor's Office			
Ben Albers 1115 N. Forest #4 Bellingham, WA 98225	self			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
DAVE ANDERSON PO BOX 1510 BARROW AK 99723				?
Jim Salzwedel PO BOX 1535 BARROW				
B. Ristorph PO BOX 69 BRW	NSB Law Dept			no
P. Leavitt, Sr Box 934 ICAS Barrow, AK 99723	ICAS			yes
Todd Stormo PO BOX 1821 Barrow AK 99723	DWM			no.



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
HANS NEIDIG	Eni Petroleum			NO
Debby Edwardson	Ilisagvik colleg			
George Edwardson	ICAS			
BEN GREENE	NSB PLANNING			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Geoff Carroll	ADFG	[REDACTED]	[REDACTED]	
Ryan Lee Oyagak P.O. Box 1178	self			
Kelly McFarlin PO Box 266	University of Alaska PhD student			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Nora Jane Burns PO Box 101 Kaktovik AK 99747				
Jennifer & Art Smith				2
LEE KAYOTUK				
Carla Sims Kayotuk 16 99747				✓

* send copy of presentation



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Pete Velsko				?
Jim Gadamus				
Matthew Rexford	City of Kaktovik Board Member			
Edward Rexford	N.V.K.			
Harry Lord	Universal Intel			✓



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
FENTON REXFORD Box 130	NATIVE Village of Kaktovik			yes
GEORGE KALEAKSK	IASRC			
Leonae Akootchook				
Marie Rexford	Resident			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Caleb Tungowiyi Box 637 Kotzebue, AK 99752	OCEANA			yes
Ukallaysay Tun okeasik POB 1110 Kotzebue	NWAB			yes
Willie Goodwin	Beluga Whale Committee			yes
John Chase	NAB			No



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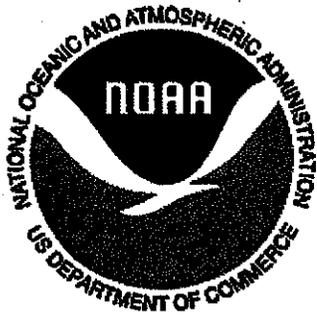
PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
TIM SMITH BOX 747 NOME, AK 99762	NOME FISHERMEN'S ASSOCIATION			NO
Grant Hildreth	NWAR			No
ele Bobby wells Mayer	Norvik			ND
Frank Stein	Kotzebue			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Rosemary Ahtuangamak	ICAS			Y ?
James Tashuk P.O. Box 89264 NUIQSUT, AK. 99789	PNR Liaison			
Ed Wukapiguk Box 89008 NUIQSUT AK 99789				y/c
Thomas W. Hutzler				
Jane D. Hutzler	NWCA			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
<i>George Sievak</i>				
<i>Jimmy A. Oyagak</i>	<i>City of NUU</i>			?
<i>Sarah Oyagak</i>	<i>City of NUU</i>			
<i>Billy Oyagak</i>				

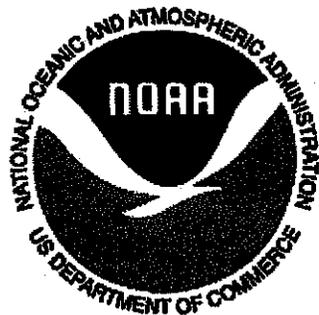


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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Dwight Hefson	NUN	[REDACTED]	[REDACTED]	
Wesley Nulogga				
Jimmy M. Kopyev	S&S			
Carl S. Rowan	Whaler			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Thomas Napaseck Jr	City of Nu			
WILLIE SIELAK JR	NUI			
Archie Carolyn Alwinson	Nui			
David Orner	NUI			



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Ig. 24 Nookaigak				?
Larry A K 2524				
Bernie Kaigel P.O. Box 02098 Nuiqsut AK 99784				Joe
Tukle ALASKA				
Dorcas Tukle				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Justin Long PO Box 300				
Eli Wulapigak				
Dora Leavitt				
Eric Leavitt				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
<i>Jilli Leung</i>				<i>1/10</i>
<i>Esther Nashookpuk</i>				<i>?</i>
<i>Kristi Frankson</i>				
<i>Elijah Rock Sr.</i>				<i>></i>
<i>Dorcus Rock</i>				<i>></i>



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Caroline P Cannon				?
Jack Schaefer	ICAS			YES



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Point Lay
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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Bill A. Tracey SR P.O. Box 59029 Point Lay, AK. 99759	Pt. Lay resident NSB Planning			
Thomas Nukapigak P.O. Box 59101 Pt-Lay AK 99759	Native Village of Pt Lay Vice President			
NEIL PASKEWITZ POBOX 42 PT, LAY, AK	Police DEPT			
NATHAN HENRY				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
MARIO TRACEY P.O. Box 59029 Point Lay, Alaska 99759	USB Mayor's Village LIAISON	[REDACTED]	[REDACTED]	
LENA FERREIRA Box 59005 Point Lay AK 99759				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Geraldine Ningedok		[REDACTED]	[REDACTED]	NO
George Arudok				NO
Alice Nashookpuk				NO



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT
Dennis Aveajanna PO Box 82 Wainwright AK				?
Bob Shears PO Box 162 Wainwright, AK 99782				
Michael Jaganak Box 163 Wainwright AK 99782				
Roy Ahmasuk 99782				
Terry Tagarook PO Box 90 Wainwright, AK 99782				



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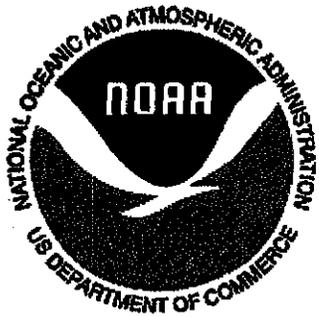
PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
Donnie SPENCER 1026 Penn St Box 87 Wainwright, AK 99782				
Eleanor Bodfish PO Box 137 WAINWRIGHT, AK 99782				
Herbert Taggart 621-De1 Wainwright AK 99782				
Freddie Elak PO Box 78 Wainwright AK 99782				



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PLEASE PRINT NAME AND ADDRESS	AGENCY and DISCIPLINE	PHONE NUMBER	EMAIL ADDRESS	MAKE ORAL COMMENT ?
John Hopson Jr	Organic			Let's see
Edna Ahmeyer				
Marjorie Angeshede	N.S.B Fire Dept			
Cora Akpik				



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Lizzie Aguklut				

APPENDIX C
Comment Analysis Report

Comment Analysis Report

During the scoping period for the *Environmental Impact Statement (EIS) on the Effects of Oil and Gas Activities in the Arctic Ocean*, the National Marine Fisheries Service (NMFS) received a total of 73 submissions, containing 721 substantive comments. Submissions included email, letters, and transcripts of public testimony given at scoping meetings and the proceedings of government-to-government consultations.

The body of this document contains the 178 Statements of Concern (SOCs) developed to help summarize scoping comments. The SOC's are ordered according to the original grouping of issues categories, as outlined below.

Group	Page
<i>Effects</i>	2
HAB Habitat	
MMI Marine Mammal and other Wildlife Impacts	
NED National Energy Demand and Supply	
OSR Oil Spill Risks	
SEI Socioeconomic Impacts	
SRP Subsistence Resource Protection	
WAQ Water and Air Quality	
 <i>Available Information</i>	 9
DATA Data	
RME Research, Monitoring, Evaluation Needs	
 <i>Regulatory Compliance (Process; NEPA, Permits, this EIS)</i>	 14
COR Coordination, Process, and Analysis	
MIT Mitigation Measures	
 <i>Inupiat Culture</i>	 29
ICL Inupiat Culture and Way of Life	
UTK Use of Traditional Knowledge	
 <i>General</i>	 31
ACK Comment Acknowledged	

Effects

HAB Habitat - Comments associated with habitat requirements, or potential habitat impacts from seismic activities and exploratory drilling. Comment focus is habitat, not animals.

HAB 1 Thetis Island, Cross Island, and Camden Bay provide important feeding and resting habitat for migrating bowhead whales.

HAB 2 The Arctic is facing a variety of threats that need to be addressed: climate change (sea ice is receding in the summertime, the quality of the sea ice is changing and there's less multi-year ice than there used to be); ocean acidification; and industrial development.

HAB 3 Loss of sea ice in the Arctic may increase human activities, such as: oil and gas activity, mining, commercial shipping, and commercial fishing.

MMI Marine Mammal and other Wildlife Impacts - General comments related to potential impacts to marine mammals or wildlife, unrelated to subsistence resource concepts.

MMI 1 Oil and gas activities (such as seismic exploration and drilling) negatively impact marine species including: diverting whales, making animals shy away, covering ice with mud usually confined to the bottom of the ocean, forcing ice dependent animals out of their habitat, and destroying their habitat. These impacts may have lasting effects for animals over multiple years.

MMI 2 Animals impacted by oil and gas activities should be given a protected status, including seals, whales, other marine mammals, fish, ducks, and sea birds.

MMI 3 The EIS should acknowledge the evidence in peer-reviewed literature, which indicates that seismic exploration has not affected the health or reproductive fitness of marine mammal populations.

MMI 4 Special consideration should be given to disturbances that might separate a dependent infant from its caregiver. For example, bowhead cow-calf pairs.

MMI 5 Sounds levels do not have to be very high to adversely impact marine mammals, including causing them to abandon their young.

MMI 6 Cumulative exposure of marine mammals to oil and gas activity (including seismic exploration and drilling) should be considered, as species may encounter operations in multiple areas during one season. For example, bowhead whale migration routes may expose them to drilling activity in the Beaufort Sea and Chukchi Sea.

- MMI 7 Studies reveal that female baleen whales show a heightened response to noise and disturbance and that fall migrating bowheads demonstrate greater avoidance than bowheads engaged in activities such as feeding.
- MMI 8 The environmental record of the offshore exploration and production industry should be analyzed as part of the EIS. It documents that geophysical surveys are not likely to have discernable adverse effects on marine mammal stocks.
- MMI 9 Studies have been unable to show a link between exposure to sound and adverse effects on marine mammal populations. Furthermore, There is no scientific evidence to suggest that the seismic activities associated with Beaufort and Chukchi Seas exploration, with use of a 180dB/190dB exclusion zone and other routine mitigation and monitoring requirements, will have an adverse population-level impact the bowhead whale stock.
- MMI 10 Acidification will introduce a fundamental shift in the biogeochemical cycling of the Arctic Ocean. Impacts may include carbon ion depletion and its related effects, increased ocean noise, which could exacerbate the impacts of noise from industrial activity, changing the growth rates of photosynthetic phytoplankton, the toxicity of the marine toxins, the availability of ammonia for uptake by marine plants, and the efficiency of respiration in fish and other marine organisms. Animals at risk include mollusks, crustaceans, echinoderms, encrusting algae, and certain types of marine phytoplankton.
- MMI 11 Increased vessel traffic increases the likelihood that marine mammals may be injured or killed from vessel strikes.
- MMI 12 Mitigation measures to protect marine mammals are successful. For example, not one lethal take of polar bear has occurred since the incidental take authorizations regulations were put into place.
- MMI 13 NMFS should reevaluate the impacts to marine mammals from noise exposure using the latest literature. Specific requests/examples include:
- Reevaluate permanent threshold shift of auditory injury for marine mammals.
 - Recent literature indicates that very significant impacts to individuals and populations may occur at levels well below the 160 dB that MMS considers the minimum level at which behavioral harassment occurs.
 - Thresholds employed should account for longer-term effects of noise exposure and not be based solely on immediate marine mammal responses.
- MMI 14 Changes in Arctic conditions are resulting in the introduction of new marine mammal species, including: humpback, fin, and killer whales; narwhals, and porpoises.
- MMI 15 Deflection of whales, and the resultant impacts to individuals and populations, fits squarely within the definition of "harassment" as defined in the Marine Mammal Protection Act.

- MMI 16 Seismic and other sound sources result in detrimental impacts to marine species. Specific examples provided include:
- Killing fish eggs, larvae, and fry or retarding their growth and hinder their survival
 - Causing changes in whale behavior including disturbed or "skittish" behavior, and coming up vertically for air
 - Deflecting migrating whales
 - Abandoning or avoiding impacted areas (e.g. mother polar bears abandoning dens, whales abandoning or avoiding feeding areas, and walrus abandoning haul outs)
 - Masking of biologically important sounds
 - Harming availability and viability of prey species
 - Permanent and temporary hearing loss or auditory threshold shift in marine mammals and fish
 - Alarm behavior in fish, and
 - Impacts to tomcod.

NED National Energy Demand and Supply - Comments related to meeting national energy demands, supply of energy.

- NED 1 The U.S. needs stable sources of energy from oil and natural gas to meet its increasing energy demands. Access to domestic supplies, such as those located on the Alaska Arctic Outer Continental Shelf, is important to meeting this demand. Other benefits could include decreased reliance on foreign sources.
- NED 2 The Inupiat people are being forced to bear a disproportionate share of the burdens of our nation's energy consumption.
- NED 3 Current resource estimates may understate Outer Continental Shelf supply potential because the areas are largely unexplored and the estimates have not benefited from the use of new seismic and computer modeling technology.

OSR Oil Spill Risks - Concerns about potential for oil spill, ability to clean up spills in various conditions, potential impacts to resources or environment from spills.

- OSR 1 State and Federal agencies need to develop and implement an effective oil spill response/contingency plan prior to any more oil and gas activities.
- OSR 2 Technology and industry standards have evolved to play a critical role in achieving prevention of oil spills through engineering, design, personnel training, and well planning.
- OSR 3 A large oil spill in the extreme conditions present in Arctic waters would be extremely difficult or impossible to clean up.

- OSR 4 The U.S. Coast Guard does not have federal funding for oil spill response and is not present in Arctic waters year round.
- OSR 5 Although all phases of oil and gas activities increase the potential for an oil spill, a significant amount of major spills occur during the exploration phase.
- OSR 6 Due to mismanagement of operations and maintenance on existing oil and gas developments in Alaska, industry has increased the risk of an oil spill.
- OSR 7 In the last 20 years, industry has made proactive efforts regarding prevention but it is still not enough.
- OSR 8 Most oil spills result from tankers, not pipelines.
- OSR 9 Technology is not advanced enough for an oil spill clean up on the ice or in ice infested waters. Industry and the government agencies need to work together to develop this technology.
- OSR 10 If there was an oil spill, it would be felt globally due to the ocean currents and migratory patterns of not only marine mammals but terrestrial species too.
- OSR 11 There are four key actions needed to prevent and respond to oil spills in the Arctic Ocean: 1) Conduct an Arctic Oil Spill Risk Assessment 2) Assess Arctic Oil Spill Response Capacity 3) Conduct an Arctic Oil Spill Response Gap Analysis 4) Ensure the Process is Transparent and Scientifically Rigorous.

SEI Socioeconomic Impacts - Comments on economic impacts to local communities, regional economy, and national economy, can include changes in the social or economic environments (MONEY, JOBS).

- SEI 1 It is expensive to prepare for whaling and impacts from industry are only going to make it more expensive. These costs affect whole communities, not just whaling crews.
- SEI 2 The oil and gas industry and other related business would benefit from predictability in permitting processes (such as issuance of incidental harassment authorizations). Long-term business decisions are made on the assumption that permits will be issued.
- SEI 3 The State of Alaska and the entire nation benefit economically from offshore oil and gas development through job creation and generation of local, state, and federal revenues. Related economic issues identified include:
- Lawsuits and regulations that hinder this development hurt the ability of Alaska residents (including Alaska native communities) to earn an income and provide for their families.
 - New natural gas production in the Alaska Arctic Outer Continental Shelf would enhance the economic viability of the proposed natural gas pipeline from Alaska to the Lower 48.

- Diminished access to domestic energy supplies, particularly in the form of natural gas has already had an impact on a number of important sectors of the economy.
- Regulators, industry, and the communities of the Arctic must work together to prevent economic impacts.

SRP Subsistence Resource Protection - Comments on need to protect subsistence resources and potential impacts to these resources. Can include ocean resources as our garden, contamination (SUBSISTENCE ANIMALS, HABITAT).

- SRP 1 Industry activities should have little to no impact on subsistence hunting and harvest in the Chukchi Sea as these activities do not occur in the same areas. Subsistence hunting activities occur within 20 miles of the coast as opposed to exploration activities that would be occurring further offshore. Conditions are different in the Beaufort Sea.
- SRP 2 Aircraft traffic (including support activity) associated with oil and gas activities occurs in the same area as subsistence users and has and may continue to affect subsistence resources including polar bears, walrus, seals, caribou, and coastal and marine birds, making it more difficult for hunters to obtain these resources. Aircraft disturbance in caribou migratory pathways from oil and gas operations and tourism near the coast displaces caribou inland and may be have a cumulative impact on harvest.
- SRP 3 Drilling muds have been observed on icebergs by subsistence hunters who have expressed concern that such discharges may adversely impact subsistence resources such as bowheads and other marine mammals.
- SRP 4 Cumulative impacts to subsistence resources may occur as a result not only from exploration activities but also from indirect activities including support vessels and aircraft traffic. The potential for increased commercial vessel traffic through the Arctic Ocean or from a Northwest Passage route could cumulatively impact subsistence resources.
- SRP 5 Increased exploration activity and industry vessel traffic could potentially endanger subsistence hunters during poor weather conditions if the hunters are required to travel further than 30 miles offshore to spot whales that may be deflected due to industry activities.
- SRP 6 Noise from seismic operations, drilling and potential development/production may cause bowhead whales to become more difficult to hunt. Activities related to seismic exploration and related air and vessel traffic may negatively impact subsistence harvest by causing displacement of caribou and birds.

- SRP 7 Protection of subsistence resources and lifestyle is important to sustaining food sources and the culture of Alaska Natives for future generations.
- SRP 8 Increased vessel traffic, including barge traffic between the communities, is impacting subsistence bowhead hunters as a result of whales being deflected from the area and loss of potential strikes and harvest. Subsistence bowhead hunters would like the EIS to consider impacts of increased vessel traffic and regulating vessel traffic in areas during whaling so that interference during the hunt from vessel traffic does not occur.
- SRP 9 Impacts of exploratory drilling activities offshore that could impact subsistence activities related to the harvest of bowhead whales that should be evaluated include:
- Impacts of exploration and potential development and production could cause deflection of bowheads up to 30 miles offshore that would impact subsistence hunters and ability to safely tow whales back to shore and cause loss of opportunity for harvest of allotted quota. Changes in bowhead whale behavior as a result of industry activity may cause the whales to become less available to hunters.
 - Increase in vessel and barge traffic (crew, fuel, and supply runs) between existing offshore structures and onshore development leads to increased deflection of whales from traditional hunting areas that then causes whalers to travel further offshore to hunt.
 - Discharge of drilling muds that enter currents and migratory pathways of the bowheads can also cause the whales to divert from migratory pathways/currents and areas that subsistence hunters traditionally use causing whalers to travel further offshore to hunt.
 - Concern that displacement of bowheads from migratory routes in the Beaufort and Chukchi Seas may impact other communities that also depend on bowheads for subsistence.
 - Subsistence hunters concerned that bowheads that are continually deflected from normal migratory routes due to noise and discharges encountered in currents will eventually abandon traditional habitats all together.
- SRP 10 Impacts of exploratory drilling activities offshore that could impact subsistence activities related to the harvest of seals and other marine mammals that should be evaluated include:
- Bearded seals may be displaced by icebreaking activities for exploration which would impact subsistence hunters and potential harvest of these seals.
 - Cross Island and Thetis Island in the Beaufort Sea are important seal hunting areas for subsistence users and hunting and harvest could be disturbed by increased industry activities. Consider protection of these islands during subsistence activities/hunts.
 - Exploration activities resulting in subsistence hunters having to travel further offshore to hunt bearded seals.

- SRP 11 Impacts of exploratory drilling activities offshore that could impact subsistence resources should also evaluate:
- Bowhead whales and seals are not the only subsistence resource that Alaska Native communities rely upon. Fishing is also an important resource and different species are hunted throughout the year. Subsistence users have expressed concern that causeways and activities to support offshore exploration will change migratory patterns of fish and terrestrial animals that occur along the coastlines.
 - Subsistence users concerns that impacts of an offshore oil spill could adversely affect subsistence resources.
 - Protection of subsistence resources and impacts to subsistence lifestyle need to be considered before exploration activities can occur offshore.
 - Research and monitoring of existing discharges and the impacts to migratory patterns of subsistence resources and impacts to subsistence users has not occurred.

WAQ Water and Air Quality - Comments regarding water and air quality, including potential to impact or degrade these resources.

- WAQ 1 Oil and gas activities can release numerous pollutants into the atmosphere. Greater emissions of nitrogen oxides and carbon monoxide could triple ozone levels in the Arctic, and increased black carbon emissions would result in reduced ice reflectivity that could exacerbate the decline of sea ice. The emission of fine particulate matter (PM 2.5), including black carbon, is a human health threat. Cumulative impacts will need to be assessed.
- WAQ 2 Water pollution could cause toxins to bioaccumulate in top predators, including humans. There needs to be more information about the potential risks to human health.
- WAQ 3 Water stratification during summer months may inhibit the dispersal of discharged pollutants, potentially confining pollutants to the shallow upper section of the ocean, where marine mammals are more likely to be affected.
- WAQ 4 Thermal discharge from cooling water may impair water quality by directly altering the benthic community or killing marine organisms, by changing the behavior and physiology of marine organisms, and by potentially releasing toxins into the marine environment.
- WAQ 5 Vessels used to conduct seismic surveys or exploration drilling can discharge numerous pollutants while operating, during refueling spills, or in other accidents.
- WAQ 6 The oil and gas industry does not possess the technical ability to pursue development in a way that avoids contamination of nearby waters.

Available Information

DATA	Data - Comments referencing scientific studies that should be considered.
DATA 1	NMFS should review and consider the comments received on the previous Draft EIS.
DATA 2	<p>NMFS should consider the following documents in its analysis of cumulative impacts:</p> <ul style="list-style-type: none">• Draft CEQ guidance on addressing green house gas emissions in NEPA documents available at: http://cep.hss.doe.gov/nepa/regs/Consideration of Effects of GHG Draft NEPA Guidance FINAL 02182010.pdf• Arctic Marine Shipping Assessment available at:http://web.arcticportal.org/uploads/L9/LP/L9LPqHzJZ88Zp4EOdasTcA/AMSA_Scenarios_NEW.pdf• Canter, L. W., and Kamath, J. (1995). Questionnaire checklist for cumulative impacts. <i>Environmental Impact Assessment Review</i>, 15(4): 311-339. available at: http://www.sciencedirect.com/science/journal/01959255• Council on Environmental Quality (CEQ). (1997). Considering cumulative effects under NEPA. Online: http://ceq.eh.doe.gov/nepa/ccnepa/ccnepa.htm.• National Research Council (2003). Cumulative effects of oil and gas activities on Alaska's North Slope. Online: http://darwin.nap.edu/books/0309087376/html/R1.html• Consideration of Cumulative Impacts in EPA Review of NEPA Documents, available at: http://www.epa.gov/compliance/resources/nepa.html.
DATA 3	NMFS should reference air quality studies currently being undertaken by the National Park Service and Alaska Department of Environmental Conservation on cruise ships in Alaska.
DATA 4	<p>Expertise and information on conducting Health Impact Assessments is available from tribal, local, state, and federal health agencies. In addition, guidelines for conducting Health Impact Assessments are available from various sources including:</p> <ul style="list-style-type: none">• http://www.who.int/hia/about/guides/en/, and• http://www.ifc.org/ifcext/sustainability.nsf/Content/PublicComment_HealthImpactAssessment.
DATA 5	<p>NMFS should consider the following whale surveys/studies:</p> <ul style="list-style-type: none">• The latest aerial surveys of the Chukchi Offshore Monitoring in Drilling Area program (COMIDA).• The satellite tagging study being conducted by Lori Quackenbush of the Alaska Department of Fish and Game with assistance from the North Slope Borough's Department of Wildlife Management and the whaling captains of AEWC.• The 2010 bowhead whale population estimate currently under development.

- DATA 6 NMFS should refer to submittal by Walt Rosenbusch of the International Association of Geophysical Contractors which provides specific information on the geographic locations, types and number of geophysical activities estimated to occur over a 5-year time period (2011-2015). The submittal also provides detailed information on seismic sound sources, which should be considered.
- DATA 7 NMFS should consider the following sources of information on invasive species:
- Gollasch, S. (2002): The importance of ship hull fouling as a vector of species introductions into the North Sea. *Biofouling* 18(2), 105-121.
 - Studies by Dr. Greg Ruiz, Marine Invasion Research Laboratory, Smithsonian Environmental Research Center.
 - A guide regarding how to deal with invasive species in the oil and gas industry developed by the International Petroleum Industry Environmental Conservation Association/The International Association of Oil and Gas Producers (IPIECA/OGP) Biodiversity Working Group, and Statoil.
- DATA 8 NMFS should review and consider the documents and lists of references provided by the following commenters:
- Shell Exploration and Production Company
 - Environmental Protection Agency
- DATA 9 Sources of pertinent information on exploratory drilling include:
- Neff, J. M. 2010. Fates and Effects of Water Based Drilling Muds and Cuttings in Cold-Water Environments (under development).
 - Authorization to Discharge Under the National Pollutant Discharge Elimination System (NPDES) for Oil And Gas Exploration Facilities on the Outer Continental Shelf and Contiguous State Waters, available at: <http://yosemite.epa.gov/R10/Water.NSF/NPDES+Permits/General+NPDES+Permits#Oil%20and%20Gas>.
 - Statoil would be happy to provide information on drilling standards employed by the industry in Norway and their potential relevance in Alaska.
- DATA 10 NMFS should consider the following sources of information pertaining to marine life:
- The research program by ConocoPhillips, Shell, and Statoil (results of data collected so far clearly indicate a significant variation in the species and biomasses encountered from year to year in the Chukchi Sea).
 - Policy papers published by the American Fisheries Society (AFS) addressing such issues as the protection of marine fish stocks, biodiversity, introduction of aquatic species, and modifications to habitat available at: http://www.fisheries.org/afs/policy_statements.html

RME Research, Monitoring, Evaluation - Comments on baseline research, monitoring, and evaluation needs

RME 1 The EIS needs to consider that the Arctic contains some of the world's last remaining intact marine ecosystems and impacts to this baseline from climate change, ocean acidification, and increasing industrial activities.

RME 2 Sufficient baseline data currently exists to support exploratory drilling programs.

RME 3 There is insufficient information, monitoring and baseline data available for decision makers to determine if oil and gas activity will have an impact on the Arctic. Comments include:

- Authorizations for permits should not be made until adequate baseline information is available.
- NMFS must ensure that any industrial activity authorized in the Arctic does not substantially change the existing baseline conditions until such time as adequate information is available.
- Population level effects cannot be estimated without reliable population data. NMFS should proceed cautiously in evaluating impacts to marine mammals when there is so much uncertainty.
- NMFS should establish an existing baseline that will provide for a comparison of impacts in order to determine the effects of oil and gas activity.
- Instead of relying on positions based on insufficient information, continuing research to obtain such information should be carried out.

RME 4 Information and baseline data on marine mammal populations and distribution is inadequate to support informed decision making including:

- More information is need on the health of females and young calves.
- Knowledge of bowhead use of the Chukchi is limited. Suggestion that at least 2 -3 years of baseline data be collected to support decisions made.
- Ice seal populations are more than 15 to 20 years old.
- There is no population estimates for polar bears or walrus in the Chukchi Sea.
- Data is not current for abundance, reproduction/breeding areas, habitat use, or feeding areas.
- Information specifically on the impacts of noise to marine mammals is lacking and there is inadequate monitoring of the effects.

RME 5 Lease sales were conducted lacking established baselines for the environment which is not in compliance with regulatory statutes.

RME 6 Regarding climate change the EIS needs to acknowledge that the environmental baseline of the region is changing, and that the effects of later-occurring activities may have to be measured against a different baseline than the effects of earlier-occurring activities.

- RME 7 Specific data needs identified included:
- Studying the ocean currents and impacts of an oil spill(s), including impacts to fisheries and establishing a baseline before an oil spill occurs.
 - Studies related to migratory patterns of Arctic cisco that occur between the Mackenzie and Colville rivers.
 - Studies related to the lower levels of oxygenation in sea water in the northwestern area.
 - More studies relating to areas surrounding Cross and Thetis Island in the Beaufort Sea.
- RME 8 Conduct environmental analyses for all planning areas. For those areas which already have existing work done, it was recommend a tiered approach be used to supplement that work.
- RME 9 In developing the EIS, NMFS should recognize and consider existing scientific research including:
- Research and development around marine sound and environmental impact being conducted by the E&P Sound and Marine Life Joint Industry Programme administered by the International Association of Oil and Gas Producers.
 - Significant research on oil spill prevention, detection, and response has occurred in the last few years.
 - Review projects to gather information being undertaken by oil companies as well as other organizations either independently, through Joint Industry Projects or as part of an industry association to enhance spill response capabilities in remote and challenging regions such as the Alaskan Arctic.
 - Review industry published studies on the environmental effects of and best management practices for pollution prevention technology, emissions from offshore platforms that include produced waters, drilling discharges, air emissions, the effects of sound on marine life that includes whales and fish, weather and oceanographic studies, and improved design standards for severe weather multi-year acoustic monitoring in both the Chukchi and Beaufort seas.
- RME 10 A data gap analysis needs to be conducted in order to evaluate the current level of understanding of the Arctic environment to support a sound decision making process. This analysis would provide a basis for a comprehensive research and monitoring plan that could be used by decision makers. The analysis should:
- Include a discussion of lack of baseline information on several species and what steps can be taken to address deficiencies.
 - Provide the public with an understanding of existing data gaps of the baseline and current conditions.
 - Identify ongoing research that would provide missing information.
 - Identify priorities for additional information to support decision making.
 - Include environmental review, marine spatial and planning regarding industry activity and climate change and potential direct/indirect and cumulative impacts.
 - Recommend how necessary additional research and monitoring could be collected in the near term and on an on-going basis.

- Synthesize existing scientific data and understanding of the area and monitoring and research plans.

- RME 11 This EIS needs to carry out a balanced and objective review of scientifically sound and peer-reviewed literature that examines the effects of offshore oil and gas activities on marine mammals that occur in this environment. Speculation and bias about potential effects should be avoided. Effects should be described with references made that are scientifically supported with peer reviewed literature and technical reports.
- RME 12 Use local hires to perform baseline gathering tasks.
- RME 13 Methodology for collecting baseline data that could guide decisions makers should consider:
- Integration and synthesis of data that provides a basis for modeling or predicting the effects of future activities under different scenarios of climate change and development.
 - Gathering additional data using satellite tags so decision makers can develop mitigation measures as activity is occurring in the Beaufort and Chukchi seas.
 - Reevaluate current methodology for assessing conditions in limited areas during periods of breaks in exploration activities as this may not be reflective of the actual baseline.
 - Consider the use of a modeling tool called Acoustic Integration Model that would estimate how many animals may be exposed to specific levels of sound.
- RME 14 Research is needed in order to describe the cumulative effects of noise to bowhead whales and marine mammals in the Beaufort and Chukchi seas.

Regulatory Compliance (Process; NEPA, Permits, this EIS)

COR Coordination, Process and Analysis - Comments on compliance with other statutes, laws or regulations that should be considered; coordinating with Federal, state, local agencies or organizations; permitting requirements.

- COR 1 The following suggestions were made about the roles and responsibilities of organizations in the EIS:
- The Environmental Protection Agency should be invited to participate as a cooperating agency in the EIS given the agencies permitting authority and known expertise in resources critical to a full analysis of the issues underlying this EIS, particularly air and water quality.
 - The Minerals Management Service should continue to be a joint lead agency for the EIS rather than a cooperating agency their legal responsibility (including permitting) for the proposed action and expertise that can contribute to the NEPA process.
 - The North Slope Borough should be invited to participate as a cooperating agency in the EIS given their status as a locally affected jurisdiction closest to the majority of activities contemplated by the analysis, their jurisdiction by law over aspects of the actions falling within the scope of the proposed analysis, and their special expertise regarding resources (specifically wildlife) critical to NMFS' analysis.
 - Affected Tribal governments should be invited to participate in the EIS as a cooperating agency. This would provide for the establishment of a mechanism for addressing inter-governmental issues throughout the EIS development process.
- COR 2 Naval activities, specifically the use of active sonar from naval submarines, should be included in the scope of the EIS. Oil and gas activity may lead to national defense assets being deployed to protect oil and gas activity in the Arctic Ocean. In this instance sonar is going to be one of the biggest harassment effects on marine wildlife.
- COR 3 The scope of the EIS should not be limited to the issuance of incidental take authorizations and should be expanded to include an evaluation of all reasonably foreseeable offshore exploration, development, and production activities during both open water and ice-covered seasons including:
- Winter season drilling from bottom-founded structures in shallower waters of the outer continental shelf
 - Nearshore and offshore construction operations
 - Facility installation and abandonment
 - Laying of gathering lines and pipelines
 - Development drilling and production operations
 - Transportation, specifically marine or aircraft traffic associated with re-supply and crew transfers, and
 - Distribution to market.

- COR 4 The non-exclusive data business model used by many oil and gas companies should be considered when developing the scope of the EIS. The business model for acquiring non-exclusive geophysical data takes advantage of economies of scale in our industry by spreading the costs of data acquisition and processing over time and multiple customers who desire to make use of the data.
- COR 5 The scope of the EIS should include electromagnetic, gravity, magnetic, and gravity gradiometry surveys.
- COR 6 NMFS should take a precautionary approach in its analysis of impacts of oil and gas activities and in the selection of a preferred alternative. Comments include:
- A precautionary approach is required as there is insufficient information on Arctic ecosystems.
 - A precautionary approach is required to ensure that adverse impacts to subsistence resources are minimized and mitigated.
 - Activities should only be authorized when the science clearly demonstrates that those activities will not harm marine mammals or interference with subsistence activities and with the full involvement of the people most affected.
 - Adopt a similar approach to that outlined in the North Pacific Fishery Management Council's Arctic Fishery Management Plan.
- COR 7 The EIS should include an analysis of the impacts of oil and gas activities on air quality. Comments include:
- Clearly specify emission sources and quantity of emissions including from marine vessels.
 - Disclose whether air toxics emissions would result from project activities, discuss the cancer and non-cancer health effects associated with air toxics and diesel particulate matter, and identify sensitive receptor populations and individuals that may to be exposed to these emissions.
 - Consider production emissions from gas flaring volatilization of petroleum fractions, machinery exhaust emissions, volatilization during evaporation, and landfarming.
 - Determine potential and actual impacts at individual sites.
 - Include detailed information about ambient air conditions and national ambient air quality standards, a detailed project emission inventory, specific information about pollution from mobile and stationary sources.
 - Include an Equipment Emissions Mitigation Plan that identifies actions to reduce diesel particulate, carbon monoxide, hydrocarbons, and NOx associated with construction and operation activities.
 - Include mitigation measures to reduce identified air quality impacts.
 - If air quality impacts are identified, NMFS should document the approach used to analyze and predict air quality impacts in an Air Quality Modeling Protocol and fully vet this approach with the Environmental Protection Agency.

- COR 8 The EIS cumulative impacts analysis should include an evaluation of:
- Resources of concern that are at risk and are significantly impacted by the proposed project before mitigation
 - All non-oil and gas activities
 - Present and reasonably foreseeable projects and actions proximate to the project area, such as North Slope on-shore oil and gas activities, and reasonably foreseeable oil and gas development and production activities, both on- and offshore
 - Multiple types of oil and gas activities including, concurrent seismic surveys, exploration drilling, shallow hazard surveys, site clearance surveys, icebreaking, and other activities and should assess the impacts of sound on marine life, impacts of discharges from exploration drilling (drilling fluids and cuttings), potential oil spills, and disturbance from relevant facilities, support vessels and aerial traffic linked to the operations
 - Evaluate potential consequences of the proposed project "outside" the project area boundaries including impacts to other wildlife and aquatic resources.
 - The effects of climate change and ocean acidification
 - Potential commercial fisheries
 - Increased international vessel traffic
 - Water and air quality impacts, and
 - Baseline pressure on subsistence resources from population growth in North Slope communities.
- COR 9 The EIS cumulative impacts analysis should not include:
- Non-oil and gas activities in the Arctic. The focus of the EIS is to study potential impacts of oil and gas activities. Other activities outside the industry do not fit in this EIS analysis.
 - Impacts occurring outside Alaska on marine mammals, given activities that may impact them abroad (for example, Russia) are managed under different laws and regulatory regimes, and may not be subject to the extensive mitigation measures required in Alaska.
- COR 10 The EIS should include an analysis of impacts associated with climate change and ocean acidification including:
- Addressing threats to species and associated impacts for the bowhead whale, pacific walrus, and other Arctic species
 - Effects of loss of sea ice cover, seasonally ice-free conditions on the availability of subsistence resources to Arctic communities, and
 - Increased community stress.
- COR 11 The EIS should follow an ecosystem approach in its evaluation of impacts to biological resources and their habitats including nested layers (taxonomic, population, genetic) of all biodiversity.

- COR 12 The EIS should take into account that the issuance of incidental take authorizations are in accordance with the Marine Mammal Protection Act, but are also consistent with the Federal Administration's energy exploration and development policies and requirements.
- COR 13 The EIS should include an analysis of the impacts associated with the introduction of invasive non-native species through oil and gas activities and outline mitigation measures to address identified impacts. Comments include:
- Authorizing agencies must comply with Executive Order 13112 regarding executive invasive non-native species.
 - Authorizing agencies should work with other agencies to minimize the risk of introducing invasive non-native species.
 - Fully analyze impacts of introducing non-native species that may become aquatic invasive species; use relevant programs and authorities to prevent the introduction of aquatic invasive species; develop the means to detect and respond rapidly to and control populations of such species; and monitor aquatic invasive species populations accurately and reliably; not authorize, fund, or carry out actions it believes are likely to cause or promote the introduction or spread of aquatic invasive species in the U.S.
- COR 14 The EIS should include an analysis of the impacts associated with potential oil spills from oil and gas exploration, development and production activities and outline mitigation measures to reduce identified impacts. Comments include:
- The assessment should be based on realistic spill scenarios and distribution modeling, taking current state of the art technologies for preventing spills into consideration.
 - The EIS should review the adequacy and environmental impacts of anticipated spill response measures, such as dispersants or in-situ burning, in the Arctic environment.
 - The EIS should explain the extent to which lack of baseline scientific information would hinder post-spill recovery and rehabilitation efforts, including efforts to detect adverse environmental impacts.
 - The context within which NMFS should examine the potential for oil spills should be a coordinated effort with other agencies that share responsibility for oil spill research, response, and prevention in the Arctic.
 - The EIS should contain a detailed discussion of the potential impacts of oil spills on marine mammals and other Arctic wildlife, including migratory birds.
 - The EIS should consider the potential impacts associated with leaving oil in the water and ice over the winter season.
- COR 15 The EIS should include an analysis of the socio-cultural impacts associated with oil and gas activities in the Arctic. The scope of impacts to these resources should include the direct, indirect, and cumulative impacts to: subsistence users, sacred sites, traditional cultural properties or landscapes, hunting, fishing, gathering areas, access to subsistence hunting or fishing areas, historical or current travel routes, and historic properties, districts or landscapes.

- COR 16 The EIS should include an analysis of the impacts of oil and gas activities on water quality. Comments include:
- The EIS should describe the current condition of waters in the project area and disclose which waters may potentially be affected by the proposed project, the nature of potential impacts, and specific pollutants likely to impact those waters.
 - The EIS should document the project's consistency with applicable wastewater permitting requirements (as required by NPDES and/or ADPES programs) and should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality.
 - Potential short and long-term water quality impacts may be caused by a variety of activities associated with seismic and exploratory operations, including wastewater discharges from vessels and other infrastructure, and deposition of air emissions on water.
 - The EIS should include an analysis of zero discharge of drilling muds.
- COR 17 The proposed EIS should analyze impacts associated with increases in vessel traffic associated with oil and gas operations in the Arctic.
- COR 18 The EIS should include site-specific information on each resource and analyze the differential impacts that would occur for each location where activities may take place.
- COR 19 The EIS should include an analysis of impacts on fish including the effects of noise on hearing, eggs, larvae, and fry.
- COR 20 The EIS should include an analysis of the impacts of oil and gas activities to subsistence resources, and the impacts to the people that utilize those resources. NMFS must ensure oil and gas activities do not reduce the availability of any affected population or species to a level insufficient to meet subsistence needs (50 CFR 216.103). Comments include:
- Clearly identify and separate potential effects from seismic surveys on bowhead whale population health from potential effects on the availability of the bowhead whales for subsistence hunting.
 - Include a thorough discussion of beluga subsistence hunting, and potential impacts of seismic surveys and associated activities on that hunting and present clear conclusions about the likelihood of significant and/or adverse impacts on belugas.
 - Analyze the potential impacts of oil spills to subsistence resources, and the impacts to the people that utilize those resources.
- COR 21 The EIS should include an analysis of all impacts of oil and gas activities on marine mammals and outline mitigation measures to address identified impacts. Comments include:
- The analysis should cover all marine mammals, including bowhead whales, beluga whales, walrus, seals, and polar bears.
 - The analysis should consider impacts to marine mammals occurring in other

parts of the United States, as some stocks that occur in the Chukchi and Beaufort seas are migratory.

- Include a thorough discussion about relevant studies of the impacts of oil and gas activities to marine mammals, including noise and other impacts from seismic surveys, drilling, vessels, and aircraft.

- COR 22 The EIS should include an analysis of the impacts of noise from oil and gas activities on marine species. Comments include:
- Include a discussion of strandings and other non-auditory physical injuries; temporary or permanent loss of hearing; avoidance behavior; disruption of biologically important behaviors; masking of biologically meaningful sounds; chronic stress; and reasonably expected declines in the availability and viability of prey species.
 - Assessment of potential impacts of sound on marine life should be based on best available knowledge.
 - The analysis should include information on actual dB levels, extent over time (periodic or continuous), and geographic area that will be disturbed.

- COR 23 The EIS should include an analysis of the benefits of oil and gas exploration activities and the following facts:
- Since 2005, the federal government has collected over \$3 billion for leases in these waters.
 - New offshore development and environmental protection are not mutually exclusive.
 - OCS development has an outstanding safety and environmental record spanning decades.
 - Development has coexisted with other industries, including fishing, in the North Sea, the Gulf of Mexico, and Cook Inlet.
 - With regard to the Alaskan OCS, exploration is not new. Approximately 30 wells have been drilled in the Beaufort Sea and five in the Chukchi Sea.

- COR 24 The EIS should be a concise and uncomplicated document that contains maps and graphics explaining the proposal, alternatives, and locations of key fish and wildlife resources and subsistence resources and activities.

- COR 25 A supplemental or revised draft EIS is more appropriate than a new draft. Reasons include:
- Very substantial effort was involved in preparation of the previous draft EIS and its record.
 - Ordinarily, deficiencies in a draft EIS or changes in the proposed action warrant a revised or supplemental draft, not a wholly new NEPA effort.
 - The NEPA regulations provide only for supplemental drafts, and make no mention of withdrawal and preparation of a new draft.
 - Preparation of a wholly new EIS will make it difficult for stakeholders and the public to sort out the revisions and to determine what changes are significant or are regarded as significant from the agency's point of view.
 - A supplemental draft could explain the significant changes that have been

made to the database supporting the draft EIS and to the analysis of impacts and alternatives, thereby greatly assisting the comments process.

- COR 26 NMFS should reformulate this question in its Notice of Intent, “(4) Available new technology for monitoring or obtaining seismic/drilling data” to consider new technology that reduce the potential impacts of seismic and exploratory activities.”
- COR 27 NMFS and MMS should issue a Federal Register notice of data availability detailing the "new information" asserted in the Notice of Intent to warrant starting over the NEPA process.
- COR 28 Based on the Notice of Intent, it appears that NMFS will not be conducting site-specific analyses or decisions for this project. As such this EIS may be programmatic in nature and should be identified as a programmatic EIS.
- COR 29 The EIS should be completed expeditiously with definite time limits.
- COR 30 Individual projects should be reviewed on a case-by-case basis and should not be deferred until after the EIS is complete so as not to delay projects that have been under development since before the Notice of Intent. Also because the regulatory program has long been in place, and the agencies have years of experience with offshore oil and gas exploration activities.
- COR 31 The EIS should not take the place of sites specific analyses. It is certainly possible if not likely that individual activities, depending on the mitigation measures that are put in place, could have significant impacts to the environment and that an EIS still might be warranted for some of these individual activities.
- COR 32 Given the nature of this project a concise purpose and need statement is of critical importance to setting up the analysis of alternatives, which could range from too tightly focused to too broad, depending on how the statement is written. Given the uncertainty of the range, duration and frequency of future incidental take authorizations, the EIS will need to clearly explain the need of the proposed project.
- COR 33 NMFS should objectively review data from peer-reviewed scientific literature and not speculation to assess potential impacts of geophysical activities on the environment.
- COR 34 The EIS should ensure the environmental justice requirements of Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority and Low-Income Populations) are being met. Comments include:
- Disclose what efforts were taken to ensure effective public participation in the scoping process and throughout the development of the EIS.
 - The sources of data utilized for these analyses, and the references utilized for establishing the criteria.

- NMFS must take into account the unique interests of local Inupiat communities and must fully evaluate any disproportionate impacts placed upon the Inupiat people. NMFS must endeavor to make information available in understandable and accessible terminology, and NMFS should also be sensitive to the burdens placed on local communities when multiple decisions are being made at the same time.
- Particular attention should be given to consideration of the dependence of local communities on local and regional subsistence resources, access to those resources, and perception of the quality of those resources, as well as how project information is disseminated to the community.

COR 35

A Health Risk Assessment or Health Impact Assessment should then be conducted, in conjunction with the EIS, to determine the direct, indirect, and cumulative impacts of oil and gas activities on human health. Comments include:

- NMFS should partner directly with local, state, tribal, and federal health officials to conduct the appropriate health analysis and determine effective mitigation measures for any health impacts.
- The community health issue must receive the same level of analysis that other environmental concerns receive throughout the NEPA process.
- NMFS should utilize the best available methodology to assess human health impacts for the draft EIS (as required under NEPA and Executive Orders 12898 and 13045).
- The health analysis should include: 1) A description of the baseline health status of affected communities 2) An analysis of potential health consequences of the alternatives 3) Identification of potential mitigation measures 4) A discussion of whether the impacts may disproportionately affect low income or minority communities, or children 5) An analysis of the cumulative effects of the proposed action and alternatives.
- There are increasing concerns from local residents regarding human health impacts from proposed oil and gas exploration, development and production activities.

COR 36

NMFS must ensure that the monitoring and mitigation measures imposed are implemented and performed effectively. There needs to be enough funding to allow for better enforcement of stipulations, and consequences for permit violations.

COR 37

NMFS needs to develop and implement a comprehensive, science-based management plan to effectively regulate industrial activity in the Arctic Ocean. An Arctic comprehensive management plan would provide a more complete understanding of how the Arctic ecosystem functions, and what impacts industrial activities have on marine mammals and subsistence communities. NMFS should coordinate its work on the draft EIS with the work of the Task Force in developing an Arctic comprehensive management plan, and should limit the number and scope of activities that are authorized until this plan has been implemented.

- COR 38 The following suggestions were made about the range of alternatives in the EIS:
- NMFS should consider a multi-step process that will reduce the initial list of alternatives to a final list that will undergo full evaluation in the draft EIS.
 - NMFS should explain the reasoning for evaluating a no action alternative (i.e. no seismic or exploratory drilling) since this is beyond the authority of the participating agencies; the Secretary of Interior has the authority to nominate areas for oil and gas activities under the Outer Continental Shelf Lands Act.
 - There are significant economic consequences to be examined in the “no action” scenario analysis. By not undertaking exploration activities in the Arctic and other areas of the outer continental shelf, the U.S. will be obliged to import additional oil from foreign sources.
 - NMFS should consider a sufficient range of alternatives to provide for maximum flexibility in determining the final course of action pursuant to the purpose and need statement.
 - The alternatives should treat the Chukchi and Beaufort seas separately and adopt a flexible program with realistic operating scenarios.
 - The alternatives should adopt a flexible approach to the various seismic and drilling activities taking place within a defined area and evaluate the impacts of proposed operations on an annual basis.
 - The proposed EIS should consider alternatives that address shortcomings in monitoring and mitigation measures.
 - NMFS should consider a broader range of exploration scenarios, given that industry estimates are not always reflective of actual activity into the future.
- COR 39 The EIS should include a list of Conflict Avoidance Agreements for all native groups in Alaska and adopt similar requirements to minimize impacts on subsistence hunting activities.
- COR 40 NMFS must ensure that the EIS complies with the following regulations and guidance:
- Information Quality Act (peer review and document standards)
 - Marine Mammal Protection Act
 - Endangered Species Act
 - National Environmental Policy Act
 - Council on Environmental Quality guidance on analysis of bio-diversity, and
 - EPA guidance on analysis of air quality impacts from emissions.
- COR 41 Inupiat Community of the Arctic Slope, the Alaska Eskimo Whaling Commission, and Northwestern Arctic Borough request a copy of the Draft EIS.
- COR 42 Because MMS regulations (30 CFR Part 251) state that geological and geophysical activities cannot create or cause hazardous or unsafe conditions, any mitigation and monitoring measures imposed on seismic surveys by NMFS and MMS must not result in hazardous or unsafe conditions.

- COR 43 Changes in the EIS analyses over time, coupled with misperceptions of the underlying statutory standards, have culminated in a worst-case scenario impacts analysis presented in the draft EIS.
- COR 44 The perception of representation on behalf of communities regarding input and concerns by environmental groups, Inupiat Community of the Arctic Slope, North Slope Borough, and Alaska Eskimo Whaling Commission is not always accurate or inclusive of an actual community's concerns.
- COR 45 Northwest Arctic Borough requests to be involved with future consultations.
- COR 46 The EIS process causes social impacts to Alaska Native communities participating in the process by taking time away from families, subsistence activities, and work to attend meetings and provide comments. Village governments do not have the budgets to allocate staff time to review and comment on EIS documents.
- COR 47 Communities expressed concern that they are inundated with multiple projects to review and attend meetings by different government agencies. Comment periods often conflict with subsistence activities (particularly whaling season) and as a result communities are unable to fully participate. Communities do not have the staff/resources, expertise or time to allocate a thorough read of each EIS that is occurring on the North Slope. As a result Alaska Native communities are unable to participate in the process and a majority of their potential comments are not included in the decision making process which may have negative future impacts for these communities.
- COR 48 Consultation with Alaska Native communities needs to consider:
- Working with each community to hear their concerns about potential impacts and addressing these concerns in the document.
 - Working with these communities needs to be flexible with regard to impacts to traditional lifestyle, involvement of elders, and schedules that do not interfere with subsistence activities.
 - Villages need adequate preparation time to accommodate meetings and participate in the decision making process as they are overwhelmed by having to participate in multiple decisions and EISs.
 - NMFS should work with stakeholders in the communities and Alaska Native organizations to gather input for alternatives for the EIS to consider.
 - Communities would like to get same information that is presented in each community across the North Slope.
- COR 49 Government to government consultation needs to include:
- Consider potentially affected federally recognized tribal governments to participate in the EIS development process as cooperating agencies.
 - Consider development of a government to government consultation plan that would be helpful in conducting consultation meetings to avoid conflict with subsistence seasons, and such a plan could be developed in collaboration with affected tribal governments.

- Consult with Inupiat Community of the Arctic Slope on a government to government basis and consult with Alaska Eskimo Whaling Commission pursuant to cooperative agreements and continue to accept input from local villages
- Consultation, particularly at the scoping level, should be initiated from NOAA/NMFS and not through their contractor. Meetings should be in person.
- Keep organizations such as the Kaktovik Whaling Captains Association involved in government to government consultation through coordination with Native Village of Kaktovik.
- Provide at least 30 days notice for government to government consultation meetings so that communities are able to review and process what is being presented to them for their consideration.

- COR 50 The Record of Decision should not be completed until the Section 106 consultation process has been fully completed. If adverse effects to traditional cultural properties, sacred sites, or other areas of cultural resource concern are identified, any Memorandum of Agreement developed to resolve these concerns under Section 106 should be addressed in the Record of Decision.
- COR 51 NMFS should not issue incidental take authorizations unless they can ensure that mitigation measures will remove the potential for serious injuries or mortality to marine mammals from activities associated with oil and gas operations.
- Other commenters suggest that authorizations should not be issued until the EIS process is complete.
- COR 52 The agency should exercise its best judgment in granting incidental take authorizations and consider:
- Adopting a five year regulation letter of authorization or consider perhaps a 2 to 3 year permit in consideration of the rapidly changing Arctic environment.
 - Consider a one year permit of performance and if compliance is sufficient than authorize a five permit.
 - Alternatives that consider five year permits should provide for notice and public comment on an annual basis, particularly with concern to subsistence users.
 - Consider limits on activities to protect key habitat and subsistence areas in five year regulations based on best available science.
- COR 53 Oil and gas activity in the Arctic should not be authorized in until after the EIS has been completed. Baseline conditions will have already been affected by the time the EIS is completed and it will not be possible to assess the impacts to the Arctic. This has been demonstrated in other oil and gas developments such as:
- Prudhoe Bay
 - The Gulf of Mexico (in reference to the BP oil spill).
- COR 54 The agency should exercise its best judgment in granting incidental take

authorizations and consider that overly restrictive incidental take authorizations could discourage industry investment, future exploration and production of energy resources in the Arctic. The process is too lengthy and uncertain which can make it difficult for industry to plan and execute responsible and effective programs.

COR 55 The EIS should not seek to establish any such limit on incidental take authorizations; instead it should propose data development and an evaluation system that would be carried out in cooperation with the permit applicants. This would provide sufficient information to make these judgments on an annual basis.

COR 56 NMFS should develop a mechanism to ensure that there is a coordinated effort by federal and state agencies, industry, affected communities, and non governmental organizations and stakeholders to integrate as much as possible physical, biological and social information and data that is applicable to oil and gas exploration and establishes a comprehensive ecosystem baseline.

COR 57 Data and results that are gathered should be shared throughout the impacted communities. Often, adequate data is not shared and therefore perceived inaccurate.

COR 58 The determination whether or not non-exclusive surveys are employed should be left to free-market (competitive) forces.

MIT Mitigation Measures - Comments related to suggestions for or implementation of mitigation measures.

MIT 1 The best available technology should be used to minimize impacts. Specific suggestions include:

- Vibroseis
- Extended reach drilling
- Zero discharge technology (as implemented in Norway)
- Gravity, magnetic, and gravity gradiometry data collection, and
- Low-sulfur fuel.

MIT 2 Areas of high sociocultural, ecological, or biological significance should be protected with seasonal restrictions on the types of activities that can occur there. Specific areas suggested include:

- Critical feeding and resting grounds near Camden Bay in the mid-Beaufort
- Critical feeding grounds in the eastern Beaufort and near Barrow Canyon in the western Beaufort
- Nearshore areas (within 50 miles of the coast)
- Areas that are important for denning, feeding, and/or migration for Arctic species such as Pacific walrus, bowhead whales, beluga whales, or polar bears
- Ledyard Bay critical habitat area for spectacled eiders; and
- Subsistence use areas, such as:

- Areas used by the Village of Kaktovik in the eastern Beaufort
 - Areas around Cross Island used by the Village of Nuiqsut
 - Areas used by the Village of Barrow in the western Beaufort
 - Areas used by Wainwright and Point Lay along the Chukchi Sea coast, and
 - Kotzebue Sound (through July 10).
- MIT 3 A buffer zone should be established at Cross Island similar to the one currently in place in the Chukchi Sea.
- MIT 4 Establish a cap to limit the total number of oil and gas activities that may occur in planning area on a per season basis.
- MIT 5 Oil and gas activities should be limited in duration to the minimum required.
- MIT 6 Required mitigation measures, specifically safety and exclusion zones, should be adaptive and based on sound research, and must be reasonable and feasible. Specific suggestions include:
- Exclusion zones and other regulatory threshold criteria (e.g. 180/190) should be adjusted upwards to 230 dB re: 1 uPa (peak, flat) for cetaceans and 218 dB re: 1 uPa (peak, flat) for pinnipeds.
 - NMFS should use the noise exposure criteria as proposed in Southall et al. (2007) to determine the thresholds for sound exposure and exclusion zones for cetaceans during seismic surveys.
- MIT 7 Seismic surveys should be coordinated and use standardized methodologies to reduce the need for duplicative surveys by different companies.
- MIT 8 The mitigation measures identified in the Programmatic Environmental Assessment should be incorporated into the current Environmental Impact Statement.
- MIT 9 Existing restrictions are adequate to mitigate potential impacts from planned oil and gas activities.
- MIT 10 Mitigation measures are needed to minimize or avoid introduction of non-indigenous species. Suggested measures include:
- Ships should be required to clean their hulls and overboard gear before entering Alaska waters.
 - Ships should also exchange ballast water before entering Alaska waters.
- MIT 11 The effectiveness of exclusion zone monitoring (marine mammal observers, acoustic monitoring, and aerial surveys) is limited by a number of factors including weather, daylight (glare or darkness), sea state, distance, and marine mammal behavior, and safety factors. NMFS should address these limitations.
- MIT 12 Marine mammal monitoring should be required for oil and gas activities. Technologies/methods suggested include:
- Acoustic recorders
 - Aerial monitoring

- Satellite tagging, and
 - On-board marine mammal observers.
- MIT 13 NMFS should run the marine mammal observer program as it does on fishing vessels to ensure that the data is unbiased and accurate.
- MIT 14 Local residents are well suited to carry out the duties of marine mammal observers and should be employed for this task accordingly.
- MIT 15 Noise associated with oil and gas activities should be minimized. Suggested measures include:
- Utilize technologies or methods that minimize horizontal propagation of noise.
 - Require minimum noise levels; only that which can be defended as necessary and not wide open to whatever technology can be brought to bear.
 - Require justification of the need to use proposed methods as opposed to other, if any, less invasive means of obtaining the desired physical data.
- MIT 16 A sound cap or budget that limits the total amount of noise allowed per season should be considered as a mitigation measure.
- MIT 17 Safety and exclusion zone distances should be calculated based on peak levels of sound generated by the oil and gas equipment.
- MIT 18 Require fuel spill reporting and clean up protocols and sufficient equipment for worse case scenarios.
- MIT 19 Arbitrary restrictions on concurrent operations could undermine a lessee's ability to explore its leases.
- MIT 20 Proposed access routes should be surveyed for ice seal lairs, breathing holes, and resting locales to avoid disturbance of these animals.
- MIT 21 Mitigation measures are needed to minimize or avoid ship strikes of marine mammals. Suggested measures include:
- Designating specific shipping lanes
 - Implementing seasonal restrictions to protect marine mammals during their migration, and
 - Establishing speed restrictions.
- MIT 22 Require the use of fish finding equipment and procedures to shut down seismic activity when large schools of fish are encountered.
- MIT 23 Consider barring surveys during periods of low visibility to decrease the risks of harm to marine mammals and birds.
- MIT 24 Comprehensive monitoring is needed to evaluate population changes that may be occurring not only from the proposed project, but natural and cumulative factors.

- MIT 25 NMFS should compile a complete, region-by-region account of all biological stipulations, Notices to Lessees and Operators, and mitigation measures in effect, along with summary information on whether or not these measures have appeared to work, and whether or not any direct studies have been conducted to verify their effectiveness. NMFS should address any identified shortcomings through consultation with stakeholders.
- MIT 26 NMFS should consider a non-exclusive survey program that facilitates sharing of information between entities to reduce exploration related impacts.
- MIT 27 NMFS must analyze impacts to marine mammals and ensure proposed mitigation and monitoring requirements meet the provisions of the Marine Mammal Protection Act, namely that they will result in "the least practicable impact" on protected species and their availability for subsistence use.

Inupiat Culture

ICL Inupiat Culture and Way of Life - Comments related to potential cultural impacts or desire to maintain traditional practices (PEOPLE).

- ICL 1 Alaska Native communities are not compensated for impacts that result from oil and gas activities.
- ICL 2 Industrial activities (such as oil and gas exploration and production) jeopardize the long-term health and culture of native communities. Specific concerns include:
- Impacts to Arctic ecosystems and the associated subsistence resources from pollutants, noise, and vessel traffic
 - Restriction of access to subsistence resources (hunting and fishing areas).
 - Community and family level cultural impacts related to the subsistence way of life
 - Decreased availability of subsistence foods encourages consumption of store-bought food with less nutritional value
 - Subsistence resources from the Arctic Ocean are shared with communities throughout Alaska so impacts to these resources would be felt throughout the state
 - Direct impacts to health resulting from pollutants, and
 - Anthropogenic noise is widespread and disturbs daily life in Alaska Native communities.
- ICL 3 Alaska Native communities need to find a compromise with oil and gas companies to protect subsistence resources and provide jobs.
- ICL 4 One benefit of the oil activity is that the noise may cause whales to move in closer to shore and provide subsistence users with better access.
- ICL 5 Although commercial fishing is currently prohibited the Chukchi and Beaufort seas, fishing is growing at the margins of the Arctic. Directly or indirectly, large-scale commercial fishing could compete with subsistence hunters for the limited productivity of Arctic waters.
- ICL 6 The Northwest Arctic Borough Assembly opposes Outer Continental Shelf leasing with Resolution 08-04. This resolution emphasizes the importance of subsistence foods to the Inupiat way of life. It also recognized the critical need for baseline data, environmental and wildlife monitoring, and filling large data gaps for the area.

UTK Use of Traditional Knowledge - Comments regarding how traditional knowledge (TK) is used in the document or decision making process, need to incorporate TK, or processes for documenting TK.

- UTK 1 Although communities have been providing comments on oil and gas exploration and development for many years, it has not been documented well.
- UTK 2 Native people have expressed concerns regarding the impacts of oil and gas activities on their communities for a long time however these concerns are not being addressed.
- UTK 3 The use of traditional knowledge will assist in documenting the when, where, and at what time the different communities are subsistence hunting, and that will assist in the efforts to avoid conflict between industry and the communities.
- UTK 4 The development of the EIS needs to incorporate and analyze local and traditional knowledge about impacts of previous offshore oil and gas activities on marine mammals as well as the impacts of other activities that may be relevant.
- UTK 5 Traditional knowledge is going to be important for you to get some of the migration routes for beluga whales.
- UTK 6 People would like to have a workshop in each community to identify traditional knowledge data gaps that need to be included in the process.
- UTK 7 While the importance of scientific knowledge is widely recognized, the value of local and traditional knowledge should be equally recognized and included in the EIS process as validation to science.
- UTK 8 Observations and/or studies provided by the communities has not been incorporated or accepted as valid information in the reporting process.
- UTK 9 More needs to be done to ensure that traditional knowledge is widely available. One way of ensuring that is incorporation in the EIS process.
- UTK 10 NMFS needs to consider the extensive, previously collected traditional knowledge, regarding the climate, ecological processes, and resource presence and use on the North Slope gathered over the last few decades in the EIS.

General

ACK Comment Acknowledged - Entire submission determined not to be substantive and warranted only a “comment acknowledged” response.

APPENDIX D

Cooperating Agencies and Government to Government Letters

Memorandum of Understanding between the National Marine Fisheries Service and the Minerals Management Service

**EFFECTS OF OIL AND GAS ACTIVITIES (SEISMIC SURVEYS AND
OFFSHORE EXPLORATORY DRILLING ACTIVITIES) IN THE ARCTIC
OCEAN (U.S. CHUKCHI AND BEAUFORT SEAS)
ENVIRONMENTAL IMPACT STATEMENT**

MEMORANDUM OF UNDERSTANDING BETWEEN

**THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
NATIONAL MARINE FISHERIES SERVICE, THE LEAD AGENCY
AND
THE U.S. MINERALS MANAGEMENT SERVICE, A COOPERATING AGENCY**

I. PURPOSE

This memorandum of understanding (MOU) outlines the roles and responsibilities of the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) and the U.S. Minerals Management Service (MMS) with respect to preparation of the Draft Environmental Impact Statement (DEIS) and the Final Environmental Impact Statement (FEIS) for the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas). This EIS is being prepared under the National Environmental Policy Act (NEPA), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Part 1500-1508), and NOAA's Administrative Order 216-6 (NAO 216-6), Environmental Review Procedures for Implementing NEPA.

II. NOAA (Lead Federal Agency) RESPONSIBILITIES

- A. NOAA has primary responsibility for meeting requirements of NEPA, including preparation of the DEIS and FEIS. In this capacity, NOAA will ensure that the EIS includes information needed to address state and Federal compliance requirements.
- B. NOAA will consult with MMS regarding issues of concern, range of EIS alternatives, and mitigation and monitoring measures to be analyzed in the EIS.
- C. NOAA will provide MMS with copies of the preliminary draft(s) of the DEIS and FEIS and interim work products, such as individual EIS sections, in a timely manner.
- D. NOAA shall provide a minimum of 15 working days (unless a different, agreed upon time frame is established) for review of the preliminary draft of the DEIS and a minimum of 15 working days (unless a different, agreed upon time frame is established) for review of the preliminary draft of the FEIS. In the event there are additional drafts of either the DEIS or the FEIS, a mutually agreed upon time frame will be established.

- E. NOAA will revise preliminary drafts of the DEIS and FEIS in response to comments/concerns/issues identified by MMS.
- F. NOAA will ensure that MMS receives copies of all comments received on the DEIS and FEIS during the public comment periods and provide an initial identification of those comments pertaining to MMS' expertise or regulatory authority, which may require MMS to prepare a written response for inclusion in the EIS.
- G. NOAA will ensure that the DEIS and FEIS cover pages identify MMS as a cooperating agency.

III. MMS (Cooperating Agency) RESPONSIBILITIES

- A. MMS will actively participate in development of the EIS.
- B. MMS will serve as the agency of expertise with regard to describing the technologies used to conduct seismic surveys, offshore exploratory drilling, and other ancillary activities on Outer Continental Shelf leases and MMS statutory and regulatory mandates.
- C. MMS will review preliminary documents and provide comments to NOAA in accordance with specified timelines.
- D. MMS will manage and be responsible for its own resources, such as people, time, and money to assist NOAA in the development of the EIS.
- E. MMS will provide NOAA with timely identification of significant issues, range of EIS alternatives, and mitigation and monitoring measures for NOAA to consider for inclusion in the DEIS and FEIS related to MMS' responsibilities and authorities.

IV. PRINCIPAL POINTS OF CONTACT

James H. Lecky
NOAA/NMFS
1315 East West Highway, Rm. 13821
Silver Spring, Maryland 20910
(301) 713-2332

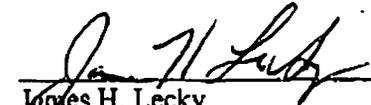
James Kendall
MMS
381 Elden Street
Herndon, Virginia 20170
(703) 787-1652

John Goll
MMS
3801 Centerpoint Drive #500
Anchorage, Alaska 99502
(907) 334-5200

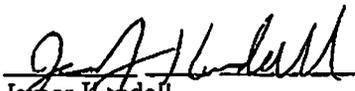
Either NOAA or MMS may terminate this agreement at any time by providing written notice to the other party.

NOAA AND MMS AGREE TO THIS MOU AS OF THE LATTER OF THE THREE DATES WRITTEN BELOW:

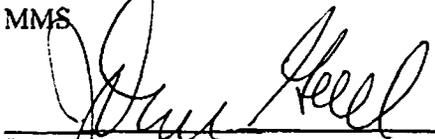
Date: FEB 01 2010

By: 
James H. Lecky
Director, Office of Protected Resources
NOAA/NMFS

Date: 2/3/2010

By: 
James Kendall
Chief, Environmental Division
MMS

Date: 2/3/2010

By: 
John Goll
Regional Director, Alaska
MMS

APPENDIX D

Cooperating Agencies and Government to Government Letters

Cooperating Agency Request Letter to the North Slope Borough



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

MAY 21 2010

Mr. Edward S. Itta
Mayor
North Slope Borough
P.O. Box 69
Barrow, Alaska 99723

Dear Mayor Itta:

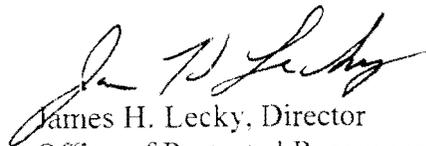
The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has recently begun planning for the preparation of an environmental impact statement (EIS) regarding the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas). This project is designed to analyze the effects of oil and gas exploration activities on marine species in the U.S. Arctic Ocean obtained through U.S. Minerals Management Service lease sales.

We are requesting, pursuant to the Council on Environmental Quality's Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR 1501.6), the participation of the North Slope Borough (NSB) as a cooperating agency on the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas) EIS, due to NSB's jurisdiction and special expertise with respect to the project.

We look forward to your response to this request. Enclosed is a draft Memorandum of Understanding generally outlining the roles and responsibilities of NOAA and NSB. We appreciate any comments you have on this draft agreement, which we will subsequently finalize for signature.

If you have any questions, please contact Mr. P. Michael Payne by phone at (301) 713-2289 ext. 110 or by email at Michael.Payne@noaa.gov.

Sincerely,


James H. Lecky, Director
Office of Protected Resources

Enclosure



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APPENDIX D

Cooperating Agencies and Government to Government Letters

Cooperating Agency Request Letter to the Environmental Protection Agency



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

Richard Parkin
Acting Director
US EPA Region 10
Office of Ecosystems, Tribal and Public Affairs
1200 Sixth Ave, Suite 900,
ETPA-087
Seattle, WA 98101

MAY 21 2010

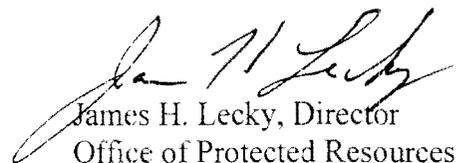
Dear Mr. Parkin:

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has recently begun planning for the preparation of an environmental impact statement (EIS) regarding the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas). This project is designed to analyze the effects of oil and gas exploration activities on marine species in the U.S. Arctic Ocean obtained through U.S. Minerals Management Service (MMS) lease sales.

We are requesting, pursuant to the Council on Environmental Quality's Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR 1501.6), the participation of the Environmental Protection Agency (EPA) as a cooperating agency on the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas) EIS, given Section 309 of the Clean Air Act which specifically directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions.

We look forward to your response to this request. If you have any questions, please contact Mr. P. Michael Payne by phone at (301) 713-2289 ext. 110 or by email at Michael.Payne@noaa.gov.

Sincerely,


James H. Lecky, Director
Office of Protected Resources

Enclosure

APPENDIX D

Cooperating Agencies and Government to Government Letters

Cooperating Agency Request Letter to the U.S. Fish and Wildlife Service



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

FEB 01 2010

Mr. Geoffrey Haskett
Regional Director
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, Alaska 99503

Dear Mr. Haskett:

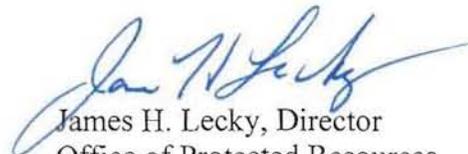
The National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) has recently begun planning for the preparation of an environmental impact statement (EIS) regarding the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas). This project is designed to analyze the effects of oil and gas exploration activities on marine species in the U.S. Arctic Ocean obtained through U.S. Minerals Management Service lease sales.

We are requesting, pursuant to the Council on Environmental Quality's Regulations for Implementing the National Environmental Policy Act (NEPA) (40 CFR 1501.6), the participation of the U.S. Fish and Wildlife Service (USFWS) as a cooperating agency on the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas) EIS, due to USFWS' jurisdiction and special expertise with respect to the project.

We look forward to your response to this request. Enclosed is a draft Memorandum of Understanding generally outlining the roles and responsibilities of NOAA and USFWS. We appreciate any comments you have on this draft agreement, which we will subsequently finalize for signature.

If you have any questions, please contact Mr. P. Michael Payne by phone at (301) 713-2289 ext. 110 or by email at Michael.Payne@noaa.gov.

Sincerely,


James H. Lecky, Director
Office of Protected Resources

Enclosure



**EFFECTS OF OIL AND GAS ACTIVITIES (SEISMIC SURVEYS AND
OFFSHORE DRILLING ACTIVITIES) IN THE ARCTIC OCEAN (U.S.
CHUKCHI AND BEAUFORT SEAS)
ENVIRONMENTAL IMPACT STATEMENT**

MEMORANDUM OF UNDERSTANDING BETWEEN

**THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION,
NATIONAL MARINE FISHERIES SERVICE, THE LEAD AGENCY
AND
THE U.S. FISH AND WILDLIFE SERVICE, A COOPERATING AGENCY**

I. PURPOSE

This memorandum of understanding (MOU) outlines the roles and responsibilities of the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) with respect to preparation of the Draft Environmental Impact Statement (DEIS) and the Final Environmental Impact Statement (FEIS) for the effects of oil and gas activities (seismic surveys and offshore drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas). This EIS is being prepared under the National Environmental Policy Act (NEPA), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Part 1500-1508), and NOAA's Administrative Order 216-6 (NAO 216-6), Environmental Review Procedures for Implementing NEPA.

II. NOAA (Lead Federal Agency) RESPONSIBILITIES

- A. NOAA has primary responsibility for meeting requirements of NEPA, including preparation of the DEIS and FEIS. In this capacity, NOAA will ensure that the EIS includes information needed to address state and Federal compliance requirements.
- B. NOAA will consult with USFWS regarding issues of concern, range of EIS alternatives, and mitigation and monitoring measures to be analyzed in the EIS.
- C. NOAA will provide USFWS with copies of the preliminary draft(s) of the DEIS and FEIS and interim work products, such as individual EIS sections, in a timely manner.
- D. NOAA shall provide a minimum of 15 working days (unless a different, agreed upon time frame is established) for review of the preliminary draft of the DEIS and a minimum of 15 working days (unless a different, agreed upon time frame is established) for review of the preliminary draft of the FEIS. In the event there are additional drafts of either the DEIS or the FEIS, a mutually agreed upon time frame will be established.

- E. NOAA will revise preliminary drafts of the DEIS and FEIS in response to comments/concerns/issues identified by USFWS.
- F. NOAA will ensure that USFWS receives copies of all comments received on the DEIS and FEIS during the public comment periods and provide an initial identification of those comments pertaining to USFWS' expertise or regulatory authority, which may require USFWS to prepare a written response for inclusion in the EIS.
- G. NOAA will ensure that the DEIS and FEIS cover pages identify USFWS as a cooperating agency.

III. USFWS (Cooperating Agency) RESPONSIBILITIES

- A. USFWS will actively participate in development of the EIS.
- B. USFWS will serve as the agency of expertise with regard to the polar bear and walrus and other species under USFWS' jurisdiction.
- C. USFWS will review preliminary documents and provide comments to NOAA in accordance with specified timelines.
- D. USFWS will manage and be responsible for its own resources, such as people, time, and money to assist NOAA in the development of the EIS.
- E. USFWS will provide NOAA with timely identification of significant issues, range of EIS alternatives, and mitigation and monitoring measures for NOAA to consider for inclusion in the DEIS and FEIS related to USFWS' responsibilities and authorities.

IV. PRINCIPAL POINTS OF CONTACT

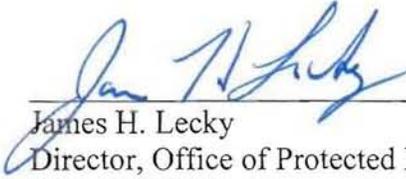
James H. Lecky
NOAA/NMFS
1315 East West Highway, Rm. 13821
Silver Spring, Maryland 20910
(301) 713-2332

Geoffrey Haskett
USFWS
1011 E. Tudor Road
Anchorage, Alaska 99503
(907) 786-3542

Either NOAA or USFWS may terminate this agreement at any time by providing written notice to the other party.

NOAA AND USFWS AGREE TO THIS MOU AS OF THE LATTER OF THE TWO DATES WRITTEN BELOW:

Date: FEB 01 2010

By: 
James H. Lecky
Director, Office of Protected Resources
NOAA/NMFS

Date: _____

By: _____
Geoffrey Haskett
Regional Director
USFWS

APPENDIX D

Cooperating Agencies and Government to Government Letters

Government to Government Consultation Letters



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

JAN 29 2010

Doreen Lampe
President, Inupiat Community of the Arctic Slope
P.O. Box 934
Barrow, Alaska 99723

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Ms. Lampe:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

It is our goal to work collaboratively with Tribal Governments and communities of the U.S. Chukchi and Beaufort Seas in order to explore ways that the energy development in the Arctic can best co-exist with the subsistence culture and lifestyle. NMFS recognizes that it has a special obligation to consult and coordinate with Alaska tribal organizations in the spirit of Executive Order 13175 and welcomes your participation in this effort. Furthermore, NMFS values the contribution that Alaska Native knowledge and experience can provide the EIS team with regard to marine mammals and the environment in general. We will be contacting and soliciting comments from other Alaska Native organizations as well.

The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other fish and wildlife species important to subsistence, as well as the availability of

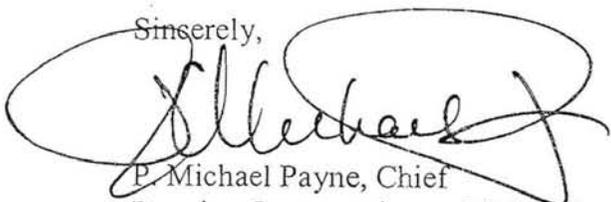


species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

- Under the MMPA, NMFS is responsible for permitting or exempting the "take" of marine mammals through annual authorizations (Incidental Harassment Authorizations [IHAs]) or multiple-year authorizations (Letters of Authorization [LOAs]). In order to issue such authorizations, NMFS must determine that the activity will take only 'small' numbers of marine mammals and that the level of taking will have no more than a "negligible impact" on marine mammal species or stocks and will not have an "unmitigable adverse impact" on subsistence uses of these species.
- Currently, oil and gas exploratory activities, such as drilling and seismic surveys that may take marine mammals pursuant to the MMPA, are applied for and authorized on an annual basis (i.e., IHAs). NMFS is proposing to implement a long-term planning process in order to reduce uncertainties and inconsistencies in the current process. We believe many of the concerns regarding the potential impacts of oil and gas activities on the annual subsistence harvests can be remedied through the development and implementation of regulations that would be in place for five-year periods of time, based on a defined level of activity. Also, under rulemaking, mitigation and monitoring requirements would be consistent or built upon from year to year, rather than determined on an annual basis.
- We are aware that North Slope residents have testified many times with regard to concerns over offshore development. It is our goal to gain a more complete understanding of the concerns that have been voiced previously, so that any questions we may pose to you related to this project will be more focused and useful for what we hope to achieve.

We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,



P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Thomas Olemaun
President, Inupiat Traditional Government
Native Village of Barrow
P.O. Box 1130
Barrow, Alaska 99723

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Mr. Olemaun:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

It is our goal to work collaboratively with Tribal Governments of the coastal communities of the U.S. Chukchi and Beaufort Seas in order to explore ways that the energy development in the Arctic can best co-exist with the subsistence culture and lifestyle. NMFS recognizes that it has a special obligation to consult and coordinate with Alaska tribal organizations in the spirit of Executive Order 13175 and welcomes your participation in this effort. Furthermore, NMFS values the contribution that Alaska Native knowledge and experience can provide the EIS team with regard to marine mammals and the environment in general. We will be contacting and soliciting comments from other Alaska Native organizations as well.

The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other

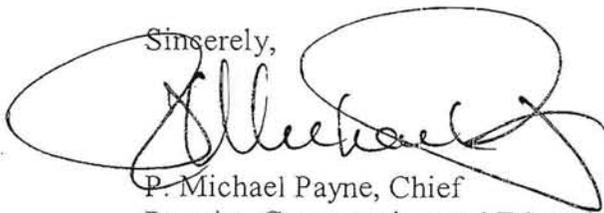


fish and wildlife species important to subsistence, as well as the availability of species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

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- We are aware that North Slope residents have testified many times with regard to concerns over offshore development. It is our goal to gain a more complete understanding of the concerns that have been voiced previously, so that any questions we may pose to you related to this project will be more focused and useful for what we hope to achieve.

We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Payne", written over a large, loopy scribble.

P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Mr. Isaac Akootchook
President, Native Village of Kaktovik
P.O. Box 130
Kaktovik, Alaska 99747

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Mr. Akootchook:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

It is our goal to work collaboratively with Tribal Governments of the coastal communities of the U.S. Chukchi and Beaufort Seas in order to explore ways that the energy development in the Arctic can best co-exist with the subsistence culture and lifestyle. NMFS recognizes that it has a special obligation to consult and coordinate with Alaska tribal organizations in the spirit of Executive Order 13175 and welcomes your participation in this effort. Furthermore, NMFS values the contribution that Alaska Native knowledge and experience can provide the EIS team with regard to marine mammals and the environment in general. We will be contacting and soliciting comments from other Alaska Native organizations as well.

The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

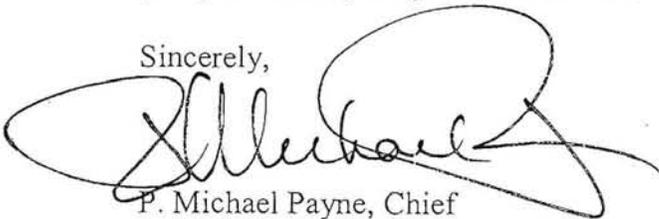
- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other fish and wildlife species important to subsistence, as well as the availability of

species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

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We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Payne", written over a large, stylized circular flourish.

P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Ms. Bernice Kaigelak
President, Native Village of Nuiqsut
P.O. Box 89169
Nuiqsut, Alaska 99789

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Ms. Kaigelak:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

It is our goal to work collaboratively with Tribal Governments and coastal communities of the U.S. Chukchi and Beaufort Seas in order to explore ways that the energy development in the Arctic can best co-exist with the subsistence culture and lifestyle. NMFS recognizes that it has a special obligation to consult and coordinate with Alaska tribal organizations in the spirit of Executive Order 13175 and welcomes your participation in this effort. Furthermore, NMFS values the contribution that Alaska Native knowledge and experience can provide the EIS team with regard to marine mammals and the environment in general. We will be contacting and soliciting comments from other Alaska Native organizations as well.

The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other fish and wildlife species important to subsistence, as well as the availability of

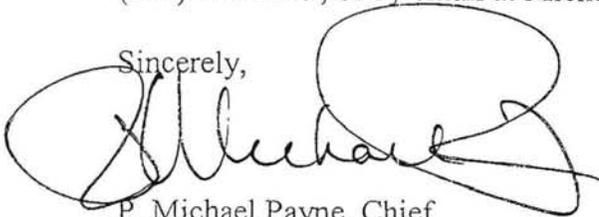


species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

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We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,



P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Caroline Cannon
President
Native Village of Point Hope
P.O. Box 266
Point Hope, Alaska 99766

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Ms. Cannon:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

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- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the

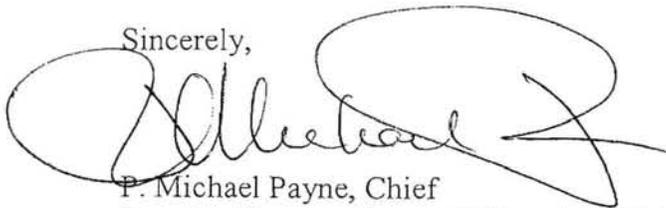


possible consequences of human-related activities on marine mammals and other fish and wildlife species important to subsistence, as well as the availability of species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

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We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,



P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Fredricka Stalker
President
Native Village of Point Lay
P.O. Box 59031
Point Lay, Alaska 99759

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Ms. Stalker:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

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The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

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awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other fish and wildlife species important to subsistence, as well as the availability of species such as bowhead whales, beluga, walrus and seals to the subsistence hunters of these communities.

- Under the MMPA, NMFS is responsible for permitting or exempting the "take" of marine mammals through annual authorizations (Incidental Harassment Authorizations [IHAs]) or multiple-year authorizations (Letters of Authorization [LOAs]). In order to issue such authorizations, NMFS must determine that the activity will take only 'small' numbers of marine mammals and that the level of taking will have no more than a "negligible impact" on marine mammal species or stocks and will not have an "unmitigable adverse impact" on subsistence uses of these species.
- Currently, oil and gas exploratory activities, such as drilling and seismic surveys that may take marine mammals pursuant to the MMPA, are applied for and authorized on an annual basis (i.e., IHAs). NMFS is proposing to implement a long-term planning process in order to reduce uncertainties and inconsistencies in the current process. We believe many of the concerns regarding the potential impacts of oil and gas activities on the annual subsistence harvests can be remedied through the development and implementation of regulations that would be in place for five-year periods of time, based on a defined level of activity. Also, under rulemaking, mitigation and monitoring requirements would be consistent or built upon from year to year, rather than determined on an annual basis.
- We are aware that North Slope residents have testified many times with regard to concerns over offshore development. It is our goal to gain a more complete understanding of the concerns that have been voiced previously, so that any questions we may pose to you related to this project will be more focused and useful for what we hope to achieve.

We look forward to working with you through the completion of the project. If you have any questions, please feel free to contact me at the address below, by telephone at (301) 713-2289, or by email at Michael.Payne@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Michael Payne', written over a large, light-colored oval scribble.

P. Michael Payne, Chief
Permits, Conservation and Education Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway, Room 13705
Silver Spring, MD 20910



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

JAN 29 2010

Ms. June Childress
President, Wainwright Traditional Council
P.O. Box 143
Wainwright, Alaska 99782

Re: National Marine Fisheries Service Environmental Impact Statement on the effects of oil and gas activities (seismic surveys and offshore exploratory drilling activities) in the Arctic Ocean (U.S. Chukchi and Beaufort Seas)

Dear Ms. Childress:

The National Marine Fisheries Service (NMFS) is initiating preparation of an Environmental Impact Statement (EIS) that will consider the effects of offshore geophysical seismic surveys and exploratory drilling in the Federal and state waters of the U.S. Chukchi and Beaufort Seas. The purpose of this letter is to initiate government-to-government consultations, and to invite you and members of your tribe to participate in the scoping process for the development of the EIS. The EIS will consider the potential consequences for authorizing these activities and will evaluate the potential for development of a long-term planning process including regulations developed under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA).

It is our goal to work collaboratively with Tribal Governments and coastal communities of the U.S. Chukchi and Beaufort Seas in order to explore ways that the energy development in the Arctic can best co-exist with the subsistence culture and lifestyle. NMFS recognizes that it has a special obligation to consult and coordinate with Alaska tribal organizations in the spirit of Executive Order 13175 and welcomes your participation in this effort. Furthermore, NMFS values the contribution that Alaska Native knowledge and experience can provide the EIS team with regard to marine mammals and the environment in general. We will be contacting and soliciting comments from other Alaska Native organizations as well.

The process of preparing the EIS will take approximately 18 months and is anticipated to be completed in June 2011. Public scoping and agency meetings will be held in coastal Alaskan communities of the Arctic including Kotzebue, Point Lay, Wainwright, Point Hope, Barrow, Nuiqsut, and Kaktovik, as well as Anchorage, Alaska, in February and March of this year. A brief description of the project is presented below:

- The past several years has seen an increased interest in oil and gas exploration in the Chukchi and Beaufort Seas. These activities, along with the heightened awareness of the global issues facing the Arctic, have focused attention on the possible consequences of human-related activities on marine mammals and other

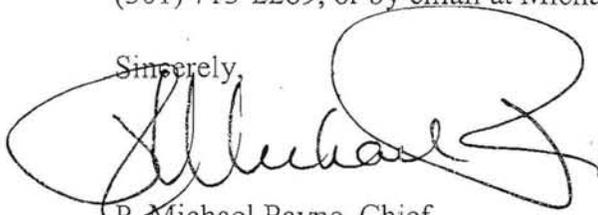


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