Alaska Outer Continental Shelf

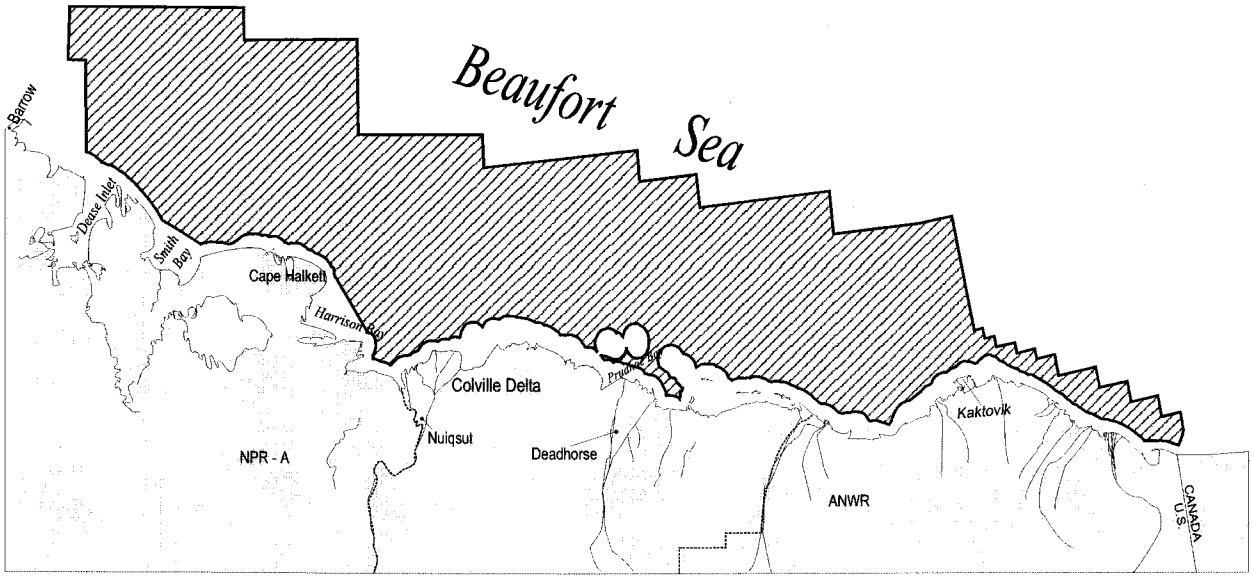
OCS EIS/EA
MMS 2002-029

Beaufort Sea Planning Area

Sales 186, 195, and 202
Oil and Gas Lease Sale

Draft Environmental
Impact Statement

Volume III
(Appendices)



U.S. Department of the Interior
Minerals Management Service
Alaska OCS Region

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APPENDIX A1

OIL SPILL
INFORMATION, MODELS, AND ASSUMPTIONS
AND
SUPPORTING TABLES

APPENDIX A1: THE INFORMATION, MODELS AND ASSUMPTIONS WE USE TO ANALYZE THE EFFECTS OF OIL SPILLS IN THIS EIS

We analyze oil spills and their relative impact to environmental, economic, and sociocultural resource areas and the coastline that could result from offshore oil exploration and development in the Beaufort Sea Planning Area. Predicting an oil spill is an exercise in probability. Uncertainty exists regarding the location, number, and size of oil spills and wind, ice, and current conditions at the time of a spill. Although some of the uncertainty reflects incomplete or imperfect data, a considerable amount of uncertainty exists simply because it is difficult to predict events 15-40 years into the future.

We make assumptions to analyze the effects of oil spills. To judge the effect of an oil spill, we estimate information regarding the type of oil, the source of an oil spill, the location and size of a spill, the chemistry of the oil, how the oil will weather, how long it will remain, and where it will go. We describe the rationale for these assumptions in the following subsections. The rationale for these assumptions is a mixture of project-specific information, modeling results, statistical analysis, and professional judgment. Based on these assumptions, we assume a spill occurs and then analyze its effects. After we analyze the effects of an oil spill, we consider the chance of an oil spill ever occurring.

A. Estimates of the Source, Type, and Size of Oil Spills

Table IV.A-5 shows the source of a spill(s), type of oil, size of spill(s) in barrels, and the receiving environment we assume in our analysis of the effects of oil spills in this EIS for the Proposal and Alternatives and other analyses. The sources of spills are generically divided into platform or pipeline. The type of oil used in this analysis is Alaska North Slope crude. We divide spills into three sizes—small, large, and very large spills. Small spills are those less than 1,000 barrels. Large spills are greater than or equal to 1,000 barrels, and very large spills are greater than or equal to 150,000 barrels. Table IV.A-5 shows the EIS section where we analyze the effects of a large, small, and very large spill.

A.1. Source and Spill-Size Assumptions

The spill assumptions we use for large spills are based on the historic spill sizes from production in the Gulf of Mexico Outer Continental Shelf (OCS) and what we believe is likely to occur. We estimate the likely large spill size based on the median spill size in the Gulf of Mexico. Small spills are based on the historic spill sizes from production on the onshore Alaska North Slope.

A.1.a Historical Crude Oil Spills Greater than or Equal to 1,000 Barrels on the Outer Continental Shelf

The Gulf of Mexico OCS data show that the most likely location of a spill is from a pipeline or a platform. The median size of a crude oil spill greater than or equal to 1,000 barrels from a pipeline from 1985-1999 on the outer continental shelf is 4,600 barrels, and the average is 6,700 barrels (Anderson and LaBelle, 2000). The median spill size for a platform on the outer continental shelf over the entire record from 1964-1999 based on trend analysis is 1,500 barrels, and the average is 3,300 barrels (Anderson and LaBelle, 2000). For purposes of analysis we use the median spill size as the likely spill size.

A.1.b Historical Crude Oil Spills from Blowouts

We consider blowouts to be unlikely events. Blowout events are often equated with catastrophic spills; however, in actuality very few blowout events have resulted in spilled oil, and the volumes spilled are often small. Since 1998, three blowouts on the OCS have resulted in oil spills with the amount of oil spilled ranging from <1 bbl to 200 bbl. There are no spills ≥1,000 bbl from blowouts in the last 30 years on the OCS.

The record for Alaska North Slope blowouts is not validated, but is presented as the best available information. There are two written reports regarding blowouts on the Alaska North Slope, Mallory (1998) and Fairweather (2000). Fairweather (2000) found 10 blowouts, 6 that Mallory had identified and 4 prior to 1974. Of the 10 blowouts, 9 were gas and 1 was oil. The blowout of oil in 1950 was unspectacular and could not have been avoided, as there were no casings of blowout preventors available (Fairweather, 2000). These drilling practices from 1950 would not be relevant today. A third study confirmed that no crude oil spills greater than or equal to 100 barrels from blowouts occurred from 1985-1999 (Hart Crowser, Inc., 2000). A recent report titled *Blowout Frequency Assessment of Northstar* (Scanpower, 2001) uses statistical blowout frequencies modified to reflect specific field conditions and operative systems at Northstar. This report concludes that the blowout frequency for drilling the oil-bearing zone is 1.5×10^{-5} per well drilled. This compares to a statistical blowout frequency of 7.4×10^{-5} per well (for an average development well). This same report estimates that the frequency of oil quantities per well drilled for Northstar for a spill greater than 130,000 barrels is 9.4×10^{-7} per well.

However unlikely a blowout may be, because it is a significant concern to the public, we analyze the effects of an 180,000-barrel spill in Section IV.I, Low Probability, Very Large Oil Spill.

B. Behavior and Fate of Crude Oils

Several processes alter the chemical and physical characteristics and toxicity of spilled oil. Collectively, these processes are referred to as weathering or aging of the oil and, along with the physical oceanography and meteorology, the weathering processes determine the oil's fate. The major oil-weathering processes are spreading, evaporation, dispersion, dissolution, emulsification, microbial degradation, photochemical oxidation, and sedimentation to the seafloor or stranding on the shoreline (Payne et al., 1987; Boehm, 1987; Lehr, 2001).

The physical properties of a crude oil spill, the environment it occurs in, and the source and rate of the spill will affect how an oil spill behaves and weathers. Table A1-1 shows the properties of Alaska North Slope crude oil.

The environment in which a spill occurs, such as the water surface or subsurface, spring ice-overflow, summer open-water, winter under ice, or winter broken ice, will affect how the spill behaves. In ice-covered waters, many of the same weathering processes are in effect; however, the sea ice changes the rates and relative importance of these processes (Payne, McNabb, and Clayton, 1991).

Oil spills spread less in cold water than in temperate water because of the increased oil viscosity. This property will reduce spreading. An oil spill in broken ice would spread less and would spread between icefloes into any gaps greater than about 8-15 centimeters (Free, Cox, and Shultz, 1982).

An oil spill under ice would follow this sequence: (1) the oil will rise to the under-ice surface and spread laterally, accumulating in the under ice cavities (Glaeser and Vance 1971; NORCOR, 1975; Martin, 1979; Comfort et al., 1983). (2) For spills that occur when the ice sheet is still growing, the pooled oil will be encapsulated in the growing ice sheet (NORCOR, 1975; Keevisl and Ramseier, 1975; Buist and Dickens, 1983;

Comfort et al., 1983). (3) In the spring as the ice begins to deteriorate, the encapsulated oil will rise to the surface through brine channels in the ice (NORCOR, 1975; Purves, 1978; Martin, 1979; Kisil, 1981; Dickins and Buist, 1981; Comfort et al., 1983). The spread of oil under the landfast ice may be affected by the presence of currents, if the magnitudes of those currents are large enough. A field study near Cape Parry in the Northwest Territories reported currents up to 10 centimeters per second were present. This current was insufficient to strip oil from under the ice sheet after the oil had ceased to spread (NORCOR, 1975). Laboratory tests have shown that currents in excess of 15-25 centimeters per second are required to strip oil from under-ice depressions (Cammaert, 1980; Cox et al., 1980). Current speeds in the nearshore Beaufort generally are less than 10 centimeters per second during the winter (Weingartner and Okkonen 2001). The area of contamination for oil under ice could increase if the ice were to move. Because the nearshore Beaufort is in the landfast ice area, the spread of oil due to ice movement would not be anticipated until spring breakup.

The lower the temperature, the less crude oil evaporates. Both Prudhoe Bay and Endicott crudes have experimentally followed this pattern (Fingas, 1996). Oil between or on icefloes is subject to normal evaporation. Oil that is frozen into the underside of ice is unlikely to undergo any evaporation until its release in spring. In spring as the ice sheet deteriorates, the encapsulated oil will rise to the surface through brine channels in the ice. As oil is released to the surface, evaporation will occur.

Dispersion of oil spills occurs from wind, waves, currents, or ice. Any waves within the ice pack tend to pump oil onto the ice. Some additional oil dispersion occurs in dense, broken ice through floe-grinding action. More viscous and/or weathered crudes may adhere to porous icefloes, essentially concentrating oil within the floe field and limiting the oil dispersion.

Alaska North Slope crude oil will readily emulsify to form stable emulsions. Emulsification of some crude oils is increased in the presence of ice. With floe grinding, Prudhoe Bay crude forms a mousse within a few hours, an order of magnitude more rapidly than in open water.

B.1. Assumptions About Oil Weathering

- The crude oil properties will be similar to Alaska North Slope crude.
- The size of the spill is 1,500 or 4,600 barrels.
- The wind, wave, and temperature conditions are as described.
- Meltout spills occur into 50% ice cover.
- The properties predicted by the model are those of the thick part of the slick.
- The spill occurs as an instantaneous spill over a short period of time.

Uncertainties exist, such as:

- the actual size of the oil spill or spills, should they occur;
- whether the spill is instantaneous or chronic
- wind, current, wave, and ice conditions at the time of a possible oil spill; and
- the crude oil properties at the time of a possible spill.

B.2. Modeling Simulations of Oil Weathering

To judge the effect of an oil spill, we estimate information regarding how much oil evaporates, how much oil is dispersed, and how much oil remains after a certain time period. We derive the weathering estimates of Alaska North Slope crude oil and arctic diesel from modeling results from the SINTEF Oil Weathering Model Version 1.8 (Reed et al., 2000) for up to 30 days.

Tables IV.A-6a and 6b show the results for Alaska North Slope crude oil spills using the SINTEF model. The SINTEF OWM changes both oil properties and physical properties of the oil. The oil properties include density, viscosity, pour point, flash point, and water content. The physical processes include spreading, evaporation, oil-in-water dispersion, and water uptake. The SINTEF OWM Version 1.8 performs a 30-day time horizon on the model-weathering calculations, but with a warning that the model is not verified against experimental field data for more than 4 - 5 days. The SINTEF OWM has been tested extensively with results from three full-scale field trials of experimental oil spills (Daling and Strom, 1999).

The SINTEF OWM does not incorporate the effects of the following:

- currents;
- beaching;
- containment;
- photo-oxidation;
- microbiological degradation;
- adsorption to particles; and
- encapsulation by ice.

The Alaska North Slope crude oil spill sizes are 1,500 and 4,600 barrels. We simulate two general scenarios: one in which the oil spills into open water and one in which the oil freezes into the ice and melts out into 50% ice cover. We assume open water is July through September, and a winter spill melts out in July. For open water, we model the weathering of the 1,500 and 4,200-barrel spills as if they are instantaneous spills. For the meltout spill scenario, we model the entire spill volume as an instantaneous spill. Although different amounts of oil could melt out at different times, the MMS took the conservative approach, which was to assume all the oil was released at the same time. We report the results at the end of 1, 3, 10, and 30 days.

Tables IV A.6a and 6b summarize the results we assume for the fate and behavior of Alaska North Slope crude oil and diesel oil in our analysis of the effects of oil on environmental and social resources.

C. Estimates of Where an Offshore Oil Spill May Go

We study how and where large offshore spills move by using a computer model called the Oil-Spill-Risk Analysis model (Smith et al., 1982). By large, we mean spills greater than or equal to 1,000 barrels. This model analyzes the likely paths of oil spills in relation to biological, physical, and social resources. The model uses information about the physical environment, including files of wind, ice, and current data. It also uses the locations of environmental resource areas, barrier islands, and the coast that might be contacted by a spill.

C.1. Inputs to the Oil-Spill-Trajectory Model

- Study area
- Seasons
- Location of the coastline
- Location of environmental resource areas
- Location of land segments
- Location of boundary segments
- Location of hypothetical spill boxes
- Location of hypothetical pipelines and transportation assumptions
- Current and ice information from two general circulation models
- Wind information

C.1.a Study Area and Boundary Segments

Map A-1 shows the Beaufort multiple-sale oil-spill-trajectory study area extends from latitude 68° N. to 74° N. and from long. 134° W. to 176° W. The study area is formed by 38 boundary segments and the Chukchi and Beaufort Sea coastline. The boundary segments are vulnerable to spills in both summer and winter. We chose a study area large enough to contain the paths of 2,700 oil spills each through as long as 360 days.

C.1.b Seasons

We define three time periods for the trajectory analysis of oil spills. The first is from July through September and represents open water or arctic summer. We ran 675 trajectories in the arctic summer. The second is from

October through June and represents ice cover or arctic winter. We also ran 2,025 trajectories in the arctic winter. The last is annual which is from January to December and represents the entire year. We ran 2,700 trajectories total.

C.1.c Locations of Environmental Resource Areas

Maps A-2a, A-2b, A-2c, and A-2d show the location of 88 environmental resource areas, which represent concentrations of wildlife, subsistence-hunting areas, and subsurface habitats. Our analysts designate these environmental resource areas. The analysts also designate in which months these environmental resource areas are vulnerable to spills. The names or abbreviations of the environmental resource areas and the months in which they are vulnerable to spills are shown in Table A1-2. We also include Land as an additional environmental resource area. Land is the entire study area coastline.

C.1.d Location of Land Segments

Land was further analyzed by dividing the Beaufort Sea coastline into 66 land segments. Maps A-3a and A-3b show the location of these 66 land segments. Land segments are vulnerable to spills in both summer and winter. The model defines summer as July through September and winter from October through June.

C.1.e Location of Proposed and Alternative Hypothetical Spill Areas and Pipeline Segments

Map A-4a shows the location of the 18 hypothetical spill boxes and 13 pipelines the sites where large oil spills would originate, if they were to occur. There are 735 spill points evenly spread over the 18 hypothetical spill boxes and 13 pipeline segments. Hypothetical spills were started at the 735 spill points and 13 pipeline segments. With the exception of the Northstar pipeline, landfall locations were chosen based on educated guesses. For example the Liberty pipeline was chosen as a landfall. Since that time the project has been canceled.

Map A-4b shows the location of the alternatives to indicate where spill areas and pipelines would be removed. It also shows the location of the near, medium and far zones. Table A1-3 shows the transportation assumptions for the spill areas and their associated pipelines.

Table A1-4 shows how the pipelines and spill boxes relate to the near, medium and far scenarios and each alternative for each sale. For Sales 186, 195, and 202 Alternative I we assume no oil spills occur during exploration activities. Development/production activities for Sale 186 are not expected to occur in the in the far/deepwater zone, so there would be no spill from spill boxes or pipeline segments in this zone (LA1-LA5, LA11, LA13-LA16, LA18, P1, P5, P6, and P8). Development/production activities for Sale 195 are not expected to occur in the in the far/deepwater zone, so there would be no spill from launch areas or pipeline segments in this zone (LA1-LA5, LA11, LA13-LA16, LA18, P1, P5, P6, and P8).

One development/production project is expected to occur in the far/deepwater zone for Sale 202. No development/production projects are expected in the near/shallow zone or the mid-range/medium depth zone so there would be no spill from spill boxes LA8 and LA10.

C.1.f Current and Ice Information from a General Circulation Model

For the Beaufort multiple sale, we use two general circulation models to simulate currents ($U_{current}$) or ice (U_{ice}) depending upon whether the location is nearshore or offshore.

C.1.f(1) Offshore

Offshore of the 10- to 20-meter bathymetry contour, the wind-driven and density-induced ocean-flow fields and the ice-motion fields are simulated using a three-dimensional coupled ice-ocean hydrodynamic model (Haidvogel, Hedstrom, and Francis, 2001). The model is based on the ocean model of Haidvogel, Wilkin, and

Young (1991) and the ice models of Hibler (1979) and Mellor and Kantha (1989). This model simulates flow properties and sea ice evolution in the western Arctic during the years 1982-1996. The coupled system uses the S-Coordinate Rutgers University Model (SCRUM) and Hibler viscous-plastic dynamics and the Mellor and Kantha thermodynamics. It is forced by daily surface geostrophic winds and monthly thermodynamic forces. The model is forced by thermal fields for the years 1982-1996. The thermal fields are interpolated in time from monthly fields. The location of each trajectory at each time interval is used to select the appropriate ice concentration. The pack ice is simulated as it grows and melts. The edge of the pack ice is represented on the model grid. Depending on the ice concentration, either the ice or water velocity with wind drift from the stored results of the Haidvogel, Hedstrom and Francis (2001) coupled ice-ocean model is used. A major assumption used in this analysis is that the ice-motion velocities and the ocean daily flows calculated by the coupled ice-ocean model adequately represent the flow components. Comparisons with data illustrate that the model captures the first-order transport and the dominant flow (Haidvogel, Hedstrom, and Francis, 2001).

C.1.f(2) Nearshore

Inshore of the 10- to 20-meter bathymetry contour, $U_{current}$ is simulated using a two-dimensional hydrodynamic model developed by the National Oceanic and Atmospheric Administration (NOAA) (Galt, 1980, Galt and Payton, 1981). This model does not have an ice component. In this model, we added an ice mask within the 0-meter and 10- to 20-meter water-depth contours to simulate the observed shorefast-ice zone. We apply the mask from November 1-June 15 in the Beaufort and December 1 to May 1 in selected areas of the Chukchi. U_{ice} is zero for the months November through June or January to May. The two-dimensional model incorporates the barrier islands in additional to the coastline. The model of the shallow water is based on the wind forcing and the continuity equation. The model was originally developed to simulate wind-driven shallow-water dynamics in lagoons and shallow coastal areas with a complex shoreline. The solutions are determined by a finite element model where the primary balance is between wind forcing friction, pressure gradients, coriolis accelerations, and bottom friction. Time dependencies are considered small, and the solution is determined by iteration of the velocity and sea level equations, until the balanced solution is calculated. The wind is the primary forcing function, and a sea level boundary condition of no anomaly produced by the particular wind stress is applied far offshore, at the northern boundary of the oil spill trajectory analysis domain. An example of the currents simulated by this model for a 10-meter-per-second wind is shown in Figure A-1.

The results of the model were compared to current meter data from the Endicott Environmental Monitoring Program to determine whether the model was simulating the first-order transport and the dominant flow. The model simulation was similar to the current meter velocities during summer. Example time series from 1985 show the current flow at Endicott Station ED1 for the U (east-west) and V (north-south) components, plotted on the same axis with the current derived from the National Oceanographic and Atmospheric Administration model for U and V (Der-U and Der-V). The series show many events that coincide in time, and that the currents derived from the National Oceanic and Atmospheric Administration model are generally in good correspondence with the measured currents. Some of the events in the measured currents are not particularly well represented, and that probably is due to forcing of the current by something other than wind, such as low frequency alongshore wave motions.

C.1.g Wind Information

We use 15 of the 17-year reanalysis of the wind fields provided to us by Rutgers. The TIROS Operational Vertical Sounder (TOVS) has flown on NOAA polar-orbiting satellites since 1978. Available from July 7, 1979, through December 31, 1996, and stored in Hierarchical Data Format, the TOVS Pathfinder (Path-P) dataset provides observations of areas poleward of lat. 60° N. at a resolution of approximately 100 x 100 kilometers. The TOVS Path-P data were obtained using a modified version of the Improved Initialization Inversion Algorithm (3I) (Chedin et al., 1985), a physical-statistical retrieval method improved for use in identifying geophysical variables in snow- and ice-covered areas (Francis, 1994). Designed to address the particular needs of the polar research community, the dataset is centered on the North Pole and has been gridded using an equal-area azimuthal projection, a version of the Equal-Area Scalable Earth-Grid (EASE-Grid) (Armstrong and Brodzik, 1995).

Preparation of a basin-wide set of surface-forcing fields for the years 1980 through 1996 has been completed (Francis, 1999). Improved atmospheric forcing fields were obtained by using the bulk boundary-layer stratification derived from the TOVS temperature profiles to correct the 10-meter level geostrophic winds

computed from the National Center for Environmental Prediction Reanalysis surface pressure fields. These winds are compared to observations from field experiments and coastal stations in the Arctic Basin and have an accuracy of approximately 10% in magnitude and 20 degrees in direction.

C.1.h Oil-Spill Scenario

For purposes of this trajectory simulation, all spills occur instantaneously. For each trajectory simulation, the start time for the first trajectory was the first day of the season (summer or winter) of the first year of wind data (1982) at 6 a.m. Greenwich Mean Time. We launch particles every 2 days (on average) for each of the 15 years of wind.

C.2. Oil-Spill-Trajectory Model Assumptions

- Oil spills occur in the hypothetical spill areas or along pipeline segments.
- Companies transport the produced oil through pipelines.
- An oil spill reaches the water.
- An oil spill encapsulated in the fast ice does not move until the ice moves or it melts out.
- Oil spills occur and move without consideration of weathering. The oil spills are simulated each as a point with no mass or volume. The weathering of the oil is estimated in the stand-alone SINTEF OWM model.
- Oil spills occur and move without any cleanup. The model does not simulate cleanup scenarios. The oil-spill trajectories move as though no booms, skimmers, or any other response action is taken.
- Oil spills stop when they contact the mainland coastline, but not the barrier islands in Steffanson Sound.

Uncertainties exist, such as:

- the actual size of the oil spill or spills, should they occur;
- whether the spill reaches the water;
- whether the spill is instantaneous or a long-term leak;
- the wind, current, and ice conditions at the time of a possible oil spill;
- how effective cleanup is;
- the characteristics of crude oil at the time of the spill;
- how Alaska North Slope crude oil will spread; and
- whether or not production occurs.

C.3. Oil-Spill-Trajectory Simulation

The trajectory simulation portion of the model consists of many hypothetical oil-spill trajectories that collectively represent the mean surface transport and the variability of the surface transport as a function of time and space. The trajectories represent the Lagrangian motion that a particle on the surface might take under given wind, ice, and ocean current conditions. Multiple trajectories are simulated to give a statistical representation, over time and space, of possible transport under the range of wind, ice, and ocean current conditions that exist in the area.

Trajectories are constructed from simulations of wind-driven and density-induced ocean flow fields, and the ice-motion field. The basic approach is to simulate these time and spatially dependent currents separately, then combine them through linear superposition to produce an oil-transport vector. This vector is then used to create a trajectory. Simulations are performed for three seasons: winter (October-June), summer (July-September) and annual (January –December). The choice of this seasonal division was based on meteorological, climatological, and biological cycles and consultation with Alaska Region analysts.

For cases where the ice concentration is below 80%, each trajectory is constructed using vector addition of the ocean current field and 3.5% of the instantaneous wind field—a method based on work done by Huang and Monastero (1982), Smith et al. (1982), and Stolzenbach et al. (1977). For cases where the ice concentration is 80% or greater, the model ice velocity is used to transport the oil. Equations 1 and 2 show the components of motion that are simulated and used to describe the oil transport for each spillete:

1 $U_{oil} = U_{current} + 0.035\ U_{wind}$

or

2 $U_{oil} = U_{ice}$

where:

U_{oil} = oil drift vector
$U_{current}$ = current vector (when ice concentration is less than 80%)
U_{wind} = wind speed at 10 meters above the sea surface
U_{ice} = ice vector (when ice concentration is greater than or equal to 80%)

The wind drift factor was estimated to be 0.035, with a variable drift angle ranging from 0° to 25° clockwise. The drift angle was computed as a function of wind speed according to the formula in Samuels, Huang, and Amstutz (1982). (The drift angle is inversely related to wind speed.) The trajectories age while they are in the water and/or on the ice. For each day that the hypothetical spill is in the water, the spill ages—up to a total of 360 days. While the spill is in the ice (greater than or equal to 80% concentration), the aging process is suspended. The maximum time allowed for the transport of oil in the ice is 360 days, after which the trajectory is terminated. When in open water, the trajectory ages to a maximum of 30 days.

C.4. Results of the Oil-Spill-Trajectory Model

C.4.a Conditional Probabilities: Definition and Application

The chance that an oil spill will contact a specific environmental resource area or land or boundary segment within a given time of travel from a certain location or spill site is termed a conditional probability. The condition is that we assume a spill occurs. Conditional probabilities assume a spill has occurred and the transport of the spilled oil depends only on the winds, ice, and ocean currents in the study area.

For the Beaufort multiple sale, we estimate conditional probabilities of contact within 1, 3, 10, 30, 60, 180 or 360 days during summer. Summer spills are spills that begin in July through September. Therefore, if any contact to an environmental resource area or land segment is made by a trajectory that began before the end of September, it is considered a *summer contact* and is counted along with the rest of the contacts from spills launched in the summer. We also estimate the conditional probability of contact from spills that start in winter, freeze into the landfast ice and meltout in the spring. We estimate contacts from these spills for 1, 3, 10, 30, 60, 180 or 360 days. Winter spills are spills that begin in October through June melt out of the ice and contact during the open-water period. Therefore, if any contact to an environmental resource area or land segment is made by a trajectory that began by the end of June, it is considered a winter *contact* and is counted along with the rest of the contacts from spills launched in the winter.

C.4.b Conditional Probabilities: Results

The chance of a spill contacting is taken from the oil-spill trajectory model results summarized below and listed in Tables A2-1 through A2-54.

C.4.b(1) Comparisons Between Spill Location and Season

The primary differences of contact between spill locations are geographic in the perspective of west to east and nearshore versus offshore. Offshore spill locations take longer to contact the coast and nearshore environmental resource area, if contact occurs at all. Winter spill contact to nearshore and coastal resources is less often and to a lesser extent due to the landfast ice in place from October to June.

C.4.b(2) Generalities Through Time

3 Days: During summer offshore spill, boxes 1, 7, 9, 11, 13, 14, and 16 have less than a 0.5 percent chance of contacting individual land segments within 3 days. Nearshore spill boxes have a less than 0.5 to 6 percent

chance of contacting individual land segments. Pipeline segments have a less than 0.5 to 14 percent chance of contacting individual land segments. Contacts to land segments from pipeline spills are highest where the pipeline comes ashore.

During summer offshore spill, boxes 1 through 18 have a less than 0.5 to 46 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

During winter spill, boxes 1, 3, 5, 7, and 9 through 17 have less than a 0.5 percent chance of contacting individual land segments within 3 days. Nearshore spill boxes 2, 4, 6, 8 and 18 have a less than 0.5 to 1 percent chance of contacting individual land segments. Pipeline segments have a less than 0.5 to 5 percent chance of contacting individual land segments.

During winter offshore spill, boxes 1 through 18 have a less than 0.5 to 46 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

10 Days: During summer offshore spill, box 14 has less than a 0.5 percent chance and spill boxes 9, 11, and 13 have a less than 0.5 to 1 percent chance of contacting individual land segments within 10 days... The other spill boxes have a less than 0.5 to 13 percent chance of contacting individual land segments. Pipeline segments have a less than 0.5 to 18 percent chance of contacting individual land segments. Contacts to land segments from pipeline spills are highest where the pipeline comes ashore.

During summer offshore spill, boxes 1 through 18 have a less than 0.5 to 60 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

During winter offshore spill, boxes 3, 9, 11, 13, 14, 15, and 16 have less than a 0.5 percent chance of contacting individual land segments within 10 days. Other spill boxes have a less than 0.5 to 2 percent chance of contacting individual land segments. Pipeline segments have a less than 0.5 to 6 percent chance of contacting individual land segments.

During winter offshore spill, boxes 1 through 18 have a less than 0.5 to greater than 59 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

30 Days: During summer spill, boxes have a less than 0.5 to 17 percent chance of contacting individual land segments within 30 days. Pipeline segments have a less than 0.5 to 21 percent chance of contacting individual land segments. Contacts to land segments from pipeline spills are highest where the pipeline comes ashore.

During summer offshore spill, boxes 1 through 18 have a less than 0.5 to 66 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

During winter offshore spill, boxes 11, 13, and 14 have less than a 0.5 percent chance of contacting individual land segments within 30 days. Other spill boxes have a less than 0.5 to 4 percent chance of contacting individual land segments. Pipeline segments have a less than 0.5 to 6 percent chance of contacting individual land segments.

During winter offshore spill, boxes 1 through 18 have a less than 0.5 to greater than 62 percent chance of contacting individual environmental resource areas. Spill boxes adjacent to or on top of environmental resource areas have the highest percent chance of contact. Pipeline segments 1 through 13 have a less than 0.5 to greater than 99.5 percent chance of contact to individual environmental resource areas.

D. Oil Spill Risk Analysis

A measure of oil spill impact is determined by looking at the chance of a spill occurring and then contacting a resource of concern. This analysis helps determine the relative spill occurrence and contact associated with oil and gas production in different regions of the proposed area. Combined probabilities are estimated using the conditional probabilities, the historical oil-spill rates, the resource estimates, and the assumed transportation scenarios. These are combined through matrix multiplication to estimate the mean number of spills occurring and contacting.

D.1. Chance of a Spill Occurring

The chance of a spill occurring is derived from two components: (1) the spill rate and (2) the resource volume estimates.

D.1.a Spill Rates

We derive the spill rates from a modeling study done by the Bercha Group (in press). This study examined alternative oil spill occurrence estimators for the Beaufort and Chukchi Seas using a fault tree method. During the Liberty Development final EIS stakeholders expressed concern regarding the application of historical data from the Gulf of Mexico to the Beaufort OCS. For the Liberty Development final EIS, historical oil spill data was gathered from a multitude of sources. Various causes of spills were looked at in relation to their relevance to Arctic conditions. A preliminary assessment was made regarding the contribution of Arctic versus non-Arctic conditions. Because sufficient historical data on offshore oil spills for these regions do not exist for the Arctic on oil spill occurrence a model based on fault tree methodology was developed and applied for this Beaufort multiple sale (Bercha Group, in press). Using fault trees, oil spill data from the Gulf of Mexico were modified and incremented to represent expected Arctic performance.

D.1.a(1) Limitations of Input Data

The Arctic effects include modifications in causes associated with the historical data set as well as additions of spill causes unique to the Arctic environment. Quantification of existing causes for the Arctic was done in a relatively cursory way restricted to engineering judgment. A reproducible but relatively elementary analysis of gouging and scour effects was carried out. Upheaval buckling and thaw settlement effect assessments were included on the basis of professional judgment; no engineering analysis was carried out for the assessment of frequencies to be expected for these effects. No Arctic effects were estimated for the wells, which were considered to blowout with frequencies the same as those for the Gulf of Mexico. The existing MMS data bases on pipeline mileage were used as they stand with all their inherent inaccuracies.

D.1.a(2) Results for Spill Rates

Based on the Bercha Group (in press) fault tree analysis for Sale 186 the MMS calculates the spill rates as follows:

Platforms	0.13 spills per billion barrels produced
Pipelines	0.10 spills per billion barrels produced

D.1.b Resource Volume Estimates

The resource volume estimates are discussed in terms of an opportunity index in Appendix B.

D.1.c Transportation Assumptions

Appendix A, Section C, Estimates of Where an Offshore Oil Spill May Go, discusses the transportation assumptions for the spill boxes and their associated pipelines.

D.1.d Results for the Chance of a Spill Occurring

Using the above spill rates, Table A2-5 shows the chance of one or more spills occurring for the proposal and alternatives. For the proposal alternatives we estimate 0.04 to 0.05 pipeline spills and 0.05 to 0.06 platform (&wells) spills. The chance of one or more pipeline spills is 4 to 5% and the chance of one or more platform spills is 5 to 6%. The chance of one or more spills total is 8 to 10 %.

D.2. Chance of a Spill Contacting

The chance of a spill contacting is taken from the oil-spill trajectory model results summarized above in Section C.4.b and listed in Tables A2-1 through A2-54.

D.3. Results of the Oil Spill Risk Analysis: Combined Probabilities

Tables A2-55 through A2-72 show the annual combined probabilities for the proposal and the alternatives. For the most part, the chance of one or more spills occurring and contacting resources and land segments is less than 0.5%. The relative risk from the proposal and alternatives is that we do not expect oil spills to occur and contact resources or coastline. Because the combined probabilities are so low it is difficult to distinguish differences between the proposal and alternatives based on combined probabilities.

E. Small Oil Spills

Small spills are spills that are less than 1,000 barrels. We analyze the effects of small spills in Section IV.B. We consider two types of small spills – crude and refined oils.

We us the Alaska North Slope record of small spills because the spill rate is significantly less than the Gulf of Mexico OCS small spill rate. The OCS rate of crude and refined small spills is approximately 3,460 spills per billion barrels and the North Slope rate is approximately 618 spills per billion barrels. We expect the same companies and regulators to participate offshore in the Beaufort Sea as those that now currently operate on the onshore Alaska North Slope. We believe it is reasonable to assume that the rate in the Beaufort Sea will be similar to the rate on the Alaska North Slope.

The analysis of operational small oil spills uses historical oil-spill databases and simple statistical methods to derive general information about small crude and refined oil spills that occur on the Alaska North Slope. This information includes estimates of how often a spill occurs for every billion barrels of oil produced (oil-spill rates), the mean (average) number of oil spills, and the mean and median size of oil spills from facilities, pipelines, and flowlines combined. We then use this information to estimate the number, size, and distribution of operational small spills that may occur from the Beaufort multiple sale. The analysis of operational small oil spills considers the entire production life of the Beaufort multiple sale and assumes:

- commercial quantities of hydrocarbons are present in the multiple sale Program Area, and
- these hydrocarbons will be developed and produced at the estimated resource levels.

Uncertainties exist, such as

- the estimates required for the assumed resource levels, or
- the actual size of a crude- or refined-oil spill.

We use the history of crude and refined oil spills reported to the State of Alaska, Department of Environmental Conservation and the Joint Pipeline Office to determine crude- and refined-oil spill rates and patterns from

Alaska North Slope oil and gas exploration and development activities for spills greater than or equal to 1 gallon and less than 1,000 barrels. Refined oil includes aviation fuel, diesel fuel, engine lube, fuel oil, gasoline, grease, hydraulic oil, transformer oil, and transmission oil. The Alaska North Slope oil-spill analysis includes onshore oil and gas exploration and development spills from the Point Thompson Unit, Badami Unit, Kuparuk River Unit, Milne Point Unit, Prudhoe Bay West Operating Area, Prudhoe Bay East Operating Area, and Duck Island Unit.

The Alaska North Slope oil-spill database of all spills greater than or equal to 1 gallon is from the State of Alaska, Department of Environmental Conservation. Oil-spill information is provided to the State of Alaska, Department of Environmental Conservation by private industry according to the State of Alaska Regulations 18 AAC 75. The totals are based on initial spill reports and may not contain updated information. The State of Alaska, Department of Environmental Conservation database integrity is most reliable for the period 1989 and after due to increased scrutiny after the *Exxon Valdez* oil spill (Volt, 1997, pers. commun.). For this analysis, the database integrity cannot be validated thoroughly. However, we use this information, because it is the only information available to us about small spills. For this analysis, the State of Alaska, Department of Environmental Conservation database is spot checked against spill records from ARCO Alaska, Inc. and British Petroleum, Inc. All spills greater than or equal to 1 gallon are included in the dataset. We use the time period January 1989-December 2000 in this analysis of small oil spills for the Beaufort Multiple Sale.

A simple analysis of operational small oil spills is performed. Alaska North Slope oil-spill rates are estimated without regard to differentiating operation processes. The State of Alaska, Department of Environmental Conservation, database base structure does not facilitate quantitative analysis of Alaska North Slope oil-spill rates separately for platforms, pipelines, or flowlines.

E.1. Results for Small Operational Crude Oil Spills

The analysis of Alaska North Slope crude oil spills is performed collectively for all facilities, pipelines, and flowlines. The pattern of crude oil spills on the Alaska North Slope is one of numerous small spills. Of the crude oil spills that occurred between 1989 and 2000, 31% were less than or equal to 2 gallons; 55% were less than or equal to 5 gallons. Ninety-eight percent of the crude oil spills were less than 25 barrels and 99% were less than 60 barrels. The spill sizes in the database range from less than 1 gallon to 925 barrels. The average crude oil-spill size on the Alaska North Slope is 2.7 barrels, and the median spill size is 5 gallons. For purposes of analysis, this EIS assumes an average crude oil-spill size of 3 barrels.

Table A1-6a shows the estimated crude oil-spill rate for the Alaska North Slope is 178 spills per billion barrels produced. Table A1-6b shows the assumed number, size, and total volume of small spills for the proposal and alternative. Table A1-6c shows the assumed size distribution of those spills for the proposal and alternatives.

The causes of Alaska North Slope crude oil spills, in decreasing order of occurrence by frequency, are leaks, faulty valve/gauges, vent discharges, faulty connections, ruptured lines, seal failures, human error, and explosions. The cause of approximately 30% of the spills is unknown.

E.2. Results for Small Operational Refined Oil Spills

The typical refined products spilled are aviation fuel, diesel fuel, engine lube, fuel oil, gasoline, grease, hydraulic oil, transformer oil, and transmission oil. Diesel spills are 58% of refined oil spills by frequency and 83% by volume. Engine lube oil spills are 10% by frequency and 3% by volume. Hydraulic oil is 26% by frequency and 10% by volume. All other categories are less than 1% by frequency and volume. Refined oil spills occur in conjunction with oil exploration and production. The refined oil spills correlate to the volume of Alaska North Slope crude oil produced. As production of crude oil has declined, so has the number of refined oil spills. Table A1-6d shows that from January 1989-December 2000, the spill rate for refined oil is 440 spills per billion barrels produced. Table A1-6e shows the assumed refined oil spills during the lifetime of the proposal and alternatives.

Table A1-1 Properties of Alaska North Slope Crude Oil (Pump Station 1)

Property		Weathering (Volume %)		
in English Units	**in Metric Units**	**0**	**11.5**	**20.0**
Density (g/cm^{3})	**Density (g/m L)**			
34°F	1°C	0.887	0.926	0.943
60°F	15°C	0.876	0.914	0.935
85°F	30°C			
Viscosity	**Viscosity**			
Dynamic (cP)	**Dynamic (mPa.s)**			
60°F	15°C	38.9	471.3	9031.3
85°F	30°C	17.6	93.4	665.0
Kinematic (cST)	**Kinematic (mm$^{2/s}$)**			
60°F	15°C	43.9	509.0	9577.2
85°F	30°C	20.1	102.2	711.2
Interfacial Tensions @ 72°F (dynes/cm)	**Interfacial Tensions @ 22°C (mNm)**			
Air/Oil	Air/Oil	31.8	34.2	35.3
Oil/Seawater	Oil/Seawater	24.0	27.0	25.0
Pour Point	**Pour Point**			
°F		<9	9	30
	°C	<-13	-13	-1
Flash Point	**Flash Point**			
°F		<9	19	252
	°C	<-13	-7	-122
Emulsion Formation @ 72°F	**Emulsion Formation @ 22°C**			
Tendency	**Tendency**	0.40	0.86	1.00
Stability	**Stability**	0.00	0.00	1.00

ASTM Modified Distillation (°C)				
Evaporation (% volume)	**Liquid Temperature**		**Vapor Temperature**	
	°F	**°C**	**°F**	**°C**
1B.P	171.68	77.6	95.9	35.5
5	297.32	147.4	128.66	53.7
10	359.42	181.9	149.36	65.2
15	416.3	213.5	166.82	74.9
20	478.94	248.3	184.1	84.5
25	543.56	284.2	201.02	93.9
30	596.48	313.6	238.28	114.6
35	645.08	340.6	251.42	121.9

Source: S.L. Ross Environmental Research Ltd. (1994).

Table A1-2 Number and Name of Environmental Resource Areas, Their Vulnerable Period in the Oil Spill Trajectory Model and Their Location on Environmental Resource Area Map A-2a, Map A-2b, Map A-2c, or Map A-2d

ID	NAME	NAME 2	VULNERABLE	MAP	ID	NAME	VULNERABLE	MAP
1	Kasegaluk Lagoon	Solivik Island, Icy Cape	May-October	A-2a	45	Whale Concentration Area	May-October	A-2c
2	Point Barrow, Plover Islands	Elson Lagoon, Dease Inlet	May-October	A-2a	46	Herald Shoal Polynya	January-December	A-2d
3	Thetis and Jones Islands	Spy, Pingok, Bertoncini, Bodfish Islands	May-October	A-2c	47	Ice/Sea Segment 10	January-December	A-2d
4	Cottle and Return Islands, West Dock	Long, Egg, and Stump Islands	May-October	A-2c	48	Ice/Sea Segment 11	January-December	A-2d
5	Midway Islands	Reindeer and Argo Islands	May-October	A-2c	49	Hanna's Shoal Polynya	January-December	A-2d
6	Cross and No Name Islands		May-October	A-2c	50	Ice/Sea Segment 12	January-December	A-2d
7	Endicott Causeway		May-October	A-2c	51	Ice/Sea Segment 13	January-December	A-2d
8	McClure Islands	Narwhal, Jeanette, and Karluk Islands	May-October	A-2c	52	Ice/Sea Segment 14	January-December	A-2d
9	Stockton Islands	Pole and Belvedere Islands	May-October	A-2c	53	Ice/Sea Segment 15	January-December	A-2a
10	Tigvariak Island		May-October	A-2c	54	Ice/Sea Segment 16a	January-December	A-2a
11	Maguire Islands	Challenge, Alaska, Dutchess, Northstar	May-October	A-2c	55	Ice/Sea Segment 17	January-December	A-2c
12	Flaxman Island		May-October	A-2c	56	Ice/Sea Segment 18a	January-December	A-2c
13	Barrier Islands	Canning River	May-October	A-2c	57	Ice/Sea Segment 19	January-December	A-2c
14	Anderson Point Barrier Islands		May-October	A-2c	58	Ice/Sea Segment 20a	January-December	A-2c
15	Arey and Barter Islands, Bernard Spit		May-October	A-2c	59	Ice/Sea Segment 21	January-December	A-2c
16	Jago and Tapkaurak Spits	Takaurak and Oruktalik Lagoon	May-October	A-2c	60	Ice/Sea Segment 22	January-December	A-2c
17	Angun and Beaufort Lagoons	Barrier Islands	May-October	A-2c	61	Ice/Sea Segment 22	January-December	A-2c
18	Icy Reef	Demarcation Bay	May-October	A-2c	62	Ice/Sea Segment 24a	January-December	A-2c
19	Chukchi Spring Lead 1		April-June	A-2d	63	Ledyard Bay	July-October	A-2a
20	Chukchi Spring Lead 2		April-June	A-2a	64	Peard Bay	July-October	A-2a
21	Chukchi Spring Lead 3		April-June	A-2a	65	ERA 1	May-October	A-2a
22	Chukchi Spring Lead 4		April-June	A-2a	66	ERA 2	May-October	A-2a
23	Chukchi Spring Lead 5		April-June	A-2a	67	Ice/Sea Segment 16b	May-October	A-2a
24	Beaufort Spring Lead 6		April-June	A-2a	68	Harrison Bay	May-October	A-2a
25	Beaufort Spring Lead 7		April-June	A-2a	69	Harrison Bay/Colville Delta	May-October	A-2a
26	Beaufort Spring Lead 8		April-June	A-2a	70	ERA 3	May-October	A-2a
27	Beaufort Spring Lead 9		April-June	A-2a	71	Simpson Lagoon	May-October	A-2b
28	Beaufort Spring Lead 10		April-June	A-2a	72	Gwyder Bay	May-October	A-2b
29	Ice/Sea Segment 1		September-October	A-2b	73	Prudhoe Bay	May-October	A-2b
30	Ice/Sea Segment 2		September-October	A-2b	74	Cross Island ERA	May-October	A-2c
31	Ice/Sea Segment 3		September-October	A-2b	75	Water over Boulder Patch 1	January-December	A-2b
32	Ice/Sea Segment 4		September-October	A-2b	76	Water over Boulder Patch 2	January-December	A-2b
33	Ice/Sea Segment 5		September-October	A-2b	77	Foggy Island Bay	May-October	A-2b
34	Ice/Sea Segment 6		September-October	A-2b	78	Mikkelsen Bay	May-October	A-2b
35	Ice/Sea Segment 7		September-October	A-2b	79	ERA 4	May-October	A-2c
36	Ice/Sea Segment 8		September-October	A-2b	80	Ice/Sea Segment 18b	May-October	A-2c
37	Ice/Sea Segment 9		September-October	A-2b	81	Simpson Cove	May-October	A-2b
38	Point Hope Subsistence Area		January-December	A-2d	82	ERA 5	May-October	A-2c
39	Point Lay Subsistence Area		January-December	A-2d	83	Kaktovik ERA	May-October	A-2b
40	Wainwright Subsistence Area		January-December	A-2d	84	Ice/Sea Segment 20b	May-October	A-2c
41	Barrow Subsistence Area 1		April-May	A-2d	85	ERA 6	May-October	A-2b
42	Barrow Subsistence Area 2		August-October	A-2d	86	ERA 7	May-October	A-2c
43	Nuiqsut Subsistence Area		August-October	A-2c	87	ERA 8	May-October	A-2c
44	Kaktovik Subsistence Area		August-October	A-2b	88	Ice Sea Segment 24b	May-October	A-2c

Table A1-3 Assumptions About How Launch Areas Are Serviced by Pipelines for the Oil-Spill-Trajectory Analysis

Spill Boxes	Serviced by Pipelines
LA01 & LA02	P1 to P8
LA03	P2 to P8
LA04	P8
LA05 & LA06	P2 to P9
LA07	P3 to P10
LA08	P9
LA09	P4 to P10
LA10	P10
LA11	P5 to P11
LA12	P12
LA13	P5 to P12
LA14	P6 to P12
LA15	P13
LA16, LA17 & LA18	P7 to P13

Table A1-4 Launch Area and Pipeline Segment Exclusions by Sale Scenario for Production and Development

Sale 186/195	
Alternative I	LA1-LA6, LA11, LA13, LA14, LA16, LA18, P1, P2, P5, P6, P8, P11
Alternative III	LA1-LA6, LA11, LA13, LA14, LA16, LA18, P1, P2, P5, P6, P8, P11
Alternative IV	LA1-LA6, LA11, LA13, LA14, LA16, LA18, P1, P2, P5, P6, P8, P11
Alternative V	LA1-LA6, LA11, LA13, LA14, LA16, LA18, P1, P2, P5, P6, P8, P11
Alternative VI	LA1-LA6, LA11, LA13, LA14, LA16, LA18, P1, P2, P5, P6, P8, P11
Alternative III, IV, V and VI, are the same as Alternative I.	

Note: Where the majority (≥80%) of the spill points were removed from the spill area based on the scenario the spill area was excluded even if a small portion (<20%) of the spill area could be leased.

Sale 202	
Alternative I	LA8, LA10
Alternative III	LA8, LA10
Alternative IV	LA8, LA10
Alternative V	LA8, LA10
Alternative VI	LA8, LA10
Alternatives IV, V and VI, are the same as Alternative I.	

Table A1-5 Estimated Percent Chance of One or More Platform, Pipeline and Total Spills for Alternative I (Sales 186, 195 and 202) and Their Alternatives

Alternative		Percent Chance of One or More Platform Spills	Percent Chance of One or More Pipeline Spills	Percent Chance of One or More Spills Total
I	Alternative I	6	5	10
II	No Sale	0	0	0
III	Barrow Subsistence Whale Deferral	6	5	10
IV	Nuiqsut Subsistence Whale Deferral	6	4	10
V	Kaktovik Subsistence Whale Deferral	6	5	10
VI	Eastern Deferral	6	5	10

Table A1-6a - A1-6e Small Spills Greater than or Equal to 1 Gallon and Less than 1,000 Barrels

Table A1-6a Small Crude-Oil Spills: Estimated Spill Rates for the Alaska North Slope

Small Crude-Oil Spills ≤500 barrels, 1898-2000		
Total Volume of Spills	135,127 gallons	
	3,217 barrels	
Total Number of Spills	1,178 spills	**Source:** USDOI, MMS, Alaska OCS Region, 2002.
Average Spill Size	2.7 barrels	Oil-spill databases are from the ADEC, Anchorage, Juneau, and Fairbanks. Alaska North Slope production data are derived from the TAPS throughput data from Alyeska Pipeline.
Production (Crude Oil)	6.6 billion barrels	
Spill Rate	178 spills/billion barrels of crude oil produced	
Small Crude-Oil Spills > 500 barrels and <1,000, 1985-2000		
Total Volume of Spills	171,150 gallons	
	4,075 barrels	
Total Number of Spills	6	**Source:** USDOI, MMS, Alaska OCS Region, 2002.
Average Spill Size	680 barrels	Oil-spill databases are from the ADEC, Anchorage, Juneau, and Fairbanks. BP Alaska Inc. and Arco. Alaska North Slope production data are derived from the TAPS throughput data from Alyeska Pipeline.
Production (Crude Oil)	9.36 billion barrels	
Spill Rate	0.64 spills/billion barrels of crude oil produced	

Table A1-6b Small Crude-Oil Spills: Assumed Spills over the Production Life of the Beaufort Multiple-Sale

Sales 186, 195, and 202 Alternative	Assumed Small Crude-Oil Spills ≤500 barrels				
	Resources (Bbbl)[1]	Spill Rate (Spills/Bbbl)	Assumed Spill Size (bbl)	Estimated Number of Spills	Estimated Total Spill Volume (bbl)
I	0.46	178	3	82	246
II	0	178	3	0	0
III	0.456	178	3	81	243
IV	0.436	178	3	78	234
V	0.447	178	3	80	240
VI	0.446	178	3	79	237
Alternative	**Assumed Small Crude-Oil Spills > 500 and ≤1,000 barrels**				
I	0.46	0.64	680	0.29	0
II	0	0.64	680	0	0
III	0.456	0.64	680	0.29	0
IV	0.436	0.64	680	0.28	0
V	0.447	0.64	680	0.29	0
VI	0.446	0.64	680	0.29	0

Source: USDOI, MMS, Alaska OCS Region (2002).
Notes: [1]The estimation of oil spills is based on the estimated resources.

Table A1-6c Small Crude-Oil Spills: Assumed Size Distribution over the Production Life of the Beaufort Multiple-Sale

Size[2]	Alternative I	Alternative II	Alternative III	Alternative IV	Alternative V	Alternative VI
1 gallon	16	0	15	15	15	15
>1 and ≤5 gallons	29	0	28	27	28	28
>5 gallons and <1 bbl	16	0	17	16	16	16
Total <1 bbl	61	0	60	58	59	59
≥1 bbl and ≤bbl 5	17	0	17	16	17	16
>5 and ≤25 bbl	3	0	3	3	3	3
> 25 and ≤500 bbl	1	0	1	1	1	1
>500 and ≤1,000 bbl	0	0	0	0	0	0
Total >1 and ≤1,000bbl	21	0	21	20	21	20
Total Volume (bbl)	246	0	243	234	240	237

Source: USDOI, MMS, Alaska OCS Region (2002).

Notes:

[1] Estimated number of spills is rounded to the nearest whole number.

[2] Spill-size distribution is allocated by multiplying the total estimated number of spills by the fraction of spills in that size category from the ADEC database.

Table A1-6d Small Refined-Oil Spills: Estimated Spill Rate for the Alaska North Slope, 1989-2000

Total Volume of Spills	94,195 gallons
	2,243 barrels
Total Number of Spills	2,915 spills
Average Spill Size	0.7 barrels
Production (Crude Oil)	6.6 billion barrels
Spill Rate	440 spills/billion barrels of crude oil produced

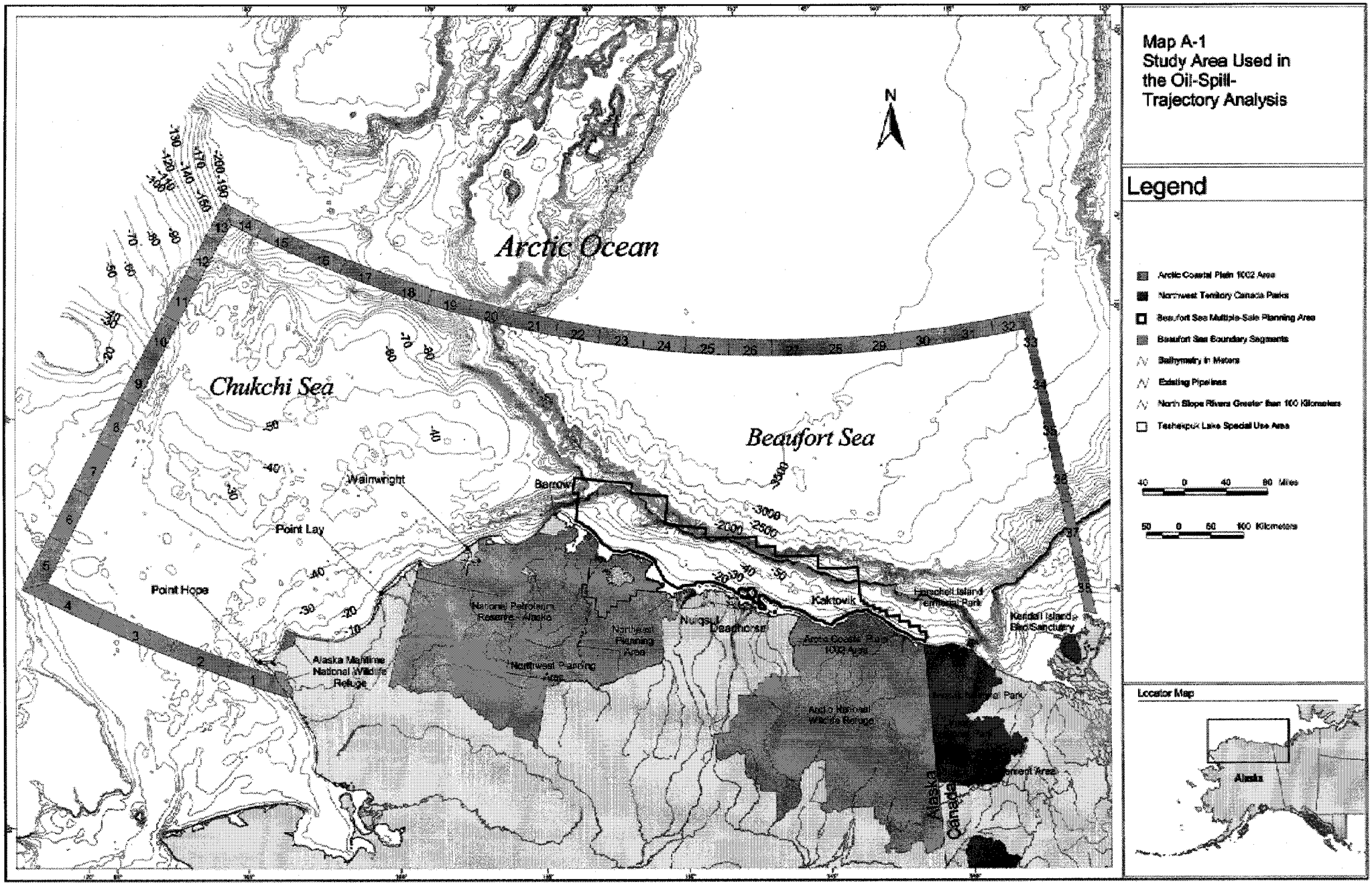
Source: USDOI, MMS, Alaska OCS Region (2002).

Table A1-6e Small Refined-Oil Spills: Assumed Spills over the Production Life of the Beaufort Multiple-Sale

Sales 186, 195, and 202 Alternative	Resource Range (Bbbl)	Spill Rate (Spills/ Bbbl)	Average Spill Size (bbl)	Estimated Number of Spills[1]	Estimated Total Spill Volume (bbl)[1]
I	0.46	440	0.7 (29 gal)	202	141
II	0	440	0.7 (29 gal)	0	0
III	0.456	440	0.7 (29 gal)	201	141
IV	0.436	440	0.7 (29 gal)	192	134
V	0.447	440	0.7 (29 gal)	197	138
VI	0.446	440	0.7 (29 gal)	197	138

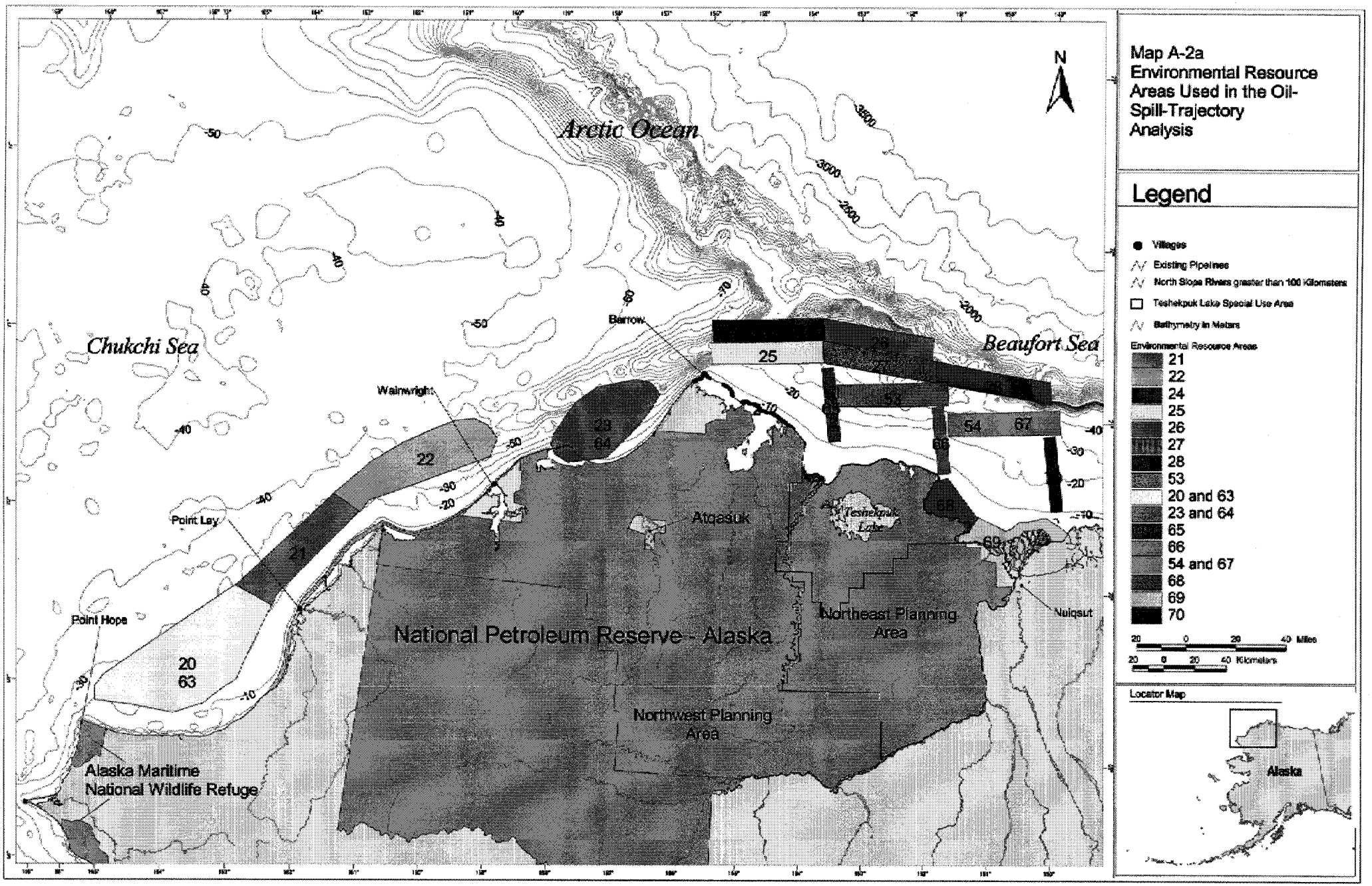
Source: USDOI, MMS, Alaska OCS Region (2002).

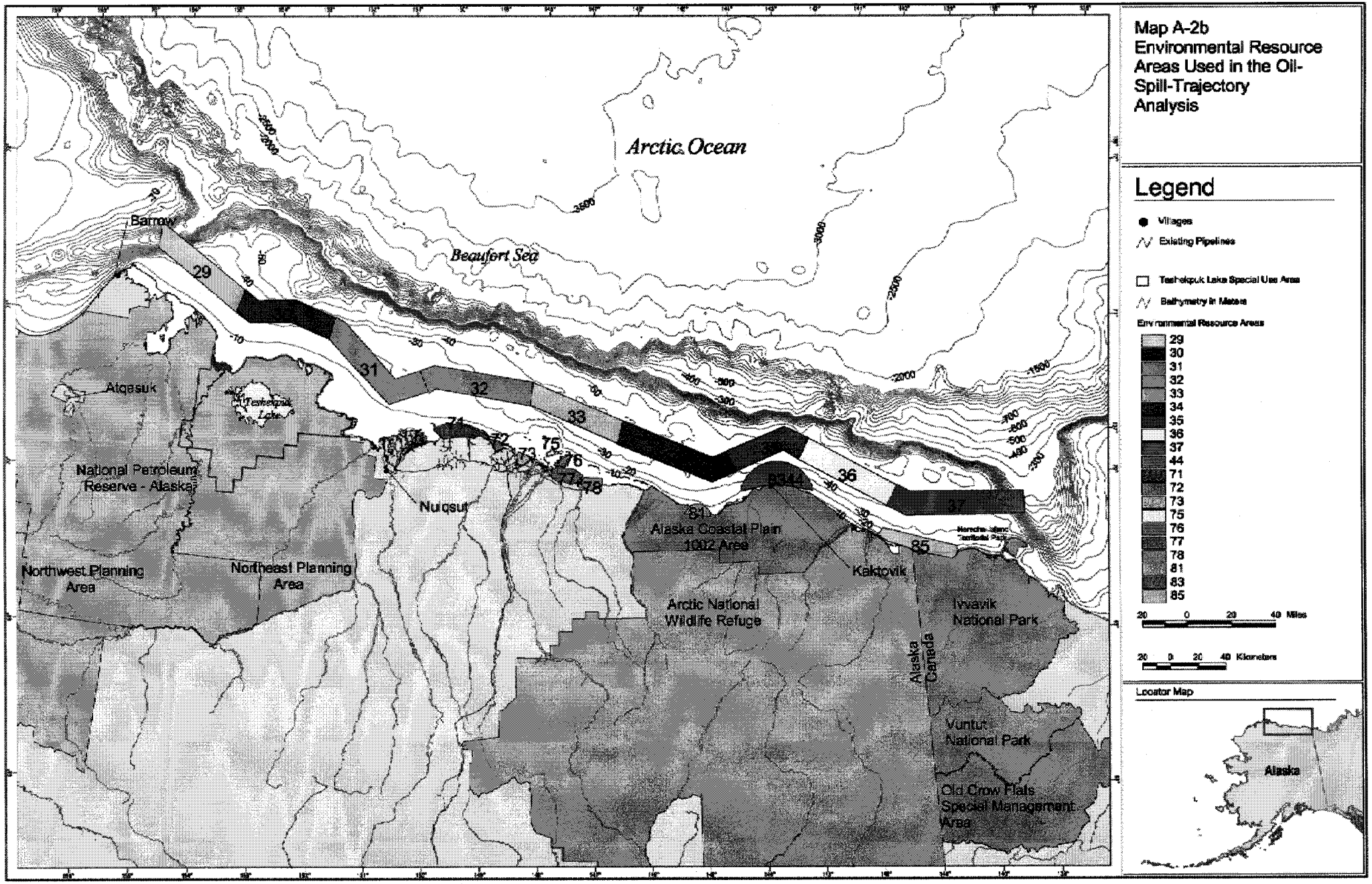
[1] The fractional estimated mean spill number and volume is rounded to the nearest whole number.

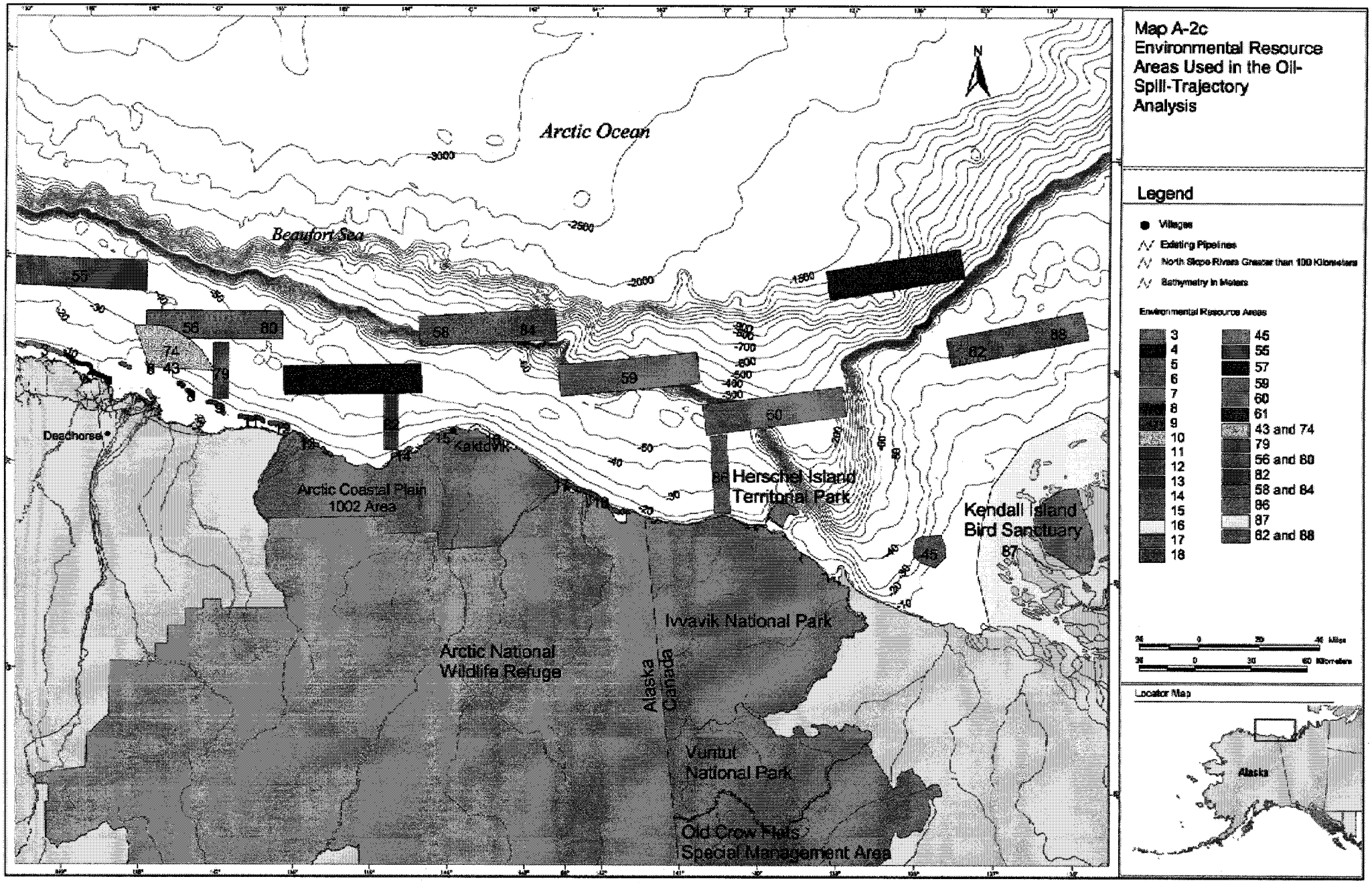


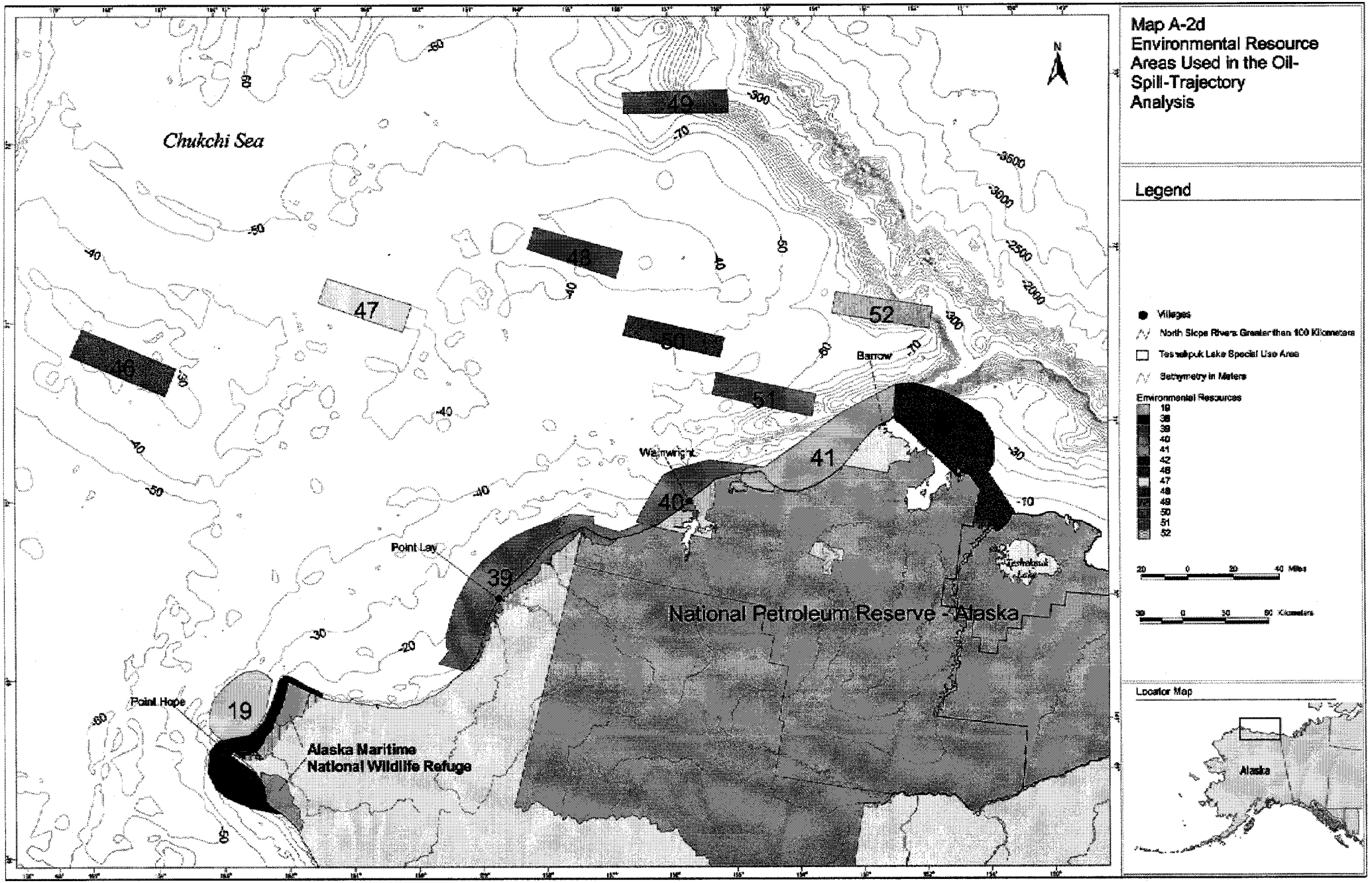
Map A-1
Study Area Used in the Oil-Spill-Trajectory Analysis

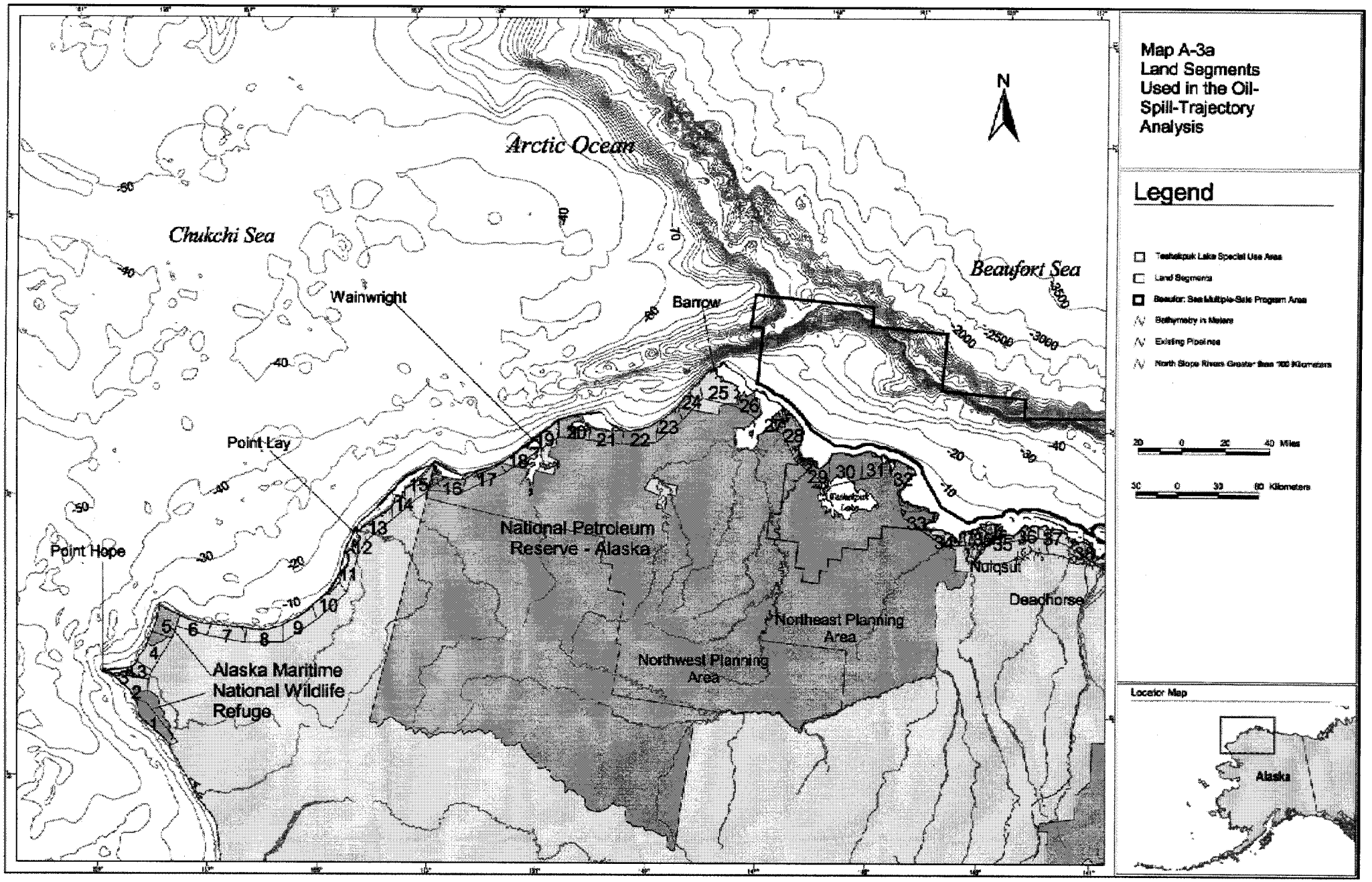
Legend

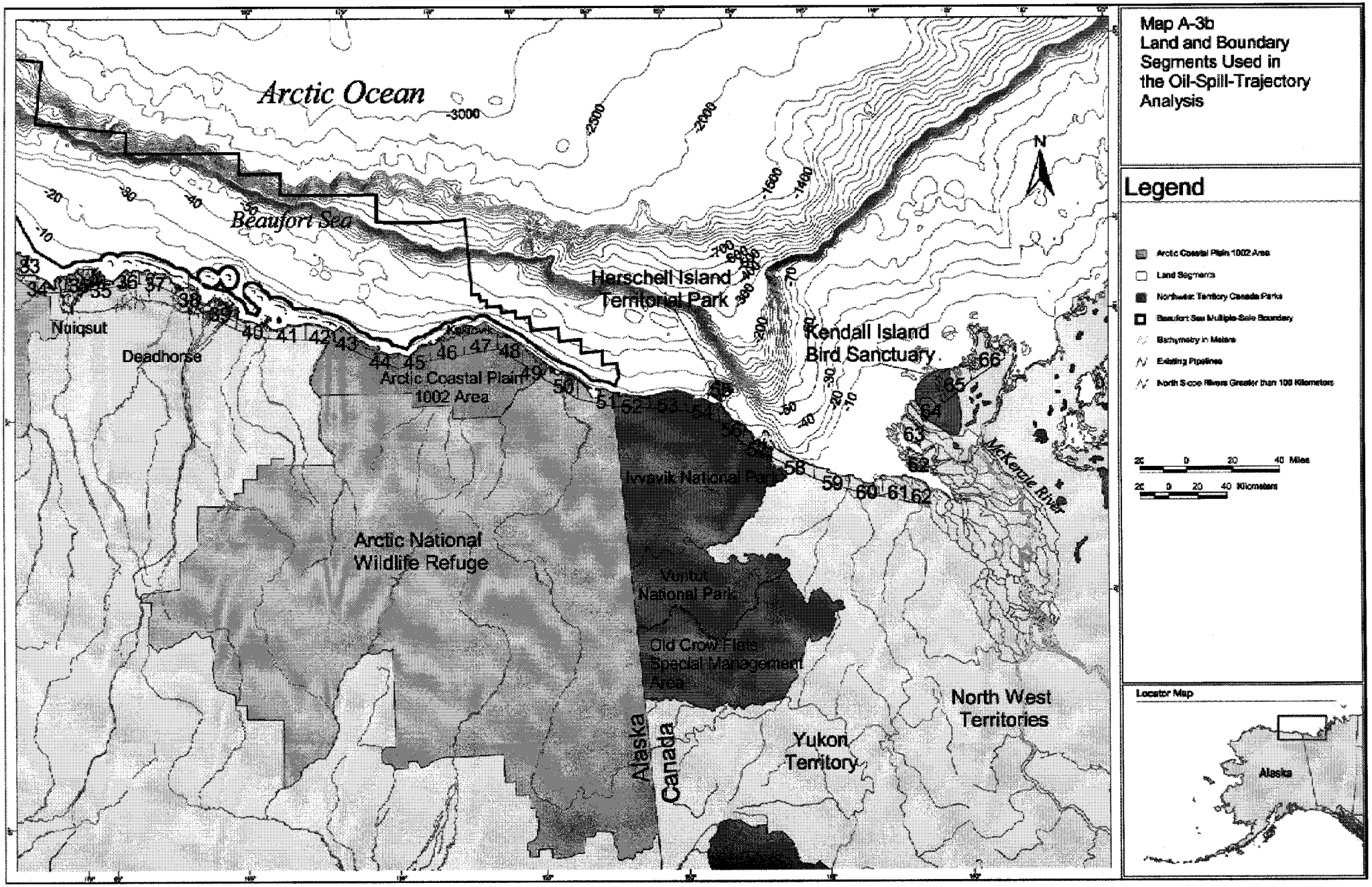

Map A-2a
Environmental Resource Areas Used in the Oil-Spill-Trajectory Analysis
Legend
Villages
Existing Pipelines
North Slope Rivers greater than 100 Kilometers
Teshekpuk Lake Special Use Area
Bathymetry in Meters
Environmental Resource Areas
21
22
24
25
26
27
28
53
20 and 63
23 and 64
65
66
54 and 67
68
69
70
20 0 20 40 Miles
20 0 20 40 Kilometers
Locator Map
Alaska
N
Arctic Ocean
Chukchi Sea
Beaufort Sea
Barrow
Wainwright
Point Lay
Point Hope
Atqasuk
Teshekpuk Lake
Nuiqsut
National Petroleum Reserve - Alaska
Northeast Planning Area
Northwest Planning Area
Alaska Maritime National Wildlife Refuge
-50
-40
-30
-20
-10
-3500
-3000
-2500
-2000

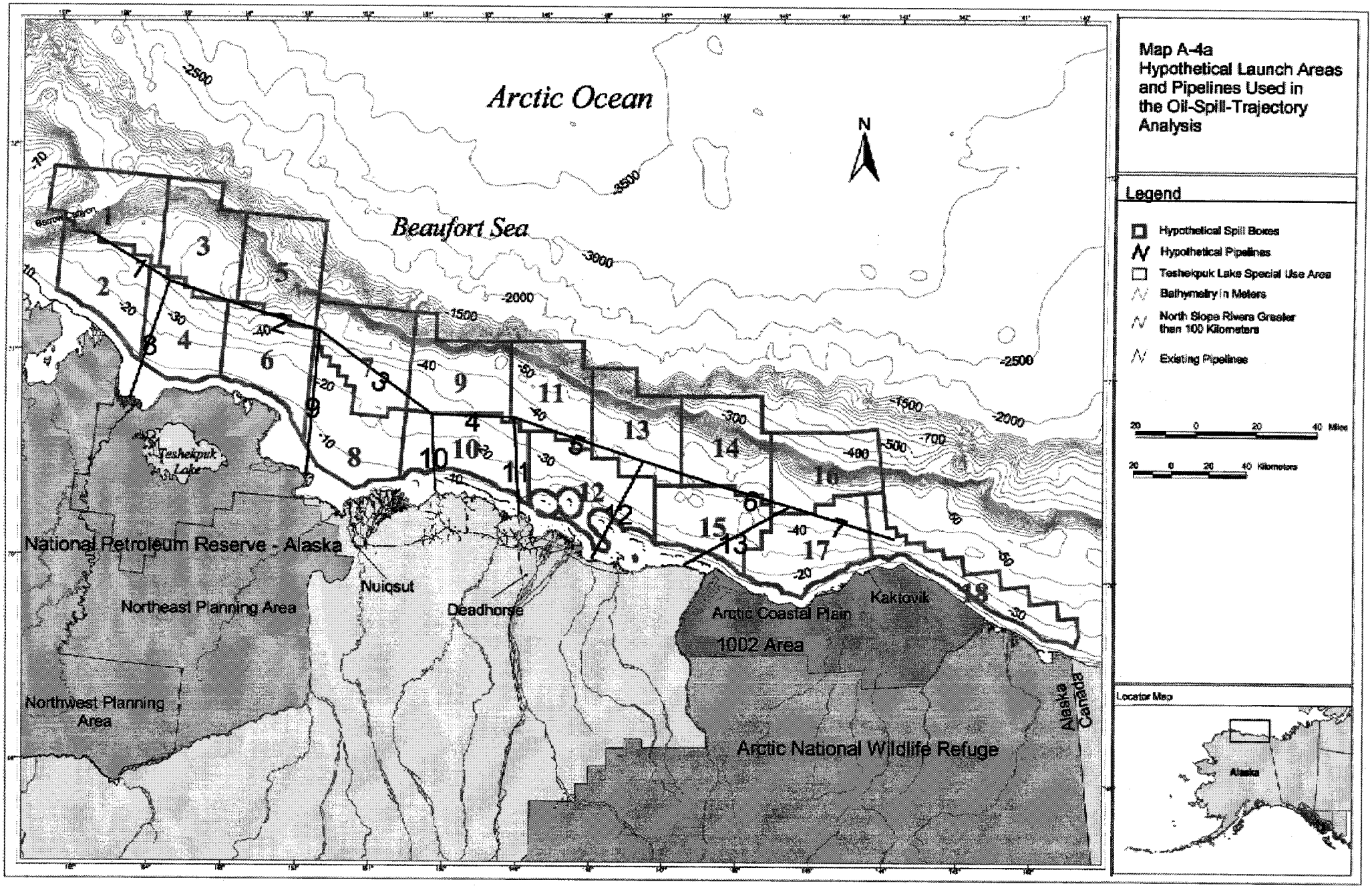

Map A-2b
Environmental Resource Areas Used in the Oil-Spill-Trajectory Analysis
Legend
Villages
Existing Pipelines
Teshekpuk Lake Special Use Area
Bathymetry in Meters
Environmental Resource Areas
29
30
31
32
33
34
35
36
37
44
71
72
73
75
76
77
78
81
83
85
20 0 20 40 Miles
20 0 20 40 Kilometers
Locator Map
Alaska
Arctic Ocean
Beaufort Sea
Barrow
Atqasuk
Teshekpuk Lake
National Petroleum Reserve - Alaska
Nuiqsut
Northwest Planning Area
Northeast Planning Area
Alaska Coastal Plain 1002 Area
Kaktovik
Arctic National Wildlife Refuge
Ivvavik National Park
Vuntut National Park
Old Crow Flats Special Management Area
Alaska
Canada

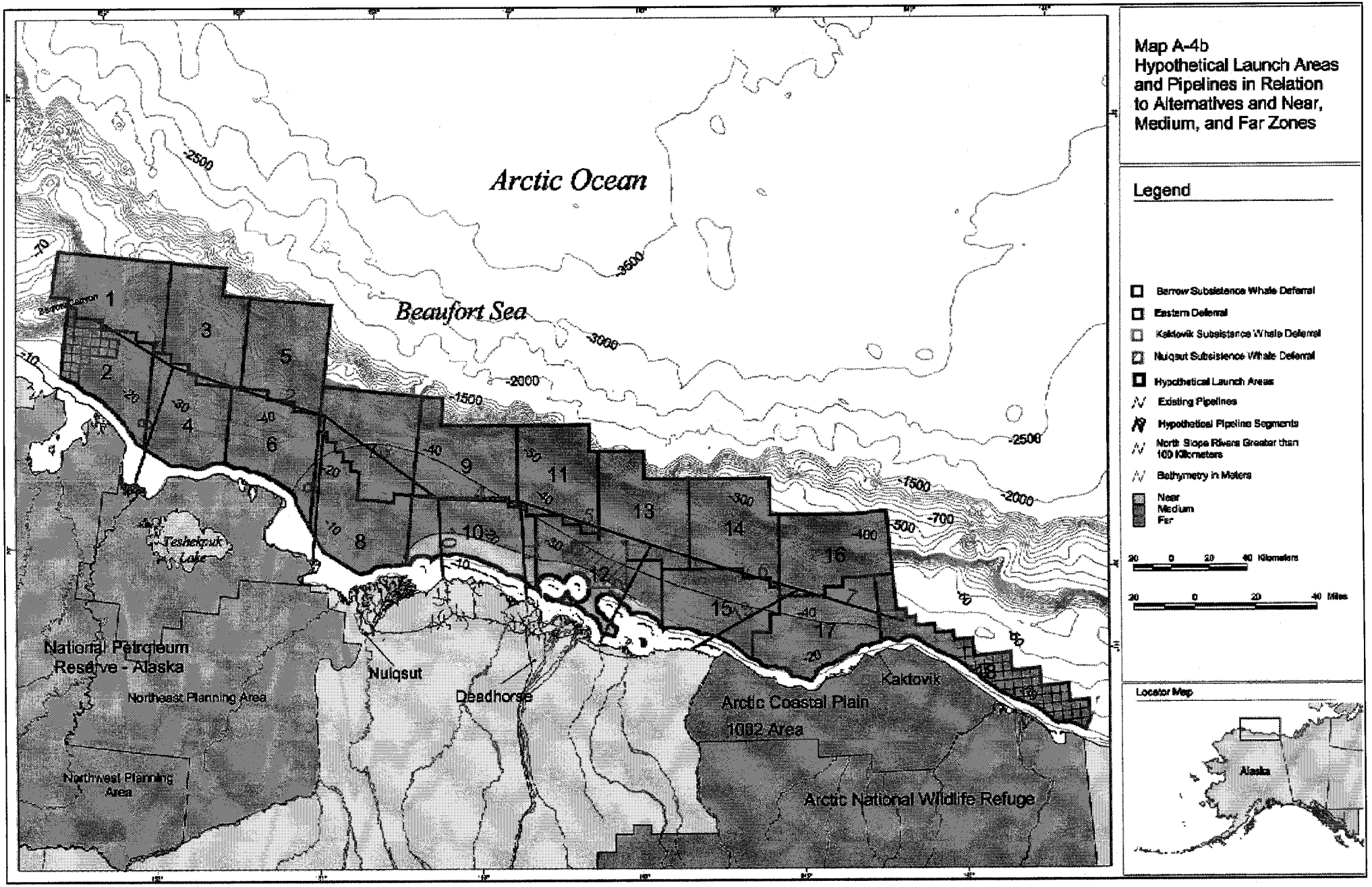

Map A-2c
Environmental Resource Areas Used in the Oil-Spill-Trajectory Analysis
Legend
Villages
Existing Pipelines
North Slope Rivers Greater than 100 Kilometers
Bathymetry in Meters
Environmental Resource Areas
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
45
55
57
59
60
61
43 and 74
79
56 and 80
82
58 and 84
86
87
82 and 88
Arctic Ocean
Beaufort Sea
Deadhorse
Kaktovik
Arctic Coastal Plain
1002 Area
Arctic National
Wildlife Refuge
Herschel Island
Territorial Park
Kendall Island
Bird Sanctuary
Ivvavik National Park
Vuntut
National Park
Old Crow Flats
Special Management Area
Alaska
Canada
Locator Map
Alaska


Map A-2d
Environmental Resource Areas Used in the Oil-Spill-Trajectory Analysis
Legend
Villages
North Slope Rivers Greater than 100 Kilometers
Teshekpuk Lake Special Use Area
Bathymetry in Meters
Environmental Resources
19
38
39
40
41
42
46
47
48
49
50
51
52
Locator Map
Alaska
Chukchi Sea
Beaufort Sea
National Petroleum Reserve - Alaska
Alaska Maritime National Wildlife Refuge
Point Hope
Point Lay
Wainwright
Barrow
Teshekpuk Lake
N


Map A-3a
Land Segments
Used in the Oil-
Spill-Trajectory
Analysis
Legend
Teshekpuk Lake Special Use Area
Land Segments
Beaufort Sea Multiple-Sale Program Area
Bathymetry in Meters
Existing Pipelines
North Slope Rivers Greater than 100 Kilometers
20 0 20 40 Miles
30 0 30 60 Kilometers
Locator Map
Alaska
N
Arctic Ocean
Chukchi Sea
Beaufort Sea
Wainwright
Barrow
Point Lay
Point Hope
National Petroleum
Reserve - Alaska
Alaska Maritime
National Wildlife
Refuge
Northeast Planning
Area
Northwest Planning
Area
Nuiqsut
Deadhorse
Teshekpuk
Lake


Arctic Ocean
Beaufort Sea
-3000
-2500
-2000
-1500
-1400
-20
-30
-40
-10
-100
-200
-70
-50
-60
-80
Herschell Island
Territorial Park
Kendall Island
Bird Sanctuary
Nuiqsut
Deadhorse
Kaktovik
Arctic Coastal Plain
1002 Area
Ivvavik National Park
Arctic National
Wildlife Refuge
Vuntut
National Park
Old Crow Flats
Special Management
Area
Alaska
Canada
Yukon
Territory
North West
Territories
McKenzie River
N
Map A-3b
Land and Boundary
Segments Used in
the Oil-Spill-Trajectory
Analysis
Legend
Arctic Coastal Plain 1002 Area
Land Segments
Northwest Territory Canada Parks
Beaufort Sea Multiple-Sale Boundary
Bathymetry in Meters
Existing Pipelines
North Slope Rivers Greater than 100 Kilometers
20 0 20 40 Miles
20 0 20 40 Kilometers
Locator Map
Alaska


Arctic Ocean
Beaufort Sea
N
Barrow
Teshekpuk Lake
National Petroleum Reserve - Alaska
Northeast Planning Area
Northwest Planning Area
Nuiqsut
Deadhorse
Arctic Coastal Plain
1002 Area
Kaktovik
Arctic National Wildlife Refuge
Alaska
Canada
-2500
-3500
-3000
-2000
-1500
-1000
-700
-500
-400
-300
-70
-60
-50
-40
-30
-20
-10
Map A-4a
Hypothetical Launch Areas and Pipelines Used in the Oil-Spill-Trajectory Analysis
Legend
Hypothetical Spill Boxes
Hypothetical Pipelines
Teshekpuk Lake Special Use Area
Bathymetry in Meters
North Slope Rivers Greater than 100 Kilometers
Existing Pipelines
20 0 20 40 Miles
20 0 20 40 Kilometers
Locator Map
Alaska


Arctic Ocean
Beaufort Sea
-2500
-3500
-3000
-2000
-1500
-1000
-500
-700
-400
-300
-200
-100
-70
-50
-40
-30
-20
-10
1
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18
Teshekpuk Lake
National Petroleum Reserve - Alaska
Northeast Planning Area
Northwest Planning Area
Nuiqsut
Deadhorse
Kaktovik
Arctic Coastal Plain 1002 Area
Arctic National Wildlife Refuge
Map A-4b
Hypothetical Launch Areas and Pipelines in Relation to Alternatives and Near, Medium, and Far Zones
Legend
Barrow Subsistence Whale Deferral
Eastern Deferral
Kaktovik Subsistence Whale Deferral
Nuiqsut Subsistence Whale Deferral
Hypothetical Launch Areas
Existing Pipelines
Hypothetical Pipeline Segments
North Slope Rivers Greater than 100 Kilometers
Bathymetry in Meters
Near
Medium
Far
20 0 20 40 Kilometers
20 0 20 40 Miles
Locator Map
Alaska

APPENDIX A2

SUPPORTING TABLES FOR THE OSRA APPENDIX

OIL SPILL RISK ANALYSIS CONDITIONAL AND COMBINED PROBABILITIES TABLE LIST

Table A2-1 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	n	5	1	5	1	5	n	4	n	1	N	2	n	n	1	n	3	6	1	1	n	n	n	n	1	12	8	7	6	6	6
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	n	5	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	n	n	n	3	N	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	8	1	n	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	n	1	N	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	1	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	n	N	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	N	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	N	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	N	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	2	1	n	n	n	n	n	n	1	n	n	n	n	n	n
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	1	2	n	n	n	n	n	n	1	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	14	5	2	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	10	1	n	n	n	n	n	n	n	n	n	n	n
25	Beaufort Spring Lead 7	6	12	2	1	n	n	n	n	n	n	N	n	n	n	n	n	n	n	20	1	n	n	n	n	n	2	n	n	n	n	n
26	Beaufort Spring Lead 8	1	n	12	1	8	1	n	n	n	n	N	n	n	n	n	n	n	n	2	4	n	n	n	n	n	1	n	n	n	n	n
27	Beaufort Spring Lead 9	1	1	10	4	8	3	n	n	n	n	N	n	n	n	n	n	n	n	3	9	n	n	n	n	n	3	n	n	n	n	n
28	Beaufort Spring Lead 10	n	n	n	n	5	2	12	1	3	n	N	n	n	n	n	n	n	n	n	3	6	n	n	n	n	n	2	n	n	n	n
29	Ice/Sea Segment 1	3	12	1	3	n	n	n	n	n	n	N	n	n	n	n	n	n	n	6	n	n	n	n	n	n	3	n	n	n	n	n
30	Ice/Sea Segment 2	n	1	2	10	3	8	n	n	n	n	N	n	n	n	n	n	n	n	2	5	n	n	n	n	n	7	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	n	n	1	5	3	11	1	2	N	n	n	n	n	n	n	n	n	2	4	1	n	n	n	n	8	2	n	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	1	1	4	11	3	3	n	n	n	n	n	n	n	n	3	16	7	n	n	n	n	7	8	n	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	1	1	9	4	n	2	n	n	n	n	n	n	n	10	2	n	n	n	n	1	7	n
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	N	1	1	1	12	n	7	n	n	n	n	n	n	3	1	n	n	n	n	1	10
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	1	6	3	n	n	n	n	n	n	10	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	5	22	1	6	n	n	n	n	n	n	N	n	n	n	n	n	n	n	10	1	n	n	n	n	n	15	n	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	n	N	11	1	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	1	8	n
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	N	n	n	n	n	n	5	7	n	n	n	n	n	n	8	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-1 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Ice/Sea Segment 15	n	3	14	43	23	37	3	1	n	n	n	n	n	n	n	n	n	n	4	71	3	n	n	n	n	14	5	n	n	n	n
54	Ice/Sea Segment 16a	n	n	n	n	3	15	51	21	20	3	n	n	n	n	n	n	n	n	n	6	60	5	n	n	n	n	35	3	n	n	n
55	Ice/Sea Segment 17	n	n	n	n	n	n	2	1	33	33	41	10	5	n	n	n	n	n	n	n	9	**	41	n	n	n	n	18	27	1	n
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	n	1	2	41	38	14	14	n	n	n	n	n	n	n	44	43	n	n	n	n	2	38	2
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	1	n	2	52	15	46	1	n	n	n	n	n	19	59	n	n	n	n	n	70
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	28	5	2	n	n	n	n	n	1	9	n	n	n	n	n	1
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	1	5	2	19	n	1	n	n	n	n	n	n	n	n	n	n	n	n	13	4	n	n	n	n	n	26	n	n	n	n	n
66	ERA 2	n	n	n	1	1	17	2	5	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	8	n	n	n	n
67	Ice/Sea Segment 16b	n	n	n	n	1	7	25	11	10	1	n	n	n	n	n	n	n	n	n	3	30	3	n	n	n	n	17	2	n	n	n
68	Harrison Bay	n	n	n	n	n	1	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	12	n	n	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	n	n	3	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n	n	n
70	ERA 3	n	n	n	n	n	n	3	3	7	14	n	n	n	n	n	n	n	n	n	n	11	10	n	n	n	n	n	24	1	n	n
71	Simpson Lagoon	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	2	n	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	n	1	n	21	2	n	1	n	n	n	n	n	n	n	3	1	n	n	n	n	2	16	n
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4	n
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	11	1	n	3	n	n	n	n	n	n	n	1	1	n	n	n	n	n	11	1
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	n	1	1	21	19	7	7	n	n	n	n	n	n	n	22	20	n	n	n	n	1	19	1
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	15	n	n	n	n	n	n	n	1	n	n	n	n	n	2
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	14	n	n	n	n	n	n	14	n	n	n	n	n	n
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	15	3	1	n	n	n	n	n	1	6	n	n	n	n	n	1
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	7	n	n	n	n	n	n	8	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-2 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	6	15	5	15	4	13	4	13	2	6	1	6	1	n	3	1	9	17	9	7	4	3	2	2	7	22	16	14	10	10	9
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	4	12	2	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	6	1	n	n	n	n	n	3	n	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	1	2	2	6	1	2	n	n	n	n	n	n	n	n	1	4	1	n	n	n	n	10	4	1	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	1	3	1	3	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	2	8	2	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	1	n	3	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	2	3	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	7	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	1	n	n	n	n	n	1	3	n	n	n	n	n	1
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	4	n	n	n	n	n	n	3	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	16	10	5	3	2	1	n	n	n	n	n	n	n	n	n	n	n	n	15	4	n	n	n	n	n	3	n	n	n	n	n
25	Beaufort Spring Lead 7	9	15	4	5	1	1	n	n	n	n	n	n	n	n	n	n	n	n	21	4	n	n	n	n	n	5	n	n	n	n	n
26	Beaufort Spring Lead 8	2	2	14	5	11	4	1	1	n	n	n	n	n	n	n	n	n	n	4	8	1	n	n	n	n	3	1	n	n	n	n
27	Beaufort Spring Lead 9	1	2	12	8	11	6	2	1	n	n	n	n	n	n	n	n	n	n	5	13	2	n	n	n	n	6	1	n	n	n	n
28	Beaufort Spring Lead 10	n	n	1	1	7	5	16	5	7	3	1	n	n	n	n	n	n	n	n	5	12	3	1	n	n	n	6	3	1	n	n
29	Ice/Sea Segment 1	6	13	3	4	1	1	n	n	n	n	n	n	n	n	n	n	n	n	9	2	n	n	n	n	n	4	n	n	n	n	n
30	Ice/Sea Segment 2	1	3	4	11	5	9	2	2	1	n	n	n	n	n	n	n	n	n	3	8	2	n	n	n	n	8	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	1	1	2	7	6	13	3	4	1	1	n	n	n	n	n	n	1	3	6	4	1	n	n	n	10	5	2	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	2	2	6	12	6	5	2	n	1	n	n	n	n	n	5	16	8	1	n	n	1	9	11	2	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	2	3	11	6	2	4	n	n	n	n	n	n	1	12	3	n	n	n	n	3	9	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	2	1	2	14	1	9	n	n	n	n	n	1	5	3	n	n	n	n	2	11
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	8	4	n	n	n	n	n	1	12	n	n	n	n	n	3
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	5	n	n	n	n	n	n	2	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	10	24	5	10	3	3	n	n	n	n	n	n	n	n	n	n	n	n	14	4	n	n	n	n	n	17	1	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	2	1	13	3	1	1	n	n	n	n	n	n	1	5	2	n	n	n	1	3	10	1
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	9	8	n	n	n	n	n	1	11	n	n	n	n	n	2

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-2 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	10	4	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	1	n	n	n	n	n
53	Ice/Sea Segment 15	4	7	22	51	33	47	9	7	2	1	n	n	n	n	n	n	n	n	10	73	10	1	n	n	n	20	12	1	n	n	n
54	Ice/Sea Segment 16a	n	n	3	3	9	22	59	37	32	15	6	2	1	n	n	n	n	n	1	11	67	19	4	n	n	1	45	18	7	1	n
55	Ice/Sea Segment 17	n	n	n	n	1	1	7	6	42	46	51	25	16	2	3	n	n	n	n	1	14	**	52	4	n	n	2	27	45	12	1
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	1	3	5	51	42	19	29	1	2	n	n	n	n	2	47	47	1	n	n	1	6	48	10
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	3	2	6	59	19	56	4	n	n	n	n	1	23	63	n	n	n	n	3	75
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	n	n	5	6	39	18	8	n	n	n	n	n	8	27	n	n	n	n	1	9
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	5	n	n	n	n	n	n	2	n	n	n	n	n	n
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	3	9	6	24	4	5	1	1	n	n	n	n	n	n	n	n	n	n	16	9	1	n	n	n	n	27	1	n	n	n	n
66	ERA 2	n	n	2	3	4	20	5	10	2	2	n	n	n	n	n	n	n	n	1	6	6	2	n	n	n	1	13	3	n	n	n
67	Ice/Sea Segment 16b	n	n	1	2	4	11	29	20	17	9	3	1	1	n	n	n	n	n	n	5	35	11	2	n	n	n	23	11	4	n	n
68	Harrison Bay	n	n	n	n	n	2	1	7	n	1	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	14	1	n	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	1	1	6	1	3	n	n	n	n	n	n	n	n	n	n	2	2	n	n	n	n	3	6	2	n	n
70	ERA 3	n	n	n	n	n	1	6	8	13	22	4	3	1	n	n	n	n	n	n	1	15	21	3	n	n	n	3	30	9	1	n
71	Simpson Lagoon	n	n	n	n	n	n	n	1	1	4	1	2	n	n	n	n	n	n	n	n	1	2	1	n	n	n	n	11	5	1	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	n	2	2	24	4	1	2	n	n	n	n	n	n	1	7	2	n	n	n	1	5	19	1
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	1	n	5	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	5	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	5	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	8	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	9	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	ERA 4	n	n	n	n	n	n	n	n	n	1	1	14	2	1	5	n	n	n	n	n	n	n	3	2	n	n	n	n	1	14	2
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	1	2	3	27	21	9	14	n	1	n	n	n	n	1	24	22	n	n	n	1	4	25	5
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	1	18	1	n	n	n	n	n	2	4	n	n	n	n	n	5
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	14	17	n	n	n	n	n	1	19	n	n	n	n	n	3
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	n	n	3	4	21	11	5	n	n	n	n	n	4	16	n	n	n	n	n	6
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-3 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	17	26	15	25	14	22	13	22	9	15	6	13	5	3	8	7	16	27	20	17	14	12	7	5	14	29	24	23	17	16	16
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	10	16	5	7	3	3	1	1	n	n	n	n	n	n	n	n	n	n	12	4	1	n	n	n	n	6	1	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	2	3	4	8	4	4	2	1	1	n	n	n	n	n	2	6	4	1	n	n	1	12	7	3	1
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	1	2	4	2	5	2	1	1	n	n	n	n	n	1	3	3	1	n	n	n	3	10	3	1
5	Midway Islands	n	n	n	n	n	n	n	n	n	1	1	3	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	1	2	2	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	1	1	4	1	1	1	n	n	n	n	n	n	1	2	1	n	n	n	1	2	5	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	3	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	3	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	n	1	8	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	3	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	3
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	1	5
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	6	2	n	n	n	n	n	1	5	n	n	n	n	n	2
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	5	n	n	n	n	n	1	6	n	n	n	n	n	2
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	5	n	n	n	n	n	n	1	n	n	n	n	n	1
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	6	n	n	n	n	n	n	1	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	17	12	7	6	4	2	2	1	1	n	n	n	n	n	n	n	n	n	16	6	2	n	n	n	n	5	1	n	n	n	n
25	Beaufort Spring Lead 7	11	16	6	6	4	3	2	1	1	n	n	n	n	n	n	n	n	n	21	7	1	1	n	n	n	6	1	n	n	n	n
26	Beaufort Spring Lead 8	3	3	15	7	12	6	4	2	2	1	1	n	1	n	n	n	n	n	6	10	3	2	1	n	n	5	2	1	1	n	n
27	Beaufort Spring Lead 9	2	3	13	9	12	8	4	2	2	2	1	1	1	n	n	n	n	n	6	15	4	2	1	n	n	7	3	2	1	n	n
28	Beaufort Spring Lead 10	n	n	2	2	8	6	18	8	10	6	5	2	3	1	1	n	n	n	n	6	15	7	4	1	n	1	8	5	4	1	1
29	Ice/Sea Segment 1	7	13	5	5	3	2	1	1	1	n	n	n	n	n	n	n	n	n	10	4	1	n	n	n	n	5	1	n	n	n	n
30	Ice/Sea Segment 2	2	4	6	12	6	10	4	3	2	1	1	n	n	n	n	n	n	n	5	9	3	1	n	n	n	9	2	1	1	n	n
31	Ice/Sea Segment 3	1	1	2	2	3	8	8	14	6	6	3	2	2	n	n	n	n	n	1	4	8	6	3	1	n	1	11	7	4	1	n
32	Ice/Sea Segment 4	n	n	1	n	1	1	3	4	8	14	8	7	5	2	2	n	n	n	n	1	6	18	11	2	n	n	2	10	12	4	1
33	Ice/Sea Segment 5	n	n	n	n	n	n	1	n	1	2	4	12	8	3	5	1	1	n	n	n	n	2	12	4	1	n	n	1	4	10	2
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	1	3	2	3	14	2	9	1	n	n	n	n	1	6	4	n	n	n	1	3	12
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	6	9	5	n	n	n	n	n	3	13	n	n	n	n	1	4
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	6	n	n	n	n	n	1	4	n	n	n	n	n	2
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	n	n	n	n	n	n	2	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	3	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	1	n	n	n	n	n	n
42	Barrow Subsistence Area 2	14	25	9	13	6	6	3	2	1	1	n	n	n	n	n	n	n	n	17	8	2	1	n	n	n	19	3	1	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	1	1	2	2	14	4	2	3	n	n	n	n	n	n	1	6	3	n	n	n	2	4	11	2
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3	5	11	9	n	n	n	n	n	2	13	n	n	n	n	1	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-3 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	3	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n
52	Ice/Sea Segment 14	18	10	8	5	3	2	1	n	n	n	n	n	n	n	n	n	n	n	12	4	n	n	n	n	n	4	n	n	n	n	n
53	Ice/Sea Segment 15	8	11	27	53	38	51	15	12	8	6	4	2	2	n	n	n	n	n	14	75	15	7	3	1	n	23	17	7	4	1	n
54	Ice/Sea Segment 16a	2	2	7	6	15	27	63	44	42	28	18	10	8	2	3	n	n	n	3	16	71	33	15	3	n	3	48	29	18	6	1
55	Ice/Sea Segment 17	1	n	1	1	3	4	14	12	47	52	56	34	28	10	11	2	2	n	1	3	20	**	59	12	1	n	6	32	50	19	5
56	Ice/Sea Segment 18a	n	n	n	n	n	n	1	1	3	5	8	54	44	23	34	4	5	n	n	n	1	4	49	49	3	n	1	3	9	50	14
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	1	1	5	3	8	61	23	58	6	n	n	n	1	3	25	64	n	n	n	1	5	76
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	2	3	11	15	47	27	15	n	n	n	n	1	16	36	n	n	n	n	3	18
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	3	3	9	7	11	n	n	n	n	n	3	9	n	n	n	n	1	4
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	2	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
65	ERA 1	4	10	8	26	7	9	4	3	2	1	1	n	n	n	n	n	n	n	17	13	4	1	n	n	n	28	4	2	1	n	n
66	ERA 2	1	1	4	5	6	22	9	13	5	5	2	2	1	n	n	n	n	n	2	9	10	5	2	n	n	2	16	6	3	1	n
67	Ice/Sea Segment 16b	1	1	4	4	8	14	32	24	23	17	10	6	5	1	2	n	n	n	2	8	38	19	8	2	n	2	25	17	11	4	1
68	Harrison Bay	n	n	1	1	1	3	3	9	2	3	1	1	1	n	n	n	n	n	n	1	3	2	1	n	n	n	15	3	2	1	n
69	Harrison Bay/Colville Delta	n	n	1	1	1	2	3	8	3	6	2	2	1	n	n	n	n	n	n	1	4	5	2	n	n	n	4	8	3	1	n
70	ERA 3	n	n	1	1	2	3	9	11	17	26	9	7	5	1	2	n	n	n	n	2	17	24	9	2	n	n	6	32	15	5	1
71	Simpson Lagoon	n	n	n	n	n	n	1	2	3	6	3	4	2	1	1	n	n	n	n	n	2	4	3	1	n	n	1	12	8	3	1
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	3	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	1	1	1	3	3	25	6	2	4	1	1	n	n	n	1	2	8	4	1	n	n	2	6	21	2
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	1	1	6	1	n	1	n	n	n	n	n	n	n	1	1	1	n	n	n	n	2	7	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	1	1	5	1	n	1	n	n	n	n	n	n	n	1	1	1	n	n	n	n	2	10	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	10	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
79	ERA 4	n	n	n	n	n	n	n	n	1	1	1	15	3	2	6	n	1	n	n	n	n	1	4	3	1	n	n	1	2	15	2
80	Ice/Sea Segment 18b	n	n	n	n	n	n	1	1	2	4	5	28	23	11	16	1	2	n	n	n	1	3	25	23	1	n	n	2	7	27	6
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	1	1	5	2	19	2	n	n	n	n	n	3	5	n	n	n	n	1	6
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	1	n	2	5	7	17	18	n	n	n	n	n	3	22	n	n	n	n	1	7
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	2	2	6	8	25	16	8	n	n	n	n	1	9	21	n	n	n	n	3	10
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	13	n	n	n	n	n	n	2	n	n	n	n	n	1
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	n	n	n	n	n	n	1	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-4 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	24	33	22	32	20	29	19	28	16	22	12	20	11	10	15	14	22	35	28	23	19	19	15	12	21	35	30	29	25	22	22
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	12	20	8	9	5	4	3	2	2	1	1	1	1	n	n	n	n	n	15	6	2	2	1	n	n	7	2	1	1	n	n
3	Thetis and Jones Islands	n	n	n	n	1	1	3	4	5	10	5	6	3	1	2	n	n	n	n	1	3	7	5	1	n	n	2	15	8	4	1
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	1	1	2	5	3	6	2	1	1	n	n	n	n	n	1	3	3	1	n	n	n	4	12	4	1
5	Midway Islands	n	n	n	n	n	n	n	n	1	2	1	3	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	1	2	3	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	1	1	1	4	1	1	1	n	n	n	n	n	n	1	2	1	n	n	n	1	2	6	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	4	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	1	n	3	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	n	1	10	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	n	1	4	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	1	1	n	n	n	n	n	2	3
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	n	1	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	2	5
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	6	2	n	n	n	n	n	1	6	n	n	n	n	n	3
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	3	5	6	n	n	n	n	1	2	7	n	n	n	n	1	3
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	6	n	n	n	n	n	1	1	n	n	n	n	n	1
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	8	n	n	n	n	n	1	2	n	n	n	n	n	1
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
24	Beaufort Spring Lead 6	17	13	9	7	5	3	3	1	2	1	1	n	1	1	n	n	n	n	17	7	3	1	1	n	n	7	2	1	n	n	n
25	Beaufort Spring Lead 7	12	17	7	7	5	4	3	1	2	1	1	1	1	1	n	n	n	n	22	7	3	1	1	n	n	7	2	1	1	n	n
26	Beaufort Spring Lead 8	3	4	16	8	13	7	5	3	4	3	2	1	2	1	1	1	n	n	7	11	5	3	2	1	n	6	4	2	2	n	1
27	Beaufort Spring Lead 9	2	4	14	10	12	9	6	3	4	3	3	1	2	1	1	1	n	n	7	15	6	3	2	1	n	8	4	3	2	1	1
28	Beaufort Spring Lead 10	n	n	2	2	8	7	19	9	11	7	6	3	4	2	3	1	1	n	n	6	16	7	5	3	1	1	10	6	5	2	2
29	Ice/Sea Segment 1	8	14	5	6	4	3	2	1	1	1	n	n	n	n	n	n	n	n	10	4	1	1	n	n	n	5	1	n	n	n	n
30	Ice/Sea Segment 2	3	4	6	12	7	10	4	3	3	2	2	1	1	n	n	n	n	n	5	9	4	2	1	n	n	9	3	2	1	n	n
31	Ice/Sea Segment 3	2	1	3	2	4	8	8	14	6	7	4	3	2	1	1	n	n	n	2	5	9	7	3	1	n	1	11	7	5	2	n
32	Ice/Sea Segment 4	1	n	1	n	1	1	4	4	8	14	9	8	6	2	2	n	n	n	1	1	6	18	12	2	n	n	2	11	12	5	1
33	Ice/Sea Segment 5	n	n	n	n	n	n	1	1	2	3	4	12	8	4	5	1	1	n	n	n	1	2	13	4	1	n	1	2	5	10	2
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	1	1	3	2	3	15	2	9	1	n	n	n	n	1	6	4	n	n	n	1	4	12
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	6	9	5	n	n	n	n	1	3	13	n	n	n	n	2	4
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	4	4	7	n	n	n	n	n	2	5	n	n	n	n	1	2
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	n	n	n	n	n	1	3	n	n	n	n	n	1
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n	n
42	Barrow Subsistence Area 2	14	25	11	14	8	7	4	3	2	1	1	1	1	n	n	n	n	18	9	3	2	1	n	n	20	3	1	1	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	1	1	1	3	3	14	5	2	3	n	n	n	n	n	1	2	7	3	n	n	n	2	4	11	2
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	5	11	9	n	n	n	n	n	3	13	n	n	n	n	1	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-4 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	3	2	1	1	1	n	1	n	1	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
49	Hanna's Shoal Polynya	8	4	5	3	3	1	1	n	n	n	n	n	n	n	n	n	n	n	6	2	1	1	n	n	n	2	1	n	n	n	n
50	Ice/Sea Segment 12	3	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
51	Ice/Sea Segment 13	4	3	2	2	1	n	1	n	n	n	n	n	n	n	n	n	n	n	4	1	1	n	n	n	n	2	n	n	n	n	n
52	Ice/Sea Segment 14	20	12	11	7	6	3	2	1	1	1	1	n	n	n	n	n	n	n	15	7	2	1	1	n	n	6	1	n	n	n	n
53	Ice/Sea Segment 15	9	12	29	54	39	52	17	14	11	9	8	5	5	3	3	1	1	n	16	75	17	10	8	3	n	25	19	9	7	3	2
54	Ice/Sea Segment 16a	4	3	9	8	17	29	65	46	45	31	22	14	13	6	6	2	2	n	5	18	72	36	19	7	2	5	50	32	22	10	3
55	Ice/Sea Segment 17	2	1	3	2	5	6	17	14	49	54	58	36	31	13	13	4	3	n	1	4	23	**	61	14	3	1	8	34	51	22	8
56	Ice/Sea Segment 18a	n	n	n	n	1	1	2	2	4	7	9	55	45	24	35	5	5	1	n	1	2	6	50	50	3	n	1	4	11	52	15
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	1	1	2	6	4	9	62	24	59	7	n	n	n	1	4	26	65	n	n	1	2	7	77
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	1	1	1	4	5	15	18	50	30	17	n	n	n	1	3	20	39	n	n	n	1	5	22
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	1	1	6	8	15	12	13	n	n	n	n	n	8	15	n	n	n	n	2	9
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	5	4	6	n	n	n	n	n	2	6	n	n	n	n	n	2
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	2	1	n	n	n	n	n	2	2	n	n	n	n	n	2
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	2	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
65	ERA 1	5	11	9	27	8	10	5	4	3	2	2	1	1	1	1	n	n	n	18	13	5	3	2	n	n	30	5	2	2	1	n
66	ERA 2	2	2	4	6	7	23	10	15	7	7	4	3	2	1	1	1	1	n	2	9	11	7	4	1	1	3	18	8	4	1	1
67	Ice/Sea Segment 16b	2	2	5	5	9	15	33	25	24	19	12	8	6	3	3	2	2	n	3	9	39	21	10	4	1	3	27	19	13	6	2
68	Harrison Bay	n	n	1	1	1	4	3	10	2	4	2	1	1	n	1	n	n	n	n	1	3	2	2	1	n	n	17	4	3	1	n
69	Harrison Bay/Colville Delta	n	n	1	1	2	3	4	10	5	7	3	3	2	1	1	n	n	n	1	2	5	6	3	1	n	n	5	10	5	2	n
70	ERA 3	1	n	2	1	3	4	10	12	18	27	11	9	7	3	3	1	1	n	n	3	19	25	11	4	1	1	7	34	16	8	2
71	Simpson Lagoon	n	n	n	n	1	1	2	3	4	7	4	5	3	1	1	n	n	n	n	1	3	5	5	1	n	n	2	14	10	4	1
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	4	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
74	Cross Island ERA	n	n	n	n	n	n	1	1	2	4	3	25	6	3	4	1	1	n	n	n	1	3	9	4	1	n	1	2	6	23	3
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	1	1	1	7	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	n	2	9	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	1	1	1	6	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	n	2	13	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	12	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
79	ERA 4	n	n	n	n	n	n	n	n	1	2	2	15	3	2	6	n	1	n	n	n	n	1	4	3	1	n	n	1	3	17	3
80	Ice/Sea Segment 18b	n	n	n	n	n	n	1	1	3	4	5	29	23	11	16	1	2	n	n	n	1	3	26	23	1	n	1	3	7	28	7
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	3	6	n	n	n	n	2	6
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	1	2	5	2	20	2	n	n	n	n	n	3	6	n	n	n	n	2	8
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	1	1	3	6	8	18	19	n	n	n	n	1	4	22	n	n	n	n	2	8
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	1	3	3	8	10	25	17	10	n	n	n	n	2	10	21	n	n	n	1	4	12
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	15	n	n	n	n	n	2	4	n	n	n	n	n	2
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	6	n	n	n	n	n	1	2	n	n	n	n	n	1
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	n	1	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-5 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	35	49	35	49	34	46	34	48	31	40	27	40	28	30	36	37	47	64	40	39	34	35	32	33	45	55	49	46	44	44	42
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	17	29	13	14	9	8	5	4	3	2	2	1	2	2	1	1	1	n	21	11	5	3	2	1	1	10	4	2	1	1	1
3	Thetis and Jones Islands	n	n	1	1	2	3	6	8	9	17	10	10	7	3	4	1	1	n	n	3	7	13	11	4	1	1	6	24	15	7	1
4	Cottle & Return Islands, West Dock	n	n	n	n	1	1	2	2	4	8	5	10	4	2	2	n	1	n	n	1	2	6	6	2	n	n	1	5	21	5	1
5	Midway Islands	n	n	n	n	n	n	1	n	1	2	1	4	1	1	1	n	n	n	n	n	1	1	1	1	n	n	n	1	3	4	1
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	1	2	1	6	2	1	3	1	1	n	n	n	1	2	3	2	n	n	n	1	3	9	2
7	Endicott Causeway	n	n	n	n	n	n	n	n	1	1	1	3	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	2	7	n	1
8	McClure Islands	n	n	n	n	n	n	n	n	n	1	1	4	1	1	2	n	n	n	n	n	n	1	1	1	n	n	n	1	16	1	1
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	3	1	1	2	n	1	n	n	n	n	n	1	1	n	n	n	n	1	5	2	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	1	2	n	1	n	n	n	n	n	1	1	n	n	n	n	n	2	6	1
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	n	1	n	n	n	n	n	n	1	1	n	n	n	n	2	7	1
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	1	n	n	n	n	n	1	2	n	n	n	n	n	1	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	1	1	2	4	4	10	4	n	n	n	n	1	2	9	n	n	n	n	2	5	1
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	1	1	1	1	1	3	3	5	7	10	n	n	n	n	1	2	9	n	n	n	n	1	3	1
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	9	n	n	n	n	n	1	2	n	n	n	n	n	1	1
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	1	n	1	1	3	3	13	n	n	n	n	n	2	3	n	n	n	n	1	1	1
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
24	Beaufort Spring Lead 6	19	15	10	8	6	5	4	2	3	2	2	1	2	2	1	1	1	n	18	9	4	2	2	2	1	8	3	1	1	1	1
25	Beaufort Spring Lead 7	13	20	9	9	6	5	4	2	3	2	3	1	2	2	1	1	1	n	24	9	4	2	2	2	1	9	2	2	1	1	1
26	Beaufort Spring Lead 8	4	6	17	10	14	8	6	4	5	4	4	2	3	3	2	3	1	n	8	12	6	5	3	2	2	7	5	5	2	1	2
27	Beaufort Spring Lead 9	4	6	15	13	14	11	7	5	5	4	4	2	3	3	2	2	1	n	8	16	7	5	3	2	2	12	5	5	3	1	2
28	Beaufort Spring Lead 10	1	1	3	4	10	9	21	12	13	9	8	5	6	4	4	3	2	n	1	8	17	9	6	4	3	3	15	8	8	4	4
29	Ice/Sea Segment 1	8	14	6	6	4	3	2	1	1	1	n	n	n	n	n	n	n	n	11	5	2	1	n	n	n	6	2	1	n	n	n
30	Ice/Sea Segment 2	3	5	7	12	8	11	5	3	3	2	2	1	1	n	n	n	n	n	6	10	5	3	2	n	n	9	3	2	2	n	n
31	Ice/Sea Segment 3	2	1	3	3	4	8	9	14	6	7	5	3	2	1	1	1	1	n	2	5	9	7	4	1	1	2	11	7	5	2	n
32	Ice/Sea Segment 4	1	n	1	1	2	2	4	4	9	15	11	8	7	3	2	1	1	n	1	1	6	19	13	3	1	1	2	11	13	5	1
33	Ice/Sea Segment 5	n	n	n	n	n	n	1	1	2	3	4	12	8	4	5	1	1	n	n	n	1	2	13	5	1	n	1	2	5	10	2
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	1	1	3	3	3	15	2	9	1	n	n	n	n	1	6	4	n	n	n	1	4	12
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	6	10	5	n	n	n	n	1	4	13	n	n	n	n	2	5
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	4	7	n	n	n	n	n	3	5	n	n	n	n	2	3
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	1	2	2	3	3	5	4	6	n	n	n	n	1	3	5	n	n	n	n	2	2
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	2	1	1	1	1	n	n	n	n	n	1	n	n	1	n	1	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
41	Barrow Subsistence Area 1	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	1	n	n	n	n	n	n
42	Barrow Subsistence Area 2	16	26	12	15	10	8	6	4	4	2	3	1	2	2	1	1	1	n	18	10	5	3	1	2	1	21	5	4	1	1	1
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	1	1	1	3	3	14	5	2	3	n	n	n	n	n	1	2	7	3	n	n	1	2	4	11	2
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	1	1	3	5	5	11	9	n	n	n	n	1	3	13	n	n	n	n	1	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-5 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	6	4	4	2	2	1	1	1	2	1	1	1	1	1	n	n	n	n	5	2	1	1	1	n	n	2	n	2	1	1	n
49	Hanna's Shoal Polynya	13	9	9	6	5	4	3	2	2	1	2	1	2	1	1	n	n	n	11	6	3	2	2	1	n	5	2	1	1	1	1
50	Ice/Sea Segment 12	5	4	3	2	2	1	1	n	1	1	1	n	1	1	1	n	n	n	5	1	1	1	1	1	n	3	n	1	1	n	n
51	Ice/Sea Segment 13	6	4	4	3	2	1	1	1	1	1	1	n	1	1	1	1	1	n	5	2	1	1	1	1	1	4	1	1	1	n	n
52	Ice/Sea Segment 14	23	15	14	9	9	5	4	2	3	2	2	1	2	2	1	2	1	n	17	10	4	3	3	1	2	8	3	3	2	1	1
53	Ice/Sea Segment 15	10	14	30	57	41	55	21	17	15	12	12	7	8	6	6	5	4	1	16	76	21	13	11	5	3	30	23	14	9	4	5
54	Ice/Sea Segment 16a	5	5	11	11	19	31	66	51	49	38	28	20	18	10	10	5	4	1	6	19	75	42	26	11	4	7	55	39	27	15	6
55	Ice/Sea Segment 17	3	2	4	4	7	8	20	18	51	58	60	40	34	16	16	6	4	1	2	6	26	**	64	17	3	2	10	40	56	26	10
56	Ice/Sea Segment 18a	n	n	1	1	1	1	3	2	6	8	11	58	46	24	37	5	6	1	n	1	3	8	51	51	4	n	2	5	12	56	16
57	Ice/Sea Segment 19	n	n	n	n	1	n	1	n	1	2	2	8	5	11	63	26	63	8	n	n	n	2	4	27	65	n	1	1	2	11	79
58	Ice/Sea Segment 20a	2	1	2	n	1	n	1	n	2	1	3	6	8	19	22	53	35	21	1	1	1	2	5	23	43	1	n	1	2	9	28
59	Ice/Sea Segment 21	2	1	1	n	1	n	1	n	1	1	2	3	4	11	12	22	17	18	2	1	n	1	2	13	20	n	n	1	1	4	13
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	1	2	3	7	8	13	9	10	n	n	n	n	2	8	11	n	n	n	1	3	8
61	Ice/Sea Segment 22	n	n	n	n	n	n	1	n	1	1	2	3	4	7	7	9	7	4	n	n	1	1	2	6	7	n	n	1	1	4	8
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	1	1	2	2	4	4	5	5	3	n	n	n	1	1	4	5	n	n	n	1	3	5
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	3	2	2	1	1	n	1	n	n	n	n	n	n	1	n	1	1	n	2	1	1	n	n	1	1	1	n	n	n	n	n
65	ERA 1	6	14	11	32	10	12	7	5	4	3	3	2	2	2	2	1	1	n	19	15	7	4	2	1	1	36	8	3	2	1	1
66	ERA 2	2	2	6	8	9	28	15	23	12	14	9	7	6	4	4	3	2	n	3	12	16	13	8	4	3	5	26	14	9	4	4
67	Ice/Sea Segment 16b	3	3	6	7	11	18	37	31	29	25	17	13	10	5	6	3	3	1	3	11	43	27	16	6	3	5	33	27	20	10	4
68	Harrison Bay	n	n	1	1	1	5	4	13	4	5	3	3	2	1	2	n	1	n	n	2	4	4	3	2	1	n	24	5	4	3	1
69	Harrison Bay/Colville Delta	1	1	2	2	3	5	7	16	8	12	7	5	5	2	2	1	1	n	1	4	8	11	6	3	1	1	8	19	9	4	1
70	ERA 3	1	1	3	3	4	6	14	19	23	36	16	15	11	5	7	2	2	n	1	5	23	32	18	7	2	1	10	45	23	13	4
71	Simpson Lagoon	n	n	1	1	2	3	5	7	8	14	8	10	6	3	3	1	1	n	n	3	6	11	10	3	1	1	5	22	19	6	1
72	Gwyder Bay	n	n	n	n	n	n	n	1	1	2	1	2	1	n	n	n	n	n	n	n	1	1	1	n	n	n	n	1	7	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
74	Cross Island ERA	n	n	n	1	n	1	2	1	3	6	5	31	8	4	7	1	1	n	n	n	2	5	11	5	1	n	1	3	8	31	5
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	1	2	1	9	1	1	2	n	1	n	n	n	n	1	2	1	n	n	n	1	3	14	2
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	1	1	1	8	1	1	2	n	n	n	n	n	n	1	2	1	n	n	n	n	3	23	2
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	1	1	4	n	n	1	n	n	n	n	n	n	1	1	n	n	n	n	n	2	18	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
79	ERA 4	n	n	n	n	n	n	1	1	1	2	2	18	4	2	8	1	1	n	n	n	1	2	5	4	1	n	1	1	4	22	4
80	Ice/Sea Segment 18b	n	n	n	1	1	1	2	2	4	6	7	34	25	12	18	2	3	n	n	n	2	5	28	24	1	n	1	4	9	33	8
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	1	2	7	3	28	3	n	n	n	n	1	4	8	n	n	n	n	3	8
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	1	1	3	2	5	9	12	28	26	n	n	n	1	2	6	32	n	n	n	1	4	11
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	1	1	2	4	4	9	12	28	22	14	n	n	n	1	3	11	25	n	n	n	1	7	16
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	6	6	25	n	n	n	n	1	4	7	n	n	n	n	1	3
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	4	4	9	n	n	n	n	1	3	5	n	n	n	n	1	2
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	1	1	4	4	5	5	4	n	n	n	n	1	3	4	n	n	n	n	1	4
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	1	2	3	3	5	4	3	n	n	n	n	1	3	5	n	n	n	n	2	4

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-6 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	45	59	48	60	48	59	49	63	48	57	48	60	51	56	60	65	71	83	50	53	49	53	53	57	70	66	63	61	61	64	67
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	20	33	15	17	12	10	7	5	6	4	5	3	4	3	3	2	2	n	24	13	7	5	3	3	1	14	6	3	3	2	2
3	Thetis and Jones Islands	1	1	2	1	4	4	8	10	12	22	14	14	11	5	5	2	1	n	1	4	9	17	16	6	1	1	8	29	20	9	3
4	Cottle & Return Islands, West Dock	n	n	n	n	1	1	2	3	5	9	7	12	6	2	3	1	1	n	n	1	3	7	9	2	1	n	1	6	25	8	2
5	Midway Islands	n	n	n	n	n	n	1	1	1	2	1	5	1	1	2	n	n	n	n	n	1	2	2	1	n	n	n	1	3	4	1
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	1	2	2	7	3	2	3	1	1	n	n	n	1	2	4	3	n	n	n	1	3	10	2
7	Endicott Causeway	n	n	n	n	n	n	n	n	1	1	1	3	n	n	1	n	n	n	n	n	n	1	1	n	n	n	n	1	2	8	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	1	1	5	1	1	3	1	1	n	n	n	n	1	1	1	n	n	n	1	1	18	2
9	Stockton Islands	n	n	n	n	n	n	n	n	n	1	1	3	1	1	3	n	1	n	n	n	n	n	1	1	1	n	n	n	1	5	3
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	1	2	n	1	n	n	n	n	n	1	1	n	n	n	n	n	2	7
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	1	n	n	n	n	n	1	2	1	n	n	n	n	2	9
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	5	1	n	n	n	n	1	2	n	n	n	n	n	n	2
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	1	n	n	n	n	n	n	1
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	1	1	1	3	5	5	12	5	n	n	n	n	1	4	10	n	n	n	n	2	6
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	1	1	1	1	2	2	5	5	7	9	12	n	n	n	n	1	5	12	n	n	n	1	2	5
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	2	11	n	n	n	n	n	2	2	n	n	n	n	1	2
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	5	5	16	n	n	n	n	n	3	5	n	n	n	n	1	2
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	2	2	1	1	1	n	1	n	1	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
24	Beaufort Spring Lead 6	19	17	10	9	7	5	4	3	3	2	3	2	2	2	1	2	1	n	19	9	4	3	3	2	1	8	3	2	2	1	1
25	Beaufort Spring Lead 7	14	22	10	10	7	6	5	3	4	3	3	2	2	2	1	2	1	n	25	10	5	3	2	2	1	9	3	2	2	1	1
26	Beaufort Spring Lead 8	5	6	17	11	14	9	6	4	5	4	4	2	3	3	2	3	1	n	8	12	7	5	3	2	2	8	5	5	3	1	2
27	Beaufort Spring Lead 9	4	7	16	14	15	12	8	5	6	5	5	3	3	3	2	2	2	n	9	17	8	5	3	3	2	14	6	6	4	2	2
28	Beaufort Spring Lead 10	1	1	4	4	11	11	22	14	15	11	10	6	8	5	4	3	2	n	1	9	19	12	8	5	3	3	16	10	10	5	4
29	Ice/Sea Segment 1	9	15	7	6	5	4	2	2	1	1	1	n	n	n	n	n	n	n	11	5	2	1	n	n	n	6	2	1	n	n	n
30	Ice/Sea Segment 2	3	5	7	12	8	11	5	4	4	3	3	1	2	1	1	1	1	n	6	10	5	3	2	1	1	9	3	3	2	1	1
31	Ice/Sea Segment 3	2	1	3	3	4	8	9	14	6	7	5	3	2	1	1	1	1	1	2	5	9	7	4	2	2	2	11	7	5	2	1
32	Ice/Sea Segment 4	1	n	1	1	2	2	4	4	9	15	11	8	7	3	3	1	1	1	1	1	6	19	13	3	1	1	2	11	13	6	2
33	Ice/Sea Segment 5	n	n	n	n	n	n	1	1	2	3	4	12	8	4	5	1	1	n	n	n	1	2	13	5	1	n	1	2	5	10	2
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	1	1	3	3	3	15	2	9	1	n	n	n	n	1	6	4	n	n	n	1	4	12
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	7	10	5	n	n	n	n	1	4	13	n	n	n	n	2	5
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	5	7	n	n	n	n	n	3	5	n	n	n	n	2	3
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	1	2	2	3	3	5	5	6	n	n	n	n	2	3	5	n	n	n	n	2	3
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	2	2	1	1	1	n	1	n	1	n	1	n	1	1	1	2	1	n	2	1	1	1	1	1	1	2	n	n	1	n	1
41	Barrow Subsistence Area 1	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	1	n	n	n	n	n	n
42	Barrow Subsistence Area 2	17	27	13	15	10	8	6	4	5	3	4	2	3	3	3	3	2	n	19	11	6	4	2	3	2	21	5	5	2	1	2
43	Nuiqsut Subsistence Area	n	n	n	1	n	n	1	1	1	3	3	14	5	2	3	n	n	n	n	n	1	2	7	3	n	n	1	2	5	12	2
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	1	1	3	5	5	11	9	n	n	n	n	1	3	13	n	n	n	n	1	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-6 (continued) Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	1	1	n	n	n	n	1	1	2	n	n	n	n	n	1
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	6	4	4	2	3	1	2	1	2	1	1	1	1	1	1	n	n	n	5	2	1	1	1	n	n	3	n	3	1	1	n
49	Hanna's Shoal Polynya	14	9	9	7	6	4	3	2	3	2	2	1	2	1	1	1	n	n	12	7	3	2	2	1	n	5	2	2	1	1	1
50	Ice/Sea Segment 12	6	4	3	2	2	1	1	1	2	1	2	1	1	1	1	1	n	n	5	2	1	1	1	1	1	4	n	1	1	n	1
51	Ice/Sea Segment 13	6	4	4	3	2	1	1	1	1	1	1	n	1	1	1	2	1	n	5	2	1	1	1	1	1	5	1	1	1	n	1
52	Ice/Sea Segment 14	24	16	14	10	10	6	5	3	4	3	3	2	3	3	2	3	1	n	18	10	5	3	4	1	2	9	4	4	2	1	2
53	Ice/Sea Segment 15	11	15	31	59	42	56	22	18	17	14	13	9	11	7	7	6	5	1	17	76	22	15	13	7	5	31	24	16	10	5	6
54	Ice/Sea Segment 16a	6	6	12	12	20	33	67	53	51	41	31	23	21	11	12	7	6	2	7	21	76	45	29	12	6	9	58	42	30	16	7
55	Ice/Sea Segment 17	3	2	4	4	8	8	21	21	52	60	61	43	35	17	18	6	5	1	3	6	27	**	65	18	4	3	11	42	58	28	11
56	Ice/Sea Segment 18a	n	n	1	1	1	2	3	2	6	9	11	59	46	25	38	6	6	1	1	1	3	8	52	51	4	1	2	5	13	58	17
57	Ice/Sea Segment 19	1	1	1	1	2	1	1	1	2	2	3	9	6	12	64	27	65	9	n	1	1	2	5	28	66	1	1	1	3	12	80
58	Ice/Sea Segment 20a	3	2	3	2	4	2	4	2	4	3	6	9	10	21	26	54	39	25	3	3	3	3	7	25	46	1	2	2	4	11	30
59	Ice/Sea Segment 21	2	1	2	1	2	1	2	2	3	2	3	5	7	13	15	25	21	22	2	2	2	2	4	16	23	n	1	2	2	6	16
60	Ice/Sea Segment 22	1	1	2	1	3	1	3	3	3	3	4	6	7	12	13	17	15	12	1	2	3	3	5	12	16	1	1	2	3	8	13
61	Ice/Sea Segment 22	1	1	2	1	2	2	3	2	4	4	5	7	7	11	11	12	11	5	1	2	3	4	5	9	11	1	2	4	4	8	12
62	Ice/Sea Segment 24a	1	1	1	1	1	1	2	1	3	3	4	5	6	7	6	7	8	5	1	1	2	3	4	6	7	n	2	3	3	6	6
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	3	2	2	1	1	n	1	n	n	n	1	n	n	1	n	2	1	n	2	1	1	n	n	1	1	1	n	n	n	n	1
65	ERA 1	7	15	13	35	12	14	8	7	6	5	5	3	4	4	4	3	2	n	20	17	9	6	4	3	1	37	9	4	3	2	3
66	ERA 2	3	3	7	9	10	30	18	27	15	17	12	10	9	7	6	5	4	1	4	13	19	17	11	7	4	5	29	18	13	6	6
67	Ice/Sea Segment 16b	3	4	7	9	12	20	39	35	32	29	21	16	13	7	8	5	4	1	4	13	46	31	19	8	4	7	36	31	23	12	5
68	Harrison Bay	n	n	1	1	2	5	5	15	4	6	3	4	3	2	3	2	1	1	n	2	6	5	4	3	2	n	28	7	5	4	2
69	Harrison Bay/Colville Delta	1	1	3	2	4	6	9	20	11	16	9	7	7	3	3	2	1	n	1	5	10	14	9	4	1	2	11	24	12	5	1
70	ERA 3	2	1	3	3	5	7	16	22	26	40	20	19	14	7	9	4	3	1	2	6	25	37	22	9	3	2	12	50	27	16	6
71	Simpson Lagoon	1	1	2	1	4	4	7	9	10	18	12	13	10	4	5	2	1	n	1	4	7	14	14	4	1	1	7	26	24	8	3
72	Gwyder Bay	n	n	n	n	n	n	1	1	1	2	1	3	1	n	1	n	n	n	n	n	1	2	2	1	n	n	n	1	8	2	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	1	n
74	Cross Island ERA	n	n	n	1	n	1	2	1	3	6	6	33	9	5	9	2	2	n	n	n	2	5	12	7	1	n	1	4	9	34	6
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	1	2	2	10	2	1	3	1	1	n	n	n	n	1	2	1	1	n	n	1	3	16	3
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	1	2	1	9	1	1	3	1	1	n	n	n	n	1	2	2	1	n	n	n	3	26	3
77	Foggy Island Bay	n	n	n	n	n	n	n	n	1	1	1	5	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	n	2	20	1
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2
79	ERA 4	n	n	n	n	n	1	1	1	2	3	3	20	5	3	9	1	2	n	n	n	1	2	6	5	1	n	1	2	4	24	5
80	Ice/Sea Segment 18b	n	n	n	1	1	1	2	2	4	7	7	36	25	12	20	2	3	n	n	n	2	6	29	25	1	n	2	4	10	35	9
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	1	1
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	2	1	3	9	5	31	4	n	n	n	n	1	6	10	n	n	n	n	3	11
83	Kaktovik ERA	n	n	n	n	n	n	n	n	1	1	2	4	4	9	13	18	35	31	n	n	n	1	3	11	40	n	n	1	1	5	17
84	Ice/Sea Segment 20b	1	n	1	n	1	1	2	1	2	2	3	6	5	10	15	30	27	18	n	1	2	2	4	13	29	n	1	1	2	9	19
85	ERA 6	n	n	n	n	n	n	n	n	n	n	1	2	2	6	7	11	11	31	n	n	n	n	1	7	13	n	n	n	n	2	7
86	ERA 7	n	n	1	n	1	n	1	n	1	1	2	2	3	5	6	9	8	12	n	1	1	1	2	5	10	n	n	n	1	2	6
87	ERA 8	1	1	1	1	2	1	1	1	1	1	2	3	3	7	7	8	9	7	1	1	1	1	2	6	8	1	1	n	1	3	9
88	Ice Sea Segment 24b	n	n	1	n	1	1	1	n	1	1	2	3	4	6	5	6	7	5	n	1	1	1	2	5	7	n	1	1	1	4	6

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-7 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 3 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
25	Barrow, Elson Lagoon	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	Dease Inlet	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	Kurgorak Bay	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Cape Simpson	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n
30	Drew Point, McLeod Point,	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
32	Cape Halkett,	n	n	n	n	n	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n
34	Fish Creek	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n
40	Foggy Island Bay, Kadleroshilik River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	1	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent Rows with all values less than 0.5 percent are not shown.

Table A2-8 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 10 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
25	Barrow, Elson Lagoon	3	4	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n
26	Dease Inlet	1	5	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
27	Kurgorak Bay	1	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
28	Cape Simpson	n	3	1	3	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	7	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	n	n	n	n	n
30	Drew Point, McLeod Point,	n	1	1	4	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	3	n	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	1	2	2	5	1	1	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	1	1	n	n	n	n
32	Cape Halkett,	n	n	n	1	1	4	1	4	n	1	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	6	1	n	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	1	1	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	1	n	n	n
34	Fish Creek	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	2	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	8	1	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	2	n	1	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	2	3	1	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
42	Point Hopson, & Sweeney, Staines	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	6
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	n	n	n	n	n	n	4	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	n	n	1	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-9 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 30 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
24	Walakpa Bay, Walakpa River	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	6	7	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	5	1	n	n	n	n	n	2	n	n	n	n	n
26	Dease Inlet	4	7	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	5	2	n	n	n	n	n	3	n	n	n	n	n
27	Kurgorak Bay	2	4	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
28	Cape Simpson	1	4	2	5	1	2	1	1	n	n	n	n	n	n	n	n	n	n	2	3	1	n	n	n	n	9	1	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	1	1	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	8	n	n	n	n	n
30	Drew Point, McLeod Point,	1	1	2	5	2	2	1	1	n	n	n	n	n	n	n	n	n	n	2	3	1	n	n	n	n	4	1	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	1	1	2	3	3	6	2	2	1	1	1	n	n	n	n	n	n	n	1	3	2	1	n	n	n	1	2	1	n	n	n
32	Cape Halkett	n	n	1	1	2	5	2	6	1	2	1	1	1	n	n	n	n	n	n	2	4	2	1	n	n	n	8	3	1	1	n
33	Atigaru Point, Kogru River	n	n	n	n	1	1	1	5	1	1	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	7	1	1	n	n
34	Fish Creek	n	n	n	n	n	1	1	3	1	1	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	2	1	1	n	n
35	Colville River	n	n	n	n	n	1	1	2	1	2	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	1	3	1	n	n
36	Oliktok Point	n	n	n	n	n	n	1	1	1	2	1	1	1	n	n	n	n	n	n	n	1	2	1	n	n	n	n	9	1	1	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	1	3	1	2	1	n	n	n	n	n	n	n	n	1	1	n	n	n	n	2	5	1	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	4	1	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	1	4	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	6
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	n	n	n	1
44	Collinson Point, Konganevik Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	1	n	n	n	n	n	1	2	n	n	n	n	n	1
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	4	4	n	n	n	n	n	1	6	n	n	n	n	n	2
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	4	n	n	n	n	n	1	2	n	n	n	n	n	1
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	1
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	5	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4	n	n	n	n	n	n	1	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent Rows with all values less than 0.5 percent are not shown.

Table A2-10 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 60 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
22	Skull Cliff	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n
25	Barrow, Elson Lagoon	9	9	4	4	3	2	1	1	1	1	1	n	n	n	n	n	n	n	7	3	1	1	n	n	n	2	1	n	n	n	n
26	Dease Inlet	4	8	3	3	2	2	1	1	1	1	n	n	n	n	n	n	n	n	7	2	1	1	n	n	n	3	1	n	n	n	n
27	Kurgorak Bay	2	4	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	2	n	n	n	n	n
28	Cape Simpson	2	4	2	6	2	3	1	1	1	1	n	n	n	n	n	n	n	n	3	3	1	1	n	n	n	12	2	n	n	n	n
29	Ikpikpuk River, Smith Bay	1	1	1	3	1	1	1	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	9	1	n	n	n	n
30	Drew Point, McLeod Point,	1	1	2	6	2	3	2	1	1	1	1	n	n	n	n	n	n	n	2	3	2	1	1	n	n	4	1	1	1	n	n
31	Lonely, Pitt Point, Pogik Bay	1	1	3	4	4	8	3	3	2	2	1	1	1	n	n	n	n	n	1	4	3	2	1	n	n	2	3	2	1	n	1
32	Cape Halkett	n	n	1	1	2	6	3	7	2	3	2	1	1	n	1	n	n	n	n	2	4	3	2	1	n	n	9	4	2	1	n
33	Atigaru Point, Kogru River	n	n	n	1	1	2	1	4	1	2	1	1	n	n	n	n	n	n	n	1	1	1	1	n	n	n	8	2	1	n	n
34	Fish Creek	n	n	n	n	1	1	2	4	2	2	1	1	1	n	n	n	n	n	n	1	2	1	1	n	n	n	2	2	1	1	n
35	Colville River	n	n	n	n	1	1	1	3	1	2	1	1	1	n	n	n	n	n	n	1	1	2	1	n	n	n	1	4	1	1	n
36	Oliktok Point	n	n	n	n	n	1	1	2	1	3	1	1	1	n	n	n	n	n	n	1	2	2	2	n	n	n	1	9	2	1	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	1	1	3	1	3	1	1	1	n	n	n	n	n	1	2	2	n	n	n	n	3	6	2	1
38	Kuparuk River	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	4	1	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	1	5	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	5	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	2	7
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	3	n	n	n	n	n	n	1	1	n	n	n	n	1	1
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	1	n	n	n	n	n	1	2	n	n	n	n	n	1
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	3	5	4	n	n	n	n	1	1	7	n	n	n	n	1	2
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	4	n	n	n	n	n	1	2	n	n	n	n	1	1
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	4	n	n	n	n	n	1	1	n	n	n	n	n	1
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	6	n	n	n	n	n	1	1	n	n	n	n	n	1
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	5	n	n	n	n	n	1	2	n	n	n	n	n	1
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	n	n	n	n	n	n	1	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	1	n	n	n	n	n	n
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-11 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 180 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
19	Wainwright, Wainwright Inlet	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	3	3	1	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	13	14	7	6	5	4	3	2	2	1	2	1	2	1	1	1	n	n	2	1	n	n	1	n	1	1	n	n	n	n	n
26	Dease Inlet	6	11	5	5	3	2	1	1	1	1	1	n	n	n	n	n	n	n	11	6	3	2	1	1	n	5	2	1	1	1	1
27	Kurgorak Bay	3	5	2	3	2	1	1	1	1	n	n	n	n	n	n	n	n	n	9	3	1	1	1	1	n	4	1	1	1	n	n
28	Cape Simpson	2	6	4	11	3	4	2	2	1	1	1	n	1	n	n	n	n	n	4	2	1	n	n	n	n	2	1	n	n	n	n
29	Ikpikpuk River, Smith Bay	1	2	2	4	2	2	1	1	1	1	n	n	n	n	n	n	n	n	4	5	2	1	1	n	n	21	3	1	n	n	n
30	Drew Point, McLeod Point,	1	2	3	7	3	4	3	2	2	1	1	1	1	n	1	n	n	n	2	3	2	1	1	1	n	5	2	2	1	n	1
31	Lonely, Pitt Point, Pogik Bay	2	2	5	6	6	13	6	6	4	5	4	3	3	2	2	1	1	n	2	7	4	5	4	2	1	2	6	4	3	1	2
32	Cape Halkett	n	n	2	1	3	8	5	11	4	6	3	3	3	1	2	1	1	n	1	3	6	5	4	2	1	1	14	7	4	4	1
33	Atigaru Point, Kogru River	n	n	1	1	1	2	2	5	2	2	1	1	1	n	1	n	n	n	n	1	2	2	1	1	n	n	9	2	1	1	n
34	Fish Creek	n	n	1	1	1	1	2	5	2	2	1	1	1	1	n	n	n	n	n	1	2	2	1	1	n	n	3	2	2	1	n
35	Colville River	n	n	1	1	1	1	2	5	3	5	2	2	2	1	1	n	n	n	n	1	2	4	2	1	n	n	1	7	3	1	n
36	Oliktok Point	n	n	1	n	1	1	2	3	3	4	2	2	2	1	1	n	n	n	n	1	3	4	3	1	n	n	3	11	3	2	n
37	Milne Point, Simpson Lagoon	n	n	n	n	1	1	1	2	2	5	3	5	2	1	1	n	n	n	n	n	2	4	4	1	n	n	2	4	13	2	1
38	Kuparuk River	n	n	n	n	n	n	n	n	n	1	1	2	1	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	5	1	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	1	1	1	4	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	2	10	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	7	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3
42	Point Hopson, & Sweeney, Staines	n	n	n	n	n	n	n	n	n	n	n	2	1	1	2	n	1	n	n	n	n	n	1	1	1	n	n	n	n	2	8
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	2	1	5	1	n	n	n	n	n	1	2	n	n	n	n	1	2
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	5	1	n	n	n	n	n	1	4	n	n	n	n	1	2
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	1	1	1	2	3	4	7	6	n	n	n	n	1	2	9	n	n	n	1	1	3
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	2	7	n	n	n	n	n	1	3	n	n	n	n	1	2
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	6	n	n	n	n	n	1	1	n	n	n	n	n	1
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	9	n	n	n	n	n	1	2	n	n	n	n	n	1
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	8	n	n	n	n	n	1	3	n	n	n	n	1	1
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	2	8	n	n	n	n	n	1	3	n	n	n	n	n	1
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	2	5	n	n	n	n	n	1	2	n	n	n	n	n	1
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	n	n	n	n	n	1	1	n	n	n	n	n	1
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	3	n	n	n	n	n	1	2	n	n	n	n	n	2
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	1	1	1	n	n	n	n	n	n	1	n	n	n	n	1	n
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
63	Outer Shallow Bay, Olivier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1
64	Middle Channel, Gary Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	n
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-12 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 360 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
19	Wainwright, Wainwright Inlet	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
21	Peard Bay, Point Franklin	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	3	3	2	1	1	1	1	n	1	1	1	1	1	1	1	1	n	n	3	1	1	1	1	1	1	1	n	n	1	n	1
25	Barrow, Elson Lagoon	15	17	9	8	7	5	4	3	3	2	3	2	3	2	2	2	1	n	13	8	4	3	3	2	1	7	3	1	2	2	1
26	Dease Inlet	7	12	5	5	4	3	2	1	1	1	1	1	1	1	1	1	1	n	10	4	2	1	1	1	n	5	2	1	1	n	n
27	Kurgorak Bay	3	6	3	4	2	2	1	1	1	n	1	n	1	1	n	n	n	n	4	3	1	1	n	1	n	3	1	1	n	n	n
28	Cape Simpson	3	7	5	13	5	5	3	2	2	2	2	1	1	1	1	n	1	n	5	6	3	2	1	1	n	23	3	1	1	n	1
29	Ikpikpuk River, Smith Bay	1	2	2	4	2	3	2	1	1	1	1	n	1	1	1	n	1	n	2	2	1	1	1	n	1	13	2	n	1	n	1
30	Drew Point, McLeod Point,	2	2	4	8	4	5	4	3	3	2	2	1	2	1	2	1	1	n	3	4	4	2	2	1	n	6	2	2	1	1	1
31	Lonely, Pitt Point, Pogik Bay	3	3	6	7	8	15	7	8	6	7	6	5	5	5	4	3	3	n	3	8	6	7	6	4	3	2	7	7	5	3	4
32	Cape Halkett	1	1	2	2	3	9	7	14	6	8	5	5	4	3	3	2	2	1	1	4	8	7	6	4	3	1	16	10	7	5	2
33	Atigaru Point, Kogru River	n	n	1	1	1	2	2	6	2	2	1	2	1	1	1	1	n	n	n	1	2	2	1	1	n	n	10	2	1	1	1
34	Fish Creek	n	n	1	1	1	2	3	7	3	3	2	1	1	1	1	1	n	n	n	2	3	3	2	1	1	1	4	3	2	1	n
35	Colville River	n	1	1	1	1	2	3	6	3	6	4	3	3	1	1	n	n	n	1	2	3	5	3	2	n	n	3	9	5	2	n
36	Oliktok Point	n	n	1	1	1	2	3	4	4	6	3	3	3	1	1	n	n	n	n	2	4	5	4	1	n	1	3	13	4	2	1
37	Milne Point, Simpson Lagoon	n	n	n	n	1	1	2	2	3	7	4	7	4	2	2	1	n	n	n	1	2	4	6	1	n	n	2	4	15	4	1
38	Kuparuk River	n	n	n	n	n	n	n	n	1	1	1	3	1	n	n	n	n	n	n	n	n	1	2	1	n	n	n	1	6	2	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	1	1	2	1	4	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	1	2	12	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	8	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	2	1	1	2	1	1	n	n	n	n	n	1	1	1	n	n	n	n	2	9
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	2	6	1	n	n	n	n	n	2	3	n	n	n	n	1	2
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	n	1	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	6	1	n	n	n	n	n	1	4	n	n	n	n	1	2
47	Kaktovik	n	n	n	n	n	n	n	n	1	1	1	2	2	4	5	6	10	8	n	n	n	1	2	4	11	n	n	n	1	2	5
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	3	3	8	n	n	n	n	n	2	4	n	n	n	n	1	3
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	7	n	n	n	n	n	1	2	n	n	n	n	n	2
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	11	n	n	n	n	n	2	3	n	n	n	n	n	2
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	4	4	10	n	n	n	n	n	2	4	n	n	n	n	1	2
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	4	4	11	n	n	n	n	1	2	5	n	n	n	n	1	2
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	1	1	1	2	3	4	3	7	n	n	n	n	1	2	4	n	n	n	1	1	3
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	2	n	n	n	n	n	1	2	n	n	n	n	1	1
55	Herschel Island	n	n	n	n	n	n	1	1	1	1	1	1	1	2	3	4	3	4	n	1	1	1	1	3	3	n	1	1	n	1	3
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	1	1	1	n	n	n	n	1	1	1	n	n	n	n	1	1
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	2	1	1	1	2	1	1	n	n	n	n	1	1	1	n	n	n	n	3	1
58	Sabine Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1
59	Shingle Point	1	n	1	n	1	n	1	1	1	1	1	1	1	1	1	1	1	n	n	1	1	1	1	1	1	n	n	1	1	n	n
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
62	Shallow Bay, West Channel	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
63	Outer Shallow Bay, Olivier Islands	n	n	1	n	1	n	n	n	n	n	n	n	1	1	1	1	2	1	n	n	n	n	n	1	1	n	n	n	n	n	2
64	Middle Channel, Gary Island	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	2	2	n	n	n	n	n	1	2	n	n	n	n	1	2
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	2	1	n	n	n	n	n	1	1	n	n	n	n	n	1
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	n	n	n	n	n	1	1	n	n	n	n	1	2

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-13 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 3 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-14 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 10 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-15 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 30 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
22	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
24	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
25	1	1	2	1	2	1	1	1	1	n	n	n	n	n	n	n	n	n	1	2	1	n	n	n	n	1	1	n	n	n	n
26	1	n	1	n	2	1	1	1	1	1	1	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	1	n	n	n	n
27	n	n	1	n	1	1	1	n	1	n	1	n	n	n	n	n	n	n	1	1	n	1	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-16 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 60 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
18	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
19	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
20	2	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
21	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
22	1	1	1	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	1	1	1	n	1	n	n	n	1	n	n	n	n
23	3	2	2	2	2	2	1	1	1	1	1	n	1	n	n	n	n	n	2	2	1	1	1	n	n	1	1	1	n	n	n
24	3	2	2	1	2	1	1	1	1	n	n	n	1	n	n	n	n	n	3	1	1	n	1	n	n	1	1	n	n	n	n
25	3	2	3	2	3	2	3	2	2	1	1	1	1	1	1	1	n	n	2	3	2	1	1	2	1	2	2	1	1	1	n
26	1	1	3	1	3	2	3	2	3	2	3	2	3	2	1	1	1	n	2	2	3	3	3	2	1	1	1	1	2	1	1
27	1	1	2	1	3	2	3	2	3	2	3	2	2	2	1	1	n	n	2	2	2	2	2	2	n	1	1	2	2	1	1
28	1	n	1	n	1	1	1	1	1	1	2	1	1	1	1	1	n	n	1	1	1	1	1	n	1	n	1	n	n	n	1
29	n	n	n	n	n	n	1	n	n	n	1	n	1	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown

Table A2-17 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 180 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
18	4	3	3	2	2	2	1	n	1	n	1	n	n	n	n	n	n	n	3	2	1	1	n	n	n	1	1	n	n	n	n
19	5	3	3	2	2	1	1	1	1	n	1	n	1	1	n	n	n	n	4	2	1	n	1	n	n	2	1	n	n	n	n
20	5	3	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	4	3	1	n	n	n	n	2	n	n	n	n	n
21	2	2	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
22	2	1	2	1	2	1	1	n	1	n	1	1	n	n	n	n	n	n	1	1	1	n	1	n	n	1	1	n	1	1	n
23	3	2	3	2	3	2	2	1	1	1	1	1	1	1	1	n	n	n	3	2	2	1	1	1	n	2	2	1	1	1	n
24	3	2	3	2	2	2	2	1	2	1	1	1	1	n	1	n	n	n	3	2	2	1	1	1	n	2	2	1	1	1	n
25	3	2	4	3	4	3	4	3	3	2	3	2	3	2	2	1	1	n	3	4	4	2	2	3	1	2	3	2	2	2	1
26	2	2	3	2	4	3	5	3	5	4	5	3	5	4	4	3	3	1	3	4	5	5	4	4	3	2	3	3	3	2	3
27	2	2	4	3	6	4	7	5	7	6	8	5	7	6	5	3	2	1	2	4	6	7	6	6	1	2	6	5	5	4	4
28	3	2	3	2	4	4	4	2	4	3	5	3	4	4	3	3	3	2	3	4	4	4	4	3	3	2	3	1	2	1	2
29	2	1	2	1	2	1	2	2	2	2	2	2	3	3	2	3	2	1	2	1	2	2	3	3	2	1	1	1	2	1	1
30	n	n	n	n	n	n	1	n	1	1	1	1	1	n	1	1	1	n	n	n	1	1	1	1	n	n	n	1	1	1	1
31	n	n	n	n	n	n	1	1	1	1	1	1	1	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	1	n	n
34	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	1	n	1	1	1	1	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n
36	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	1	1	n	n	n	n	1	1
37	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	2	2	1	n	n	n	n	1	1	2	n	n	n	1	n	1
38	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	1	n	n	n	n	n	1	2	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-18 Annual Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 360 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n
18	4	3	3	2	2	2	1	1	1	1	1	n	n	n	n	n	n	n	3	2	1	1	n	n	n	2	1	n	n	n	n
19	5	3	3	2	2	2	1	1	1	1	1	1	1	1	n	n	n	n	5	2	1	1	1	n	n	2	1	1	n	n	n
20	5	3	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	4	3	1	n	n	n	n	2	1	n	n	n	n
21	2	2	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
22	3	2	2	1	2	1	1	n	1	n	1	1	n	n	n	n	n	n	2	1	1	n	1	n	n	1	1	n	1	1	n
23	3	2	3	2	3	2	2	1	1	1	1	1	1	1	1	n	n	n	3	2	2	1	1	1	n	2	2	1	1	1	n
24	3	2	3	2	2	2	2	1	2	1	1	1	1	n	1	n	n	n	3	2	2	1	1	1	n	2	2	1	1	1	n
25	4	3	4	3	4	3	4	3	3	2	3	2	3	3	2	1	1	n	3	4	4	2	2	3	1	2	3	2	2	2	1
26	2	2	4	3	5	4	6	4	6	4	5	4	5	5	4	4	3	1	3	4	6	5	5	4	3	2	4	3	3	3	4
27	2	2	4	4	6	5	8	7	8	7	9	6	8	7	6	3	2	1	3	5	8	8	7	7	2	3	8	7	7	5	4
28	3	2	4	3	5	5	5	3	5	4	5	4	5	5	3	3	3	2	3	4	5	5	4	3	4	2	3	2	3	3	3
29	2	1	2	1	2	1	2	2	2	2	2	2	3	3	3	3	2	1	2	1	2	2	3	3	2	1	2	1	2	2	2
30	1	n	n	n	1	n	1	n	1	1	1	1	1	1	1	1	1	n	n	n	1	2	1	1	n	n	n	1	1	1	1
31	n	n	n	n	n	n	1	1	1	1	1	1	1	n	n	n	n	n	n	1	1	1	1	1	n	n	n	1	1	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	1	n	n	n	n	n	n	1	1	1	n	n	n	n	1	n
36	n	n	n	n	n	n	n	n	n	n	1	1	2	2	2	2	2	n	n	n	n	1	1	2	2	n	n	n	1	1	2
37	n	n	n	n	n	n	n	n	n	n	1	1	2	3	2	3	3	1	n	n	n	n	1	2	2	n	n	n	1	1	2
38	n	n	1	n	1	n	n	n	n	n	1	1	1	2	1	2	1	1	n	1	n	n	n	1	2	n	1	n	n	1	2

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-19 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	1	13	2	13	2	13	n	9	n	3	n	6	n	n	2	n	8	15	2	2	1	1	n	n	3	29	18	13	11	16	13
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	1	15	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	3	n	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	n	1	1	7	n	1	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	19	3	1	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	n	3	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	15	1	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	14	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	2	n	n	n	n	n	n	2	n	n	n	n	n	n
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	5	n	n	n	n	n	n	2	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	Beaufort Spring Lead 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	Beaufort Spring Lead 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	Beaufort Spring Lead 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Beaufort Spring Lead 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
29	Ice/Sea Segment 1	8	26	2	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	15	1	n	n	n	n	n	7	n	n	n	n	n
30	Ice/Sea Segment 2	1	3	7	23	7	17	1	1	n	n	n	n	n	n	n	n	n	n	4	13	1	n	n	n	n	16	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	n	1	2	12	7	25	1	3	n	n	n	n	n	n	n	n	n	4	9	2	n	n	n	n	19	6	n	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	2	3	9	24	7	7	1	n	n	n	n	n	n	n	8	35	15	n	n	n	n	16	20	1	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	2	3	21	9	1	5	n	n	n	n	n	n	1	25	4	n	n	n	n	4	18	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	2	2	2	28	1	17	n	n	n	n	n	1	6	1	n	n	n	n	4	23
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4	14	6	n	n	n	n	n	1	22	n	n	n	n	n	2
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	n	n	n	n	n	n	1	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	15	64	3	16	n	1	n	n	n	n	n	n	n	n	n	n	n	n	30	3	n	n	n	n	n	44	n	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	1	1	32	3	n	1	n	n	n	n	n	n	n	8	1	n	n	n	n	3	22	n
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	16	20	n	n	n	n	n	1	24	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-19 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Ice/Sea Segment 15	1	3	16	41	25	35	3	1	n	n	n	n	n	n	n	n	n	n	6	74	3	n	n	n	n	14	5	n	n	n	n
54	Ice/Sea Segment 16a	n	n	n	n	3	15	51	21	21	3	n	n	n	n	n	n	n	n	7	62	5	n	n	n	n	n	37	3	n	n	n
55	Ice/Sea Segment 17	n	n	n	n	n	n	2	1	35	34	41	10	4	n	n	n	n	n	n	9	**	40	n	n	n	n	18	29	1	n
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	n	1	3	41	40	13	12	n	n	n	n	n	n	45	41	n	n	n	n	3	39	1
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	1	1	4	55	15	46	1	n	n	n	n	n	20	58	n	n	n	n	1	72
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	31	6	2	n	n	n	n	n	2	11	n	n	n	n	n	2
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	2	12	5	38	1	1	n	n	n	n	n	n	n	n	n	n	n	n	28	7	n	n	n	n	n	54	n	n	n	n	n
66	ERA 2	n	n	1	2	3	36	3	9	n	n	n	n	n	n	n	n	n	n	n	9	4	n	n	n	n	n	17	n	n	n	n
67	Ice/Sea Segment 16b	n	n	n	n	3	15	51	21	21	3	n	n	n	n	n	n	n	n	n	7	62	5	n	n	n	n	37	3	n	n	n
68	Harrison Bay	n	n	n	n	n	3	n	11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	29	n	n	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	n	n	8	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	6	n	n	n
70	ERA 3	n	n	n	n	n	n	7	8	15	27	n	n	n	n	n	n	n	n	n	n	24	18	1	n	n	n	n	48	2	n	n
71	Simpson Lagoon	n	n	n	n	n	n	n	1	n	4	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	20	5	1	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	n	2	1	44	4	n	1	n	n	n	n	n	n	9	1	n	n	n	n	n	4	32	n
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	11	n
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	16	n
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	20	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	25	2	n	5	n	n	n	n	n	n	2	3	n	n	n	n	n	26	2
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	n	1	3	41	40	13	12	n	n	n	n	n	n	45	41	n	n	n	n	3	39	1
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	32	n	n	n	n	n	n	1	3	n	n	n	n	4
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	22	29	n	n	n	n	n	1	30	n	n	n	n	n
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	31	6	2	n	n	n	n	n	2	11	n	n	n	n	n	2
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	13	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-20 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	17	43	14	41	12	35	9	33	4	17	3	17	3	1	10	4	24	43	25	20	11	9	5	6	18	56	41	29	23	27	20
1	**Kasegaluk Lagoon**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	**Point Barrow, Plover Islands**	13	32	5	9	1	2	n	n	n	n	n	n	n	n	n	n	n	n	17	4	n	n	n	n	n	10	n	n	n	n	n
3	**Thetis and Jones Islands**	n	n	n	n	n	n	2	4	5	16	3	5	1	n	1	n	n	n	n	n	4	11	2	1	n	n	1	26	9	3	1
4	**Cottle & Return Islands, West Dock**	n	n	n	n	n	n	n	1	2	7	2	8	1	n	1	n	n	n	n	n	1	4	3	n	n	n	n	5	19	5	1
5	**Midway Islands**	n	n	n	n	n	n	n	n	n	3	1	4	1	n	1	n	n	n	n	n	n	2	2	1	n	n	n	1	6	3	1
6	**Cross and No Name Islands**	n	n	n	n	n	n	n	n	n	2	1	7	1	n	1	n	n	n	n	n	n	1	3	1	n	n	n	2	4	7	n
7	**Endicott Causeway**	n	n	n	n	n	n	n	n	n	1	n	2	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	5	n
8	**McClure Islands**	n	n	n	n	n	n	n	n	n	1	n	6	1	n	2	n	n	n	n	n	n	n	1	1	n	n	n	n	2	15	1
9	**Stockton Islands**	n	n	n	n	n	n	n	n	n	n	n	4	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	1	7	1
10	**Tigvariak Island**	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	**Maguire Islands**	n	n	n	n	n	n	n	n	n	n	n	3	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	3	4
12	**Flaxman Island**	n	n	n	n	n	n	n	n	n	n	n	2	1	n	2	n	1	n	n	n	n	n	n	1	n	n	n	n	3	9
13	**Barrier Islands**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	3	n	n	n	n	n	n	n	n	n	n	n	1	2
14	**Anderson Point Barrier Islands**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	3	n	n	n	n	n	n	n	1	n	n	n	n	1
15	**Arey and Barter Islands, Bernard Spit**	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	11	4	n	n	n	n	n	2	9	n	n	n	n	3
16	**Jago and Tapkaurak Spits**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	7	10	n	n	n	n	n	1	10	n	n	n	n	2
17	**Angun and Beaufort Lagoons**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	n	n	n	n	n	n	n	n	n	n	n
18	**Icy Reef**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	12	n	n	n	n	n	n	1	n	n	n	n	n
19	**Chukchi Spring Lead 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	**Chukchi Spring Lead 2**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	**Chukchi Spring Lead 3**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	**Chukchi Spring Lead 4**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	**Chukchi Spring Lead 5**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	**Beaufort Spring Lead 6**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	**Beaufort Spring Lead 7**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	**Beaufort Spring Lead 8**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	**Beaufort Spring Lead 9**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	**Beaufort Spring Lead 10**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
29	**Ice/Sea Segment 1**	15	30	8	10	3	3	1	1	n	n	n	n	n	n	n	n	n	n	22	5	n	n	n	n	n	10	n	n	n	n	n
30	**Ice/Sea Segment 2**	4	8	13	27	14	21	5	4	2	1	n	n	n	n	n	n	n	n	9	22	5	n	n	n	n	19	3	1	n	n	n
31	**Ice/Sea Segment 3**	1	1	3	3	5	16	15	29	8	10	3	1	1	n	n	n	n	n	2	8	16	9	2	n	n	2	24	12	5	n	n
32	**Ice/Sea Segment 4**	n	n	n	n	1	1	6	6	16	29	14	12	5	1	1	n	n	n	n	1	12	38	20	1	n	n	3	20	27	7	n
33	**Ice/Sea Segment 5**	n	n	n	n	n	n	n	n	1	5	7	26	14	4	9	1	1	n	n	n	n	3	29	6	1	n	n	1	9	23	3
34	**Ice/Sea Segment 6**	n	n	n	n	n	n	n	n	n	n	n	6	4	5	32	2	20	1	n	n	n	n	2	11	5	n	n	n	1	8	25
35	**Ice/Sea Segment 7**	n	n	n	n	n	n	n	n	n	n	n	n	n	3	5	10	20	9	n	n	n	n	n	4	28	n	n	n	n	1	8
36	**Ice/Sea Segment 8**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	13	n	n	n	n	n	n	5	n	n	n	n	n	1
37	**Ice/Sea Segment 9**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	1	n	n	n	n	n	n
38	**Point Hope Subsistence Are**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	**Point Lay Subsistence Area**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	**Wainwright Subsistence Area**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	**Barrow Subsistence Area 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	**Barrow Subsistence Area 2**	32	69	16	30	7	8	1	1	n	n	n	n	n	n	n	n	n	n	44	12	1	n	n	n	n	51	2	n	n	n	n
43	**Nuiqsut Subsistence Area**	n	n	n	n	n	n	n	n	1	5	4	37	8	2	4	n	n	n	n	n	n	3	15	3	n	n	n	3	8	28	2
44	**Kaktovik Subsistence Area**	n	n	n	n	n	n	n	n	n	n	n	n	n	2	5	6	26	23	n	n	n	n	n	3	31	n	n	n	n	n	7

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-20 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	7	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
53	Ice/Sea Segment 15	6	10	29	51	38	45	10	7	2	1	n	n	n	n	n	n	n	n	16	78	10	1	n	n	n	23	13	2	n	n	n
54	Ice/Sea Segment 16a	1	1	4	4	11	24	60	39	34	16	6	2	1	n	n	n	n	n	1	13	72	22	4	n	n	1	49	19	7	1	n
55	Ice/Sea Segment 17	n	n	n	n	1	1	8	7	44	47	50	24	13	1	2	n	n	n	n	n	14	**	51	2	n	n	3	29	47	11	n
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	1	6	8	55	46	18	22	1	1	n	n	n	n	3	50	44	n	n	n	2	11	54	6
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	5	4	9	63	19	56	2	n	n	n	n	2	25	60	n	n	n	1	5	78
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	1	1	7	10	45	24	8	n	n	n	n	n	9	32	n	n	n	n	1	15
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3	7	n	n	n	n	n	n	4	n	n	n	n	n	1
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	7	21	14	49	7	9	1	1	n	n	n	n	n	n	n	n	n	n	35	17	1	n	n	n	n	57	3	n	n	n	n
66	ERA 2	1	2	5	8	9	43	10	19	3	3	1	n	n	n	n	n	n	n	2	16	11	3	1	n	n	3	27	4	1	n	n
67	Ice/Sea Segment 16b	1	1	4	4	11	24	60	39	34	16	6	2	1	n	n	n	n	n	1	13	72	22	4	n	n	1	49	19	7	1	n
68	Harrison Bay	n	n	n	1	1	7	3	19	1	2	n	n	n	n	n	n	n	n	n	3	4	1	n	n	n	n	35	3	1	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	2	4	17	2	8	1	1	n	n	n	n	n	n	n	1	6	5	1	n	n	n	8	14	3	1	n
70	ERA 3	n	n	n	n	1	2	15	19	28	43	7	5	1	n	n	n	n	n	n	2	32	40	6	n	n	n	8	58	17	2	n
71	Simpson Lagoon	n	n	n	n	n	n	1	4	3	12	2	5	1	n	1	n	n	n	n	n	3	5	2	1	n	n	n	27	12	3	1
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	2	n	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	2	4	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	1	6	4	50	9	2	4	n	n	n	n	n	n	3	18	4	n	n	n	4	11	40	2
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	2	1	9	1	n	1	n	n	n	n	n	n	2	n	n	n	n	n	n	4	13	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	1	n	8	1	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n	3	17	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	4	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	21	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
79	ERA 4	n	n	n	n	n	n	n	n	n	2	2	32	6	2	9	n	1	n	n	n	n	1	8	5	n	n	n	1	4	34	4
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	1	6	8	55	46	18	22	1	1	n	n	n	n	3	50	44	n	n	n	2	11	54	6
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	1
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	n	2	9	2	40	2	n	n	n	n	n	6	8	n	n	n	n	1	10
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	2	5	8	35	32	n	n	n	n	n	3	40	n	n	n	n	n	8
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	1	1	7	10	45	24	8	n	n	n	n	n	9	32	n	n	n	n	1	15
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	21	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-21 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	47	66	41	66	39	60	37	55	27	41	19	34	13	9	23	19	42	68	53	49	41	34	21	16	39	73	59	50	39	38	37
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	28	42	15	16	9	7	3	2	1	1	1	n	n	n	n	n	n	n	31	11	4	1	n	n	n	17	3	1	n	n	n
3	Thetis and Jones Islands	1	n	n	n	1	1	5	7	12	23	13	13	7	2	3	n	n	n	1	1	7	18	12	1	n	1	2	30	17	9	2
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	1	2	5	10	7	13	6	2	3	1	1	n	n	n	2	7	8	2	n	n	n	7	22	9	3
5	Midway Islands	n	n	n	n	n	n	1	1	1	4	2	6	2	1	2	n	1	n	n	n	1	2	2	2	1	n	n	3	6	6	1
6	Cross and No Name Islands	n	n	n	n	n	n	n	1	1	4	2	9	3	1	3	n	n	n	n	n	1	1	5	2	n	n	n	3	5	11	1
7	Endicott Causeway	n	n	n	n	n	n	n	n	1	1	1	3	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	1	4	6	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	1	1	7	2	1	3	n	1	n	n	n	n	1	2	1	1	n	n	1	2	16	1
9	Stockton Islands	n	n	n	n	n	n	n	n	n	1	1	5	1	1	3	n	1	n	n	n	n	n	3	n	1	n	n	1	2	7	2
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	4	1	n	2	n	1	n	n	n	n	n	2	1	1	n	n	n	1	4	4
12	Flaxman Island	n	n	n	n	n	n	n	n	n	1	n	3	1	1	3	n	1	n	n	n	n	n	1	1	1	n	n	1	1	3	10
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	2	1	5	1	n	n	n	n	1	1	2	n	n	n	n	1	3
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	3	n	n	n	n	n	n	1	1	n	n	n	n	n	1
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	1	n	2	5	5	15	5	n	n	n	n	n	4	14	n	n	n	n	1	8
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	1	1	2	5	8	12	13	n	n	n	n	n	3	17	n	n	n	n	1	6
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	13	n	n	n	n	n	1	1	n	n	n	n	n	2
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3	16	n	n	n	n	n	n	3	n	n	n	n	n	1
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	Beaufort Spring Lead 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	Beaufort Spring Lead 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	Beaufort Spring Lead 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Beaufort Spring Lead 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
29	Ice/Sea Segment 1	21	32	14	15	10	7	4	3	2	1	1	n	n	n	n	n	n	n	26	11	3	2	n	n	n	13	3	1	1	n	n
30	Ice/Sea Segment 2	7	11	17	29	20	24	12	8	7	4	3	1	1	n	n	n	n	n	13	25	11	5	2	n	n	21	6	4	2	n	n
31	Ice/Sea Segment 3	3	3	7	6	11	20	22	33	16	18	10	6	5	1	1	n	n	n	5	13	24	18	8	1	n	4	27	20	12	3	1
32	Ice/Sea Segment 4	2	n	2	1	3	3	10	10	22	35	23	21	17	5	5	n	n	n	1	2	16	44	31	4	n	n	6	26	32	14	3
33	Ice/Sea Segment 5	n	n	n	n	1	1	2	2	5	8	11	30	19	9	13	2	2	n	n	1	2	6	32	10	2	n	2	5	13	26	6
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	1	2	2	9	7	8	34	4	23	2	n	n	n	1	5	14	8	n	n	1	2	10	26
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	2	3	8	10	16	25	11	n	n	n	n	1	10	32	n	n	n	n	4	12
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	1	1	5	5	10	10	18	n	n	n	n	n	5	14	n	n	n	n	1	7
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	3	12	n	n	n	n	n	n	6	n	n	n	n	n	2
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	47	74	32	42	22	19	9	7	4	3	2	n	n	n	n	n	n	n	55	27	9	3	n	n	n	58	9	2	1	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	1	1	2	4	9	8	40	13	6	8	1	1	n	n	n	2	6	19	8	1	n	1	6	13	32	4
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	2	1	6	12	14	33	26	n	n	n	n	n	8	39	n	n	n	n	2	16

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-21 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	4	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	2	n	n	n	n	n
52	Ice/Sea Segment 14	16	8	7	3	3	1	n	n	n	n	n	n	n	n	n	n	n	n	10	2	n	n	n	n	n	3	n	n	n	n	n
53	Ice/Sea Segment 15	12	15	36	53	46	48	17	12	9	6	4	2	1	n	n	n	n	n	23	79	15	7	3	n	n	25	16	7	4	1	n
54	Ice/Sea Segment 16a	4	3	11	8	20	30	66	48	47	33	20	12	8	2	2	n	n	n	6	19	78	39	16	3	n	4	52	35	19	7	1
55	Ice/Sea Segment 17	1	n	2	1	4	4	15	14	51	55	57	35	28	7	7	n	1	n	n	3	21	**	62	7	n	1	8	38	56	19	3
56	Ice/Sea Segment 18a	n	n	n	n	n	1	2	2	6	11	13	59	49	22	27	3	3	n	n	n	2	7	55	45	2	n	1	7	18	58	9
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	1	2	2	9	7	13	66	21	59	4	n	n	n	1	5	28	62	n	n	1	3	10	79
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	1	1	4	4	17	21	54	36	13	n	n	n	n	3	21	42	n	n	1	1	6	27
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	1	1	5	6	15	12	15	n	n	n	n	n	6	16	n	n	n	n	2	8
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	2	6	n	n	n	n	n	3	n	n	n	n	n	n	1
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	1	1	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	4	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	2	n	n	n	n	n
65	ERA 1	12	24	21	53	16	17	7	6	2	2	1	n	n	n	n	n	n	n	37	25	6	2	n	n	n	58	9	2	n	n	n
66	ERA 2	4	5	9	11	15	46	18	24	9	8	5	2	2	n	n	n	n	n	7	21	21	9	4	n	n	6	32	8	4	n	n
67	Ice/Sea Segment 16b	4	3	11	8	20	30	66	48	47	33	20	11	8	2	2	n	n	n	6	19	78	39	16	3	n	4	52	35	19	7	1
68	Harrison Bay	1	1	2	2	3	10	8	23	5	6	3	2	1	n	n	n	n	n	1	4	9	4	3	n	n	1	38	7	4	1	n
69	Harrison Bay/Colville Delta	1	1	2	2	3	5	10	22	9	16	5	5	3	1	1	n	n	n	1	4	11	14	5	1	n	1	11	21	9	4	1
70	ERA 3	1	n	3	1	6	6	22	26	38	53	21	15	10	2	2	n	n	n	1	5	37	49	20	2	n	n	13	64	29	9	1
71	Simpson Lagoon	n	n	n	n	n	1	4	6	9	17	9	12	7	2	3	n	1	n	n	1	6	13	10	2	n	n	2	31	17	7	3
72	Gwyder Bay	n	n	n	n	n	n	n	n	1	2	1	4	1	1	1	n	n	n	n	n	n	1	2	1	n	n	n	2	4	2	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	1	n
74	Cross Island ERA	n	n	n	n	n	1	1	2	4	10	8	53	14	6	8	1	1	n	n	n	2	6	21	9	1	n	1	7	15	43	4
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	1	1	2	2	11	2	n	2	n	1	n	n	n	n	3	2	1	1	n	n	1	5	16	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	1	1	2	1	10	1	1	3	n	1	n	n	n	n	2	2	1	1	n	n	1	5	19	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	1	1	1	5	1	n	1	n	n	n	n	n	n	1	n	1	n	n	n	1	3	22	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
79	ERA 4	n	n	n	n	n	n	n	1	1	4	4	34	9	4	11	1	2	n	n	n	n	3	12	7	1	n	n	3	7	36	5
80	Ice/Sea Segment 18b	n	n	n	n	n	1	2	2	6	11	13	59	49	22	27	3	3	n	n	n	2	7	55	45	2	n	1	7	18	58	9
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	2
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	3	2	5	14	4	42	3	n	n	n	n	1	10	12	n	n	n	n	4	15
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	2	1	7	13	18	42	34	n	n	n	n	n	9	48	n	n	n	n	2	19
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	1	1	4	4	17	21	54	36	13	n	n	n	n	3	21	42	n	n	1	1	6	27
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	3	29	n	n	n	n	n	n	5	n	n	n	n	n	1
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	11	n	n	n	n	n	n	3	n	n	n	n	n	1
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-22 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	55	72	53	72	50	68	47	63	41	53	32	47	29	27	40	38	55	78	62	59	50	48	37	32	54	77	64	61	52	49	51
1	**Kasegaluk Lagoon**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	**Point Barrow, Plover Islands**	30	44	18	18	11	9	5	4	3	2	1	1	n	n	n	n	n	n	33	13	6	3	n	n	n	17	4	2	1	n	n
3	**Thetis and Jones Islands**	1	n	1	1	2	2	6	8	14	24	15	15	11	3	4	1	1	n	1	3	9	20	15	3	1	1	4	31	19	12	3
4	**Cottle & Return Islands, West Dock**	n	n	n	n	1	1	2	3	6	11	9	14	8	3	4	1	1	n	n	1	3	8	11	3	1	n	1	8	24	10	3
5	**Midway Islands**	n	n	n	n	n	n	1	1	2	5	2	7	3	1	2	n	1	n	n	n	1	3	3	2	1	n	n	3	6	7	1
6	**Cross and No Name Islands**	n	n	n	n	n	n	1	1	2	4	2	10	4	2	3	n	1	n	n	n	2	2	5	3	n	n	n	3	5	11	1
7	**Endicott Causeway**	n	n	n	n	n	n	n	n	1	2	1	3	1	n	1	n	n	n	n	n	n	2	1	n	n	n	n	1	4	7	n
8	**McClure Islands**	n	n	n	n	n	n	n	1	1	2	1	8	3	1	3	n	1	n	n	n	n	1	2	1	1	n	n	1	2	18	1
9	**Stockton Islands**	n	n	n	n	n	n	n	1	n	1	1	6	2	1	3	n	1	n	n	n	n	1	3	1	1	n	n	1	2	9	2
10	**Tigvariak Island**	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	**Maguire Islands**	n	n	n	n	n	n	n	n	n	1	1	4	1	1	3	n	1	n	n	n	n	n	3	2	1	n	n	n	1	5	4
12	**Flaxman Island**	n	n	n	n	n	n	n	n	n	1	n	3	2	2	3	n	1	n	n	n	n	n	1	3	1	n	n	1	1	5	10
13	**Barrier Islands**	n	n	n	n	n	n	n	n	n	1	n	2	1	1	2	1	5	1	n	n	n	n	1	1	2	n	n	n	n	1	3
14	**Anderson Point Barrier Islands**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	1	1	n	n	n	n	n	1
15	**Arey and Barter Islands, Bernard Spit**	n	n	n	n	n	n	n	n	n	n	n	1	1	3	6	6	16	5	n	n	n	n	1	5	15	n	n	n	n	1	9
16	**Jago and Tapkaurak Spits**	n	n	n	n	n	n	n	n	n	n	n	1	2	6	8	10	13	13	n	n	n	n	1	6	18	n	n	n	n	1	9
17	**Angun and Beaufort Lagoons**	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	4	13	n	n	n	n	n	4	3	n	n	n	n	1	4
18	**Icy Reef**	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	5	6	17	n	n	n	n	n	3	7	n	n	n	n	1	3
19	**Chukchi Spring Lead 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	**Chukchi Spring Lead 2**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	**Chukchi Spring Lead 3**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	**Chukchi Spring Lead 4**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	**Chukchi Spring Lead 5**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	**Beaufort Spring Lead 6**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	**Beaufort Spring Lead 7**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	**Beaufort Spring Lead 8**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	**Beaufort Spring Lead 9**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	**Beaufort Spring Lead 10**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
29	**Ice/Sea Segment 1**	22	33	17	16	12	9	5	4	3	2	2	1	n	n	n	n	n	n	27	13	4	3	1	n	n	13	4	2	1	n	n
30	**Ice/Sea Segment 2**	9	12	20	30	22	26	15	9	10	7	7	3	4	1	1	n	n	n	15	29	13	8	6	n	n	22	7	6	5	2	n
31	**Ice/Sea Segment 3**	5	5	10	8	13	21	24	35	19	20	13	8	7	3	3	2	2	n	7	15	26	21	11	4	1	5	28	21	15	6	1
32	**Ice/Sea Segment 4**	4	1	4	2	4	4	12	12	24	36	25	23	20	7	7	1	1	n	3	3	17	45	33	7	1	2	7	27	33	17	4
33	**Ice/Sea Segment 5**	n	n	1	1	1	1	3	3	7	10	13	31	21	10	14	2	3	n	n	1	3	8	35	12	2	1	3	7	15	27	7
34	**Ice/Sea Segment 6**	n	n	n	n	n	n	n	1	1	2	2	10	8	9	36	4	23	2	n	n	n	1	5	15	9	n	n	2	3	12	27
35	**Ice/Sea Segment 7**	n	n	n	n	n	n	n	n	n	1	1	4	4	11	13	17	26	11	n	n	n	n	3	12	33	n	n	1	1	6	14
36	**Ice/Sea Segment 8**	n	n	n	n	n	n	n	n	n	n	n	3	3	10	10	15	14	19	n	n	n	n	n	10	17	n	n	1	1	4	9
37	**Ice/Sea Segment 9**	n	n	n	n	n	n	n	n	n	n	n	1	2	5	5	12	11	16	n	n	n	n	1	5	13	n	n	n	n	2	5
38	**Point Hope Subsistence Are**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	**Point Lay Subsistence Area**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	**Wainwright Subsistence Area**	2	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
41	**Barrow Subsistence Area 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	**Barrow Subsistence Area 2**	49	75	36	44	25	21	13	9	7	5	3	2	1	n	n	n	n	n	57	29	12	7	1	n	n	58	10	4	3	n	n
43	**Nuiqsut Subsistence Area**	n	n	1	1	1	1	2	3	5	10	9	41	14	7	9	1	1	n	n	1	3	7	20	9	1	1	2	8	14	32	5
44	**Kaktovik Subsistence Area**	n	n	n	n	n	n	n	n	n	1	n	3	3	11	16	17	34	26	n	n	n	n	2	11	39	n	n	1	1	4	18

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-22 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	2	2	2	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
49	Hanna's Shoal Polynya	3	1	3	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	3	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	6	4	3	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	5	1	n	n	n	n	n	3	n	n	n	n	n
52	Ice/Sea Segment 14	18	9	10	5	6	2	1	n	1	n	1	n	n	n	n	n	n	n	11	4	1	1	1	n	n	5	1	n	n	n	n
53	Ice/Sea Segment 15	15	16	39	53	48	48	20	13	13	9	9	4	5	1	1	n	n	n	24	80	16	10	7	1	n	26	17	9	8	3	n
54	Ice/Sea Segment 16a	8	6	15	11	23	31	67	49	49	36	23	14	10	4	4	2	2	n	10	21	78	42	19	6	1	8	53	38	23	9	2
55	Ice/Sea Segment 17	4	1	4	3	6	6	17	16	53	57	60	37	32	10	8	1	1	n	2	5	24	**	64	9	1	2	11	40	57	21	3
56	Ice/Sea Segment 18a	n	n	1	n	1	1	4	4	8	12	15	59	50	23	27	3	4	n	n	n	3	9	57	46	2	n	2	8	19	58	9
57	Ice/Sea Segment 19	n	n	n	n	n	n	1	1	2	3	3	11	8	15	67	22	59	4	n	n	n	2	7	29	63	n	1	2	5	12	79
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	1	2	3	8	8	22	27	57	38	14	n	n	n	1	6	26	43	n	n	1	4	10	31
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	3	3	11	14	24	21	18	n	n	n	n	1	15	24	n	n	n	1	4	16
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	1	1	4	3	9	7	11	n	n	n	n	1	2	10	n	n	n	n	n	4
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	5	4	1	n	n	n	n	n	3	4	n	n	n	n	1	3
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	3	1	n	n	n	n	n	n	1	3	n	n	n	n	n	3
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	5	3	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	2	n	n	n	n	n
65	ERA 1	13	24	23	54	17	17	8	7	3	2	2	1	1	n	n	n	n	n	37	26	7	3	n	n	n	58	9	3	1	n	n
66	ERA 2	5	5	10	12	16	46	20	25	11	9	7	3	3	2	1	n	n	n	7	22	22	10	5	1	n	7	32	10	6	1	n
67	Ice/Sea Segment 16b	7	6	14	10	22	31	67	49	49	35	22	14	10	4	4	2	2	n	8	21	78	42	18	6	1	7	53	37	22	9	2
68	Harrison Bay	1	1	2	3	3	10	8	24	6	7	4	3	2	1	1	n	n	n	1	4	10	5	5	1	n	1	39	8	5	1	n
69	Harrison Bay/Colville Delta	2	2	4	3	5	8	13	24	14	18	10	7	7	3	3	1	1	n	3	6	14	17	8	5	1	2	13	22	12	7	1
70	ERA 3	3	1	6	3	8	7	23	27	40	54	23	17	13	3	3	n	n	n	1	7	39	51	21	4	1	1	14	64	30	12	1
71	Simpson Lagoon	n	n	1	1	2	2	5	7	11	19	12	15	11	4	4	1	1	n	n	2	7	15	14	3	1	1	3	32	19	10	3
72	Gwyder Bay	n	n	n	n	n	n	n	1	1	3	2	4	2	1	1	n	n	n	n	n	n	2	2	1	n	n	n	3	5	2	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	2	1	n
74	Cross Island ERA	n	n	1	1	1	1	2	3	5	11	9	54	16	7	9	1	1	n	n	1	3	7	23	10	1	1	2	8	16	44	5
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	1	2	4	2	12	3	1	3	n	1	n	n	n	n	n	4	3	2	1	n	n	2	6	17	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	1	1	2	3	2	11	3	1	3	n	1	n	n	n	n	n	3	3	2	1	n	n	1	6	21	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	1	2	1	6	1	n	1	n	n	n	n	n	n	n	2	1	1	n	n	n	1	4	23	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
79	ERA 4	n	n	n	n	n	n	1	1	2	5	5	35	10	4	12	1	2	n	n	n	n	4	13	8	1	n	n	4	8	37	5
80	Ice/Sea Segment 18b	n	n	1	n	1	1	4	4	8	12	15	59	50	23	27	3	3	n	n	n	3	9	57	46	2	n	2	8	19	58	9
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	n	n	n	2
82	ERA 5	n	n	n	n	n	n	n	n	n	1	n	4	3	6	15	5	43	3	n	n	n	n	1	11	12	n	n	1	1	6	15
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	1	n	3	3	11	17	20	43	35	n	n	n	n	2	12	48	n	n	1	1	4	21
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	1	2	3	7	7	21	26	56	38	14	n	n	n	1	6	25	43	n	n	1	4	9	31
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	8	9	31	n	n	n	n	n	3	12	n	n	n	n	1	5
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	4	4	14	n	n	n	n	n	1	6	n	n	n	n	n	2
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	3	1	n	n	n	n	n	n	1	3	n	n	n	n	n	3

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-23 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	57	73	56	74	53	69	49	64	43	57	37	54	38	38	50	48	65	84	63	61	51	50	45	42	66	78	65	63	58	58	59
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	30	44	18	18	12	9	5	4	3	2	1	1	n	n	n	n	n	n	33	14	6	3	n	n	n	17	4	2	1	n	n
3	Thetis and Jones Islands	1	1	2	1	3	3	7	8	15	25	17	16	12	4	5	1	2	n	1	4	9	21	18	4	1	1	4	32	21	12	3
4	Cottle & Return Islands, West Dock	n	n	1	n	1	1	2	3	7	13	10	15	9	3	4	1	1	n	n	2	4	10	13	3	1	n	1	9	26	10	3
5	Midway Islands	n	n	n	n	n	n	1	1	2	5	2	7	3	1	2	n	1	n	n	n	1	3	3	2	1	n	n	3	6	7	1
6	Cross and No Name Islands	n	n	n	n	n	n	1	1	2	4	2	10	4	2	3	n	1	n	n	n	2	2	5	3	n	n	n	3	5	11	1
7	Endicott Causeway	n	n	n	n	n	n	n	1	2	2	2	4	1	n	1	n	n	n	n	n	n	2	2	n	n	n	n	1	6	7	n
8	McClure Islands	n	n	n	n	n	n	n	1	1	2	1	8	3	1	3	n	1	n	n	n	n	1	2	1	1	n	n	1	2	18	1
9	Stockton Islands	n	n	n	n	n	n	n	1	n	1	1	6	2	1	3	n	1	n	n	n	n	1	3	1	1	n	n	1	2	9	2
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	1	1	4	2	1	3	n	1	n	n	n	n	n	n	3	2	1	n	n	n	1	5	4
12	Flaxman Island	n	n	n	n	n	n	n	n	n	1	n	4	2	2	3	n	1	n	n	n	n	n	n	1	4	1	n	n	1	1	5	10
13	Barrier Islands	n	n	n	n	n	n	n	n	n	1	n	2	1	1	2	1	5	1	n	n	n	n	1	1	2	n	n	n	n	1	3
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	1	1	n	n	n	n	n	1
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	1	1	3	6	6	16	5	n	n	n	n	1	5	15	n	n	n	n	1	9
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	1	1	2	7	8	11	13	13	n	n	n	n	1	6	18	n	n	n	n	2	9
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	5	4	13	n	n	n	n	n	4	4	n	n	n	n	1	4
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	2	1	3	4	6	7	17	n	n	n	n	1	5	8	n	n	n	n	3	4
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	Beaufort Spring Lead 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	Beaufort Spring Lead 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	Beaufort Spring Lead 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Beaufort Spring Lead 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
29	Ice/Sea Segment 1	23	33	18	16	12	9	5	4	3	2	2	1	n	n	n	n	n	n	28	13	4	3	1	n	n	13	4	2	1	n	n
30	Ice/Sea Segment 2	9	12	20	30	23	26	15	9	11	7	7	4	4	1	1	n	n	n	15	29	13	8	6	1	n	22	7	7	6	2	n
31	Ice/Sea Segment 3	6	5	10	8	14	22	25	35	19	21	14	9	8	4	4	2	2	n	7	16	26	21	12	4	1	5	28	22	15	6	2
32	Ice/Sea Segment 4	5	2	5	2	5	5	12	12	25	37	28	25	21	8	7	2	2	1	3	4	18	46	36	7	2	2	7	28	36	18	4
33	Ice/Sea Segment 5	n	n	1	1	1	2	3	3	7	10	13	31	21	10	15	2	3	n	n	1	3	8	35	12	2	1	3	7	15	28	7
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	1	1	2	2	10	8	9	36	5	23	2	n	n	n	1	5	15	9	n	1	2	3	12	27
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	1	1	5	5	11	13	18	26	11	n	n	n	n	3	13	33	n	n	1	1	6	14
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	1	n	4	4	12	12	18	16	19	n	n	n	n	1	12	18	n	n	1	1	6	11
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	1	1	3	4	9	9	15	14	18	n	n	n	n	2	9	16	n	n	n	1	5	8
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	3	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
41	Barrow Subsistence Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	49	75	37	44	26	21	13	9	8	5	4	2	1	n	n	n	n	n	57	30	12	7	2	n	n	58	10	4	4	1	n
43	Nuiqsut Subsistence Area	n	n	1	1	1	1	2	3	5	10	9	41	14	7	9	1	1	n	n	1	3	7	20	9	1	1	2	8	14	32	5
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	1	n	3	3	11	16	17	34	26	n	n	n	n	2	11	39	n	n	1	1	4	18

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-23 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	2	2	3	1	2	n	1	n	n	n	1	n	n	n	n	n	n	n	3	1	n	n	1	n	n	1	n	n	n	n	n
49	Hanna's Shoal Polynya	5	3	5	2	3	1	2	1	3	1	2	1	1	n	n	n	n	n	4	3	2	2	2	n	n	1	n	1	1	1	n
50	Ice/Sea Segment 12	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
51	Ice/Sea Segment 13	6	4	3	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	6	1	n	n	n	n	n	3	n	n	n	n	n
52	Ice/Sea Segment 14	18	9	11	5	6	2	1	1	1	1	2	1	2	n	n	n	n	n	12	4	1	1	2	n	n	5	1	1	n	2	n
53	Ice/Sea Segment 15	16	16	39	53	49	48	20	13	14	10	10	6	7	2	2	n	n	n	24	80	16	11	9	2	n	26	18	9	9	4	n
54	Ice/Sea Segment 16a	9	7	16	11	24	32	68	49	50	37	26	17	13	7	6	3	3	1	10	23	79	43	24	9	2	8	53	39	24	10	4
55	Ice/Sea Segment 17	4	2	5	3	7	7	18	17	54	57	62	38	34	13	10	4	3	1	2	5	24	**	65	12	2	3	12	40	57	22	5
56	Ice/Sea Segment 18a	n	n	1	1	1	2	4	4	8	12	15	59	51	24	28	4	4	n	n	n	3	9	57	47	3	n	3	8	19	58	10
57	Ice/Sea Segment 19	n	n	n	n	n	n	1	1	2	3	4	12	9	17	68	26	59	6	n	n	n	2	8	31	63	n	1	2	5	13	79
58	Ice/Sea Segment 20a	1	n	1	n	1	n	1	1	2	3	6	11	13	29	32	61	40	14	1	1	1	3	10	31	44	n	n	2	6	12	36
59	Ice/Sea Segment 21	n	n	1	n	1	n	1	1	1	2	2	7	8	18	21	32	26	19	n	1	1	1	4	24	28	n	n	1	2	9	24
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	1	1	3	3	5	11	9	17	14	15	n	n	n	1	3	8	18	n	n	n	1	4	12
61	Ice/Sea Segment 22	n	n	1	n	1	1	1	n	2	1	4	3	4	6	6	11	7	3	n	1	1	1	3	5	10	n	n	1	2	4	9
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	1	2	4	4	7	3	1	n	n	n	n	1	3	5	n	n	n	n	2	6
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	5	3	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	2	n	n	n	n	n	n
65	ERA 1	13	24	23	54	18	18	8	7	3	2	2	1	1	n	n	n	n	n	37	26	7	3	1	n	n	58	9	3	1	1	n
66	ERA 2	5	5	10	12	16	46	20	25	11	9	7	4	4	2	1	n	n	n	7	22	22	10	6	1	n	7	33	10	6	2	n
67	Ice/Sea Segment 16b	8	6	15	10	23	31	67	49	49	36	24	15	11	4	4	2	2	n	8	22	79	42	20	6	1	7	53	38	23	9	2
68	Harrison Bay	1	1	2	3	3	10	9	24	6	7	4	3	2	1	1	n	n	n	1	4	10	5	5	1	n	1	39	8	5	1	n
69	Harrison Bay/Colville Delta	2	2	4	4	6	9	14	24	14	18	11	8	8	4	3	2	2	n	3	7	15	18	9	5	1	2	14	23	13	8	2
70	ERA 3	3	1	6	3	8	8	23	27	40	54	25	17	13	4	4	n	1	n	1	7	39	52	23	4	1	1	15	64	31	12	1
71	Simpson Lagoon	n	n	2	1	3	2	6	7	11	19	14	15	12	4	5	1	2	n	n	4	8	16	15	4	2	1	3	32	20	11	4
72	Gwyder Bay	n	n	n	n	n	n	n	1	1	3	2	4	2	1	1	n	n	n	n	n	1	2	3	1	n	n	n	3	5	2	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	1	1	1	2	1	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	2	1	n
74	Cross Island ERA	n	n	1	1	1	1	2	3	5	11	9	54	16	7	9	1	1	n	n	1	3	7	23	10	1	1	2	8	17	44	5
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	1	2	4	2	13	3	1	3	n	1	n	n	n	n	4	3	2	1	n	n	2	7	18	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	1	1	2	4	2	12	3	1	3	n	1	n	n	n	n	3	3	2	1	n	n	1	6	21	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	1	2	1	6	1	n	1	n	n	n	n	n	n	2	1	1	n	n	n	1	4	23	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
79	ERA 4	n	n	n	n	n	n	1	1	2	5	5	35	10	4	12	1	2	n	n	n	n	4	13	8	1	n	n	4	8	37	5
80	Ice/Sea Segment 18b	n	n	1	1	1	1	4	4	8	12	15	59	50	23	27	3	3	n	n	n	3	9	57	46	2	n	3	8	19	58	9
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	n	n	n	2
82	ERA 5	n	n	n	n	n	n	n	n	n	1	n	4	3	6	15	5	43	3	n	n	n	n	1	11	12	n	n	1	1	6	15
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	1	n	3	3	12	17	20	43	35	n	n	n	n	2	12	48	n	n	1	1	5	21
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	1	2	3	8	8	22	27	57	38	14	n	n	n	1	6	26	43	n	n	1	4	10	32
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	2	3	6	6	9	11	32	n	n	n	n	1	7	14	n	n	n	n	3	5
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	6	15	n	n	n	n	1	2	7	n	n	n	n	1	4
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	2	2	n	n	n	n	n	2	2	n	n	n	n	1	1
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	6	3	1	n	n	n	n	1	2	5	n	n	n	n	1	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-24 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	63	77	64	78	62	75	60	72	60	71	61	75	65	69	76	76	83	91	68	71	63	65	68	71	82	81	71	73	74	76	83
1	**Kasegaluk Lagoon**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	**Point Barrow, Plover Islands**	30	44	19	19	12	10	6	5	4	4	4	3	3	2	1	n	n	n	33	15	6	5	1	1	n	18	4	3	3	1	n
3	**Thetis and Jones Islands**	1	2	3	2	4	3	8	9	17	26	21	18	15	6	6	3	2	1	2	6	11	22	20	6	2	3	5	33	22	14	4
4	**Cottle & Return Islands, West Dock**	n	n	1	1	2	1	2	3	8	13	12	16	11	4	5	1	2	n	n	3	4	10	15	4	1	1	2	9	26	11	4
5	**Midway Islands**	n	n	n	n	n	n	1	1	2	5	2	7	3	2	2	n	1	n	n	n	1	3	4	2	1	n	n	3	6	7	1
6	**Cross and No Name Islands**	n	n	n	n	n	n	1	1	2	4	2	10	4	2	4	1	1	n	n	n	2	2	6	3	1	n	n	3	5	11	1
7	**Endicott Causeway**	n	n	n	n	n	n	n	1	2	2	2	4	1	n	1	n	n	n	n	n	n	2	2	n	n	n	n	1	6	7	n
8	**McClure Islands**	n	n	n	n	n	n	n	1	1	2	1	8	3	2	3	1	1	n	n	n	n	1	2	2	1	n	n	1	2	18	1
9	**Stockton Islands**	n	n	n	n	n	n	n	1	n	1	1	6	2	1	3	n	1	n	n	n	n	1	3	1	1	n	n	1	2	9	2
10	**Tigvariak Island**	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	**Maguire Islands**	n	n	n	n	n	n	n	n	n	1	1	4	2	1	3	n	1	n	n	n	n	n	3	2	1	n	n	n	1	5	5
12	**Flaxman Island**	n	n	n	n	n	n	n	n	n	1	n	4	2	2	4	n	1	n	n	n	n	n	2	4	1	n	n	1	1	5	10
13	**Barrier Islands**	n	n	n	n	n	n	n	n	n	1	n	2	1	1	3	1	5	1	n	n	n	n	1	2	2	n	n	n	n	1	3
14	**Anderson Point Barrier Islands**	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	1	3	n	n	n	n	n	n	1	1	n	n	n	n	n	1
15	**Arey and Barter Islands, Bernard Spit**	n	n	n	n	n	n	n	n	n	n	n	1	1	5	7	7	16	5	n	n	n	n	1	7	15	n	n	n	n	1	9
16	**Jago and Tapkaurak Spits**	n	n	1	n	n	n	n	1	1	1	1	2	4	11	11	13	14	13	n	n	n	n	2	10	19	n	n	1	1	2	11
17	**Angun and Beaufort Lagoons**	n	n	n	n	n	n	n	n	n	n	n	1	1	4	5	6	5	14	n	n	n	n	n	5	4	n	n	n	1	1	6
18	**Icy Reef**	n	n	n	n	n	n	n	n	n	1	n	2	2	4	5	8	9	17	n	n	n	n	1	7	9	n	n	n	n	4	6
19	**Chukchi Spring Lead 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	**Chukchi Spring Lead 2**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	**Chukchi Spring Lead 3**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	**Chukchi Spring Lead 4**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	**Chukchi Spring Lead 5**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	**Beaufort Spring Lead 6**	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	**Beaufort Spring Lead 7**	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	**Beaufort Spring Lead 8**	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	**Beaufort Spring Lead 9**	1	n	n	n	n	n	n	n	1	1	1	1	1	1	n	n	n	n	n	n	1	1	1	1	n	n	n	1	1	n	n
28	**Beaufort Spring Lead 10**	1	1	1	n	1	n	1	1	2	2	2	2	3	2	1	n	n	n	n	1	1	4	3	1	n	1	1	2	2	1	1
29	**Ice/Sea Segment 1**	23	33	18	16	12	9	5	4	3	2	2	1	1	n	n	n	n	n	28	13	4	3	1	n	n	13	4	2	1	n	n
30	**Ice/Sea Segment 2**	9	12	20	30	23	26	15	9	11	7	7	4	5	1	1	n	n	n	15	29	13	8	6	1	1	22	7	7	6	2	n
31	**Ice/Sea Segment 3**	6	5	10	8	14	22	25	35	19	21	14	9	8	4	4	2	2	n	7	16	26	21	12	4	1	5	28	22	15	6	2
32	**Ice/Sea Segment 4**	5	2	5	2	5	5	12	12	25	37	28	25	21	8	7	2	2	1	3	4	18	46	36	7	2	2	7	28	36	18	5
33	**Ice/Sea Segment 5**	n	n	1	1	1	2	3	3	7	10	13	31	21	10	15	2	3	n	n	1	3	8	35	12	2	1	3	7	15	28	7
34	**Ice/Sea Segment 6**	n	n	n	n	n	n	n	1	1	2	2	10	8	9	36	5	23	2	n	n	n	1	5	15	9	n	1	2	3	12	27
35	**Ice/Sea Segment 7**	n	n	n	n	n	n	n	n	n	1	1	5	5	11	13	18	26	11	n	n	n	n	3	13	33	n	n	1	1	6	14
36	**Ice/Sea Segment 8**	n	n	n	n	n	n	n	n	n	1	n	4	4	12	12	18	16	19	n	n	n	n	1	12	18	n	n	1	1	6	11
37	**Ice/Sea Segment 9**	n	n	n	n	n	n	n	n	n	1	1	3	4	9	9	15	14	18	n	n	n	n	2	9	16	n	n	n	1	5	8
38	**Point Hope Subsistence Are**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	**Point Lay Subsistence Area**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	**Wainwright Subsistence Area**	3	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
41	**Barrow Subsistence Area 1**	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	**Barrow Subsistence Area 2**	49	75	37	44	26	21	13	9	8	5	4	2	2	1	1	n	n	n	57	30	12	7	3	n	n	58	10	4	4	1	1
43	**Nuiqsut Subsistence Area**	n	n	1	1	1	1	2	3	5	10	9	41	14	7	9	1	1	n	n	1	3	7	20	9	1	1	2	8	14	32	5
44	**Kaktovik Subsistence Area**	n	n	n	n	n	n	n	n	n	1	n	3	3	11	16	17	34	26	n	n	n	n	2	11	39	n	n	1	1	4	18

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-24 (continued) Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	1	1	n	n	n	n	1	n	1	n	n	n	n	n	1
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	3	3	3	2	3	1	1	n	n	n	1	1	1	n	n	n	n	n	4	2	n	n	1	n	n	1	n	n	n	1	n
49	Hanna's Shoal Polynya	5	3	5	2	3	1	2	1	3	1	2	1	1	n	n	n	n	n	5	3	2	2	2	1	n	1	n	1	1	1	n
50	Ice/Sea Segment 12	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
51	Ice/Sea Segment 13	6	4	3	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	6	1	n	n	n	n	n	3	n	n	n	n	n
52	Ice/Sea Segment 14	18	9	11	5	6	2	1	1	1	1	2	1	2	1	1	n	n	n	12	4	1	1	2	1	n	5	1	1	n	2	n
53	Ice/Sea Segment 15	16	16	40	53	49	49	21	14	14	11	11	7	8	4	3	2	1	n	24	80	17	12	11	3	1	26	18	11	10	4	2
54	Ice/Sea Segment 16a	9	7	16	11	24	32	68	50	52	38	29	19	15	9	8	5	4	1	10	23	79	45	26	10	3	8	53	40	25	11	5
55	Ice/Sea Segment 17	5	3	5	4	7	7	18	17	55	57	63	39	36	15	12	4	3	1	3	6	25	**	67	13	2	3	12	40	57	23	6
56	Ice/Sea Segment 18a	n	n	1	1	1	2	4	4	8	12	15	59	51	24	28	5	5	n	n	n	3	9	57	47	3	n	3	8	19	58	11
57	Ice/Sea Segment 19	n	n	n	n	n	n	1	1	2	3	5	12	10	20	68	27	59	6	n	n	n	2	9	32	64	n	1	2	5	14	79
58	Ice/Sea Segment 20a	2	n	3	2	4	2	7	5	8	8	11	15	17	32	35	63	42	16	1	4	7	7	14	34	45	n	3	6	9	15	38
59	Ice/Sea Segment 21	2	1	3	1	4	2	6	5	7	7	8	12	15	25	27	38	30	20	1	4	7	6	10	31	31	n	3	4	6	12	27
60	Ice/Sea Segment 22	2	1	3	1	3	2	7	5	8	7	11	11	13	18	16	24	19	16	1	4	7	7	12	17	22	n	3	4	7	9	16
61	Ice/Sea Segment 22	2	1	1	1	1	1	2	2	4	4	6	6	7	9	7	11	8	4	1	1	2	3	6	7	10	n	2	2	7	7	9
62	Ice/Sea Segment 24a	1	n	1	1	1	1	1	1	2	3	3	4	4	6	5	7	4	1	1	1	1	3	3	4	5	n	2	1	4	4	6
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	5	3	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	2	n	n	n	n	n
65	ERA 1	14	24	23	54	18	18	8	7	4	3	2	1	2	1	1	n	n	n	37	26	7	3	1	n	n	58	9	3	1	1	n
66	ERA 2	7	6	12	12	17	46	21	26	14	11	10	6	6	5	3	2	1	n	8	23	24	12	8	4	1	8	33	11	8	3	2
67	Ice/Sea Segment 16b	8	6	15	10	24	31	68	50	50	37	27	17	13	6	6	3	3	1	9	23	79	44	23	8	2	7	53	39	24	10	4
68	Harrison Bay	1	1	2	3	4	10	9	24	6	7	4	3	3	1	2	2	1	n	1	5	10	5	5	2	1	1	39	8	5	1	1
69	Harrison Bay/Colville Delta	3	3	5	4	7	9	14	25	15	19	12	10	9	5	4	2	2	n	4	8	16	19	10	6	2	3	15	24	14	9	2
70	ERA 3	4	2	6	4	9	8	24	27	41	55	27	19	15	6	6	2	2	1	3	8	39	52	25	7	2	2	15	65	32	14	4
71	Simpson Lagoon	1	1	2	1	4	3	6	7	12	20	17	17	14	6	6	2	2	1	1	4	8	16	17	6	2	2	4	32	21	12	5
72	Gwyder Bay	n	n	n	n	n	n	n	1	1	3	3	4	3	1	1	n	n	n	n	n	1	2	3	1	n	n	n	3	5	3	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	1	1	1	2	1	n	n	n	n	n	n	1	n	1	1	1	n	n	1	1	2	1	n
74	Cross Island ERA	n	n	1	1	1	1	2	3	6	11	10	54	17	8	10	2	2	n	n	1	3	7	24	11	1	1	2	8	17	44	6
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	1	2	4	3	13	4	2	3	1	1	n	n	n	n	4	3	2	1	n	n	2	7	18	2
76	Water over Boulder Patch 2	n	n	n	n	n	n	1	1	2	4	2	12	3	1	3	n	1	n	n	n	n	3	3	2	1	n	n	1	6	22	2
77	Foggy Island Bay	n	n	n	n	n	n	n	n	1	2	1	6	1	n	1	n	n	n	n	n	n	2	1	1	n	n	n	1	4	23	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
79	ERA 4	n	n	n	n	n	n	1	1	2	5	6	35	11	6	12	2	2	n	n	n	n	4	14	9	1	n	n	4	9	38	6
80	Ice/Sea Segment 18b	n	n	1	1	1	1	4	4	8	12	15	59	50	23	27	3	4	n	n	n	3	9	57	46	2	n	3	8	19	58	10
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	n	n	n	2
82	ERA 5	n	n	n	n	n	n	n	n	n	1	n	4	4	8	16	5	43	4	n	n	n	n	1	12	12	n	n	1	1	6	16
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	1	1	5	6	18	22	27	46	36	n	1	n	1	3	19	52	n	n	1	2	7	26
84	Ice/Sea Segment 20b	1	n	2	1	2	2	5	4	7	6	7	10	11	25	29	60	40	15	n	3	6	5	9	29	45	n	3	4	6	11	35
85	ERA 6	n	n	n	n	n	n	n	n	n	1	1	4	5	11	11	16	15	33	n	n	n	n	2	11	17	n	n	n	n	6	12
86	ERA 7	n	n	n	n	n	n	2	1	3	2	4	4	5	8	8	13	12	17	n	1	3	2	5	9	13	n	1	1	3	4	9
87	ERA 8	1	n	1	1	2	2	2	2	2	2	3	3	3	4	3	4	3	3	1	2	2	2	1	4	3	n	2	1	3	4	3
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	6	3	1	n	n	n	n	1	2	5	n	n	n	n	2	5

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-25 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 3 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
25	Barrow, Elson Lagoon	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	Dease Inlet	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
27	Kurgorak Bay	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
28	Cape Simpson	n	4	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	11	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	14	n	n	n	n	n
30	Drew Point, McLeod Point,	n	n	n	6	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	3	n	n	n	n	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	n	n	1	3	1	6	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
32	Cape Halkett,	n	n	n	n	n	5	n	3	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	8	n	n	n	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	8	n	n	n	n	n
34	Fish Creek	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	4	n	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	5	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	8	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	11
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	1	n	n	n	n	n	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3	n	n	n	n	n	n	2	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-26 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 10 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
25	Barrow, Elson Lagoon	7	9	2	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	1	n	n	n	n	n	2	n	n	n	n	n
26	Dease Inlet	3	12	2	3	n	1	n	n	n	n	n	n	n	n	n	n	n	n	7	2	n	n	n	n	n	4	n	n	n	n	n
27	Kurgorak Bay	2	8	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	2	n	n	n	n	n
28	Cape Simpson	2	8	2	8	1	2	n	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	18	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	2	1	4	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	18	1	n	n	n	n
30	Drew Point, McLeod Point,	1	2	3	13	2	4	n	1	n	n	n	n	n	n	n	n	n	n	2	4	n	n	n	n	n	7	n	n	n	n	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	n	1	4	7	5	13	1	2	n	n	n	n	n	n	n	n	n	n	1	5	1	n	n	n	n	2	3	n	n	n	n
32	Cape Halkett,	n	n	1	1	2	11	3	10	1	2	n	n	n	n	n	n	n	n	n	3	3	1	n	n	n	1	15	3	1	n	n
33	Atigaru Point, Kogru River	n	n	n	n	1	3	1	7	n	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	15	1	n	n	n
34	Fish Creek	n	n	n	n	n	1	1	6	n	1	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	4	1	n	n	n
35	Colville River	n	n	n	n	n	n	1	4	n	3	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	1	5	1	n	n
36	Oliktok Point	n	n	n	n	n	n	1	3	1	4	n	n	n	n	n	n	n	n	n	n	2	2	n	n	n	n	n	13	2	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	1	1	4	1	3	1	n	n	n	n	n	n	n	n	1	2	1	n	n	n	4	8	1	1
38	Kuparuk River	n	n	n	n	n	n	n	n	n	2	n	3	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	6	2	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	3	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	7	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	9	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	2	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	2	1	n	2	n	n	n	n	n	n	n	1	1	n	n	n	n	n	3	11
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	2	n	3	n	n	n	n	n	n	1	n	n	n	n	n	1	2
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	3	n	n	n	n	n	n	1	n	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	6	1	n	n	n	n	n	1	3	n	n	n	n	n	1
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	7	6	n	n	n	n	n	1	10	n	n	n	n	n	1
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	6	n	n	n	n	n	n	3	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	8	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-27 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 30 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
22	Skull Cliff	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	15	14	5	5	3	2	1	1	n	1	n	n	n	n	n	n	n	n	11	2	1	n	n	n	n	5	1	n	n	n	n
26	Dease Inlet	10	17	6	6	4	3	1	1	1	n	n	n	n	n	n	n	n	n	13	6	1	n	n	n	n	7	1	n	n	n	n
27	Kurgorak Bay	6	10	3	4	2	1	1	n	n	n	n	n	n	n	n	n	n	n	7	2	1	1	n	n	n	3	n	n	n	n	n
28	Cape Simpson	5	10	5	12	4	4	2	1	1	1	n	n	n	n	n	n	n	n	6	7	2	1	n	n	n	21	2	1	n	n	n
29	Ikpikpuk River, Smith Bay	1	4	3	7	2	2	1	1	n	n	n	n	n	n	n	n	n	n	3	3	1	n	n	n	n	21	1	n	n	n	n
30	Drew Point, McLeod Point,	2	4	6	16	6	7	4	3	1	1	n	n	n	n	n	n	n	n	5	9	3	n	n	n	n	9	3	n	n	n	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	2	3	7	9	9	17	6	5	3	2	1	1	1	n	n	n	n	n	3	9	5	3	n	n	n	4	6	2	1	n	n
32	Cape Halkett,	1	1	3	3	6	14	7	15	4	5	3	2	2	n	n	n	n	n	1	6	9	4	4	n	n	1	19	7	3	1	n
33	Atigaru Point, Kogru River	n	1	1	2	2	4	4	10	2	3	2	1	1	n	n	n	n	n	1	2	4	2	1	n	n	1	17	3	1	n	n
34	Fish Creek	n	n	n	1	1	2	3	8	3	4	1	1	1	n	n	n	n	n	1	1	5	4	1	n	n	n	5	4	2	1	n
35	Colville River	n	n	1	1	1	2	3	5	2	5	1	1	n	n	n	n	n	n	1	2	3	5	1	n	n	n	1	6	2	1	n
36	Oliktok Point	n	n	n	n	n	n	2	4	4	6	2	3	1	n	n	n	n	n	n	n	4	5	3	n	n	n	1	15	4	2	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	1	1	3	7	4	6	3	1	2	n	n	n	n	n	2	4	4	1	n	n	n	5	11	3	1
38	Kuparuk River	n	n	n	n	n	n	n	n	1	2	1	4	1	1	1	n	n	n	n	n	n	1	2	n	n	n	n	1	6	3	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	1	2	1	4	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	1	4	8	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	1	n	2	1	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	2	10	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	n	n	3	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	3	2	
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	1	n	3	1	n	2	n	1	n	n	n	n	n	1	1	1	n	n	1	1	4	12
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	1	1	n	3	1	5	1	n	n	n	n	1	2	1	n	n	n	n	1	3
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	1	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	4	n	n	n	n	n	n	1	1	n	n	n	n	n	1
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	8	2	n	n	n	n	n	2	5	n	n	n	n	n	2
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	2	4	6	12	9	n	n	n	n	n	3	16	n	n	n	n	1	6
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	4	9	n	n	n	n	n	2	5	n	n	n	n	n	3
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	1	8	n	n	n	n	n	1	1	n	n	n	n	n	2
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	11	n	n	n	n	n	n	1	n	n	n	n	n	1
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	10	n	n	n	n	n	n	3	n	n	n	n	n	1
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	8	n	n	n	n	n	n	1	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	7	n	n	n	n	n	n	1	n	n	n	n	n	n
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-28 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 60 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
20	Asiniak Point, Kugrua Bay, Kugrua River	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	17	15	6	6	4	3	2	2	1	1	n	n	n	n	n	n	n	n	12	3	2	1	n	n	n	5	2	1	n	n	n
26	Dease Inlet	11	18	7	6	5	4	2	1	2	1	1	n	n	n	n	n	n	n	14	6	2	2	n	n	n	8	1	1	1	n	n
27	Kurgorak Bay	7	11	4	4	3	2	1	1	1	n	n	n	n	n	n	n	n	n	8	3	1	1	n	n	n	4	n	n	n	n	n
28	Cape Simpson	6	11	5	12	4	5	3	1	1	1	1	n	n	n	n	n	n	n	6	7	3	1	n	n	n	21	2	1	n	n	n
29	Ikpikpuk River, Smith Bay	2	4	3	7	2	2	2	1	1	n	n	n	n	n	n	n	n	n	3	3	1	n	n	n	n	21	1	n	n	n	n
30	Drew Point, McLeod Point,	2	4	7	16	7	8	5	3	3	2	2	1	1	n	n	n	n	n	6	9	5	2	1	n	n	9	3	3	2	n	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	3	3	8	10	11	18	7	5	4	4	3	2	2	n	n	n	n	n	4	11	5	4	2	n	n	4	6	3	2	n	n
32	Cape Halkett,	1	1	3	3	6	14	8	15	5	6	3	3	3	1	1	n	n	n	1	7	10	5	6	n	n	1	19	8	4	1	n
33	Atigaru Point, Kogru River	1	1	1	2	2	5	5	10	3	4	2	1	1	n	n	n	n	n	1	3	4	3	1	n	n	1	18	4	2	n	n
34	Fish Creek	1	1	1	2	2	3	5	9	5	4	3	1	2	1	1	n	n	n	1	2	6	5	2	1	n	1	6	5	3	2	n
35	Colville River	1	1	2	1	2	2	4	6	4	6	3	2	1	1	n	1	n	n	2	3	3	6	2	1	n	n	2	7	3	1	n
36	Oliktok Point	n	n	1	1	1	1	3	4	5	7	4	4	3	1	1	n	n	n	n	1	5	6	4	1	n	1	1	15	5	3	1
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	1	2	3	7	5	7	5	2	2	n	1	n	n	n	2	5	7	1	1	n	n	6	11	4	2
38	Kuparuk River	n	n	n	n	n	n	n	n	1	3	1	4	2	1	1	n	n	n	n	n	n	2	3	n	n	n	n	2	7	3	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	1	2	1	4	1	1	1	n	n	n	n	n	n	2	2	1	n	n	n	2	4	8	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	1	1	1	3	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	1	3	11	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	1	n	3	1	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	1	3	2
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	1	n	4	2	1	3	n	1	n	n	n	n	n	2	3	1	n	n	1	1	5	12
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	1	n	2	1	1	3	1	5	1	n	n	n	n	1	3	2	n	n	n	1	2	3
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	1	n	n	2
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	4	n	n	n	n	n	n	1	1	n	n	n	n	1	2
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	1	n	2	3	3	9	2	n	n	n	n	n	2	6	n	n	n	n	n	2
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	1	1	4	6	9	13	9	n	n	n	n	1	4	17	n	n	n	n	1	8
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	6	4	9	n	n	n	n	n	3	7	n	n	n	n	2	3
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	4	3	8	n	n	n	n	n	3	3	n	n	n	n	n	4
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	3	3	12	n	n	n	n	n	2	3	n	n	n	n	1	2
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	4	4	11	n	n	n	n	n	1	6	n	n	n	n	n	3
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	9	n	n	n	n	n	1	3	n	n	n	n	n	1
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	8	n	n	n	n	n	n	1	n	n	n	n	n	1
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	1	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	4	n	n	n	n	n	n	2	n	n	n	n	n	1
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	1	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-29 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 180 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
20	Asiniak Point, Kugrua Bay, Kugrua River	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	17	15	6	6	4	3	2	2	1	1	n	n	n	n	n	n	n	n	12	3	2	1	n	n	n	5	2	1	n	n	n
26	Dease Inlet	11	18	7	6	5	4	2	1	2	1	1	n	n	n	n	n	n	n	14	6	2	2	n	n	n	8	1	1	1	n	n
27	Kurgorak Bay	7	11	5	5	3	2	1	1	1	n	n	n	n	n	n	n	n	n	8	3	1	1	n	n	n	4	1	n	n	n	n
28	Cape Simpson	6	11	6	12	4	5	3	1	1	1	1	n	n	n	n	n	n	n	6	7	3	1	n	n	n	21	2	1	n	n	n
29	Ikpikpuk River, Smith Bay	2	4	3	7	2	2	2	1	1	n	1	n	n	n	n	n	n	n	3	3	1	1	n	n	n	21	1	n	1	n	n
30	Drew Point, McLeod Point	2	4	7	16	8	8	5	3	3	2	2	1	1	n	n	n	n	n	6	9	5	2	2	n	n	9	3	3	2	n	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	3	3	9	10	11	18	7	5	4	4	3	2	2	n	n	n	n	n	4	11	5	4	2	n	n	4	6	3	3	1	n
32	Cape Halkett	1	1	3	3	6	14	8	15	5	6	3	3	3	1	1	n	n	n	1	7	10	5	6	n	n	1	19	8	4	2	n
33	Atigaru Point, Kogru River	1	1	1	2	2	5	5	10	3	4	2	1	1	n	n	n	n	n	2	3	4	3	1	n	n	1	18	4	2	n	n
34	Fish Creek	1	1	1	2	2	3	5	9	5	4	3	1	2	1	1	n	n	n	1	2	6	5	2	1	n	1	7	5	3	2	n
35	Colville River	1	1	2	1	2	2	4	6	4	6	3	2	2	1	1	1	1	n	2	3	4	6	2	2	n	n	2	7	3	1	n
36	Oliktok Point	n	n	1	1	1	1	3	5	5	7	4	5	3	1	1	n	n	n	n	2	5	6	5	1	n	1	2	16	6	4	1
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	1	2	3	8	6	7	5	2	2	n	1	n	n	n	2	5	7	1	1	n	n	6	12	4	2
38	Kuparuk River	n	n	n	n	n	n	n	n	1	3	2	4	2	1	1	n	n	n	n	n	n	2	3	1	n	n	n	2	7	3	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	1	2	3	2	5	1	1	1	n	n	n	n	n	n	3	4	1	n	n	n	3	6	8	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	1	2	1	3	1	n	1	n	n	n	n	n	n	2	1	1	n	n	n	1	3	11	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	1	n	3	1	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	1	3	2
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	1	n	4	2	2	3	n	1	n	n	n	n	n	2	3	1	n	n	1	1	5	12
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	1	n	2	1	1	3	1	5	1	n	n	n	n	1	3	2	n	n	n	1	2	3
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	1	n	n	2
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	4	n	n	n	n	n	n	1	1	n	n	n	n	1	2
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	1	n	2	3	3	9	2	n	n	n	n	n	2	6	n	n	n	n	1	3
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	1	1	5	7	9	13	9	n	n	n	n	1	5	17	n	n	n	n	2	8
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	4	5	6	5	9	n	n	n	n	n	3	7	n	n	n	n	2	4
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	4	3	8	n	n	n	n	n	3	4	n	n	n	n	1	4
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	4	4	12	n	n	n	n	n	3	4	n	n	n	n	1	2
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	5	12	n	n	n	n	1	3	7	n	n	n	n	2	3
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	2	2	9	n	n	n	n	n	3	3	n	n	n	n	1	1
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	3	8	n	n	n	n	n	n	2	n	n	n	n	n	2
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	3	n	n	n	n	n	1	3	n	n	n	n	n	1
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	2	5	n	n	n	n	n	1	3	n	n	n	n	n	3
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	2	n	n	n	n	n	n
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	n
58	Sabine Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
63	Outer Shallow Bay, Olivier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Middle Channel, Gary Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-30 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 360 Days, Beaufort Sea Multiple-Sale

Land Segment		LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
20	Asiniak Point, Kugrua Bay, Kugrua River	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	1	1	1	n	n	n	n	1	1	1	1	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	1	n	n
25	Barrow, Elson Lagoon	17	16	7	6	4	3	2	2	2	2	2	2	3	1	1	n	n	n	12	3	2	2	1	1	n	5	2	1	1	1	n
26	Dease Inlet	11	18	8	7	5	4	2	2	2	2	1	1	n	1	n	n	n	n	15	6	2	2	n	n	n	8	2	1	1	n	n
27	Kurgorak Bay	7	11	5	5	3	2	1	1	1	n	n	n	n	n	n	n	n	n	8	4	1	1	n	n	n	4	1	1	n	n	n
28	Cape Simpson	6	11	6	12	5	5	3	2	1	1	1	1	1	n	n	n	n	n	6	8	3	1	1	n	n	21	2	1	n	n	n
29	Ikpikpuk River, Smith Bay	2	4	3	7	3	3	2	1	1	1	1	n	n	n	n	n	n	n	3	3	1	1	n	n	n	21	2	n	1	n	n
30	Drew Point, McLeod Point,	3	4	8	16	8	8	6	4	4	3	2	1	1	n	n	n	n	n	6	9	5	2	3	n	n	9	3	4	3	1	n
31	Lonely AFS Airport, Pitt Point, Pogik Bay	4	3	9	10	12	18	7	5	6	4	5	3	3	2	2	1	1	n	4	11	6	6	5	2	1	4	6	3	3	1	3
32	Cape Halkett	2	2	4	3	7	15	9	16	6	7	5	4	4	2	1	1	1	n	1	7	11	6	7	2	1	2	19	9	5	2	1
33	Atigaru Point, Kogru River	1	1	2	2	2	5	5	10	3	4	2	1	1	1	1	1	n	n	2	3	4	3	2	n	n	1	18	4	2	n	n
34	Fish Creek	1	1	1	2	2	4	5	9	6	5	4	2	2	2	1	1	1	n	1	3	7	6	3	2	1	1	7	5	4	2	1
35	Colville River	2	2	3	2	3	3	5	7	5	7	4	3	3	1	1	1	1	n	2	4	4	7	3	2	n	1	2	8	3	2	n
36	Oliktok Point	n	n	1	1	2	1	3	5	5	8	5	5	4	2	1	1	n	n	1	2	5	6	5	1	n	1	2	16	6	4	1
37	Milne Point, Simpson Lagoon	n	n	n	n	1	n	1	2	4	8	7	8	7	3	3	1	1	n	n	n	2	6	9	2	1	n	1	6	12	5	2
38	Kuparuk River	n	n	n	n	n	n	n	n	1	3	2	5	3	1	1	n	n	n	n	n	n	3	3	1	n	n	n	2	7	3	1
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	1	1	3	3	3	5	2	1	1	n	n	n	n	1	1	3	4	1	n	n	1	3	6	8	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	1	2	1	3	1	n	1	n	n	n	n	n	n	n	2	1	1	n	n	n	1	3	11	n
41	Bullen Point, Point Gordon, Reliance Point	n	n	n	n	n	n	n	n	n	1	n	3	1	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	1	3	2
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	1	1	4	2	2	3	n	1	n	n	n	n	n	2	3	1	n	n	1	1	6	12
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	1	n	2	2	2	3	1	5	1	n	n	n	n	1	3	2	n	n	n	1	2	3
44	Collinson Point, Konganevik Point	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	2	n	n	n	n	n	n	1	1	n	n	1	n	n	2
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	4	n	n	n	n	n	n	1	1	n	n	n	n	1	2
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	1	n	2	3	3	9	2	n	n	n	n	n	2	6	n	n	n	n	1	3
47	Kaktovik	n	n	n	n	n	n	n	n	n	1	1	2	3	7	8	10	13	9	n	n	n	n	1	6	17	n	n	1	1	2	10
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	5	5	7	5	9	n	n	n	n	n	5	7	n	n	n	n	3	5
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	5	3	8	n	n	n	n	n	3	4	n	n	n	n	1	5
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	5	5	12	n	n	n	n	1	4	4	n	n	n	1	1	3
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	2	2	3	4	6	7	12	n	n	n	n	1	4	8	n	n	n	n	3	4
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	1	2	4	3	3	3	9	n	n	n	n	n	4	4	n	n	n	n	1	3
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	1	1	2	1	2	3	3	5	4	9	n	n	n	1	2	2	4	n	n	n	2	1	4
54	Nunaluk Spit	n	n	n	n	n	n	n	n	1	n	1	1	1	2	2	4	3	4	n	n	n	n	1	2	5	n	n	n	1	2	3
55	Herschel Island	n	n	n	n	n	n	1	1	2	1	2	2	3	5	5	9	6	7	n	n	3	1	3	6	8	n	1	n	n	2	7
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	2	n	n	n	n	n	1	2	n	n	n	n	1	1
57	Roland & Phillips Bay, Kay Point	1	n	1	n	n	n	n	n	n	n	1	n	1	1	1	2	1	1	n	n	n	n	n	1	1	n	n	n	n	n	n
58	Sabine Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	1	n	n	n	n	n	1	n	n	n	n	n	n	1
59	Shingle Point	1	n	2	1	3	1	3	2	3	4	4	3	4	3	2	1	1	n	1	2	3	4	4	1	n	n	1	3	3	1	1
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	1	n	1	1	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	1	1
62	Shallow Bay, West Channel	n	n	1	n	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n
63	Outer Shallow Bay, Olivier Islands	n	n	n	n	n	n	n	n	1	1	1	1	1	1	2	1	1	n	n	n	1	n	n	1	n	n	n	1	2	1	1
64	Middle Channel, Gary Island	n	n	n	n	1	1	1	1	1	1	1	1	1	1	1	1	1	n	n	1	1	1	1	1	1	n	1	n	1	1	n
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-31 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 3 Days, Beaufort Sea Multiple-Sale

	Hypothetical Spill Location																													
Boundary Segment	**LA 1**	**LA 2**	**LA 3**	**LA 4**	**LA 5**	**LA 6**	**LA 7**	**LA 8**	**LA 9**	**LA 10**	**LA 11**	**LA 12**	**LA 13**	**LA 14**	**LA 15**	**LA 16**	**LA 17**	**LA 18**	**P 1**	**P 2**	**P 3**	**P 4**	**P 5**	**P 6**	**P 7**	**P 8**	**P 9**	**P 10**	**P 11**	**P 12**	**P 13**

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-32 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 10 Days, Beaufort Sea Multiple-Sale

	Hypothetical Spill Location																													
Boundary Segment	**LA 1**	**LA 2**	**LA 3**	**LA 4**	**LA 5**	**LA 6**	**LA 7**	**LA 8**	**LA 9**	**LA 10**	**LA 11**	**LA 12**	**LA 13**	**LA 14**	**LA 15**	**LA 16**	**LA 17**	**LA 18**	**P 1**	**P 2**	**P 3**	**P 4**	**P 5**	**P 6**	**P 7**	**P 8**	**P 9**	**P 10**	**P 11**	**P 12**	**P 13**

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-33 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 30 Days, Beaufort Sea Multiple-Sale

	Hypothetical Spill Location																													
Boundary Segment	**LA 1**	**LA 2**	**LA 3**	**LA 4**	**LA 5**	**LA 6**	**LA 7**	**LA 8**	**LA 9**	**LA 10**	**LA 11**	**LA 12**	**LA 13**	**LA 14**	**LA 15**	**LA 16**	**LA 17**	**LA 18**	**P 1**	**P 2**	**P 3**	**P 4**	**P 5**	**P 6**	**P 7**	**P 8**	**P 9**	**P 10**	**P 11**	**P 12**	**P 13**
24	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
25	1	n	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	1	n	n	n	n
26	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n
27	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	1	n	n
28	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-34 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 60 Days, Beaufort Sea Multiple-Sale

	Hypothetical Spill Location																													
Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
22	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N
23	2	1	1	1	1	1	1	1	1	1	N	N	N	N	N	N	N	N	1	N	1	1	N	N	N	1	1	1	N	N	N
24	1	N	1	1	1	1	N	1	N	N	N	N	N	N	N	N	N	N	1	1	1	N	1	N	N	N	1	N	1	N	N
25	3	2	2	1	2	1	1	1	1	N	1	N	N	N	N	N	N	N	3	1	2	1	N	1	N	2	2	1	N	N	N
26	N	N	N	N	2	1	3	1	2	2	3	2	2	1	1	N	N	N	N	N	2	2	3	1	N	N	1	1	2	1	1
27	1	N	1	1	1	N	2	2	3	3	3	2	2	1	1	N	N	N	N	1	1	4	3	2	N	1	N	4	3	2	N
28	N	N	1	N	1	1	2	1	1	N	2	1	1	1	1	N	N	N	N	N	2	N	1	N	N	N	1	N	N	1	N
29	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	N
35	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-35 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 180 Days, Beaufort Sea Multiple-Sale

	Hypothetical Spill Location																													
Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
4	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N
17	1	1	1	1	1	N	N	N	1	N	N	N	N	N	N	N	N	N	1	1	N	N	N	N	N	N	N	N	N	1	N
18	3	2	3	2	2	1	2	1	2	1	1	1	1	N	N	N	N	N	3	1	1	1	1	N	N	1	N	N	1	N	N
19	2	1	2	1	2	N	1	N	1	N	N	N	N	N	N	N	N	1	3	1	N	N	N	N	1	1	N	N	N	N	N
20	1	N	1	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1	N	N	N	N	N	N	N	N	N	N	N
21	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	1	N	N	N	N	N
22	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N
23	2	1	2	1	2	1	2	2	2	1	1	1	N	N	1	1	1	N	2	1	2	2	1	N	N	2	2	2	1	N	1
24	2	1	1	1	1	1	1	1	1	N	N	1	1	N	N	N	N	N	1	1	1	N	1	N	N	N	1	N	1	1	N
25	4	3	2	1	2	1	1	1	1	N	1	N	1	1	N	N	N	N	4	2	2	1	N	1	N	2	3	1	N	N	N
26	1	1	1	1	2	1	3	2	3	3	3	2	3	3	3	2	2	1	2	1	2	3	4	3	1	1	2	2	3	2	2
27	2	1	2	2	2	2	3	3	5	4	5	3	4	4	3	2	1	N	1	2	2	6	5	5	2	3	2	5	4	3	1
28	2	2	4	2	5	3	5	2	3	1	4	1	3	3	1	1	N	N	2	4	4	1	2	1	N	2	3	1	1	1	N
29	1	N	2	1	2	2	3	2	2	1	1	1	2	1	N	1	N	N	1	1	3	1	1	1	N	1	3	1	1	1	N
30	N	N	N	N	1	N	1	1	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	1	N	N
31	N	N	N	N	N	N	1	N	1	1	1	1	1	N	N	N	N	N	N	N	N	1	1	1	N	N	N	1	2	N	N
35	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N
36	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
37	N	N	N	N	N	N	N	N	N	N	N	N	1	1	1	1	N	N	N	N	N	N	1	1	N	N	N	N	1	N	1
38	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-36 Summer Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 360 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n
17	1	1	1	1	1	n	n	n	1	n	1	n	n	n	n	n	n	n	1	1	n	1	1	n	n	n	n	n	n	1	n
18	3	2	3	2	2	1	2	1	2	1	1	1	1	n	n	n	n	n	3	1	2	1	1	n	n	1	1	1	1	n	n
19	2	1	2	1	2	n	1	n	1	n	n	n	n	n	n	n	n	1	3	1	n	n	n	n	1	1	n	n	n	n	n
20	1	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n
21	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	n	n	n	n	n
22	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n
23	2	1	2	1	2	1	2	2	2	1	1	1	n	n	1	1	1	n	2	1	2	2	1	n	n	2	2	2	1	n	1
24	2	1	1	1	1	1	1	1	1	n	n	1	1	n	n	n	n	n	1	1	1	n	1	n	n	n	1	n	1	1	n
25	4	3	2	1	2	1	1	1	1	n	1	n	1	1	1	n	n	n	4	2	2	1	n	1	n	2	3	1	n	1	n
26	1	1	1	1	2	1	3	2	3	3	4	3	4	3	3	2	2	1	2	1	3	3	4	3	1	1	2	2	3	2	2
27	2	1	2	2	2	2	3	4	6	5	5	4	4	4	3	2	1	n	1	3	2	7	5	5	2	3	2	6	4	3	1
28	2	2	4	3	6	4	6	3	4	3	5	3	5	4	2	1	1	n	3	5	6	2	4	2	1	2	4	2	3	4	1
29	1	n	2	1	2	2	3	2	2	1	2	1	2	1	1	1	1	n	1	1	3	1	1	1	1	1	3	1	1	1	n
30	1	1	1	n	1	n	1	1	1	1	1	n	1	1	1	n	n	n	n	n	1	1	1	n	n	n	1	1	1	n	n
31	n	n	n	n	n	n	1	n	1	1	1	1	1	n	n	n	n	n	n	n	n	1	1	1	n	n	n	1	2	n	n
35	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n
36	n	n	n	n	n	n	n	n	n	n	1	1	2	3	2	2	1	n	n	n	n	1	1	2	1	n	n	n	1	2	1
37	n	n	1	n	1	1	1	n	1	n	1	1	1	2	1	1	n	n	n	1	n	n	1	1	n	n	n	n	1	n	1
38	n	n	n	n	n	n	n	n	1	1	1	1	1	1	1	1	1	n	n	n	n	1	1	n	1	n	n	n	n	1	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-37 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	n	2	n	2	n	2	n	2	n	n	n	1	n	n	n	n	1	3	n	n	n	n	n	n	n	7	5	6	4	3	4
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	18	7	3	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	13	1	n	n	n	n	n	1	n	n	n	n	n
25	Beaufort Spring Lead 7	9	15	2	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	26	1	n	n	n	n	n	2	n	n	n	n	n
26	Beaufort Spring Lead 8	1	n	16	2	11	1	n	n	n	n	n	n	n	n	n	n	n	n	2	5	n	n	n	n	n	1	n	n	n	n	n
27	Beaufort Spring Lead 9	1	1	14	5	11	4	n	n	n	n	n	n	n	n	n	n	n	n	4	12	n	n	n	n	n	4	n	n	n	n	n
28	Beaufort Spring Lead 10	n	n	n	n	7	2	16	1	5	n	n	n	n	n	n	n	n	n	n	3	9	n	n	n	n	n	3	n	n	n	n
29	Ice/Sea Segment 1	2	7	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	2	n	n	n	n	n
30	Ice/Sea Segment 2	n	1	1	6	1	5	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	n	4	n	n	n	n	n
31	Ice/Sea Segment 3	n	n	n	n	n	3	2	6	n	1	n	n	n	n	n	n	n	n	1	2	n	n	n	n	n	5	1	n	n	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	n	1	2	6	2	1	n	n	n	n	n	n	n	2	9	4	n	n	n	n	4	5	n	n	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	n	1	5	3	n	1	n	n	n	n	n	n	6	1	n	n	n	n	n	4	n	n
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	n	n	1	7	n	4	n	n	n	n	n	2	1	n	n	n	n	n	6	n
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	2	n	n	n	n	n	n	6	n	n	n	n	n	n
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	1	8	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	6	n	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	4	n	n
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	3	n	n	n	n	n	n	3	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-37 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Ice/Sea Segment 15	n	2	13	43	22	38	3	1	n	n	n	n	n	n	n	n	n	n	3	69	3	n	n	n	n	13	5	n	n	n	n
54	Ice/Sea Segment 16a	n	n	n	n	2	14	50	21	20	3	n	n	n	n	n	n	n	n	n	6	59	5	n	n	n	n	34	3	n	n	n
55	Ice/Sea Segment 17	n	n	n	n	n	n	2	1	32	32	41	10	5	n	n	n	n	n	n	n	9	**	41	n	n	n	n	17	27	1	n
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	n	1	2	40	37	15	14	n	n	n	n	n	n	n	44	43	n	n	n	n	2	37	2
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	n	n	2	51	14	46	1	n	n	n	n	n	18	59	n	n	n	n	n	69
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	26	4	2	n	n	n	n	n	1	8	n	n	n	n	n	1
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	n	3	1	13	n	1	n	n	n	n	n	n	n	n	n	n	n	n	8	3	n	n	n	n	n	16	n	n	n	n	n
66	ERA 2	n	n	n	n	1	11	1	3	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	5	n	n	n	n
67	Ice/Sea Segment 16b	n	n	n	n	1	4	16	7	7	1	n	n	n	n	n	n	n	n	n	2	20	2	n	n	n	n	11	1	n	n	n
68	Harrison Bay	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	n	n	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n
70	ERA 3	n	n	n	n	n	n	1	2	4	9	n	n	n	n	n	n	n	n	n	n	7	7	n	n	n	n	n	16	1	n	n
71	Simpson Lagoon	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	1	n	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	n	n	n	14	1	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	1	10	n
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	7	n	n	2	n	n	n	n	n	n	n	n	1	n	n	n	n	n	5	n
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	n	n	n	14	12	5	5	n	n	n	n	n	n	n	14	13	n	n	n	n	1	12	1
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	n	n	n	n	n	n	n	1	n	n	n	n	n	1
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	10	n	n	n	n	n	n	8	n	n	n	n	n	n
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	2	1	n	n	n	n	n	n	4	n	n	n	n	n	n
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-38 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	2	6	2	6	2	5	2	6	1	3	n	3	n	n	1	n	4	8	3	2	1	1	n	n	3	10	8	9	6	5	5
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	1	5	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	n	1	1	3	1	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	5	2	1	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	5	1	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	n	1	n	n	n	n	n	n
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	n	n	1	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	21	13	7	4	2	1	n	n	n	n	n	n	n	n	n	n	n	n	20	5	n	n	n	n	n	4	n	n	n	n	n
25	Beaufort Spring Lead 7	13	20	6	6	2	1	n	n	n	n	n	n	n	n	n	n	n	n	28	6	n	n	n	n	n	6	n	n	n	n	n
26	Beaufort Spring Lead 8	3	3	19	7	14	6	2	1	n	n	n	n	n	n	n	n	n	n	6	11	2	n	n	n	n	5	1	n	n	n	n
27	Beaufort Spring Lead 9	2	3	16	10	14	8	3	1	1	n	n	n	n	n	n	n	n	n	7	17	2	n	n	n	n	7	2	n	n	n	n
28	Beaufort Spring Lead 10	n	n	1	1	9	6	21	7	9	4	2	n	n	n	n	n	n	n	n	6	16	4	1	n	n	n	8	4	2	n	n
29	Ice/Sea Segment 1	2	7	1	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	3	n	n	n	n	n
30	Ice/Sea Segment 2	n	1	2	6	2	5	1	1	n	n	n	n	n	n	n	n	n	n	1	3	1	n	n	n	n	5	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	n	1	1	4	3	7	2	2	1	n	n	n	n	n	n	n	2	n	n	n	n	n	n	6	2	1	n	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	1	1	3	7	3	2	1	n	n	n	n	n	n	n	2	9	5	n	n	n	n	5	5	1	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	n	1	6	3	1	2	n	n	n	n	n	n	6	2	n	n	n	n	1	5	1	
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	1	n	1	7	1	5	n	n	n	n	n	n	3	2	n	n	n	n	1	7
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	4	2	n	n	n	n	n	n	6	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
42	Barrow Subsistence Area 2	2	9	2	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	6	n	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	5	1	n	1	n	n	n	n	n	n	n	2	1	n	n	n	1	4	1	
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	3	n	n	n	n	n	n	4	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-38 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Ice/Sea Segment 14	11	4	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	1	n	n	n	n	n
53	Ice/Sea Segment 15	3	6	20	51	31	48	9	7	2	1	n	n	n	n	n	n	n	n	8	72	10	1	n	n	n	20	12	1	n	n	n
54	Ice/Sea Segment 16a	n	n	2	3	8	22	59	36	31	15	6	2	1	n	n	n	n	n	n	11	66	18	4	n	n	n	43	17	7	1	n
55	Ice/Sea Segment 17	n	n	n	n	n	1	7	6	41	46	51	25	17	2	3	n	n	n	n	1	14	**	52	5	n	n	2	26	44	12	1
56	Ice/Sea Segment 18a	n	n	n	n	n	n	n	n	1	2	4	50	41	20	32	2	2	n	n	n	n	2	46	48	1	n	n	n	5	46	11
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	n	2	1	5	58	19	56	5	n	n	n	n	1	22	63	n	n	n	n	2	75
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	n	n	4	5	37	16	9	n	n	n	n	n	7	25	n	n	n	n	n	7
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	5	n	n	n	n	n	n	2	n	n	n	n	n	n
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	1	5	3	16	3	4	1	1	n	n	n	n	n	n	n	n	n	n	10	6	n	n	n	n	n	17	1	n	n	n	n
66	ERA 2	n	n	1	2	2	13	4	7	1	1	n	n	n	n	n	n	n	n	n	3	4	1	n	n	n	n	9	2	n	n	n
67	Ice/Sea Segment 16b	n	n	1	1	2	7	19	13	11	6	2	1	n	n	n	n	n	n	n	3	23	8	2	n	n	n	14	8	4	n	n
68	Harrison Bay	n	n	n	n	n	1	1	3	n	1	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	7	1	n	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	n	1	3	1	1	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	3	1	n	n
70	ERA 3	n	n	n	n	n	n	3	4	7	15	2	2	1	n	n	n	n	n	n	n	9	14	2	n	n	n	2	20	6	1	n
71	Simpson Lagoon	n	n	n	n	n	n	n	n	n	2	n	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	6	3	1	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	n	1	1	15	2	n	2	n	n	n	n	n	n	1	3	2	n	n	n	n	2	12	1
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	8	1	1	3	n	n	n	n	n	n	n	1	1	n	n	n	n	n	7	1
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	n	1	1	17	13	6	11	n	1	n	n	n	n	1	15	15	n	n	n	n	2	15	4
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	11	1	n	n	n	n	n	1	3	n	n	n	n	n	3
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	7	11	n	n	n	n	n	n	11	n	n	n	n	n	1
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	13	7	4	n	n	n	n	n	3	10	n	n	n	n	n	3
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n	n	n	n	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-39 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	8	13	6	11	5	10	5	11	4	7	2	6	2	1	3	3	7	14	9	7	5	5	3	2	6	15	13	13	10	8	9
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	4	8	2	3	2	1	1	n	n	n	n	n	n	n	n	n	n	n	6	2	n	n	n	n	n	2	1	n	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	n	1	1	1	3	1	2	1	n	n	n	n	n	n	n	1	2	2	n	n	n	1	7	3	1	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	n	n	1	2	1	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	2	6	2	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	3	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	1	n	n	n	n	n	n	2	n	n	n	n	n	1
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	2	n	n	n	n	n	n
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Beaufort Spring Lead 6	23	15	10	7	6	3	2	1	1	1	1	n	n	n	n	n	n	n	22	8	2	1	n	n	n	7	1	n	n	n	n
25	Beaufort Spring Lead 7	15	21	9	8	5	4	2	1	1	1	1	n	n	n	n	n	n	n	28	9	2	1	n	n	n	8	1	1	n	n	n
26	Beaufort Spring Lead 8	4	5	20	9	16	8	5	3	3	2	1	1	1	n	n	n	n	n	8	14	4	2	1	n	n	7	3	2	1	n	n
27	Beaufort Spring Lead 9	3	5	17	12	16	11	6	3	3	2	2	1	1	n	n	n	n	n	8	20	5	2	1	n	n	9	4	2	1	n	n
28	Beaufort Spring Lead 10	n	n	2	3	11	9	24	10	13	8	6	3	4	1	2	n	n	n	n	8	20	9	5	2	n	2	11	6	6	2	1
29	Ice/Sea Segment 1	3	7	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	3	n	n	n	n	n
30	Ice/Sea Segment 2	1	2	2	6	2	5	1	1	n	n	n	n	n	n	n	n	n	n	2	3	1	n	n	n	n	5	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	1	1	1	4	3	7	2	2	1	1	n	n	n	n	n	n	n	1	3	3	1	n	n	n	6	3	1	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	1	1	3	7	4	2	2	1	1	n	n	n	n	n	2	9	5	1	n	n	n	5	5	1	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	1	1	6	4	1	2	n	n	n	n	n	n	n	6	2	n	n	n	n	1	5	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	1	1	1	8	1	5	n	n	n	n	n	n	3	2	n	n	n	n	1	7
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	2	n	n	n	n	n	1	6	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	4	3	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
42	Barrow Subsistence Area 2	3	9	2	3	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	6	1	n	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	5	2	1	1	n	n	n	n	n	n	n	2	1	n	n	n	n	1	4	1
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	n	n	n	n	n	n	4	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-39 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Hanna's Shoal Polynya	3	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n
50	Ice/Sea Segment 12	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
51	Ice/Sea Segment 13	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n
52	Ice/Sea Segment 14	19	11	8	5	3	2	1	n	1	n	n	n	n	n	n	n	n	n	13	4	1	n	n	n	n	4	n	n	n	n	n
53	Ice/Sea Segment 15	6	9	24	53	35	52	14	12	8	6	4	2	2	n	n	n	n	n	12	73	15	7	3	1	n	23	18	7	4	1	n
54	Ice/Sea Segment 16a	2	1	6	5	13	26	62	43	40	27	17	9	8	3	3	n	n	n	2	15	69	31	15	3	n	2	47	27	18	6	1
55	Ice/Sea Segment 17	n	n	1	1	3	4	13	11	45	51	56	33	27	11	12	2	2	n	1	2	20	**	58	14	2	n	5	30	48	20	6
56	Ice/Sea Segment 18a	n	n	n	n	n	n	1	n	2	4	6	52	43	23	37	4	5	n	n	n	1	3	47	51	3	n	n	1	7	48	16
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	n	1	3	2	7	60	23	58	7	n	n	n	n	2	24	65	n	n	n	n	4	76
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	n	2	3	9	12	44	25	15	n	n	n	n	1	14	34	n	n	n	n	2	15
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	7	5	10	n	n	n	n	n	2	7	n	n	n	n	n	3
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n	n	n	n	n	n	2	n	n	n	n	n	n
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	2	6	4	17	4	6	3	2	1	1	1	n	n	n	n	n	n	n	11	8	3	1	1	n	n	18	3	1	1	n	n
66	ERA 2	n	n	2	3	3	14	6	9	3	4	1	1	1	n	n	n	n	n	1	4	6	4	1	n	n	1	11	5	3	1	n
67	Ice/Sea Segment 16b	n	n	1	2	4	8	21	16	15	11	6	4	3	1	2	n	n	n	n	4	25	12	6	2	n	1	16	12	9	2	1
68	Harrison Bay	n	n	n	n	n	1	1	4	1	1	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	8	2	1	n	n
69	Harrison Bay/Colville Delta	n	n	n	n	n	1	1	4	1	2	1	1	n	n	n	n	n	n	n	n	2	2	1	n	n	n	2	4	1	n	n
70	ERA 3	n	n	n	n	1	2	5	6	10	17	5	5	3	1	2	n	n	n	n	1	10	16	6	2	n	n	3	22	10	3	1
71	Simpson Lagoon	n	n	n	n	n	n	1	1	1	3	1	2	1	n	n	n	n	n	n	n	1	1	1	n	n	n	1	6	4	1	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	n	n	1	1	1	15	3	1	2	n	n	n	n	n	n	1	4	2	n	n	n	n	3	14	2
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	n	n	4	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	5	n
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	n	n	4	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	7	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	8	1	1	4	n	n	n	n	n	n	n	1	2	n	n	n	n	1	8	2
80	Ice/Sea Segment 18b	n	n	n	n	n	n	n	n	1	1	2	18	14	7	12	1	2	n	n	n	n	1	15	15	1	n	n	1	3	16	5
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	12	1	n	n	n	n	n	1	3	n	n	n	n	n	4
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	9	12	n	n	n	n	n	1	13	n	n	n	n	1	3
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	15	10	7	n	n	n	n	n	4	13	n	n	n	n	2	5
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	7	n	n	n	n	n	n	1	n	n	n	n	n	n
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-40 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	13	20	11	18	9	16	9	17	7	12	6	11	6	4	7	6	11	21	16	12	9	9	8	5	9	21	19	18	16	13	12
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	6	12	5	6	3	3	2	1	1	1	1	1	1	n	n	n	n	n	9	4	1	1	1	n	n	3	1	1	n	n	n
3	Thetis and Jones Islands	n	n	n	n	n	1	1	2	2	5	2	2	1	1	1	n	n	n	n	n	1	3	2	1	n	n	2	9	5	2	n
4	Cottle & Return Islands, West Dock	n	n	n	n	n	n	1	n	1	2	1	3	1	n	n	n	n	n	n	n	1	2	1	n	n	n	n	2	8	2	n
5	Midway Islands	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	n	1	n	n	n	n	n	n	n	1	1	n	n	n	n	1	4	n
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	n
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	1	n	n	n	n	n	n	3	n	n	n	n	n	1
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	n	n	n	1	1	n	1	1	2	4	n	n	n	n	1	n	3	n	n	n	n	n	1
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	2	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
24	Beaufort Spring Lead 6	23	17	11	9	7	5	3	2	2	1	2	1	1	1	n	n	n	n	23	10	4	1	1	1	n	9	2	1	1	n	n
25	Beaufort Spring Lead 7	15	22	10	10	7	5	4	2	2	1	2	1	1	1	1	n	n	n	29	10	3	2	1	1	n	9	2	1	1	n	n
26	Beaufort Spring Lead 8	5	5	21	10	18	9	7	4	5	3	3	2	2	2	1	1	1	n	9	14	7	5	2	2	1	7	5	3	2	1	1
27	Beaufort Spring Lead 9	3	5	18	13	17	12	8	5	5	4	3	2	2	2	1	1	1	n	9	20	7	4	2	2	n	11	5	4	3	1	1
28	Beaufort Spring Lead 10	n	1	3	3	11	10	25	12	15	9	8	5	6	3	3	2	1	n	n	9	21	10	7	3	2	2	13	8	7	3	3
29	Ice/Sea Segment 1	3	7	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	3	n	n	n	n	n
30	Ice/Sea Segment 2	1	2	2	6	2	5	1	1	n	n	n	n	n	n	n	n	n	n	2	3	1	n	n	n	n	5	1	n	n	n	n
31	Ice/Sea Segment 3	n	n	1	1	1	4	3	7	2	2	1	1	n	n	n	n	n	n	n	1	3	3	1	n	n	n	6	3	1	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	1	1	3	7	4	2	2	1	1	n	n	n	n	n	2	9	5	1	n	n	n	5	5	1	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	1	1	6	4	1	2	n	n	n	n	n	n	n	6	2	n	n	n	n	1	5	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	1	1	1	8	1	5	n	n	n	n	n	n	3	2	n	n	n	n	1	7
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	2	n	n	n	n	n	1	6	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
41	Barrow Subsistence Area 1	4	3	2	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	2	n	n	n	n	n
42	Barrow Subsistence Area 2	3	9	3	4	2	2	1	1	1	n	n	n	n	n	n	n	n	n	4	3	1	n	n	n	n	7	1	1	n	n	n
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	n	1	5	2	1	1	n	n	n	n	n	n	n	2	1	n	n	n	1	4	1
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	n	n	n	n	n	n	4	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-40 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	3	1	1	1	1	n	1	n	1	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
49	Hanna's Shoal Polynya	9	5	5	3	3	2	1	1	1	1	1	n	n	n	n	n	n	n	8	3	1	1	n	n	n	2	1	1	n	n	n
50	Ice/Sea Segment 12	3	3	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	1	n	n	n	n	n
51	Ice/Sea Segment 13	4	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	3	1	1	n	n	n	n	2	n	n	n	n	n
52	Ice/Sea Segment 14	21	14	11	8	6	4	2	1	1	1	1	n	n	n	n	n	n	n	16	8	2	1	1	n	n	7	2	n	1	n	n
53	Ice/Sea Segment 15	7	11	25	55	36	53	17	14	11	8	8	5	5	3	3	1	1	n	13	73	18	10	8	3	1	25	20	10	7	3	2
54	Ice/Sea Segment 16a	3	3	7	7	15	28	64	45	44	30	22	14	14	7	7	3	2	n	3	16	70	35	19	8	3	4	49	30	21	10	4
55	Ice/Sea Segment 17	1	1	3	2	5	5	17	13	48	52	58	36	31	14	15	5	4	1	1	4	23	**	60	16	3	1	7	33	49	22	9
56	Ice/Sea Segment 18a	n	n	n	n	1	1	2	1	3	5	8	53	43	24	38	5	6	1	n	1	2	4	48	51	4	n	1	2	8	49	16
57	Ice/Sea Segment 19	n	n	n	n	n	n	n	n	n	1	1	4	3	8	60	25	59	8	n	n	n	1	3	25	65	n	n	n	1	5	76
58	Ice/Sea Segment 20a	n	n	n	n	n	n	n	n	n	n	1	2	4	12	15	47	28	18	n	n	n	n	2	17	37	n	n	n	n	3	19
59	Ice/Sea Segment 21	n	n	n	n	n	n	n	n	n	n	n	1	1	4	5	12	9	12	n	n	n	n	n	5	11	n	n	n	n	1	6
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	3	5	n	n	n	n	n	2	4	n	n	n	n	n	2
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	1	n	n	n	n	n	1	2	n	n	n	n	n	1
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n
65	ERA 1	2	6	5	18	5	7	4	3	3	2	2	1	2	1	1	n	n	n	11	9	4	3	2	n	n	20	4	2	2	1	n
66	ERA 2	n	1	2	3	4	15	7	12	5	6	3	3	2	1	2	1	1	n	1	5	7	6	3	1	1	2	14	7	4	1	2
67	Ice/Sea Segment 16b	n	1	2	3	5	9	22	17	16	13	8	6	5	3	3	1	2	n	1	6	26	14	8	3	2	2	18	13	10	4	2
68	Harrison Bay	n	n	n	n	n	2	1	5	1	2	1	1	1	n	n	n	n	n	n	n	1	2	1	n	n	n	10	2	2	1	n
69	Harrison Bay/Colville Delta	n	n	n	n	1	1	2	6	2	3	1	1	1	n	n	n	n	n	n	1	2	2	1	n	n	n	3	7	2	1	n
70	ERA 3	n	n	1	1	2	3	6	8	10	18	6	7	5	3	3	1	1	n	n	2	12	16	8	4	1	1	4	24	12	6	2
71	Simpson Lagoon	n	n	n	n	n	n	1	2	1	4	1	2	1	n	1	n	n	n	n	n	1	2	2	n	n	n	2	8	6	1	n
72	Gwyder Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	n	1	n	1	2	1	16	3	1	3	n	1	n	n	n	1	1	4	2	n	n	n	1	3	17	2
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	1	n	5	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	6	1
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	1	n	4	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	10	1
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	8	n
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
79	ERA 4	n	n	n	n	n	n	n	n	n	n	n	9	1	1	4	n	1	n	n	n	n	1	1	2	n	n	n	n	1	10	2
80	Ice/Sea Segment 18b	n	n	n	n	n	n	1	n	1	2	2	19	14	7	12	1	2	n	n	n	1	1	15	15	1	n	n	1	3	18	6
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	13	1	n	n	n	n	n	1	4	n	n	n	n	1	4
83	Kaktovik ERA	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	3	10	13	n	n	n	n	1	1	13	n	n	n	n	1	3
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	n	n	n	1	1	3	5	15	11	8	n	n	n	n	1	5	14	n	n	n	n	2	5
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	9	n	n	n	n	n	1	2	n	n	n	n	n	1
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	4	n	n	n	n	n	1	1	n	n	n	n	n	n
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-41 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	28	41	28	41	28	39	29	43	27	34	24	35	25	27	31	33	40	57	33	32	28	30	28	30	38	47	43	40	39	39	37
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	13	25	11	13	9	7	5	4	3	2	3	2	2	2	2	2	1	n	17	10	4	3	2	2	1	8	4	2	1	1	1
3	Thetis and Jones Islands	n	n	1	1	2	3	5	8	8	15	7	8	5	2	3	n	1	n	n	2	6	11	9	4	n	n	6	21	13	5	1
4	Cottle & Return Islands, West Dock	n	n	n	n	1	1	2	2	3	6	3	8	2	1	2	n	n	n	n	1	2	4	4	1	n	n	1	4	19	4	1
5	Midway Islands	n	n	n	n	n	n	n	n	1	1	1	4	1	n	1	n	n	n	n	n	n	1	1	1	n	n	n	n	2	3	1
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	1	1	1	5	1	1	2	1	1	n	n	n	n	1	2	1	n	n	n	1	2	8	2
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	7	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	1	3	1	1	2	n	n	n	n	n	n	n	1	1	n	n	n	n	1	16	1
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	2	n	1	n	n	n	n	n	n	1	n	n	n	n	3	2
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	1	6
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	n	1	n	n	n	1	6
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	n	n	n	n	n	n	1	2	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	1	1	1	1	3	3	8	4	n	n	n	n	1	2	7	n	n	n	n	2	3
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	n	1	1	1	1	1	2	2	3	5	9	n	n	n	n	1	1	6	n	n	n	1	1	2
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	8	n	n	n	n	n	n	1	n	n	n	n	n	n
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	11	n	n	n	n	n	1	2	n	n	n	n	n	1
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	1	n	n	n	n	n	n
24	Beaufort Spring Lead 6	25	20	13	11	9	6	5	3	4	2	3	2	3	3	2	2	1	n	25	12	6	3	3	3	1	11	3	2	2	1	1
25	Beaufort Spring Lead 7	18	27	12	12	8	7	5	3	4	3	3	2	3	2	2	2	1	n	32	12	5	3	3	2	1	12	3	2	2	1	1
26	Beaufort Spring Lead 8	6	7	22	13	19	11	8	5	7	5	5	3	4	4	2	3	2	n	10	16	8	6	4	3	2	10	6	6	3	2	3
27	Beaufort Spring Lead 9	5	8	20	17	18	15	9	6	7	5	5	3	4	4	3	3	2	n	11	22	9	6	4	3	2	16	7	7	4	2	3
28	Beaufort Spring Lead 10	1	1	4	5	13	12	27	16	17	12	11	7	8	5	5	4	3	n	1	11	23	12	8	6	4	3	20	10	11	6	5
29	Ice/Sea Segment 1	4	8	2	3	1	1	1	n	n	n	n	n	n	n	n	n	n	n	5	2	1	n	n	n	n	4	1	n	n	n	n
30	Ice/Sea Segment 2	1	2	2	7	2	6	2	2	1	1	n	n	n	n	n	n	n	n	2	3	2	1	n	n	n	5	2	1	n	n	n
31	Ice/Sea Segment 3	n	n	1	1	1	4	3	7	2	3	1	1	1	n	n	n	n	n	n	1	3	3	1	n	1	n	6	3	1	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	n	1	1	4	7	5	3	2	1	1	n	n	n	n	n	2	10	5	1	n	n	1	5	6	1	n
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	1	1	6	4	1	2	n	n	n	n	n	n	n	6	2	n	n	n	n	1	5	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	1	1	1	8	1	5	n	n	n	n	n	n	3	2	n	n	n	n	1	7
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	3	n	n	n	n	n	1	6	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	3	n	n	n	n	n	n	1	n	n	n	n	n	n
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	1	2	n	n	n	n	1	1	1	n	n	n	n	1	n
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainwright Subsistence Area	2	1	1	1	1	n	n	n	n	n	1	n	n	1	n	1	1	n	2	1	n	n	n	1	n	1	n	n	n	n	n
41	Barrow Subsistence Area 1	4	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	2	n	n	n	n	n
42	Barrow Subsistence Area 2	5	10	4	5	4	3	3	2	3	1	2	1	2	2	2	2	2	n	6	4	3	1	1	3	1	8	3	4	1	1	1
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	1	1	5	2	1	1	n	n	n	n	n	n	n	n	2	1	n	n	n	n	1	4	1
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	4	n	n	n	n	n	n	4	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-41 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	7	4	4	2	3	1	2	1	2	1	1	1	1	1	1	n	n	n	6	2	2	2	1	n	n	3	1	2	1	1	n
49	Hanna's Shoal Polynya	16	10	10	7	6	5	3	2	2	1	1	1	2	1	1	n	n	n	14	7	3	2	2	1	n	6	2	1	1	1	1
50	Ice/Sea Segment 12	6	4	3	2	2	1	1	1	2	1	2	1	1	1	1	1	n	n	5	2	1	2	1	1	n	4	n	1	1	n	n
51	Ice/Sea Segment 13	6	4	4	3	3	1	2	1	1	1	1	n	1	1	1	2	1	n	5	2	1	1	1	1	1	4	1	1	1	n	1
52	Ice/Sea Segment 14	25	17	15	10	10	6	5	3	4	2	3	1	2	2	1	3	1	1	19	11	5	3	3	1	3	10	4	4	2	1	2
53	Ice/Sea Segment 15	9	13	27	59	38	57	21	18	16	13	12	8	9	7	7	6	5	1	14	74	22	14	12	6	4	31	25	15	9	4	6
54	Ice/Sea Segment 16a	4	4	9	11	17	31	65	51	49	38	29	21	20	11	12	6	5	1	4	18	73	42	27	12	5	7	56	39	28	16	7
55	Ice/Sea Segment 17	2	2	4	4	7	8	20	19	50	58	60	41	34	17	18	7	5	1	2	6	27	**	63	18	4	2	9	40	56	27	11
56	Ice/Sea Segment 18a	n	n	n	1	1	1	3	2	5	7	10	57	44	25	40	6	6	1	n	1	3	7	50	52	4	n	2	4	10	55	18
57	Ice/Sea Segment 19	n	n	1	n	1	n	1	n	1	1	2	6	3	8	62	26	64	9	n	1	1	2	3	25	66	1	1	1	2	10	79
58	Ice/Sea Segment 20a	2	1	2	n	2	n	1	n	1	1	2	5	6	15	19	50	34	23	1	1	1	1	3	20	42	1	n	n	1	7	25
59	Ice/Sea Segment 21	2	1	2	n	1	n	1	n	1	n	1	2	3	8	9	18	14	17	2	1	n	1	1	9	17	n	n	n	n	2	10
60	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	n	1	2	3	6	8	11	8	8	n	n	n	n	2	8	9	n	n	n	n	3	7
61	Ice/Sea Segment 22	n	n	n	n	n	n	n	n	n	1	1	3	3	8	7	9	7	4	n	n	1	1	2	7	7	n	n	1	1	4	8
62	Ice/Sea Segment 24a	n	n	n	n	n	n	n	n	n	1	1	2	2	4	4	5	5	4	n	n	n	1	1	4	5	n	n	n	1	3	4
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	2	1	1	1	1	n	1	n	n	n	1	n	n	1	1	2	1	n	2	1	1	n	n	1	1	1	n	n	n	n	n
65	ERA 1	3	10	8	25	8	10	6	5	4	3	3	2	3	3	3	2	2	n	13	11	7	4	3	2	1	28	7	3	3	1	2
66	ERA 2	1	1	4	6	6	22	13	23	13	15	9	8	6	5	5	4	3	1	1	8	14	14	9	5	3	4	24	15	10	4	5
67	Ice/Sea Segment 16b	1	2	3	6	7	14	26	25	22	22	14	12	10	5	7	4	3	1	1	8	31	21	14	6	4	5	27	23	19	11	5
68	Harrison Bay	n	n	n	n	1	3	2	10	3	4	2	3	2	1	2	1	1	n	n	1	3	3	3	2	1	n	19	4	3	4	1
69	Harrison Bay/Colville Delta	n	n	1	1	2	3	5	14	6	11	6	4	4	2	2	1	n	n	n	3	6	8	5	2	n	1	6	18	7	2	1
70	ERA 3	1	1	1	2	3	6	11	16	18	30	14	15	10	6	8	2	3	n	1	4	18	26	16	7	2	1	8	39	20	14	5
71	Simpson Lagoon	n	n	1	1	2	3	5	7	6	12	6	8	4	2	3	n	n	n	n	2	5	9	8	3	n	1	6	19	19	4	1
72	Gwyder Bay	n	n	n	n	n	n	1	n	1	1	n	2	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	1	7	1	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
74	Cross Island ERA	n	n	n	n	n	1	1	1	2	4	3	23	5	3	6	1	1	n	n	n	2	4	7	4	1	n	1	2	6	27	5
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	n	1	1	7	1	1	2	n	n	n	n	n	n	n	2	1	n	n	n	n	2	13	2
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	n	1	1	7	1	1	2	n	n	n	n	n	n	n	1	1	n	n	n	n	1	23	2
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	16	1
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
79	ERA 4	n	n	n	n	n	1	1	n	1	1	1	13	2	2	6	1	1	n	n	n	1	2	3	3	n	n	1	1	2	17	3
80	Ice/Sea Segment 18b	n	n	n	n	n	1	1	1	3	4	4	25	16	8	15	2	3	n	n	n	2	4	19	17	1	n	1	2	6	25	8
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	n	1	4	3	23	3	n	n	n	n	1	2	7	n	n	n	n	2	6
83	Kaktovik ERA	n	n	n	n	n	n	n	n	1	1	1	3	2	3	6	9	23	24	n	n	n	1	2	4	26	n	n	n	1	4	8
84	Ice/Sea Segment 20b	n	n	n	n	n	n	n	n	1	n	1	3	2	5	7	18	17	14	n	n	n	1	2	6	19	n	n	n	1	6	10
85	ERA 6	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	5	5	22	n	n	n	n	1	3	4	n	n	n	n	n	2
86	ERA 7	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	4	3	7	n	n	n	n	1	3	4	n	n	n	n	1	2
87	ERA 8	n	n	n	n	n	n	n	n	n	n	n	1	1	4	5	5	5	5	n	n	n	n	1	4	5	n	n	n	n	2	5
88	Ice Sea Segment 24b	n	n	n	n	n	n	n	n	n	n	1	1	2	4	3	5	5	3	n	n	n	n	1	3	5	n	n	n	n	2	4

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A.2-42 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
	Land	39	54	42	54	43	54	45	60	45	52	43	55	46	51	55	61	67	81	44	47	44	49	47	52	66	61	60	57	57	61	62
1	Kasegaluk Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
2	Point Barrow, Plover Islands	16	29	14	16	12	10	8	5	6	3	5	3	5	4	3	3	2	n	20	13	7	5	4	4	1	12	6	3	2	2	2
3	thetis and Jones Islands	1	1	2	1	4	4	7	11	11	20	12	12	9	4	5	2	1	n	1	4	8	15	15	5	1	n	8	27	20	8	2
4	Cottle & Return Islands, West Dock	n	n	n	n	1	1	2	3	4	8	5	11	4	2	3	1	1	n	n	1	2	6	7	1	1	n	1	5	24	8	1
5	Midway Islands	n	n	n	n	n	n	n	n	1	2	1	5	1	1	1	n	n	n	n	n	n	1	1	1	n	n	n	1	2	4	1
6	Cross and No Name Islands	n	n	n	n	n	n	n	n	1	2	1	6	2	2	3	1	1	n	n	n	n	2	3	2	n	n	n	1	2	9	2
7	Endicott Causeway	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	9	n
8	McClure Islands	n	n	n	n	n	n	n	n	n	n	1	4	1	1	3	1	1	n	n	n	n	n	1	1	n	n	n	n	1	17	2
9	Stockton Islands	n	n	n	n	n	n	n	n	n	n	n	2	1	1	3	1	1	n	n	n	n	n	n	1	1	n	n	n	n	3	4
10	Tigvariak Island	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
11	Maguire Islands	n	n	n	n	n	n	n	n	n	n	n	1	1	n	2	n	1	n	n	n	n	n	n	1	n	n	n	n	1	8
12	Flaxman Island	n	n	n	n	n	n	n	n	n	n	n	1	n	1	2	1	2	n	n	n	n	n	n	1	1	n	n	n	n	1	8
13	Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	5	1	n	n	n	n	n	1	3	n	n	n	n	n	1
14	Anderson Point Barrier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n
15	Arey and Barter Islands, Bernard Spit	n	n	n	n	n	n	n	n	n	n	1	1	1	2	4	4	10	5	n	n	n	n	1	3	9	n	n	n	n	2	5
16	Jago and Tapkaurak Spits	n	n	n	n	n	n	n	1	1	1	1	2	2	3	3	5	8	12	n	n	n	n	1	3	10	n	n	n	1	1	3
17	Angun and Beaufort Lagoons	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	10	n	n	n	n	n	1	2	n	n	n	n	n	1
18	Icy Reef	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	3	16	n	n	n	n	n	2	4	n	n	n	n	n	1
19	Chukchi Spring Lead 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
20	Chukchi Spring Lead 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
21	Chukchi Spring Lead 3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	Chukchi Spring Lead 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Chukchi Spring Lead 5	3	3	2	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	3	1	n	1	n	n	n	1	n	n	n	n	n
24	Beaufort Spring Lead 6	25	22	14	11	9	6	6	3	4	3	4	2	3	3	2	2	1	n	25	12	6	4	4	3	1	11	3	2	2	1	1
25	Beaufort Spring Lead 7	18	29	13	13	9	8	6	4	5	3	4	2	3	2	2	2	1	n	33	13	6	4	3	2	1	12	4	3	2	1	1
26	Beaufort Spring Lead 8	6	8	23	14	19	12	9	5	7	5	5	3	4	4	2	4	2	n	11	16	9	7	4	3	2	11	7	7	4	2	3
27	Beaufort Spring Lead 9	6	10	21	19	19	16	11	7	8	6	6	4	4	4	3	3	2	n	12	23	11	7	4	4	2	18	8	7	4	2	3
28	Beaufort Spring Lead 10	1	1	4	6	14	14	29	18	19	14	13	8	10	5	5	5	3	n	1	12	25	15	10	6	4	4	21	12	12	6	5
29	Ice/Sea Segment 1	4	8	3	3	2	2	1	1	1	n	1	n	n	n	n	n	n	n	6	2	1	n	n	n	n	4	1	n	n	n	n
30	Ice/Sea Segment 2	2	2	2	7	3	6	2	2	2	1	1	n	1	1	1	1	1	1	2	4	2	1	1	1	1	5	2	2	n	n	1
31	Ice/Sea Segment 3	n	n	1	1	1	4	3	7	2	3	1	1	1	n	n	1	1	1	n	1	3	3	1	1	2	n	6	3	1	n	n
32	Ice/Sea Segment 4	n	n	n	n	n	1	1	1	4	7	5	3	2	1	1	n	n	n	n	n	3	10	5	1	n	n	1	5	6	1	1
33	Ice/Sea Segment 5	n	n	n	n	n	n	n	n	n	1	1	6	4	1	2	n	n	n	n	n	n	n	6	2	n	n	n	n	1	5	1
34	Ice/Sea Segment 6	n	n	n	n	n	n	n	n	n	n	n	1	1	1	8	1	5	n	n	n	n	n	n	3	2	n	n	n	n	1	7
35	Ice/Sea Segment 7	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	4	3	n	n	n	n	n	1	7	n	n	n	n	n	1
36	Ice/Sea Segment 8	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	1	1	3	n	n	n	n	n	n	1	n	n	n	n	n	1
37	Ice/Sea Segment 9	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	2	2	3	n	n	n	n	1	1	2	n	n	n	n	1	1
38	Point Hope Subsistence Are	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
39	Point Lay Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
40	Wainright Subsistence Area	2	2	1	1	1	n	1	n	1	1	1	n	1	2	1	2	1	n	2	1	1	1	1	1	1	2	1	n	1	1	1
41	Barrow Subsistence Area 1	4	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	4	2	n	n	n	n	n	2	n	n	n	n	n
42	Barrow Subsistence Area 2	6	11	5	6	5	4	4	3	4	2	4	2	4	4	4	4	3	1	6	5	4	3	2	5	2	9	3	6	1	1	3
43	Nuiqsut Subsistence Area	n	n	n	n	n	n	n	n	n	1	1	5	2	1	1	n	n	n	n	n	n	1	2	1	n	n	n	n	1	5	1
44	Kaktovik Subsistence Area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	4	n	n	n	n	n	n	4	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-42 (continued) Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Environmental Resource Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
45	Whale Concentration Area	n	n	n	n	n	n	1	n	n	n	n	1	1	1	1	2	1	1	n	n	n	n	1	1	2	n	1	n	n	n	1
46	Herald Shoal Polynya	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
47	Ice/Sea Segment 10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Ice/Sea Segment 11	7	5	4	3	3	1	2	1	2	1	2	1	1	1	1	n	n	n	6	3	2	2	2	1	n	3	1	3	1	1	n
49	Hanna's Shoal Polynya	17	11	11	8	7	5	3	3	3	3	2	2	2	1	1	1	n	n	14	8	4	3	2	1	n	7	2	3	1	1	1
50	Ice/Sea Segment 12	6	5	3	3	2	1	2	1	2	1	2	1	1	2	1	1	n	n	6	2	1	2	1	1	1	5	n	1	1	n	1
51	Ice/Sea Segment 13	7	5	4	3	3	1	2	1	1	1	1	1	1	2	1	2	1	n	5	3	2	1	1	2	1	5	1	1	1	n	1
52	Ice/Sea Segment 14	26	18	16	11	11	7	6	4	5	3	4	2	3	3	2	4	2	1	20	12	6	4	4	2	3	11	5	5	3	1	3
53	Ice/Sea Segment 15	9	15	28	61	39	59	22	20	17	15	14	9	11	9	9	7	7	1	15	74	24	16	14	8	6	33	26	17	10	6	8
54	Ice/Sea Segment 16a	5	6	10	13	18	33	66	55	51	42	32	24	22	12	13	7	6	2	6	20	75	45	30	13	7	10	59	43	32	18	8
55	Ice/Sea Segment 17	3	2	4	5	8	9	21	22	51	61	60	44	35	18	20	7	6	1	3	7	28	**	65	20	5	3	11	43	58	30	12
56	Ice/Sea Segment 18a	n	n	1	1	1	2	3	2	6	8	10	59	44	25	41	6	7	1	1	1	3	8	50	52	4	1	2	4	11	58	19
57	Ice/Sea Segment 19	1	1	1	1	2	1	2	1	2	2	3	8	5	9	63	26	67	10	1	1	1	2	4	26	66	1	1	1	2	12	80
58	Ice/Sea Segment 20a	3	2	3	2	4	2	3	1	3	2	4	7	8	17	23	51	38	27	3	3	2	2	5	22	46	2	2	1	2	10	28
59	Ice/Sea Segment 21	2	2	2	n	2	n	1	1	1	1	2	3	4	9	11	21	18	22	3	1	1	1	3	10	20	n	n	1	1	4	12
60	Ice/Sea Segment 22	1	1	2	1	2	1	2	2	2	2	2	5	5	9	12	15	14	11	1	2	2	1	3	11	14	1	1	2	2	8	11
61	Ice/Sea Segment 22	1	1	2	1	3	2	3	3	4	4	5	7	7	12	12	12	11	5	1	3	4	4	5	10	11	1	2	4	3	8	13
62	Ice/Sea Segment 24a	1	1	1	1	1	1	2	1	3	3	4	5	6	8	7	7	9	6	1	1	2	3	4	7	8	1	2	3	3	6	7
63	Ledyard Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
64	Peard Bay	3	2	1	1	1	n	1	n	n	n	1	n	n	1	1	2	1	n	2	1	1	n	n	1	1	1	n	n	n	n	1
65	ERA 1	5	12	9	28	10	13	8	7	7	5	5	3	5	5	5	3	3	n	15	14	10	6	5	4	2	30	9	5	3	2	3
66	ERA 2	1	2	5	8	8	25	16	27	16	19	13	11	10	7	7	6	4	1	2	10	17	19	13	7	5	4	28	20	14	7	7
67	Ice/Sea Segment 16b	2	3	4	8	8	16	29	30	26	27	19	16	13	7	9	5	5	1	2	9	34	26	18	8	5	7	30	28	22	13	6
68	Harrison Bay	n	n	1	n	1	4	3	12	4	6	3	5	3	3	3	2	1	1	n	1	4	4	4	3	2	n	24	7	5	5	2
69	Harrison Bay/Colville Delta	n	n	2	2	3	5	8	18	9	15	9	6	6	3	2	1	n	n	n	4	9	13	8	3	1	1	9	23	11	4	1
70	ERA 3	1	1	2	3	4	7	13	20	21	36	18	20	14	8	10	4	4	1	1	5	20	31	21	9	3	3	11	45	26	16	6
71	Simpson Lagoon	1	1	2	1	4	4	7	10	9	17	10	12	8	4	4	1	1	n	1	3	7	13	13	4	1	1	8	23	26	7	2
72	Gwyder Bay	n	n	n	n	n	n	1	1	1	1	1	3	1	n	n	n	n	n	n	n	1	1	1	n	n	n	n	1	8	2	n
73	Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n
74	Cross Island ERA	n	n	n	1	n	1	1	1	3	5	4	26	7	4	8	2	2	n	n	n	2	5	8	6	1	n	1	2	7	31	6
75	Water over Boulder Patch 1	n	n	n	n	n	n	n	n	1	1	1	8	1	1	3	1	1	n	n	n	n	1	2	1	1	n	n	n	2	16	3
76	Water over Boulder Patch 2	n	n	n	n	n	n	n	n	1	1	1	8	1	1	3	1	1	n	n	n	n	n	2	1	n	n	n	n	2	27	3
77	Foggy Island Bay	n	n	n	n	n	n	n	n	n	1	1	4	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	20	1
78	Mikkelsen Bay	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2
79	ERA 4	n	n	n	1	n	1	1	1	1	2	2	14	3	2	8	1	2	n	n	n	1	2	3	4	1	n	1	1	3	19	5
80	Ice/Sea Segment 18b	n	n	n	1	1	1	2	1	3	5	5	28	17	9	17	2	3	n	n	n	2	4	20	18	1	n	1	2	6	28	9
81	Simpson Cove	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n
82	ERA 5	n	n	n	n	n	n	n	n	n	n	n	1	1	2	6	5	28	4	n	n	n	n	1	4	9	n	n	n	n	2	9
83	Kaktovik ERA	n	n	n	n	n	n	n	n	1	1	2	4	3	6	10	15	31	30	n	n	n	1	3	8	36	n	1	1	1	5	13
84	Ice/Sea Segment 20b	n	n	n	n	1	n	n	n	1	1	1	4	3	6	10	20	22	18	n	n	n	1	2	8	23	n	n	n	1	8	14
85	ERA 6	1	n	n	n	n	n	n	n	n	n	1	1	2	5	5	10	9	30	1	n	n	1	1	5	11	n	n	n	n	1	5
86	ERA 7	n	n	1	n	1	n	n	n	n	n	1	2	2	4	5	7	6	11	n	1	n	n	1	4	8	n	n	n	n	1	4
87	ERA 8	1	1	1	1	2	1	1	n	n	n	1	2	3	8	8	9	10	9	1	1	1	n	2	6	9	1	1	n	1	3	10
88	Ice Sea Segment 24b	n	n	1	1	1	1	1	1	1	1	2	3	5	7	6	7	8	6	1	1	1	1	3	6	8	1	1	1	1	5	6

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-43 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 3 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
26	Dease Inlet	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Cape Simpson	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n
30	Drew Point, McLeod Point,	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
32	Cape Halkett	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
40	Foggy Island Bay, Kadleroshilik River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-44 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 10 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
25	Barrow, Elson Lagoon	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
26	Dease Inlet	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
27	Kurgorak Bay	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
28	Cape Simpson	n	1	n	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	4	n	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n
30	Drew Point, McLeod Point,	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	n	1	1	2	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n
32	Cape Halkett,	n	n	n	n	n	1	1	2	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	3	1	n	n	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n
34	Fish Creek	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	1	n	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n
40	Foggy Island Bay, Kadleroshilik River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	2	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-45 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 30 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
24	Walakpa Bay, Walakpa River	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
25	Barrow, Elson Lagoon	3	4	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	3	1	n	n	n	n	n	1	n	n	n	n	n
26	Dease Inlet	1	3	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
27	Kurgorak Bay	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
28	Cape Simpson	n	2	1	3	1	1	1	1	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	5	1	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n
30	Drew Point, McLeod Point	n	n	n	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	1	1	1	3	1	1	1	1	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	1	1	1	n	n	n
32	Cape Halkett	n	n	n	n	n	2	1	3	1	1	n	n	n	n	n	n	n	n	n	1	2	1	1	n	n	n	4	1	1	n	n
33	Atigaru Point, Kogru River	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n
34	Fish Creek	n	n	n	n	n	n	1	2	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	2	n	n	n
36	Oliktok Point	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	1	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n
40	Foggy Island Bay, Kadleroshilik River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	n
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	n	n	n	n	n	n	3	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-46 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 60 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
23	Nulavik	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	1	n	n	n	n	n
25	Barrow, Elson Lagoon	6	7	3	3	2	2	1	1	1	n	1	n	n	n	n	n	n	n	5	3	1	n	1	n	n	1	n	n	n	n	n
26	Dease Inlet	2	5	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	4	1	n	n	n	n	n	1	n	n	n	n	n
27	Kurgorak Bay	1	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	1	n	n	n	n	n
28	Cape Simpson	n	2	1	4	1	2	1	1	1	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	8	1	n	n	n	n
29	Ikpikpuk River, Smith Bay	n	n	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	5	n	n	n	n	n
30	Drew Point, McLeod Point,	n	n	1	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	2	1	n	n	n	n
31	Lonely, Pitt Point, Pogik Bay	n	n	1	2	1	4	2	2	1	1	1	1	1	n	n	n	n	n	n	1	2	1	1	n	n	1	2	1	1	n	1
32	Cape Halkett	n	n	1	1	1	3	1	4	1	2	1	1	1	n	1	n	n	n	n	1	2	2	1	1	n	n	6	3	2	1	n
33	Atigaru Point, Kogru River	n	n	n	n	n	1	n	2	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	4	1	1	n	n
34	Fish Creek	n	n	n	n	n	n	1	2	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	1	n	n	n	n
35	Colville River	n	n	n	n	n	n	n	2	n	1	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	3	1	n	n
36	Oliktok Point	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	1	7	n	n	n
37	Milne Point, Simpson Lagoon	n	n	n	n	n	n	n	n	n	1	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	5	1	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	5
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	2	n	n	n	n	n	n	n	n	1	n	n	n	n	1
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	n	n	n	n	n	n	n	n	1	n	n	n	n	1
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	3	n	n	n	n	1	n	3	n	n	n	n	n	n
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	3	n	n	n	n	n	n	1	n	n	n	n	n	n
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	n	n	n	n	n	n	n	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	3	n	n	n	n	n	n	1	n	n	n	n	n	n
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-47 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 180 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
19	Wainwright, Wainwright Inlet	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n
22	Skull Cliff	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	3	3	1	2	1	1	1	n	1	n	n	n	1	1	n	n	n	n	3	1	1	n	1	n	1	1	n	n	n	n	1
25	Barrow, Elson Lagoon	12	14	8	7	6	4	4	2	2	2	2	2	2	2	2	2	1	n	11	8	3	2	2	2	1	5	2	1	1	1	1
26	Dease Inlet	4	9	4	4	3	2	1	1	1	1	1	n	n	1	n	n	n	n	7	3	1	1	1	1	n	2	1	1	n	n	n
27	Kurgorak Bay	2	4	2	3	1	1	1	1	1	n	n	n	n	n	n	n	n	n	2	2	1	n	n	n	n	2	1	n	n	n	n
28	Cape Simpson	1	5	3	11	3	4	2	2	1	1	1	n	1	1	n	n	n	n	3	4	2	1	1	n	n	21	3	1	n	n	n
29	Ikpikpuk River, Smith Bay	n	1	1	3	2	2	1	1	1	1	n	n	n	n	n	n	n	n	1	2	n	1	1	n	1	8	1	n	n	n	n
30	Drew Point, McLeod Point,	1	1	1	4	2	2	2	1	1	1	1	1	1	1	1	n	n	n	1	1	2	1	1	1	n	4	1	1	1	n	1
31	Lonely, Pitt Point, Pogik Bay	1	2	3	5	5	11	5	6	4	6	4	3	3	3	3	2	1	n	2	5	4	5	4	2	2	2	5	5	4	1	3
32	Cape Halkett	n	n	1	1	1	5	4	10	4	6	3	3	2	1	2	1	1	n	n	2	5	5	3	2	1	n	12	6	4	5	1
33	Atigaru Point, Kogru River	n	n	n	n	n	1	1	4	1	1	1	1	1	n	1	n	n	n	n	n	1	1	1	1	n	n	6	1	1	1	n
34	Fish Creek	n	n	n	n	1	1	1	4	1	1	1	1	1	n	n	n	n	n	n	1	1	2	1	n	n	n	2	1	1	n	n
35	Colville River	n	n	n	n	1	1	2	5	2	4	2	2	2	1	1	n	n	n	n	1	2	3	2	1	n	n	1	7	3	1	n
36	Oliktok Point	n	n	n	n	1	1	2	3	2	3	2	1	1	1	1	n	n	n	n	1	3	3	2	1	n	n	3	10	2	1	n
37	Milne Point, Simpson Lagoon	n	n	n	n	1	1	1	2	2	5	2	4	2	1	1	n	n	n	n	1	1	3	3	n	n	n	2	3	13	1	n
38	Kuparuk River	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	1	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	n	n	1	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	11	n
40	Foggy Island Bay, Kadleroshilik River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	1	5	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	3
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	1	n	n	n	n	n	n	1	1	n	n	n	n	1	7
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	1	n	n	n	n	n	1	2	n	n	n	n	n	1
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	4	1	n	n	n	n	n	1	3	n	n	n	n	1	2
47	Kaktovik	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	3	5	6	n	n	n	1	1	2	6	n	n	n	1	1	2
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	6	n	n	n	n	n	n	2	n	n	n	n	n	1
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	8	n	n	n	n	n	n	1	n	n	n	n	n	n
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	7	n	n	n	n	n	1	1	n	n	n	n	n	1
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	8	n	n	n	n	n	1	2	n	n	n	n	n	1
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	2	2	5	n	n	n	n	n	2	2	n	n	n	n	n	1
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	1	n	n	n	n	n	n	n
55	Herschel Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	2	n	n	n	n	n	1	1	n	n	n	n	n	1
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	1	1	n	n	n	n	n	n	1	1	n	n	n	n	2	n
59	Shingle Point	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
63	Outer Shallow Bay, Olivier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	1	n	n	n	n	n	1
64	Middle Channel, Gary Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	1	n	n	n	n	1	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-48 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Land Segment Within 360 Days, Beaufort Sea Multiple-Sale

Land Segment	Name	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
19	Wainwright, Wainwright Inlet	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
21	Peard Bay, Point Franklin	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
22	Skull Cliff	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	Nulavik	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
24	Walakpa Bay, Walakpa River	3	4	2	2	1	1	1	n	1	1	1	1	1	1	1	1	1	n	3	1	1	1	1	1	1	2	n	n	1	n	1
25	Barrow, Elson Lagoon	14	17	10	9	8	6	5	3	4	2	4	3	3	3	3	2	1	n	13	10	5	3	3	3	1	7	4	2	2	2	2
26	Dease Inlet	5	11	4	5	3	3	2	1	1	1	1	1	1	1	1	1	1	n	8	3	2	1	1	2	n	4	2	1	1	n	n
27	Kurgorak Bay	2	5	2	3	2	2	1	1	1	n	1	n	1	1	n	1	n	n	3	2	1	1	n	1	n	3	1	1	n	n	n
28	Cape Simpson	2	6	4	13	5	5	3	2	2	2	2	1	2	1	1	n	1	n	4	6	3	3	1	1	n	23	4	1	1	n	1
29	Ikpikpuk River, Smith Bay	1	1	2	3	2	3	2	1	1	1	1	1	1	1	1	n	1	n	1	2	1	1	1	1	1	10	2	1	1	n	1
30	Drew Point, McLeod Point,	1	2	3	6	3	4	3	2	2	2	2	2	2	2	2	1	1	n	2	3	3	2	2	2	n	5	2	2	1	1	1
31	Lonely, Pitt Point, Pogik Bay	2	2	5	6	6	14	8	9	7	8	6	5	6	5	4	4	3	n	3	7	6	7	6	4	3	2	8	8	6	3	5
32	Cape Halkett	n	n	2	1	2	7	6	13	6	9	5	6	5	3	4	3	2	1	1	3	8	8	6	5	3	n	15	10	7	6	2
33	Atigaru Point, Kogru River	n	n	1	n	1	2	2	5	2	2	1	2	1	1	2	n	1	n	n	n	2	2	1	1	n	n	8	1	1	1	1
34	Fish Creek	n	n	1	1	1	1	2	6	2	2	1	1	1	1	1	1	n	n	n	1	2	2	2	1	n	n	3	2	1	1	n
35	Colville River	n	n	1	n	1	1	2	6	3	6	3	3	3	1	1	n	n	n	n	1	2	4	3	1	n	n	3	10	5	2	n
36	Oliktok Point	n	n	1	1	1	2	3	4	3	5	3	2	2	1	1	n	n	n	n	2	3	4	3	1	n	1	4	11	3	1	n
37	Milne Point, Simpson Lagoon	n	n	n	n	1	1	2	3	3	6	3	6	3	2	2	n	n	n	n	1	2	4	5	1	n	n	2	4	16	3	1
38	Kuparuk River	n	n	n	n	n	n	n	n	1	1	1	2	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	n	6	2	n
39	Point Brower, Prudhoe Bay	n	n	n	n	n	n	n	1	1	1	1	4	n	n	n	n	n	n	n	n	n	1	1	n	n	n	n	1	1	13	1
40	Foggy Island Bay, Kadleroshilik River,	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	1	7	n
41	Bullen Point, Point Gordon, Reliance Pt.	n	n	n	n	n	n	n	n	n	n	n	3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	4
42	Point Hopson, & Sweeney, Staines River	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	1	n	n	n	n	n	n	1	1	n	n	n	n	1	8
43	Brownlow Point, Canning River	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	2	6	1	n	n	n	n	n	1	3	n	n	n	n	n	2
44	Collinson Point, Konganevik Point,	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	1	n
45	Anderson Point, Sadlerochit River	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	n	n	1	n	n	n	n	n	n
46	Arey Island, Barter Island,	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	5	1	n	n	n	n	n	1	3	n	n	n	n	1	2
47	Kaktovik	n	n	n	n	n	n	n	n	1	1	1	2	1	2	3	5	8	7	n	n	n	1	2	3	9	n	n	n	1	2	4
48	Griffin Point, Oruktalik Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	2	8	n	n	n	n	n	1	3	n	n	n	n	n	2
49	Angun Point, Beaufort Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	6	n	n	n	n	n	n	1	n	n	n	n	n	1
50	Icy Reef, Kongakut River, Siku Lagoon	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	11	n	n	n	n	n	1	3	n	n	n	n	n	1
51	Demarcation Bay, Demarcation Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	3	3	9	n	n	n	n	n	2	3	n	n	n	n	n	2
52	Clarence Lagoon, Backhouse River	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	4	5	11	1	n	n	n	1	2	6	n	n	n	n	n	2
53	Komakuk Beach, Fish Creek	n	n	n	n	n	n	n	n	n	n	n	1	1	2	2	4	3	6	n	n	n	n	1	3	4	n	n	n	n	1	2
54	Nunaluk Spit	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	2	n	n	n	n	n	1	1	n	n	n	n	n	1
55	Herschel Island	n	n	n	n	n	n	1	1	1	1	1	1	1	2	2	2	1	2	n	1	1	1	1	2	1	n	1	1	n	1	2
56	Ptarmigan Bay	n	n	n	n	n	n	n	n	1	n	1	1	1	1	1	1	1	1	n	n	n	n	1	1	1	n	n	n	n	1	1
57	Roland & Phillips Bay, Kay Point	n	n	n	n	n	n	n	n	n	n	n	2	1	1	1	1	1	1	n	n	n	n	1	1	1	n	n	n	n	5	1
58	Sabine Point	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n
59	Shingle Point	1	n	1	n	1	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n
60	Trent and Shoalwater Bays	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	1	n	n	n	n	n	1	1	n	n	n	n	n	1
62	Shallow Bay, West Channel	n	n	1	n	1	n	n	n	n	n	n	n	n	1	1	1	2	1	n	n	n	n	n	n	n	n	n	n	n	n	1
63	Outer Shallow Bay, Olivier Islands	n	n	n	n	n	n	n	n	n	n	n	n	n	2	2	2	2	2	n	n	n	n	n	1	1	n	n	n	n	n	2
64	Middle Channel, Gary Island	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	1	3	1	n	n	n	n	n	1	3	n	n	n	n	1	2
65	Kendall Island	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	2	2	3	n	n	n	n	n	1	1	n	n	n	n	1	1
66	North Point, Pullen Island	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	1	2	n	n	n	n	1	2

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent.

Table A2-49 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 3 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-50 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 10 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-51 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 30 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
21	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
22	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
23	2	1	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	1	n	n	n	n
24	2	1	1	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	1	1	1	n	n	n	n	1	n	n	n	n	n
25	1	1	2	1	2	2	2	1	1	n	1	n	n	n	n	n	n	n	1	2	1	n	n	n	n	1	1	n	n	n	n
26	1	1	1	1	2	1	2	1	1	1	1	n	n	n	n	n	n	n	1	1	2	1	1	n	n	n	1	n	n	n	n
27	1	n	1	1	1	1	1	n	1	n	1	n	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	n

Notes: ** = Greater than99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-52 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 60 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
18	2	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n
19	3	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
20	3	2	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1	n	n	n	n	n	1	n	n	n	n	n
21	1	1	1	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	1	n	n	n	n	n
22	2	1	2	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	1	1	1	n	1	n	n	n	1	n	1	n	n
23	3	2	3	2	2	2	1	1	1	n	1	1	1	n	n	n	n	n	3	2	1	n	1	n	n	2	1	n	n	n	n
24	4	2	3	2	2	1	1	1	1	n	1	n	1	n	n	n	n	n	3	2	1	n	n	n	n	2	1	n	n	n	n
25	2	2	4	2	4	3	3	2	2	1	2	1	2	2	1	1	1	n	2	4	2	1	1	2	1	2	2	1	1	1	1
26	2	2	3	2	4	2	4	2	4	3	3	2	3	3	1	2	1	n	2	3	4	3	2	2	1	1	2	1	2	1	1
27	1	1	3	2	4	2	3	2	3	2	3	1	2	2	1	1	n	n	2	2	3	2	1	2	n	1	2	1	1	1	1
28	1	1	1	1	1	1	1	n	1	1	2	1	1	1	1	1	n	n	1	1	1	1	1	n	1	n	1	n	1	n	1
29	n	n	n	n	1	n	1	n	n	n	1	n	1	1	1	1	n	n	n	n	n	n	1	1	n	n	n	n	n	n	n

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-53 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 180 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
18	4	3	3	2	2	2	1	n	n	n	n	n	n	n	n	n	n	n	3	2	1	n	n	n	n	1	1	n	n	n	n
19	6	4	4	2	2	2	1	1	1	1	1	n	1	1	n	n	n	n	5	2	1	1	1	n	n	2	1	n	n	n	n
20	6	4	4	3	2	1	1	1	n	n	n	n	n	n	n	n	n	n	5	3	1	n	n	n	n	2	1	1	n	n	n
21	2	2	2	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
22	2	1	2	1	2	1	1	1	1	1	1	1	1	n	n	n	n	n	2	1	1	n	1	n	n	1	1	n	1	1	n
23	4	2	3	2	3	2	2	1	1	1	2	1	1	1	1	n	n	n	3	2	2	1	2	1	n	2	2	1	1	1	n
24	4	3	3	2	3	2	2	2	2	1	1	1	1	1	1	n	n	n	4	2	3	1	1	1	n	2	2	1	1	1	n
25	3	2	4	3	5	4	5	3	4	3	4	2	3	3	2	1	1	n	3	4	4	3	3	4	1	2	3	2	3	2	1
26	3	2	4	3	5	4	6	4	6	4	6	4	5	5	4	4	3	1	3	5	6	5	5	4	4	2	4	3	3	3	4
27	2	2	4	4	7	5	8	6	8	6	8	5	8	7	6	4	2	1	3	5	8	7	6	6	1	2	7	5	5	4	5
28	3	2	3	3	4	4	4	3	4	3	5	3	4	4	3	4	3	2	3	4	4	5	4	3	4	2	3	1	2	1	3
29	2	1	1	1	1	1	2	1	2	2	3	3	3	3	3	4	2	1	2	1	2	2	4	3	3	1	1	1	2	1	2
30	n	n	n	n	n	n	1	n	1	1	1	1	1	n	1	1	1	n	n	n	1	1	1	1	n	n	n	1	1	1	1
31	n	n	n	n	1	1	1	1	1	1	2	1	2	n	n	n	n	n	n	1	1	1	1	n	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	1	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	1	1	n	n	n	n	n	1	1	1	n	n	n	1	n	n
36	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	2	1	1	n	n	n	1	n	2	2	n	n	n	n	1	2
37	n	n	n	n	n	n	n	n	n	n	1	1	1	2	1	3	2	1	n	n	n	n	1	1	2	n	n	n	1	n	2
38	n	n	n	n	n	n	n	n	n	n	n	n	n	1	1	2	1	1	n	n	n	n	n	1	2	n	n	n	n	n	1

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-54 Winter Conditional Probabilities (Expressed as Percent Chance) that an Oil Spill Starting at a Particular Location Will Contact a Certain Boundary Segment Within 360 Days, Beaufort Sea Multiple-Sale

Boundary Segment	LA 1	LA 2	LA 3	LA 4	LA 5	LA 6	LA 7	LA 8	LA 9	LA 10	LA 11	LA 12	LA 13	LA 14	LA 15	LA 16	LA 17	LA 18	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13
17	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n
18	4	3	3	2	2	2	1	1	1	n	n	n	n	n	n	n	n	n	3	3	1	n	n	n	n	3	1	n	n	n	n
19	6	4	4	3	3	2	1	2	1	1	1	1	1	1	n	n	n	n	5	3	1	1	1	n	n	2	2	1	1	n	n
20	6	4	4	3	2	1	1	1	1	1	n	n	n	n	n	n	n	n	5	3	1	n	n	n	n	2	1	1	n	n	n
21	3	2	2	1	1	1	1	n	1	n	n	n	n	n	n	n	n	n	2	1	1	1	n	n	n	1	n	n	n	n	n
22	3	2	3	2	2	1	1	1	1	1	1	1	1	n	n	n	n	n	2	2	2	n	1	n	n	1	1	n	1	1	n
23	4	2	3	2	3	2	2	1	1	1	2	1	1	1	1	n	n	n	3	2	2	1	2	1	n	2	2	1	1	1	n
24	4	3	3	2	3	2	2	2	2	1	1	1	1	1	1	n	n	n	4	2	3	1	1	1	n	2	2	1	1	1	n
25	4	3	5	3	5	4	5	3	4	3	4	2	4	3	2	1	1	n	3	5	4	3	3	4	1	2	3	2	3	2	1
26	3	2	5	3	5	5	7	4	6	4	6	4	5	5	4	4	3	1	3	5	7	5	5	4	4	2	4	3	3	3	5
27	2	3	5	5	8	7	9	8	9	8	10	7	9	8	7	4	3	1	3	6	9	8	8	7	2	3	9	7	8	6	5
28	3	3	4	3	5	5	5	3	5	4	5	4	5	5	4	4	4	2	3	4	5	5	5	3	5	2	3	2	4	2	3
29	2	1	1	1	2	1	2	2	2	2	3	3	3	4	3	4	3	1	2	1	2	3	4	4	3	1	1	1	3	2	2
30	n	n	n	n	n	n	1	n	2	1	1	1	1	n	1	1	1	n	n	n	1	2	1	1	n	n	n	1	1	1	1
31	n	n	n	n	1	1	1	1	1	1	2	1	2	1	n	n	n	n	n	1	1	1	1	1	n	n	n	n	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n
34	n	n	n	n	n	n	n	n	n	n	1	n	n	1	1	1	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n
35	n	n	n	n	n	n	n	n	n	n	1	1	1	1	1	1	1	n	n	n	n	n	1	1	2	n	n	n	1	1	n
36	n	n	n	n	n	n	n	n	n	n	1	1	2	2	2	2	2	1	n	n	n	1	1	2	2	n	n	n	1	1	2
37	n	n	n	n	n	n	n	n	n	n	1	1	2	3	2	3	3	1	n	n	n	n	1	2	3	n	n	n	1	1	3
38	n	n	1	n	1	n	1	n	n	n	1	1	1	2	2	3	2	1	n	1	1	n	n	2	3	n	1	n	n	n	2

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-55 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
1	Kasegaluk Lagoon	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
2	Point Barrow, Plover Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
3	Thetis and Jones Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
4	Cottle & Return Islands, West Dock	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
5	Midway Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
6	Cross and No Name Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
7	Endicott Causeway	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
8	McClure Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
9	Stockton Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
10	Tigvariak Island	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
11	Maguire Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
12	Flaxman Island	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
13	Barrier Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
14	Anderson Point Barrier Islands	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
15	Arey and Barter Islands, Bernard Spit	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
16	Jago and Tapkaurak Spits	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
17	Angun and Beaufort Lagoons	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
18	Icy Reef	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
19	Chukchi Spring Lead 1	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
20	Chukchi Spring Lead 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
21	Chukchi Spring Lead 3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
22	Chukchi Spring Lead 4	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
23	Chukchi Spring Lead 5	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
24	Beaufort Spring Lead 6	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
25	Beaufort Spring Lead 7	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
26	Beaufort Spring Lead 8	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
27	Beaufort Spring Lead 9	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
28	Beaufort Spring Lead 10	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
29	Ice/Sea Segment 1	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
30	Ice/Sea Segment 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
31	Ice/Sea Segment 3	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
32	Ice/Sea Segment 4	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
33	Ice/Sea Segment 5	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
34	Ice/Sea Segment 6	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
35	Ice/Sea Segment 7	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
36	Ice/Sea Segment 8	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
37	Ice/Sea Segment 9	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
38	Point Hope Subsistence Are	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
39	Point Lay Subsistence Area	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
40	Wainwright Subsistence Area	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
41	Barrow Subsistence Area 1	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
42	Barrow Subsistence Area 2	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
43	Nuiqsut Subsistence Area	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0
44	Kaktovik Subsistence Area	n	0.0	n	0.0	n	0.0	n	0.0	n	0.0

Table A2-55 (continued) Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	1	0	1	0	1	0	1	0	1	0
54	Ice/Sea Segment 16a	n	0	n	0	n	0	n	0	n	0
55	Ice/Sea Segment 17	1	0	1	0	1	0	1	0	1	0
56	Ice/Sea Segment 18a	1	0	1	0	1	0	1	0	1	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	n	0	n	0	n	0	n	0	n	0
59	Ice/Sea Segment 21	n	0	n	0	n	0	n	0	n	0
60	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
61	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	n	0	n	0	n	0	n	0	n	0
66	ERA 2	n	0	n	0	n	0	n	0	n	0
67	Ice/Sea Segment 16b	n	0	n	0	n	0	n	0	n	0
68	Harrison Bay	n	0	n	0	n	0	n	0	n	0
69	Harrison Bay/Colville Delta	n	0	n	0	n	0	n	0	n	0
70	ERA 3	n	0	n	0	n	0	n	0	n	0
71	Simpson Lagoon	n	0	n	0	n	0	n	0	n	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	n	0	n	0	n	0	n	0	n	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	n	0	n	0	n	0	n	0	n	0
80	Ice/Sea Segment 18b	n	0	n	0	n	0	n	0	n	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	n	0	n	0	n	0	n	0	n	0
83	Kaktovik ERA	n	0	n	0	n	0	n	0	n	0
84	Ice/Sea Segment 20b	n	0	n	0	n	0	n	0	n	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-56 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	1	0	1	0	1	0	1	0	1	0
1	Kasegaluk Lagoon	n	0	n	0	n	0	n	0	n	0
2	Point Barrow, Plover Islands	n	0	n	0	n	0	n	0	n	0
3	Thetis and Jones Islands	n	0	n	0	n	0	n	0	n	0
4	Cottle & Return Islands, West Dock	n	0	n	0	n	0	n	0	n	0
5	Midway Islands	n	0	n	0	n	0	n	0	n	0
6	Cross and No Name Islands	n	0	n	0	n	0	n	0	n	0
7	Endicott Causeway	n	0	n	0	n	0	n	0	n	0
8	McClure Islands	n	0	n	0	n	0	n	0	n	0
9	Stockton Islands	n	0	n	0	n	0	n	0	n	0
10	Tigvariak Island	n	0	n	0	n	0	n	0	n	0
11	Maguire Islands	n	0	n	0	n	0	n	0	n	0
12	Flaxman Island	n	0	n	0	n	0	n	0	n	0
13	Barrier Islands	n	0	n	0	n	0	n	0	n	0
14	Anderson Point Barrier Islands	n	0	n	0	n	0	n	0	n	0
15	Arey and Barter Islands, Bernard Spit	n	0	n	0	n	0	n	0	n	0
16	Jago and Tapkaurak Spits	n	0	n	0	n	0	n	0	n	0
17	Angun and Beaufort Lagoons	n	0	n	0	n	0	n	0	n	0
18	Icy Reef	n	0	n	0	n	0	n	0	n	0
19	Chukchi Spring Lead 1	n	0	n	0	n	0	n	0	n	0
20	Chukchi Spring Lead 2	n	0	n	0	n	0	n	0	n	0
21	Chukchi Spring Lead 3	n	0	n	0	n	0	n	0	n	0
22	Chukchi Spring Lead 4	n	0	n	0	n	0	n	0	n	0
23	Chukchi Spring Lead 5	n	0	n	0	n	0	n	0	n	0
24	Beaufort Spring Lead 6	n	0	n	0	n	0	n	0	n	0
25	Beaufort Spring Lead 7	n	0	n	0	n	0	n	0	n	0
26	Beaufort Spring Lead 8	n	0	n	0	n	0	n	0	n	0
27	Beaufort Spring Lead 9	n	0	n	0	n	0	n	0	n	0
28	Beaufort Spring Lead 10	n	0	n	0	n	0	n	0	n	0
29	Ice/Sea Segment 1	n	0	n	0	n	0	n	0	n	0
30	Ice/Sea Segment 2	n	0	n	0	n	0	n	0	n	0
31	Ice/Sea Segment 3	n	0	n	0	n	0	n	0	n	0
32	Ice/Sea Segment 4	n	0	n	0	n	0	n	0	n	0
33	Ice/Sea Segment 5	n	0	n	0	n	0	n	0	n	0
34	Ice/Sea Segment 6	n	0	n	0	n	0	n	0	n	0
35	Ice/Sea Segment 7	n	0	n	0	n	0	n	0	n	0
36	Ice/Sea Segment 8	n	0	n	0	n	0	n	0	n	0
37	Ice/Sea Segment 9	n	0	n	0	n	0	n	0	n	0
38	Point Hope Subsistence Area	n	0	n	0	n	0	n	0	n	0
39	Point Lay Subsistence Area	n	0	n	0	n	0	n	0	n	0
40	Wainwright Subsistence Area	n	0	n	0	n	0	n	0	n	0
41	Barrow Subsistence Area 1	n	0	n	0	n	0	n	0	n	0
42	Barrow Subsistence Area 2	n	0	n	0	n	0	n	0	n	0
43	Nuiqsut Subsistence Area	n	0	n	0	n	0	n	0	n	0
44	Kaktovik Subsistence Area	n	0	n	0	n	0	n	0	n	0

Table A2-56 (continued). Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	1	0	1	0	1	0	1	0	1	0
54	Ice/Sea Segment 16a	1	0	1	0	1	0	1	0	1	0
55	Ice/Sea Segment 17	1	0	1	0	1	0	1	0	1	0
56	Ice/Sea Segment 18a	1	0	1	0	1	0	1	0	1	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	1	0	1	0	1	0	1	0	1	0
59	Ice/Sea Segment 21	n	0	n	0	n	0	n	0	n	0
60	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
61	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	n	0	n	0	n	0	n	0	n	0
66	ERA 2	n	0	n	0	n	0	n	0	n	0
67	Ice/Sea Segment 16b	1	0	1	0	1	0	1	0	1	0
68	Harrison Bay	n	0	n	0	n	0	n	0	n	0
69	Harrison Bay/Colville Delta	n	0	n	0	n	0	n	0	n	0
70	ERA 3	1	0	1	0	1	0	1	0	1	0
71	Simpson Lagoon	n	0	n	0	n	0	n	0	n	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	n	0	n	0	n	0	n	0	n	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	n	0	n	0	n	0	n	0	n	0
80	Ice/Sea Segment 18b	1	0	1	0	n	0	1	0	1	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	n	0	n	0	n	0	n	0	n	0
83	Kaktovik ERA	n	0	n	0	n	0	n	0	n	0
84	Ice/Sea Segment 20b	n	0	n	0	n	0	n	0	n	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-57 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	2	0	2	0	2	0	2	0	2	0
1	Kasegaluk Lagoon	n	0	n	0	n	0	n	0	n	0
2	Point Barrow, Plover Islands	n	0	n	0	n	0	n	0	n	0
3	Thetis and Jones Islands	n	0	n	0	n	0	n	0	n	0
4	Cottle & Return Islands, West Dock	n	0	n	0	n	0	n	0	n	0
5	Midway Islands	n	0	n	0	n	0	n	0	n	0
6	Cross and No Name Islands	n	0	n	0	n	0	n	0	n	0
7	Endicott Causeway	n	0	n	0	n	0	n	0	n	0
8	McClure Islands	n	0	n	0	n	0	n	0	n	0
9	Stockton Islands	n	0	n	0	n	0	n	0	n	0
10	Tigvariak Island	n	0	n	0	n	0	n	0	n	0
11	Maguire Islands	n	0	n	0	n	0	n	0	n	0
12	Flaxman Island	n	0	n	0	n	0	n	0	n	0
13	Barrier Islands	n	0	n	0	n	0	n	0	n	0
14	Anderson Point Barrier Islands	n	0	n	0	n	0	n	0	n	0
15	Arey and Barter Islands, Bernard Spit	n	0	n	0	n	0	n	0	n	0
16	Jago and Tapkaurak Spits	n	0	n	0	n	0	n	0	n	0
17	Angun and Beaufort Lagoons	n	0	n	0	n	0	n	0	n	0
18	Icy Reef	n	0	n	0	n	0	n	0	n	0
19	Chukchi Spring Lead 1	n	0	n	0	n	0	n	0	n	0
20	Chukchi Spring Lead 2	n	0	n	0	n	0	n	0	n	0
21	Chukchi Spring Lead 3	n	0	n	0	n	0	n	0	n	0
22	Chukchi Spring Lead 4	n	0	n	0	n	0	n	0	n	0
23	Chukchi Spring Lead 5	n	0	n	0	n	0	n	0	n	0
24	Beaufort Spring Lead 6	n	0	n	0	n	0	n	0	n	0
25	Beaufort Spring Lead 7	n	0	n	0	n	0	n	0	n	0
26	Beaufort Spring Lead 8	n	0	n	0	n	0	n	0	n	0
27	Beaufort Spring Lead 9	n	0	n	0	n	0	n	0	n	0
28	Beaufort Spring Lead 10	n	0	n	0	n	0	n	0	n	0
29	Ice/Sea Segment 1	n	0	n	0	n	0	n	0	n	0
30	Ice/Sea Segment 2	n	0	n	0	n	0	n	0	n	0
31	Ice/Sea Segment 3	n	0	n	0	n	0	n	0	n	0
32	Ice/Sea Segment 4	n	0	n	0	n	0	n	0	n	0
33	Ice/Sea Segment 5	n	0	n	0	n	0	n	0	n	0
34	Ice/Sea Segment 6	n	0	n	0	n	0	n	0	n	0
35	Ice/Sea Segment 7	n	0	n	0	n	0	n	0	n	0
36	Ice/Sea Segment 8	n	0	n	0	n	0	n	0	n	0
37	Ice/Sea Segment 9	n	0	n	0	n	0	n	0	n	0
38	Point Hope Subsistence Are	n	0	n	0	n	0	n	0	n	0
39	Point Lay Subsistence Area	n	0	n	0	n	0	n	0	n	0
40	Wainwright Subsistence Area	n	0	n	0	n	0	n	0	n	0
41	Barrow Subsistence Area 1	n	0	n	0	n	0	n	0	n	0
42	Barrow Subsistence Area 2	n	0	n	0	n	0	n	0	n	0
43	Nuiqsut Subsistence Area	n	0	n	0	n	0	n	0	n	0
44	Kaktovik Subsistence Area	n	0	n	0	n	0	n	0	n	0

Table A2-57 (continued). Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	1	0	1	0	1	0	1	0	1	0
54	Ice/Sea Segment 16a	2	0	2	0	1	0	2	0	2	0
55	Ice/Sea Segment 17	2	0	2	0	1	0	2	0	2	0
56	Ice/Sea Segment 18a	1	0	1	0	1	0	1	0	1	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	1	0	1	0	1	0	1	0	1	0
59	Ice/Sea Segment 21	n	0	n	0	n	0	n	0	n	0
60	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
61	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	n	0	n	0	n	0	n	0	n	0
66	ERA 2	n	0	n	0	n	0	n	0	n	0
67	Ice/Sea Segment 16b	1	0	1	0	1	0	1	0	1	0
68	Harrison Bay	n	0	n	0	n	0	n	0	n	0
69	Harrison Bay/Colville Delta	n	0	n	0	n	0	n	0	n	0
70	ERA 3	1	0	1	0	1	0	1	0	1	0
71	Simpson Lagoon	n	0	n	0	n	0	n	0	n	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	1	0	1	0	n	0	1	0	1	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	n	0	n	0	n	0	n	0	n	0
80	Ice/Sea Segment 18b	1	0	1	0	1	0	1	0	1	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	n	0	n	0	n	0	n	0	n	0
83	Kaktovik ERA	n	0	n	0	n	0	n	0	n	0
84	Ice/Sea Segment 20b	1	0	1	0	1	0	1	0	1	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-58 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	3	0	3	0	2	0	2	0	2	0
1	Kasegaluk Lagoon	n	0	n	0	n	0	n	0	n	0
2	Point Barrow, Plover Islands	n	0	n	0	n	0	n	0	n	0
3	Thetis and Jones Islands	n	0	n	0	n	0	n	0	n	0
4	Cottle & Return Islands, West Dock	n	0	n	0	n	0	n	0	n	0
5	Midway Islands	n	0	n	0	n	0	n	0	n	0
6	Cross and No Name Islands	n	0	n	0	n	0	n	0	n	0
7	Endicott Causeway	n	0	n	0	n	0	n	0	n	0
8	McClure Islands	n	0	n	0	n	0	n	0	n	0
9	Stockton Islands	n	0	n	0	n	0	n	0	n	0
10	Tigvariak Island	n	0	n	0	n	0	n	0	n	0
11	Maguire Islands	n	0	n	0	n	0	n	0	n	0
12	Flaxman Island	n	0	n	0	n	0	n	0	n	0
13	Barrier Islands	n	0	n	0	n	0	n	0	n	0
14	Anderson Point Barrier Islands	n	0	n	0	n	0	n	0	n	0
15	Arey and Barter Islands, Bernard Spit	n	0	n	0	n	0	n	0	n	0
16	Jago and Tapkaurak Spits	n	0	n	0	n	0	n	0	n	0
17	Angun and Beaufort Lagoons	n	0	n	0	n	0	n	0	n	0
18	Icy Reef	n	0	n	0	n	0	n	0	n	0
19	Chukchi Spring Lead 1	n	0	n	0	n	0	n	0	n	0
20	Chukchi Spring Lead 2	n	0	n	0	n	0	n	0	n	0
21	Chukchi Spring Lead 3	n	0	n	0	n	0	n	0	n	0
22	Chukchi Spring Lead 4	n	0	n	0	n	0	n	0	n	0
23	Chukchi Spring Lead 5	n	0	n	0	n	0	n	0	n	0
24	Beaufort Spring Lead 6	n	0	n	0	n	0	n	0	n	0
25	Beaufort Spring Lead 7	n	0	n	0	n	0	n	0	n	0
26	Beaufort Spring Lead 8	n	0	n	0	n	0	n	0	n	0
27	Beaufort Spring Lead 9	n	0	n	0	n	0	n	0	n	0
28	Beaufort Spring Lead 10	n	0	n	0	n	0	n	0	n	0
29	Ice/Sea Segment 1	n	0	n	0	n	0	n	0	n	0
30	Ice/Sea Segment 2	n	0	n	0	n	0	n	0	n	0
31	Ice/Sea Segment 3	n	0	n	0	n	0	n	0	n	0
32	Ice/Sea Segment 4	n	0	n	0	n	0	n	0	n	0
33	Ice/Sea Segment 5	n	0	n	0	n	0	n	0	n	0
34	Ice/Sea Segment 6	n	0	n	0	n	0	n	0	n	0
35	Ice/Sea Segment 7	n	0	n	0	n	0	n	0	n	0
36	Ice/Sea Segment 8	n	0	n	0	n	0	n	0	n	0
37	Ice/Sea Segment 9	n	0	n	0	n	0	n	0	n	0
38	Point Hope Subsistence Are	n	0	n	0	n	0	n	0	n	0
39	Point Lay Subsistence Area	n	0	n	0	n	0	n	0	n	0
40	Wainwright Subsistence Area	n	0	n	0	n	0	n	0	n	0
41	Barrow Subsistence Area 1	n	0	n	0	n	0	n	0	n	0
42	Barrow Subsistence Area 2	n	0	n	0	n	0	n	0	n	0
43	Nuiqsut Subsistence Area	n	0	n	0	n	0	n	0	n	0
44	Kaktovik Subsistence Area	n	0	n	0	n	0	n	0	n	0

Table A2-58 (continued). Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	1	0	1	0	1	0	1	0	1	0
54	Ice/Sea Segment 16a	2	0	2	0	2	0	2	0	2	0
55	Ice/Sea Segment 17	2	0	2	0	2	0	2	0	2	0
56	Ice/Sea Segment 18a	2	0	2	0	1	0	1	0	1	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	1	0	1	0	1	0	1	0	1	0
59	Ice/Sea Segment 21	n	0	n	0	n	0	n	0	n	0
60	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
61	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	1	0	1	0	1	0	1	0	1	0
66	ERA 2	1	0	1	0	1	0	1	0	1	0
67	Ice/Sea Segment 16b	1	0	1	0	1	0	1	0	1	0
68	Harrison Bay	n	0	n	0	n	0	n	0	n	0
69	Harrison Bay/Colville Delta	n	0	n	0	n	0	n	0	n	0
70	ERA 3	1	0	1	0	1	0	1	0	1	0
71	Simpson Lagoon	n	0	n	0	n	0	n	0	n	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	1	0	1	0	n	0	1	0	1	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	n	0	n	0	n	0	n	0	n	0
80	Ice/Sea Segment 18b	1	0	1	0	1	0	1	0	1	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	n	0	n	0	n	0	n	0	n	0
83	Kaktovik ERA	1	0	1	0	1	0	n	0	1	0
84	Ice/Sea Segment 20b	1	0	1	0	1	0	1	0	1	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-59 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	5	0	5	0	4	0	4	0	4	0
1	Kasegaluk Lagoon	n	0	n	0	n	0	n	0	n	0
2	Point Barrow, Plover Islands	n	0	n	0	n	0	n	0	n	0
3	Thetis and Jones Islands	1	0	1	0	1	0	1	0	1	0
4	Cottle & Return Islands, West Dock	n	0	n	0	n	0	n	0	n	0
5	Midway Islands	n	0	n	0	n	0	n	0	n	0
6	Cross and No Name Islands	n	0	n	0	n	0	n	0	n	0
7	Endicott Causeway	n	0	n	0	n	0	n	0	n	0
8	McClure Islands	n	0	n	0	n	0	n	0	n	0
9	Stockton Islands	n	0	n	0	n	0	n	0	n	0
10	Tigvariak Island	n	0	n	0	n	0	n	0	n	0
11	Maguire Islands	n	0	n	0	n	0	n	0	n	0
12	Flaxman Island	n	0	n	0	n	0	n	0	n	0
13	Barrier Islands	n	0	n	0	n	0	n	0	n	0
14	Anderson Point Barrier Islands	n	0	n	0	n	0	n	0	n	0
15	Arey and Barter Islands, Bernard Spit	n	0	n	0	n	0	n	0	n	0
16	Jago and Tapkaurak Spits	n	0	n	0	n	0	n	0	n	0
17	Angun and Beaufort Lagoons	n	0	n	0	n	0	n	0	n	0
18	Icy Reef	n	0	n	0	n	0	n	0	n	0
19	Chukchi Spring Lead 1	n	0	n	0	n	0	n	0	n	0
20	Chukchi Spring Lead 2	n	0	n	0	n	0	n	0	n	0
21	Chukchi Spring Lead 3	n	0	n	0	n	0	n	0	n	0
22	Chukchi Spring Lead 4	n	0	n	0	n	0	n	0	n	0
23	Chukchi Spring Lead 5	n	0	n	0	n	0	n	0	n	0
24	Beaufort Spring Lead 6	n	0	n	0	n	0	n	0	n	0
25	Beaufort Spring Lead 7	n	0	n	0	n	0	n	0	n	0
26	Beaufort Spring Lead 8	n	0	n	0	n	0	n	0	n	0
27	Beaufort Spring Lead 9	n	0	n	0	n	0	n	0	n	0
28	Beaufort Spring Lead 10	1	0	1	0	1	0	1	0	1	0
29	Ice/Sea Segment 1	n	0	n	0	n	0	n	0	n	0
30	Ice/Sea Segment 2	n	0	n	0	n	0	n	0	n	0
31	Ice/Sea Segment 3	n	0	n	0	n	0	n	0	n	0
32	Ice/Sea Segment 4	n	0	n	0	n	0	n	0	n	0
33	Ice/Sea Segment 5	n	0	n	0	n	0	n	0	n	0
34	Ice/Sea Segment 6	n	0	n	0	n	0	n	0	n	0
35	Ice/Sea Segment 7	n	0	n	0	n	0	n	0	n	0
36	Ice/Sea Segment 8	n	0	n	0	n	0	n	0	n	0
37	Ice/Sea Segment 9	n	0	n	0	n	0	n	0	n	0
38	Point Hope Subsistence Are	n	0	n	0	n	0	n	0	n	0
39	Point Lay Subsistence Area	n	0	n	0	n	0	n	0	n	0
40	Wainwright Subsistence Area	n	0	n	0	n	0	n	0	n	0
41	Barrow Subsistence Area 1	n	0	n	0	n	0	n	0	n	0
42	Barrow Subsistence Area 2	n	0	n	0	n	0	n	0	n	0
43	Nuiqsut Subsistence Area	n	0	n	0	n	0	n	0	n	0
44	Kaktovik Subsistence Area	n	0	n	0	n	0	n	0	n	0

Table A2-59 (continued). Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	2	0	2	0	2	0	2	0	2	0
54	Ice/Sea Segment 16a	2	0	2	0	2	0	2	0	2	0
55	Ice/Sea Segment 17	2	0	2	0	2	0	2	0	2	0
56	Ice/Sea Segment 18a	2	0	2	0	1	0	2	0	2	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	1	0	1	0	1	0	1	0	1	0
59	Ice/Sea Segment 21	1	0	1	0	1	0	1	0	1	0
60	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
61	Ice/Sea Segment 22	n	0	n	0	n	0	n	0	n	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	1	0	1	0	1	0	1	0	1	0
66	ERA 2	1	0	1	0	1	0	1	0	1	0
67	Ice/Sea Segment 16b	1	0	1	0	1	0	1	0	1	0
68	Harrison Bay	n	0	n	0	n	0	n	0	n	0
69	Harrison Bay/Colville Delta	1	0	1	0	1	0	1	0	1	0
70	ERA 3	1	0	1	0	1	0	1	0	1	0
71	Simpson Lagoon	1	0	1	0	1	0	1	0	1	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	1	0	1	0	1	0	1	0	1	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	1	0	1	0	n	0	1	0	1	0
80	Ice/Sea Segment 18b	1	0	1	0	1	0	1	0	1	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	n	0	n	0	n	0	n	0	n	0
83	Kaktovik ERA	1	0	1	0	1	0	1	0	1	0
84	Ice/Sea Segment 20b	1	0	1	0	1	0	1	0	1	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-60 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the assumed Production Life of the Lease Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
	Land	7	0.1	6	0.1	6	0.1	6	0.1	6	0.1
1	Kasegaluk Lagoon	n	0	n	0	n	0	n	0	n	0
2	Point Barrow, Plover Islands	1	0	1	0	1	0	1	0	1	0
3	Thetis and Jones Islands	1	0	1	0	1	0	1	0	1	0
4	Cottle & Return Islands, West Dock	n	0	n	0	n	0	n	0	n	0
5	Midway Islands	n	0	n	0	n	0	n	0	n	0
6	Cross and No Name Islands	n	0	n	0	n	0	n	0	n	0
7	Endicott Causeway	n	0	n	0	n	0	n	0	n	0
8	McClure Islands	n	0	n	0	n	0	n	0	n	0
9	Stockton Islands	n	0	n	0	n	0	n	0	n	0
10	Tigvariak Island	n	0	n	0	n	0	n	0	n	0
11	Maguire Islands	n	0	n	0	n	0	n	0	n	0
12	Flaxman Island	n	0	n	0	n	0	n	0	n	0
13	Barrier Islands	n	0	n	0	n	0	n	0	n	0
14	Anderson Point Barrier Islands	n	0	n	0	n	0	n	0	n	0
15	Arey and Barter Islands, Bernard Spit	n	0	n	0	n	0	n	0	n	0
16	Jago and Tapkaurak Spits	n	0	n	0	n	0	n	0	n	0
17	Angun and Beaufort Lagoons	n	0	n	0	n	0	n	0	n	0
18	Icy Reef	n	0	n	0	n	0	n	0	n	0
19	Chukchi Spring Lead 1	n	0	n	0	n	0	n	0	n	0
20	Chukchi Spring Lead 2	n	0	n	0	n	0	n	0	n	0
21	Chukchi Spring Lead 3	n	0	n	0	n	0	n	0	n	0
22	Chukchi Spring Lead 4	n	0	n	0	n	0	n	0	n	0
23	Chukchi Spring Lead 5	n	0	n	0	n	0	n	0	n	0
24	Beaufort Spring Lead 6	n	0	n	0	n	0	n	0	n	0
25	Beaufort Spring Lead 7	n	0	n	0	n	0	n	0	n	0
26	Beaufort Spring Lead 8	n	0	n	0	n	0	n	0	n	0
27	Beaufort Spring Lead 9	1	0	1	0	1	0	1	0	1	0
28	Beaufort Spring Lead 10	1	0	1	0	1	0	1	0	1	0
29	Ice/Sea Segment 1	n	0	n	0	n	0	n	0	n	0
30	Ice/Sea Segment 2	n	0	n	0	n	0	n	0	n	0
31	Ice/Sea Segment 3	n	0	n	0	n	0	n	0	n	0
32	Ice/Sea Segment 4	n	0	n	0	n	0	n	0	n	0
33	Ice/Sea Segment 5	n	0	n	0	n	0	n	0	n	0
34	Ice/Sea Segment 6	n	0	n	0	n	0	n	0	n	0
35	Ice/Sea Segment 7	n	0	n	0	n	0	n	0	n	0
36	Ice/Sea Segment 8	n	0	n	0	n	0	n	0	n	0
37	Ice/Sea Segment 9	n	0	n	0	n	0	n	0	n	0
38	Point Hope Subsistence Are	n	0	n	0	n	0	n	0	n	0
39	Point Lay Subsistence Area	n	0	n	0	n	0	n	0	n	0
40	Wainwright Subsistence Area	n	0	n	0	n	0	n	0	n	0
41	Barrow Subsistence Area 1	n	0	n	0	n	0	n	0	n	0
42	Barrow Subsistence Area 2	1	0	1	0	1	0	1	0	1	0
43	Nuiqsut Subsistence Area	n	0	n	0	n	0	n	0	n	0
44	Kaktovik Subsistence Area	n	0	n	0	n	0	n	0	n	0

Table A2-60 (continued) Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Environmental Resource over the Assumed Production Life of the Lease Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
45	Whale Concentration Area	n	0	n	0	n	0	n	0	n	0
46	Herald Shoal Polynya	n	0	n	0	n	0	n	0	n	0
47	Ice/Sea Segment 10	n	0	n	0	n	0	n	0	n	0
48	Ice/Sea Segment 11	n	0	n	0	n	0	n	0	n	0
49	Hanna's Shoal Polynya	n	0	n	0	n	0	n	0	n	0
50	Ice/Sea Segment 12	n	0	n	0	n	0	n	0	n	0
51	Ice/Sea Segment 13	n	0	n	0	n	0	n	0	n	0
52	Ice/Sea Segment 14	n	0	n	0	n	0	n	0	n	0
53	Ice/Sea Segment 15	2	0	2	0	2	0	2	0	2	0
54	Ice/Sea Segment 16a	2	0	2	0	2	0	2	0	2	0
55	Ice/Sea Segment 17	2	0	2	0	2	0	2	0	2	0
56	Ice/Sea Segment 18a	2	0	2	0	1	0	2	0	2	0
57	Ice/Sea Segment 19	2	0	2	0	2	0	2	0	2	0
58	Ice/Sea Segment 20a	2	0	2	0	2	0	1	0	2	0
59	Ice/Sea Segment 21	1	0	1	0	1	0	1	0	1	0
60	Ice/Sea Segment 22	1	0	1	0	1	0	1	0	1	0
61	Ice/Sea Segment 22	1	0	1	0	1	0	1	0	1	0
62	Ice/Sea Segment 24a	n	0	n	0	n	0	n	0	n	0
63	Ledyard Bay	n	0	n	0	n	0	n	0	n	0
64	Peard Bay	n	0	n	0	n	0	n	0	n	0
65	ERA 1	1	0	1	0	1	0	1	0	1	0
66	ERA 2	1	0	1	0	1	0	1	0	1	0
67	Ice/Sea Segment 16b	2	0	2	0	2	0	2	0	2	0
68	Harrison Bay	1	0	1	0	1	0	1	0	1	0
69	Harrison Bay/Colville Delta	1	0	1	0	1	0	1	0	1	0
70	ERA 3	2	0	2	0	2	0	2	0	2	0
71	Simpson Lagoon	1	0	1	0	1	0	1	0	1	0
72	Gwyder Bay	n	0	n	0	n	0	n	0	n	0
73	Prudhoe Bay	n	0	n	0	n	0	n	0	n	0
74	Cross Island ERA	1	0	1	0	1	0	1	0	1	0
75	Water over Boulder Patch 1	n	0	n	0	n	0	n	0	n	0
76	Water over Boulder Patch 2	n	0	n	0	n	0	n	0	n	0
77	Foggy Island Bay	n	0	n	0	n	0	n	0	n	0
78	Mikkelsen Bay	n	0	n	0	n	0	n	0	n	0
79	ERA 4	1	0	1	0	n	0	1	0	1	0
80	Ice/Sea Segment 18b	1	0	1	0	1	0	1	0	1	0
81	Simpson Cove	n	0	n	0	n	0	n	0	n	0
82	ERA 5	1	0	1	0	1	0	1	0	1	0
83	Kaktovik ERA	1	0	1	0	1	0	1	0	1	0
84	Ice/Sea Segment 20b	1	0	1	0	1	0	1	0	1	0
85	ERA 6	n	0	n	0	n	0	n	0	n	0
86	ERA 7	n	0	n	0	n	0	n	0	n	0
87	ERA 8	n	0	n	0	n	0	n	0	n	0
88	Ice Sea Segment 24b	n	0	n	0	n	0	n	0	n	0

Table A2-61 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-62 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-63 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-64 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-65 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-66 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Land Segment over the Assumed Production Life of the Lease Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
31	Lonely AFS Airport, Pitt Point, Pogik Bay	1	0	1	0	1	0	1	0	1	0
32	Cape Halkett	1	0	1	0	1	0	1	0	1	0

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-67 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the Assumed Production Life of the Lease Area Within 3 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-68 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the Assumed Production Life of the Lease Area Within 10 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-69 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the assumed Production Life of the Lease Area Within 30 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-70 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the Assumed Production Life of the Lease Area Within 60 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-71 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the Assumed Production Life of the Lease Area Within 180 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)	Barrow Subsistence Whale Deferral	Nuiqsut Subsistence Whale Deferral	Kaktovik Subsistence Whale Deferral	Eastern Deferral

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

Table A2-72 Combined Probabilities (Expressed as Percent Chance) of One or More Spills Greater than or Equal to 1,000 Barrels, and the Estimated Number of Spills (Mean), Occurring and Contacting a Certain Boundary Segment over the Assumed Production Life of the Lease Area Within 360 Days, Beaufort Sea Multiple-Sale

ID	Resource Name	Proposal (Alternative I)		Barrow Subsistence Whale Deferral		Nuiqsut Subsistence Whale Deferral		Kaktovik Subsistence Whale Deferral		Eastern Deferral	
27		1	0	1	0	1	0	1	0	1	0

Notes: ** = Greater than 99.5 percent; n = less than 0.5 percent. Rows with all values less than 0.5 percent are not shown.

APPENDIX B

RESOURCE ESTIMATES

APPENDIX B: OIL AND GAS RESOURCE ESTIMATES

Geologic assessments of undiscovered oil and gas resources are used by the MMS to identify prospective areas for leasing and as a basis for analysis of future petroleum activities. We assume that the effects of petroleum development will be proportional to oil volumes produced. It is reasonable to assume that industry will only develop discoveries that are economically viable (or commercial). Most of the oil and gas resources in arctic offshore provinces are noncommercial for geologic reasons (pools are too small) and economic reasons (oil prices do not support development costs).

Resource-assessment models evaluate the geologic and engineering characteristics of hypothetical new fields and the transportation and marketing factors associated with their production. Computer models (*GRASP* and *PRESTO)* determine the economic viability of discoveries by simulating field discovery, development, and production activities and performing a discount cash-flow analysis of the cost and income streams. Simulated projects that have positive net present value have their resources added to the total economic volume available in the province. A detailed description of MMS assessment methodology is provided in Sherwood and others (1998).

The process of estimating undiscovered oil and gas resources has many uncertainties. Although the size, number, and location of prospects (potential traps) can be identified using seismic surveys, actual oil and gas reservoirs cannot be confirmed without drilling. In a frontier area with limited seismic data coverage, most of the modeled undiscovered resources could occur in pools that are not identified. The reservoirs, source rocks, and seals associated with the prospects are inferred from nearby wells (well logs) or by comparisons to known pools (analogs). Development cost estimates also are uncertain, because relevant projects may not have been completed under the equivalent environmental conditions.

Because of the many geologic, engineering, and economic uncertainties, resource estimates typically are presented as a range of values associated with probability levels. We report a "low case" at 95% probability level (a 19-in-20 chance of occurrence), an "expected case" (mean or average) of the range, and a "high case" at 5% probability (1-in-20 chance of occurrence). Larger volumes are associated with lower probabilities. Economic uncertainties are handled by using a range of market prices (a price of $18 and $30 per barrel). Typically, higher prices support greater levels of activity and more resources discovered and developed.

New resource assessments often differ from older assessments, because geologic concepts evolve with new data. Despite increasing sophistication of technology, many discoveries are made inadvertently while drilling for different reservoir targets. No can predict when and where commercial-sized fields will be found. The prospect inventory is likely to be different for each company. Increasing the area open to leasing and exploration will increase the likelihood of future discoveries. In a frontier area, area equates to opportunity.

A. Geologic Play Concepts

Undiscovered petroleum resources are modeled using a geologic play analysis. Each geologic play is defined by unique characteristics, such as reservoirs, trap types, and similar geologic histories. Plays typically contain

many of prospects (untested but potential traps for oil/gas pools), some are mapped, and some are unidentified. Proven plays contain oil and gas discoveries, and future exploration success rates generally are higher in the play because all of the key elements are known to be present. Unproven plays have not been tested by drilling or lack discoveries in exploration tests. The majority of petroleum resources often is contained in unidentified prospects that either have not been mapped (lack of seismic data) or cannot be mapped using available data (require 3-D seismic and well control). Consequently, estimating the oil and gas resource potential is speculative, even with the aid of complex computer models.

the regional geology and assessment methodology for the Beaufort province is discussed in detail by Sherwood and others (1998), and the results presented here are an update of this assessment effort. Minor adjustments in play boundaries between the adjacent Beaufort and Chukchi planning areas and minor corrections to previous modeling inputs resulted in similar conclusions for the current (2002-2007) leasing-program area. The brief play descriptions that follow essentially are unchanged from the earlier 1995 assessment, because there has been very little exploration activity on the Beaufort shelf since the 1995 assessment. The regional geologic history and stratigraphy is discussed in Section III.A.

The **Undeformed Pre-Mississippian Basement Play** consists of carbonate or sandstone reservoirs of the Franklin Ian sequence (Figure III.A.3). This play is unproven, because no OCS wells have reported pooled oil/gas. However, encouraging well tests were made on Flaxman Island.

The **Endicott Play** consists of sandstone reservoirs of the Mississippian Endicott Group (Figure III.A.3). This play is proven, because oil and gas fields were discovered at Endicott/Duck Island and Tern/Liberty, although two OCS wells were unsuccessful tests in this play.

The **Lisburne Play** consists of limestone and dolomite reservoirs of the Mississippian to Pennsylvanian age Lisburne Group (Figure III.A.3). This play is proven, because there is production in the Lisburne field onshore. Six OCS wells have tested the play without a commercial success.

The **Upper Ellesmerian Play** consists of Triassic and Permo-Triassic sandstone reservoirs of the Sag River Formation and Sadlerochit Group (Figure III.A.3). This play is considered proven, because most of the North Slope reserves are contained in this play, most notably the Prudhoe Bay field. The play has been tested by 13 OCS wells, resulting in the discovery of 2 offshore oil and gas fields (Northstar and Sandpiper).

The **Rift Play** consists of sandstone reservoirs of Jurassic to early Cretaceous age (Figure III.A.3). The play is proven, because there are many fields producing from these reservoirs on the North Slope (including the South Barrow, East Barrow, and Walakpa gas fields in the National Petroleum Reserve-Alaska, and Kuparuk River, Milne Point, Point McIntyre, Alpine, Niakuk, and other satellites) as well as the undeveloped Point Thomson gas-condensate field. The play has been tested at several locations on the Beaufort shelf, ranging from Aurora (east of Barter Island) to Cabot (near Barrow), without a commercial success.

The **Brookian Unstructured Western Topset Play** is an unproven play located on the inner to middle shelf in the western part of the Beaufort Sea. The play consists of deltaic sandstone reservoirs (Nanushuk Group) in early Cretaceous strata of the Brookian Sequence (Figure III.A.3). Although discoveries have not been made offshore, several oil shows have been reported in the northern National Petroleum Reserve-Alaska (Simpson and Fish Creek).

The **Brookian Faulted Western Topset Play** is an unproven play located on the middle to outer shelf in the western Beaufort Sea. The play consists of Cretaceous deltaic sandstone reservoirs assigned to the Nanushuk and Colville Group (Figure III.A.3). No prospects have been drilled in this play.

The **Brookian Unstructured Western Turbidite Play** is a proven play located on the inner Beaufort shelf west of the Colville River. It includes deepwater strata of Cretaceous age (Torok Formation and Colville Group) containing turbidite sandstone reservoirs (Figure III.A.3). Two onshore fields (Tarn and Meltwater) are producing oil from equivalent reservoirs. This play has been penetrated by numerous OCS wells without encountering a commercial pool. The Phoenix well tested heavy oil from Torok turbidite sands, and oil shows were reported in the Mukluk well.

The **Brookian Faulted Western Turbidite Play** is an unproven play located on the middle to outer shelf in the western Beaufort Sea. The play consists of deepwater strata of early Cretaceous (Torok Formation) to late Cretaceous (Colville Group) age assigned to the Brookian sequence (Figure III.A.3). Potential reservoirs include turbidite sands in submarine fan environments. No prospects have been tested in the play.

The **Brookian Unstructured Eastern Topset Play** is a proven play located on the inner to middle shelf in the central part of the Beaufort Sea. The play consists of late Cretaceous to Tertiary age deltaic sandstone reservoirs assigned to the Brookian sequence (Figure III.A.3) Oil was discovered in the OCS at Hammerhead and Kuvlum and is being produced onshore from reservoirs in the West Sak (Kuparuk River Unit) and Schader Bluff (Milne Point Unit). In Harrison Bay, the Phoenix well tested oil in Colville Group strata. The results of the Warthog well and Stinson nearshore wells remain confidential, because their bottomhole location was on State submerged lands.

The **Brookian Faulted Eastern Topset Play** is a proven play located on the middle to outer Beaufort shelf in the central part of the Beaufort Sea. The play consists of Cretaceous and Tertiary deltaic sandstone reservoirs assigned to the Brookian sequence (Figure III.A.3). One OCS well (Galahad) recovered gas and condensate; however, the well was not flow tested or certified as capable of producing in paying quantities. We are confident that oil and gas are pooled in the Galahad prospect, but current economics do not support very high appraisal and development costs.

The **Brookian Unstructured Eastern Turbidite Play** is a proven play on the inner to middle Beaufort shelf. It includes Late Cretaceous and Tertiary turbidite reservoirs localized in submarine fans complexes. Stratigraphic traps are predominate and prospects are difficult to map without 3-D seismic surveys. One nearshore OCS well (Beechy Point No. 2) flowed oil and gas out of a thin turbidite sand. Onshore, this play has produced oil in the Badami field.

The **Brookian Faulted Eastern Turbidite Play** is an unproven play on the middle to outer Beaufort shelf. It includes the Late Cretaceous and Tertiary turbidite reservoirs assigned to the Brookian sequence (Figure III.A.3). Numerous prospects in the play are formed by faults related to the Hinge Line (Figure III.A.4). Stratigraphic traps probably also are present but are difficult to map using the available 2-D seismic data. No wells have tested the play.

The **Brookian Foldbelt Play** is a proven play in the eastern Beaufort shelf. Potential reservoirs are primarily Tertiary strata assigned to the Brookian sequence (Figure III.A.3). The structural character of prospects is complex, as it is influenced by intersecting tectonic trends of the Brooks Range orogenic belt and Hinge Line fault system. Several OCS wells have tested this play with mixed results. Shows were reported from the Belcher well, although reservoir quality typically was poor in the Corona, Aurora, and Belcher wells. The play area extends (geologically) into Canadian waters, where a small oil pool was discovered at Adlartok. Other Canadian Beaufort wells contain good quality reservoir rocks (Natsek).

B. Assessment Results

the resource potential of the Beaufort Shelf province was analyzed by computer models in spring 2001. Two sets of petroleum resource estimates were generated. The updated assessment for the Beaufort Sea Planning Area reports a mean conventionally recoverable volume of 6.94 billion barrels of oil and 32.07 trillion cubic feet of gas. This estimate includes available resources (unleased and undiscovered) recoverable using current technology without regard to their economic viability.

Because most of the resource endowment occurs in pools too small or costly to develop, the economically recoverable resource estimates are lower. For the Beaufort Sea Planning Area, the mean economically recoverable resource estimate is 1.78 billion barrels of oil at a price of $18.00 per barrel and 3.24 billion barrels of oil is recoverable at $30.00 per barrel. The oil volumes at other probability levels are listed in Table B-1.

Resource estimates for the Beaufort Sea Planning Area are somewhat lower, because the area is smaller and opportunities for commercial discoveries are correspondingly reduced. No gas resources on the Beaufort OCS are shown as economically recoverable, because there is no gas-transportation system from arctic Alaska to outside markets.

the Beaufort Sea Planning Area contains petroleum resources in 14 geologic plays, 9 of which have been proven to contain oil or gas pools. Exploration drilling in the past has covered all parts of the Beaufort shelf out to maximum water depth of about 50 meters (Belcher, 167 feet; Galahad, 166 feet.). At $18.00 per barrel, 3 plays contain 95% of the total economically recoverable resources modeled in the planning area. Relative contributions are from the Rift play (38%), the Upper Ellesmerian play (37%), and the Brookian foldbelt play (20%) these areas covered by these three plays are shown in Figures B-1and B-2). Of the three major plays,

only the Brookian foldbelt play is affected by removing a large portion of the eastern Beaufort Sea Planning Area from the current program area.

At a higher oil price of $30.00 per barrel, the results are much the same. However, another play (Brookian, unstructured eastern topset play) joins the previous plays to comprise 97% of the total available economic resources. Relative contributions are from the Rift play (39%); the Upper Ellesmerian play (29%); the Brookian foldbelt play (20%); and the Brookian unstructured eastern topset play (9%). The areas covered by these four plays are shown in Figures B-3and B-4.

Industry activities in the Beaufort Sea generally support these conclusions. Exploration efforts (leasing, marine seismic surveys, and drilling) have focused on the nearshore of the central Beaufort. Most of the geologic plays present in this "core area" are proven by discoveries in the OCS or commercial production in adjacent coastal areas. Industry has actively leased and drilled Ellesmerian prospects because they were expected to contain thick, highly productive reservoirs similar to the Prudhoe Bay field. Rift sequence prospects also have been of high industry interest because of the prolific nearshore fields, such as the Point McIntyre field. Prospects in the Brookian sequence generally have been overlooked in favor of more easily mapped prospects. However, with new exploration technologies (3-D seismic surveys), Brookian stratigraphic prospects represent new exploration opportunities throughout the program area.

Table B-1 Summary of Resource Assessment for the Beaufort Sea Planning Area

Conventionally Recoverable	**95% Probability**	**Mean (Average)**	**5% Probability**
Planning Area*	3.56	6.94	11.84
Program Area*			
$18.00 per barrel	**95% Probability**	**Mean (Average)**	**5% Probability**
Planning Area*	0.00	1.78	6.64
Program Area*		1.68	
$30.00 per barrel	**95% Probability**	**Mean (Average)**	**5% Probability**
Planning Area*	1.00	3.24	7.76
Program Area*		2.87	

Source: USDOI, MMS, Alaska OCS Region
*billion barrels of oil

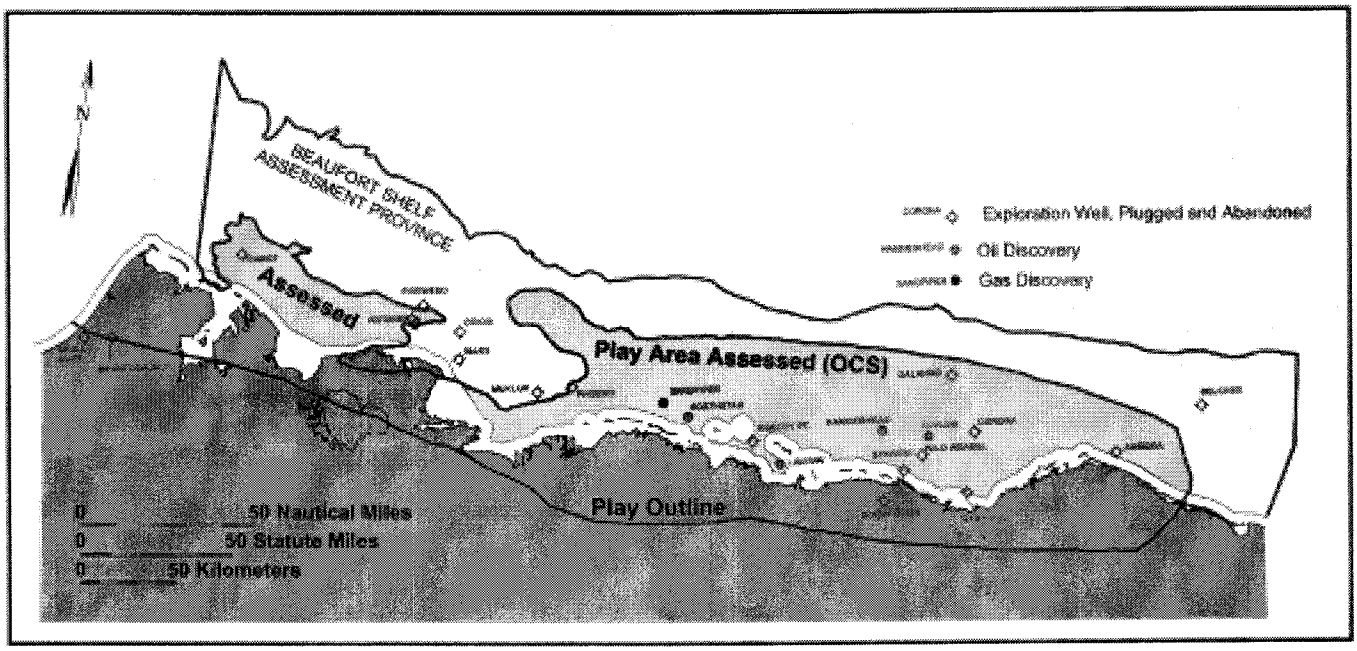


Figure B-1 Beaufort Rift Play

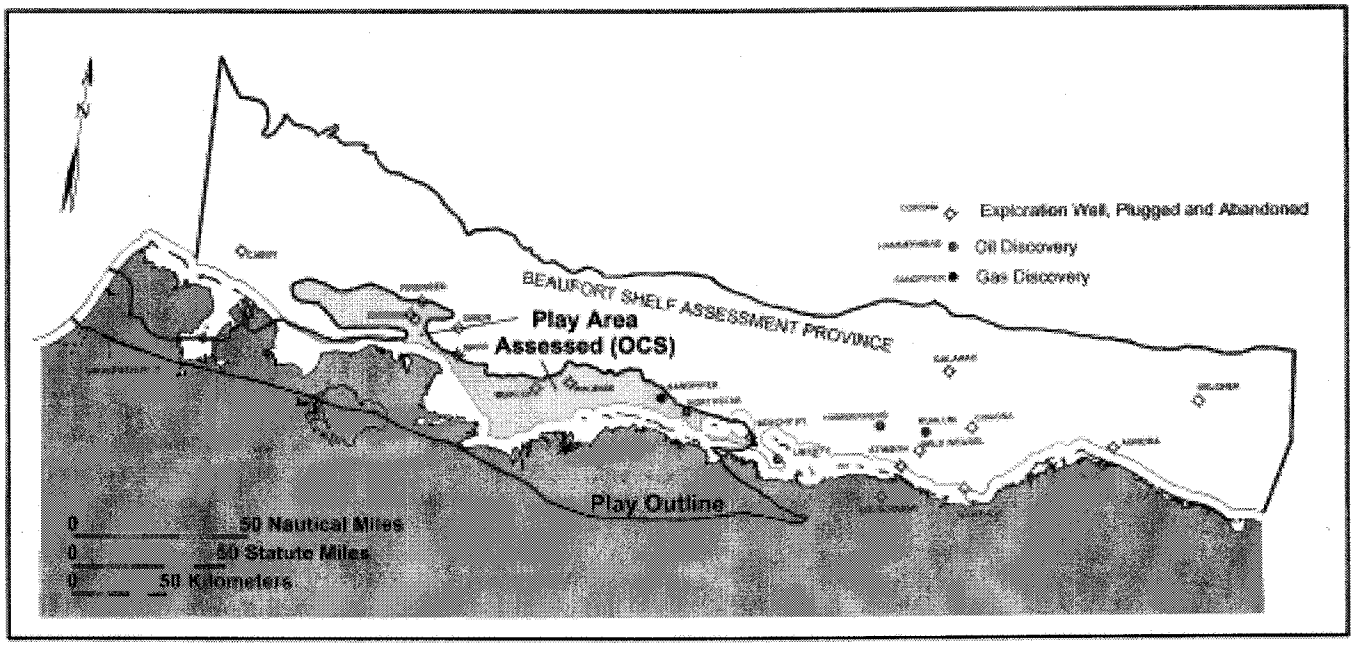


Figure B-2 Beaufort Upper Ellesmerian Play

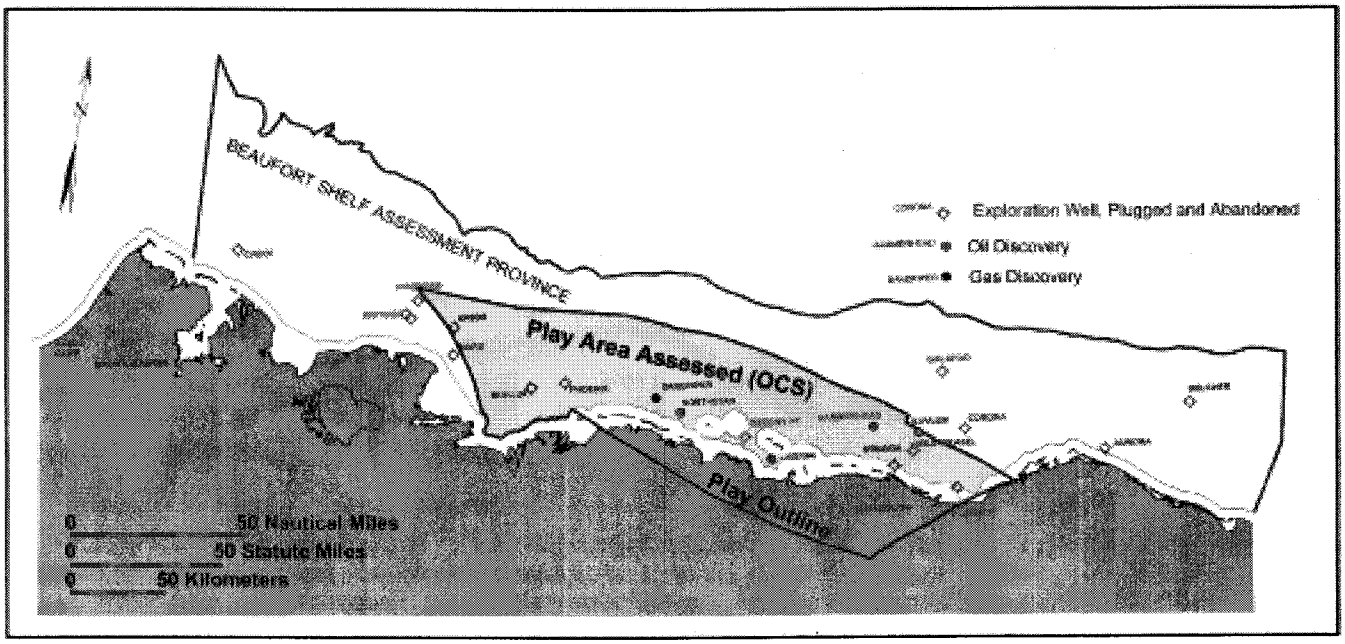


Figure B-3 Beaufort Brookian Unstructured Eastern Topset Play

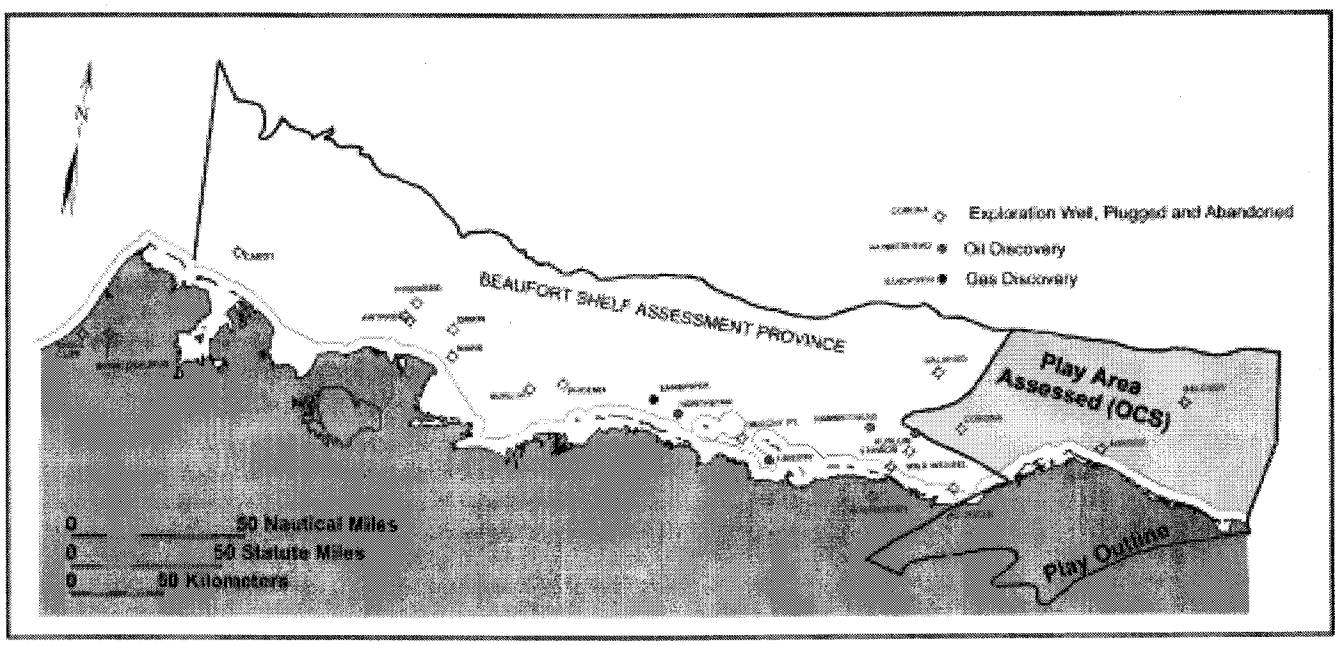


Figure B-4 Beaufort Brookian Foldbelt Play

APPENDIX C

ENDANGERED SPECIES ACT
SECTION 7
CONSULTATION AND COORDINATION

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 East 36th Avenue, Suite 300
Anchorage, Alaska 99508-4363

JAN - 7 2002

Memorandum

To: Regional Director, U.S. Fish and Wildlife Service

From: Regional Director

Subject: Endangered Species - Proposed Beaufort Sea Multi-Sale Oil and Gas Lease Sale

The Minerals Management Service has initiated the planning process for leasing and exploration associated with the proposed Outer Continental Shelf (OCS) Beaufort Sea Multi-Sale Oil and Gas Lease Sale plan for the Beaufort Sea. The multi-sale plan provides for three sales in the Beaufort Sea Planning Area, Sale 186 in 2003, Sale 195 in 2005, and Sale 202 in 2007, as described in the Draft OCS Oil and Gas Leasing Program: 2002-2007. The planning area will be identical to the program area adopted in the 1997-2002 OCS Oil and Gas Leasing Program (see enclosure).

In accordance with the Endangered Species Act section 7 regulations governing interagency cooperation, we are providing a notification of the listed and proposed species and critical habitat that will be included in our biological evaluation.

In our biological evaluation, we will review the following listed species that may be present in the proposed sale area.

Common Name	Scientific Name	Status
Spectacled eider	*Somateria fischeri*	threatened
Steller's eider	*Polysticta stelleri*	threatened

It is our understanding there is no designated or proposed critical habitat for any listed or proposed species in OCS regions potentially affected by activities associated with the Beaufort Sea Multi-Sale plan.

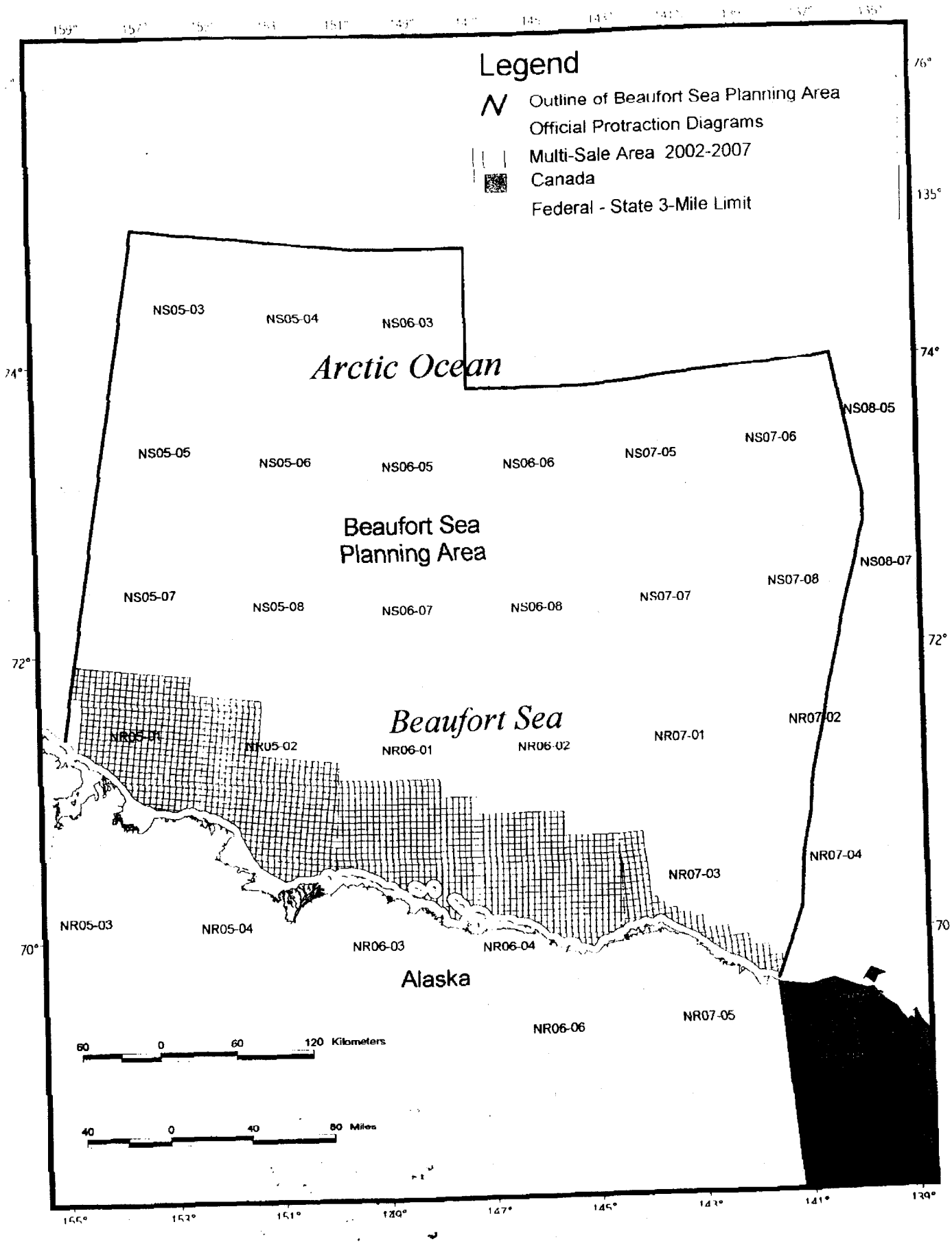
In previous consultations with the Fish and Wildlife Service (FWS) we also consulted on listed species and critical habitat along the transportation corridor from Valdez to ports along the Pacific coast and to the Far East. In the most recent section 7 consultation on the Liberty Development and Production Project, the FWS elected to address the effects of oil-tankering on listed species/critical habitat through a separate consultation with the U.S. Coast Guard in recognition of the Coast Guard's statutory authority relative to tankering activities. In addition, the National Marine Fisheries Service (NMFS) determined they would not be able to meaningfully measure, detect, or evaluate the effects associated with the transportation corridor.

NMFS therefore considered these effects as discountable and did not include them in the biological opinion for the proposed action. We understand that NMFS also may consider addressing the effects of oil-tankering on listed species/critical habitat through a separate consultation with the U.S. Coast Guard. Accordingly, we do not plan to consult on listed species and critical habitat along the transportation corridor from Valdez to ports along the Pacific coast and to the Far East.

Please review our list and notify us of your concurrence or necessary revisions and of any new information concerning these species or other species under FWS jurisdiction in relation to the proposed project. Also please advise us on the necessity to consult on the transportation corridor based on the discussion in the previous paragraph. To facilitate the review, we have provided a copy of this letter to your Northern Alaska Ecological Services Field Office. Upon receipt of your reply, we will begin preparation of the biological evaluation reviewing potential effects of the proposed action.

We look forward to working with you and your staff in protecting and conserving endangered and threatened species. If you have any questions concerning this proposed action, please contact Joel Hubbard at (907) 271-6670 or Frank Wendling at (907) 271-6510.

Attachment


Legend
Outline of Beaufort Sea Planning Area
Official Protraction Diagrams
Multi-Sale Area 2002-2007
Canada
Federal - State 3-Mile Limit
Arctic Ocean
Beaufort Sea
Planning Area
Beaufort Sea
Alaska
NS05-03
NS05-04
NS06-03
NS05-05
NS05-06
NS06-05
NS06-06
NS07-05
NS07-06
NS08-05
NS05-07
NS05-08
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60 0 60 120 Kilometers
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74°
72°
70°
135°
74°
72°
70°

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Rd.
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:
AFES

FEB 11 2002

Memorandum

To: Regional Director - Minerals Management Service

From: Regional Director - Region 7

Subject: Endangered Species - Proposed Beaufort Sea Multi-Sale Oil and Gas Lease Sale

This memorandum constitutes the U.S. Fish and Wildlife Service's response to your memorandum dated January 7, 2002, in which you requested concurrence on two issues relating to consultation of the effects of a proposed Outer Continental Shelf Multi-Sale Oil and Gas Lease Sale plan for the Beaufort Sea on threatened and endangered wildlife.

First, you asked us to review your list of threatened and endangered species that may be present in the proposed sale area. We concur that Spectacled Eiders (Somateria fischeri) and Steller's Eiders (Polysticta stelleri) may occur in the proposed sale area. We also agree that there is no designated or proposed critical habitat for listed species that would likely be affected by the proposed lease sale.

Second, you asked us to comment on the necessity to include an evaluation of the impacts of transporting oil from Valdez to ports along the Pacific coast and the Far East in your biological evaluation and the ensuing consultation. We continue to believe that it is preferable to address the effects of oil-tankering on listed species in a separate consultation with the U.S. Coast Guard, rather than consulting on the effects piecemeal during multiple consultations on lease sales and development projects. There is no need, therefore, to include an evaluation of the effects of oil-tankering in your biological evaluation or the ensuing consultation on the proposed lease sale.

Thank you for your interest in protecting threatened and endangered species. If you have any questions about our response, please contact Patrick Sousa, Field Supervisor, Northern Alaska Ecological Services Field Office, at (907) 456-0327 or Ted Swem, Endangered Species biologist, Northern Alaska Ecological Services Field Office, at (907) 456-0441.

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Washington, DC 20240

MAY 9 2002

Memorandum

To: Assistant Director for Endangered Species
U.S. Fish and Wildlife Service

From: Thomas A. Readinger
for Associate Director for Offshore Minerals Management

Subject: Endangered Species Act Section 7, Consultation Request for the Proposed Beaufort Sea Lease Sales from 2003 Through 2007

The Minerals Management Service has completed the draft Environmental Impact Statement for the proposed multiple oil and gas lease sales in the Beaufort Sea for the time period 2003-2007. The proposed Beaufort Sea oil and gas Lease Sales 186, 195, and 202 are planned for September 2003, 2005, and 2007 respectively.

Under section 7(a)(2) of the ESA, the MMS requests formal consultation with the U. S. Fish and Wildlife Service on leasing and exploration activities associated with these proposed sales. The consultation should address all aspects of activities associated with oil and gas leasing and exploration. We understand that when the FWS issues a biological opinion for the Beaufort Sea proposed oil and gas lease sales, the FWS does not relinquish the opportunity to reconsider and modify that opinion for future proposed sales. Therefore, the MMS will prepare an Environmental Assessment for each subsequent proposed sale covered by this EIS and send those EAs to FWS for review. We also ask that the FWS biological opinion supercede all existing biological opinions for leasing and exploration activities in the Beaufort Sea.

To facilitate completion of this consultation, we are sending copies of this memorandum and attachments to FWS Region 7 Office in Anchorage, Alaska, and the Northern Alaska Ecological Services Office in Fairbanks, Alaska. The draft EIS contains information on the anticipated composition, procedures, execution, and effects of the proposed Beaufort Sea oil and gas lease sales and exploration activities. The draft EIS, which serves as our biological evaluation for the proposed action, satisfies the information requirements specified in 50 CFR 402.12 and 402.14. We request that the biological opinion be prepared in as timely a manner as possible to allow the MMS to include it in the final EIS in January 2003 and to ensure consideration by the Secretary of the Interior during the decisionmaking process for Lease Sale 186.

If you consider recommending measures to minimize impacts to threatened and endangered species or determine a jeopardy situation may exist for all or any part of the proposed action, we ask that you notify us as early as possible, according to 50 CFR 402. 14(g)(5), to allow the MMS and FWS staff time to jointly discuss the findings. We believe that such discussions will

facilitate the consultation and ensure effective protection of listed species. These discussions can also ensure that any proposed alternatives are within our authority to control and implement, and are feasible, appropriate, and effective.

If you have any questions on this consultation or require additional information, please contact Ms. Judy Wilson, Minerals Management Service, Mail Stop 4042, 381 Elden Street, Herndon, Virginia 20170-4817 (commercial and FTS telephone: (703) 787-1075), or Mr. Fred King, Minerals Management Service, Alaska OCS Region, Mail Stop 8303, 949 East 36th Avenue, Suite 300, Anchorage, Alaska 99503-4363 (commercial and FTS telephone: (907) 271-6696).

Attachments

cc: (w/attachments)

Regional Director
U.S. Fish and Wildlife Service
Region 7
1011 East Tudor Road
Anchorage, Alaska 99503

Field Office Supervisor
U.S. Fish and Wildlife Service
Northern Alaska Ecological Services
101 12th Avenue, Box 19
Fairbanks, Alaska 99701

APPENDIX D

APPLICABLE FEDERAL LAWS, REGULATORY RESPONSIBILITIES, AND EXECUTIVE ORDERS

APPENDIX D: APPLICABLE FEDERAL LAWS, REGULATORY RESPONSIBILITIES, AND EXECUTIVE ORDERS

This appendix briefly explains or summarizes only those portions of Federal public laws enacted by Congress (see the list of legal mandates in Section I.B of this EIS) and other applicable Federal regulatory responsibilities, executive orders, and stipulations (mitigating measures) as they relate directly or indirectly to Minerals Management Service's (MMS's) management of mineral leasing, exploration, and development and production activities on leases located in the submerged lands of the Outer Continental Shelf (OCS). Additionally, this section includes responsibilities and jurisdictions of other Federal Agencies and departments involved in the regulatory process of oil and gas lease sales and operations on the OCS. This is not intended to be a comprehensive summary or explanation of all the laws associated with proposed leasing, exploration, and development and production activities that might significantly affect the OCS. References, explanations, or summaries are given only to acquaint the reader with the law and are not meant as legal interpretations. Readers always should consult the entire text of the laws for updates and additional requirements and information.

A. Federal Laws and Regulatory Responsibilities

A.1. Outer Continental Shelf Lands Act

A jurisdictional dispute concerning the ownership of coastal submerged lands arose as new technology became available for developing offshore oil resources in increasingly deeper waters. This dispute was resolved in 1953 by two congressional statutes that clarified Federal and State rights and responsibilities for the "continental shelf" (the submerged lands extending from the coastline to the edge of the continental slope). The first statute, the Submerged Lands Act of 1953 (43 U.S.C. § 1331 et seq.), affirmed the coastal states' assertion of ownership of the submerged lands and resources within a 3-mile belt seaward of the line of low tide. The second statute, the OCS Lands Act of 1953, as amended (43 U.S.C. § 1331 et seq.), established that the submerged lands and resources of the OCS or beyond 3 miles, "appertained to the United States and [were] subject to its jurisdiction, control, and power of disposition." the OCS Lands Act authorizes the Secretary of the U.S. Department of the Interior (USDOI) to issue mineral leases and grant rights-of-way and to prescribe regulations governing oil and gas activities on OCS lands.

The OCS Lands Act defines the OCS as:

> ...all submerged lands lying seaward and outside of the areas lands beneath navigable waters as defined in section 2 of the Submerged Lands Act and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control.

The pertinent provision of the Submerged Lands Act defines "navigable waters" as:

> ...all lands permanently or periodically covered by tidal waters up to but not above the line of mean high tide and seaward to a line three geographical miles distant from the coast line of each such State and to the boundary line of each such State where in any case such boundary as it existed at the time such State became a member of the Union, or as heretofore approved by Congress, extends seaward (or into the Gulf of Mexico) beyond three geographical miles....

Under the OCS Lands Act, the Department of the Interior is required to:

- make Federal OCS resources available to meet the Nation's energy needs;
- conduct, develop, and manage the orderly leasing, exploration, development, and production of mineral resources on the Federal OCS;
- balance orderly energy resource development while ensuring the protection of the human, marine, and coastal environments;
- ensure that the public receives a fair and equitable return for Federal OCS resources; and
- ensure that free-enterprise market competition is preserved and maintained.

The Secretary of the Interior has delegated the responsibility of managing and regulating the development of OCS oil and gas resources in accordance with the provisions of the OCS Lands Act to the MMS.

The MMS leasing regulations are presented in Chapter 30, Code of Federal Regulations (CFR) part 256. The MMS operating regulations governing exploration, development, and production on OCS leases are presented in 30 CFR parts 250 and 270.

The OCS Lands Act extends the authority of the Secretary of the Army, through the Corps of Engineers, to the OCS to prevent obstruction to navigation in U.S. navigable waters.

The OCS Lands Act grants authority to the U.S. Coast Guard to promulgate and enforce regulations covering lighting and warning devices, safety equipment, and other safety-related matters pertaining to life and property on fixed OCS platforms and drilling vessels.

In accordance with the OCS Lands Act (43 U.S.C. § 1354) and the Export Administration Act of 1969 (50 App. U.S.C. 2405(d)), oil that is produced on the U.S. OCS must go to a U.S. port.

A.2. Alaska National Interest Lands Conservation Act

In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) (16 U.S.C. § 3101 et seq.) created more than 100 million acres of new national parks, refuges, monuments, conservation areas, recreation areas, forests, and wild and scenic rivers in the State of Alaska for preservation of "nationally significant" natural resources. To address special issues and needs arising from the new land designations, the ANILCA contains numerous provisions and special rules for managing Alaska's public lands and nationally important resource development potential. The ANILCA requires Federal land managers to balance the national interest in Alaska's scenic and wildlife resources with recognition of Alaska's economy and infrastructure and its distinctive rural way of life. Title VIII of ANILCA requires that subsistence uses by "rural" Alaska residents be given a priority over all other (sport and commercial) uses of fish and game on Federal public lands in Alaska. As a compromise, Congress allowed the State of Alaska to continue managing fish and game uses on Federal public lands, but only on the condition that the State adopt a statute that made the new Title VIII "rural" subsistence priority applicable on State lands as well as on Federal lands. If the State ever fell out of compliance with Title VIII, Congress requires the Secretary of the Interior to reassume management of fish and game on the Federal public lands.

Section 810 of the ANILCA creates special steps a Federal Agency must take before it decides to "withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public land." Specifically, the Federal agency must first evaluate three factors: (1) the effect of its action on subsistence uses and needs, (2) the availability of other lands for the purposes sought to be achieved, and (3) the alternatives that would "reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes." If the Federal Agency concludes that its action "would significantly restrict subsistence uses," it must notify the appropriate State agency, regional council, and local committee. It then must hold a hearing in the vicinity of the area involved, and must make the following findings:

- such significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of public lands;
- the proposed activity will involve the minimal amount of public lands necessary to accomplish the purpose of such use, occupancy, or other disposition; and
- reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions (16 USC 3120(a)(3)).

In *People of the Village of Gambell v. Clark*, 746 F.2d 572 (9th Cir., 1984) (Gambell I), the court ruled that the "lands and waters" of the OCS were "public lands" for the purpose of this section. The court later ruled that the provisions of Section 810 of the ANILCA should not be applied in a staged manner, despite the staged decisionmaking approach set out in the OCS Lands Act and relied on by the Supreme Court *in Secretary of the Interior v. California (People of the Village of Gambell v. Hodel*, Civ. No. 85-3877 (9th Cir., Oct. 25, 1985)). As a result of these rulings, the Department of the Interior prepares an analysis under Section 810 of ANILCA for Federal OCS lease sales, plans of exploration, and for development and production plans associated with Federal activities offshore Alaska.

A.3. National Environmental Policy Act of 1969 and Council on Environmental Quality

The National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. § 4321 et seq.), is the foundation of environmental policymaking in the U.S. Recognizing the profound impact of human activity on the interrelations of all components of the natural environment, the Congress declares in NEPA that it is the continuing policy of the Federal Government, in cooperation with State and local governments and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare; to create and maintain conditions under which humans and nature can exist in productive harmony; and fulfill the social, economic, and other requirements of present and future generations of Americans. The Congress authorizes and directs that, to the fullest extent possible, the policies, regulations, and public laws of the U.S. shall be interpreted and administered in accordance with the policies set forth in NEPA. The NEPA process is intended to help Federal officials make decisions based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment.

The NEPA established two primary mechanisms for this purpose:
1. The Council on Environmental Quality (CEQ) was established to advise Federal Agencies on the environmental decisionmaking process and to oversee and coordinate the development of Federal environmental policy.
2. Federal Agencies must include an environmental review process early in the planning for proposed actions.

Congress first established the CEQ as part of the NEPA. Additional responsibilities were provided by the Environmental Quality Improvement Act of 1970. The CEQ established uniform procedures by issuing regulations (40 CFR, parts 1500 through 1508) to implement the procedural provisions of NEPA. These regulations include procedures to be used by Federal Agencies for the environmental review process. The regulations provide for the use of the NEPA process to identify and assess reasonable alternatives to proposed Federal actions that avoid or minimize adverse effects of these actions on the quality of the human environment.

the NEPA requires all Federal Agencies to use a systematic, interdisciplinary approach to protect the human environment. Such an approach ensures the integrated use of natural and social sciences in any planning and decisionmaking that may have an impact on the environment. The NEPA also requires the preparation of a detailed environmental impact statement (EIS) on any major Federal action that may have a significant impact on the environment. The EIS must address any adverse environmental effects that cannot be avoided or mitigated, alternatives to the proposed action, the relationship between short-term resources and long-term productivity, and irreversible and irretrievable commitments of resources. Environmental assessments (EA's) are prepared to determine if significant impacts may occur. If an EA finds that significant impacts may occur, NEPA requires the preparation of an EIS. The briefest form of NEPA review is the categorical exclusion review, which verifies that neither an EA nor an EIS is needed before making a decision on the activity being considered for approval.

For compliance with the NEPA, see 40 CFR, parts 1500 through 1508.

A.4. Clean Air Act of 1970 and Clean Air Act Amendments of 1990

The Clean Air Act of 1970 (42 U.S.C. § 7401 et seq.), authorizes the U.S. Environmental Protection Agency (USEPA) to establish National (primary or secondary) standards within air-quality-control regions of each state in addition to National emission standards for hazardous air pollutants (National Ambient Air Quality Standards [NAAQS]). The Act requires Federal departments or agencies that have jurisdiction over any property or facility or that are engaged in any activity resulting from the discharge of air pollutants to comply with all Federal, State, interstate, and local requirements in the control and abatement of air pollution. Section 5(a)(8) of the OCS Lands Act requires MMS, through the Secretary of the Interior, to ensure that OCS regulations incorporate and comply with NAAQS.

The 1990 Clean Air Act Amendments (CAA) delineate jurisdiction of air quality between the USEPA and the U.S. Department of the Interior (USDOI), MMS and affect the attainment and maintenance of NAAQS (Title I), motor vehicles and fuel reformulation (Title II), hazardous air pollutants (Title III), acid deposition (Title IV), facility operating permits (Title V), stratospheric ozone protection (Title VI), and enforcement (Title VII).

Section 328 of the CAA transfers authority for air quality on the OCS to the USEPA. Under the CAA, the Secretary of the Interior is required to consult with the USEPA "to assure coordination of air pollution control regulations for OCS emissions and emissions in adjacent onshore areas." On September 4, 1992, the USEPA promulgated requirements (40 CFR, part 55) to control air pollution from OCS sources to attain and maintain Federal and State air-quality standards and to comply with CAA provisions for the Prevention of Significant Deterioration. The promulgated regulations require OCS sources to comply with applicable onshore air-quality rules in the corresponding onshore area.

On November 30, 1993, the USEPA instituted final rules for determining general conformity of Federal actions with Federal and State air-quality implementation plans. Section 176(c) of the CAA, the General Conformity Rule, requires Federal Agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the applicable implementation plan. A Federal Agency must make a determination that a Federal action conforms to the applicable implementation plan before the Federal action is taken.

To comply with the CAA, the MMS established regulations to address air quality concerning OCS operations. These regulations are found under 30 CFR 250.302, 250.303, and 250.304. The regulated pollutants include carbon monoxide, particulates, sulfur dioxide, nitrogen oxides, and volatile organic compounds (as a precursor to ozone). In areas where hydrogen sulfide may be present, OCS operations are regulated by 30 CFR 250.417. The MMS regulations allow for the collection of information about potential sources of pollution for the purpose of determining whether the projected emissions of air pollutants from a facility could result in ambient onshore air-pollutant concentrations above maximum levels provided in the regulations. These regulations also stipulate appropriate emissions controls considered necessary to prevent accidents and air-quality deterioration.

A.5. Federal Water Pollution Control Act and Clean Water Act

The Federal Water Pollution Control Act (FWPCA) of 1972, as amended (33 U.S.C. § 251 et seq.), established water-pollution-control activities to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The Clean Water Act (CWA) of 1977 (91 Stat. 1566) amended the FWPCA. Most activities are administered by the USEPA.

Title III of the CWA requires the USEPA to establish national effluent limitation standards for existing point sources of wastewater discharges that reflect the application of the best practical control technology currently available. These standards apply to existing OCS exploratory drillships, semisubmersible vessels, and jackup rigs used in exploration activities. The CWA also requires the USEPA to establish regulations for effluent limitations for categories and classes of point sources that require the application of "best available control technology economically achievable."

Section 311 of the CWA (33 U.S.C. § 1321), as amended, prohibits the discharge of oil or hazardous substances into the navigable waters of the U.S. that may affect natural resources, except under limited circumstances, and establishes civil penalty liability and enforcement procedures to be administered by the Coast Guard.

Title IV of the CWA establishes requirements for Federal permits and licenses to conduct an activity (including construction or operation of facilities) that may result in any discharges into navigable waters. Section 402 of

the CWA (33 U.S.C. § 1342) gives the USEPA the authority to issue National Pollutant Discharge Elimination System (NPDES) permits for discharges of any pollutant from a point source into navigable waters. The NPDES permits are issued in compliance with USEPA's guidelines for determining the degradation of marine waters, and they apply to all sources of wastewater discharges from exploratory vessels and production platforms operating on the OCS.

Section 404 of the CWA (33 U.S.C. § 1344) authorizes issuance of permits, under certain criteria, for discharge of dredged or fill material into navigable waters at specified disposal sites. The Secretary of the Army, acting through the Corps of Engineers, has the authority to administer Section 404. Permits may be issued only after a determination is made that the activities involving discharges of dredged or fill material are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effects on the environment.

Pursuant to the 1984 Memorandum of Understanding between the USEPA and the USDOI concerning the coordination of NPDES permit issuance with the OCS oil and gas lease program, the MMS Alaska OCS Region and the USEPA Region 10 entered into a Cooperating Agency Agreement to prepare EIS's for oil and gas exploration and development and production activities on the Alaskan OCS. Section 402 of the CWA authorizes the USEPA to issue NPDES permits to regulate discharges to waters of the U.S., including the territorial seas, contiguous zone, and oceans. The NPDES permits for OCS oil and gas facilities many contain effluent limitations developed pursuant to sections of the CWA, including sections 301, 302, 306, 307, and 403. With the offshore subcategory under the CWA, the USEPA may have NEPA responsibilities for permits issued to new sources (Section 306 of the CWA), that overlap with those of the MMS. The USEPA's primary role in the Cooperating Agency Agreement is to provide expertise in those fields specifically under its mandate.

In conjunction with the issuance of an NPDES permit, the USEPA is responsible for publishing an Ocean Discharge Criteria Evaluation (ODCE) that evaluates the impacts of waste discharges proposed for oil and gas projects. The purpose of the ODCE is to demonstrate whether or not a particular discharge will cause unreasonable degradation to the marine environment.

For multiple-use conflicts, see the USEPA listing of ocean-dumping sites found under 40 CFR part 228.

The MMS pollution prevention and control regulations are found under 30 CFR 250.300.

A.6. Coastal Zone Management Act and Coastal Zone Reauthorization Amendments

Congress passed the Coastal Zone Management Act (CZMA) of 1972, as amended (16 U.S.C. § 1451 et seq.) and created the Coastal Zone Management Program to improve the management of the Nation's coastal areas. Both the Coastal Zone Reauthorization Amendments of 1990 (P.L. No. 101-508), enacted November 5, 1990, and the Coastal Zone Protection Act of 1996 (P.L. No. 104-150), enacted June 3, 1996, amended and reauthorized the CZMA. The Program, a voluntary partnership between the Federal Government and the coastal states and territories, is administered at the Federal level by the National Oceanic and Atmospheric Administration (NOAA) within the U.S. Department of Commerce (USDOC). The Program's goal is to reduce conflict between environmental and economic interest in the coastal area through the use of federally approved coastal management programs (CMPs). Each state's CZM program sets forth objectives, policies, and standards regarding public and private use of land and water resources in that state's coastal zone.

The CZMA allows a coastal state or territory with a federally approved CMP to review Federal activities for Federal consistency. Consistency applies whenever a Federal activity initiates a series of events where coastal effects are reasonably foreseeable (see H.R. Rep. No. 1012, 96th Cong., 2d Sess. 4382). The CZMA requirement that all Federal activity, including OCS oil and lease sales, regardless of location (in or outside the coastal zone) that is reasonably likely to affect any land or water use or natural resource of the coastal zone be consistent with the enforceable policies of a state's/territory's CMP. Section 307 of the CZMA (16 U.S.C. § 1456) contains the following Federal consistency provisions that impose certain requirements on Federal Agencies to comply with enforceable policies detailed in the federally approved CMPs:

> Section 307(c)(1) requires that Federal Agencies must conduct their activities, regardless of location, if coastal effects are reasonably foreseeable, that affects any land or water use or natural resources of the coastal zone in a manner that is fully consistent to the maximum extent practicable with enforceable

policies of the affected state's coastal zone management (CZM) program. This section applies to OCS lease sales. On May 3, 1995, the MMS Regional Director, Alaska OCS Region, and the Director, Alaska Division of Governmental Coordination signed a Memorandum of Understanding Between State of Alaska Division of Governmental Coordination and USDOI, MMS Alaska OCS Region. This document facilitates and coordinates both agencies' efforts with respect to consistency determination procedures prior to MMS Alaska OCS Region's oil and gas lease sales.

Section 307(c)(3)(A) requires that any Federal licenses/permits affecting any land or water use or natural resources of the coastal zone be consistent with enforceable policies of the state's CMP. This section applies to geological and geophysical permits. Additionally, this section prohibits the Federal Agency from issuing the license/permit until the affected state(s) has concurred with or presumed to concur with the applicant's consistency certification or until the Secretary of Commerce has overridden the state's consistency objection to the licensed/permitted activity.

Section 307(e)(3)(B) requires that activities affecting any land or water use or natural resources of the coastal zone, described in detail in OCS exploration or development and production plans, be consistent with enforceable policies of the state's CMP. The MMS is prohibited from approving an OCS plan until the affected state(s) has concurred with or is presumed to concur with the applicant's consistency certification, or until the Secretary of Commerce has overridden the state's consistency objection. On August 7, 1980, a Memorandum of Understanding Between Division of Policy and Development and Planning and U.S. Geological Survey was signed between the State of Alaska and MMS (formerly USGS). This document establishes procedures for coordinating plans and programs for consistency review and includes procedures for approvals of exploration plans, development and production plans, and other licenses and permits for OCS activities.

On December 8, 2000, NOAA revised the regulations that implement the Federal consistency provisions of the CZMA with federally approved CMPs. These regulations are found under 15 CFR § 930.

The MMS regulations for CZMA consideration affecting OCS lease sales are found under 30 CFR 256.20. The MMS regulations for CZMA consideration affecting OCS operations and/or permit activities are found under 30 CFR 250.203, 250.204, 250.414, and 250.417.

A.7. Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 (42 U.S.C. § 6213 et seq.) prohibits joint bidding by major oil and gas producers. Bidders submitting bids on OCS leases are subject to the provisions of 18 U.S.C. 1860, prohibiting unlawful combination or intimidation of bidders (30 CFR 256.46(f)).

The MMS authority and regulations for compliance with the Energy Policy and Conservation Act of 1975 are found under 30 CFR 256.4, 256.41, and 256.44.

A.8. Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S.C. § 1361 et seq.) was enacted to ensure that marine mammals are maintained at or, in some cases, restored to healthy population levels. Jurisdiction and regulatory responsibility for the conservation and protection of these marine mammals under the MMPA is split between two Federal Agencies. The Secretary of the Interior is responsible for walruses, polar bears, sea otters, manatees, and dugongs and has delegated this responsibility to the Fish and Wildlife Service (FWS). The Secretary of Commerce is responsible for the protection of all other marine mammals (cetaceans and pinnipeds [except walruses]) and has delegated the authority for implementing the MMPA to the National Marine Fisheries Services (NMFS).

The Marine Mammal Commission is responsible for reviewing and advising Federal Agencies on the protection and conservation of marine mammals. The commission has a Committee of Scientific Advisors that provides advice on actions needed to fulfill the purposes of the MMPA. The commission is authorized to make recommendations on the prohibition of taking and importing marine mammals and marine mammal products,

except as expressly provided for by an international treaty, convention, or agreement to which the U.S. is a party.

The MMPA established a moratorium on the taking or importing of marine mammals in waters under U.S. jurisdiction except during certain activities that are regulated and permitted. Such activities include scientific research, public display, and the incidental take of marine mammals in the course of commercial-fishing operations. The MMPA defines "take" to mean "hunt, capture, or kill or attempt to harass, hunt, capture, or kill any marine mammal." "Harass" is defined as any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild; 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, migrating, breathing, nursing, breeding, feeding, or sheltering.

The moratorium may be waived when the affected species or population stock is within its optimum sustainable population range and would not be disadvantaged by the authorized taking (for example, be reduced below its maximum net productivity level), which is the lower limit of the optimum sustainable population range. On request, the Secretary (of either the USDOI or the USDOC, depending on jurisdiction) can authorize the unintentional taking of small numbers of marine mammals incidental to activities other than commercial fishing (for example, offshore oil and gas exploration and development) when, after notice and opportunity for public comment, the Secretary finds that the total of such taking during the 5-year (or less) period would have a negligible impact on the affected species. Also, the Secretary will withdraw, or suspend for a specified time, permission to take marine mammals incidental to oil and gas production, and other activities if the applicable regulations concerning the methods of taking, monitoring, or reporting are not being complied with, or the taking is having, or may be having, more than a negligible impact on the affected species or stock.

In 1994, a new subparagraph (D) was added to Section 101(a)(5) of the MMPA to simplify the process of obtaining "small take" exemptions when unintentional taking is by incidental harassment only. Specifically, the incidental take of small numbers of marine mammals by harassment can now be authorized for periods of up to 1 year without the rulemaking as required by Section 101(a)(5)(A), which remains in effect for other authorized types of incidental taking.

To ensure that activities on the OCS adhere to MMPA regulations, the MMS must actively seek information concerning impacts of OCS activities on local species of marine mammals. The MMPA provides exemptions to taking of certain marine mammals by Alaskan Natives under certain conditions. The MMS coordinates with the FWS and NMFS to ensure that the MMS and offshore operators comply with the MMPA and to identify mitigation and monitoring requirements for permits or approvals for OCS activities, such as seismic surveys and platform removals.

A.9. Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA), as amended (16 U.S.C. § 703-712), is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources.

The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overutilization. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine whether, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take. The Secretary in adopting regulations is to consider such factors as distribution and abundance to ensure that take is compatible with the protection of the species.

The provisions of the MBTA apply equally to Federal and non-Federal entities and prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase or barter, any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11). Certain exceptions apply to employees of the Department of the Interior to enforce the MBTA and to employees of Federal agencies, State game departments, municipal game farms or parks, and public museums, public zoological parks, accredited institutional members of the American Association of Zoological Parks and Aquariums (now called the American Zoo and Aquarium Association) and public scientific or educational institutions.

A.10. International Convention of the Prevention of Pollution from Ships and Marine Plastics Pollution Research and Control Act

In 1978, the International Convention of the Prevention of Pollution from Ships (MARPOL) was updated to include five annexes on ocean dumping. By signing onto MARPOL, countries agree to enforce Annexes I and II (oil and noxious liquid substances) of the treaty. Annexes III (hazardous substances), IV (sewage), and V (plastics) are optional. The U.S. is signatory to two of the optional MARPOL Annexes (III and V). Annex V is of particular importance to the maritime community (for example, shippers, oil-platform personnel, fishers, and recreational boaters) because it prohibits the disposal of plastics at sea and regulates the disposal of other types of garbage at sea. The Coast Guard is the enforcement agency for MARPOL Annex V within the U.S. Exclusive Economic Zone (EEZ) (within 200 miles of the U.S. shoreline).

The Marine Plastic Pollution Research and Control Act (MPPRCA) of 1988 (33 U.S.C. § 1901 et seq.) is the Federal law implementing MARPOL Annex V in all U.S. waters. Under the MPPRCA, it is illegal to throw plastic trash off any vessel within the EEZ. It also is illegal to throw any other garbage (for example, orange peels, paper plates, glass jars, and monofilament fishing line) overboard while navigating in inland waters or within 3 miles offshore. The greater the distance from shore, the fewer restrictions apply to nonplastic garbage. However, dumping plastics overboard in any waters anywhere is illegal at anytime. Fixed and floating platforms, drilling rigs, manned productions platforms, and support vessels operating under a Federal oil and gas lease are required to develop waste management plans and to post placards reflecting discharge limitations and restrictions. Garbage must be brought ashore and properly disposed of in a trashcan, dumpster, or recycling container. Docks and marinas are required to provide facilities to handle normal amounts of garbage from their paying customers. Violations of MARPOL or MPPRCA may result in a fine of up to $50,000 for each incident. If criminal intent can be proven, an individual may be fined up to $250,000 and/or imprisoned up to 6 years. If an organization is responsible, it may be fined up to $500,000 and/or receive 6 years of imprisonment.

A.11. Marine Protection, Research, and Sanctuaries Act

The Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972, as amended (33 U.S.C. § 1401-1445 and 16 U.S.C. § 1431-1445) regulates ocean dumping of waste, provides for a research program on ocean dumping, and provides for the designation and regulation of marine sanctuaries. Also known as the Ocean Dumping Act, the MPRSA regulates the ocean dumping of all material beyond the territorial limit (3 miles from shore) and prevents or strictly limits dumping material that "would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities." Material includes, but is not limited to, dredged material; solid waste; incinerator residue; garbage; sewage; sewage sludge; munitions; chemical and biological warfare agents; radioactive materials; chemicals; biological and laboratory waste; wrecked or discarded equipment; rocks; sand; excavation debris; and industrial, municipal, agricultural, and other waste. The term does not include sewage from vessels or oil, unless the oil is transported via a vessel or aircraft for the purpose of dumping. Disposal by means of a pipe, regardless of how far at sea the discharge occurs, is regulated by the CWA through the NPDES permit process. Permits under Section 103 of this Act for dumping dredged material into ocean waters are issued by the Corps of Engineers.

Title III of the MPRSA, later called the National Marine Sanctuaries Act, charged the Secretary of Commerce to identify, designate, and manage marine sites based on conservation and ecological, recreational, historical, aesthetic, scientific, or educational value within significant national ocean and Great Lakes waters. Twelve national marine sanctuaries, representing a wide variety of ocean environments, have been designated. The National Marine Sanctuary Program is administered by USDOC, NOAA.

The regulations regarding designation and management of marine sanctuaries are found under 15 CFR § 922.

A.12. National Fishing Enhancement Act

The National Fishing Enhancement Act of 1984 (33 U.S.C. § 2101 et seq.), also known as the Artificial Reef Act, established broad artificial reef development standards and a national policy to encourage the development of artificial reefs that will enhance fishery resources and commercial and recreational fishing. The national plan

identifies oil and gas structures as acceptable material of opportunity for artificial reef development. The MMS adopted a rigs-to-reefs policy in 1985 in response to this Act and to broaden interest in the use of petroleum platform as artificial reefs.

A.13. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (FCMA) of 1976 (16 U.S.C. § 1801 et seq.) established and delineated an area from the states' seaward boundary to approximately 200 nautical miles out as a fisheries conservation zone for the U.S. and its possessions. The Act created eight regional Fishery Management Councils (FMC's) and mandated a continuing planning program for marine fisheries management by the FMC's. The Act, as amended, requires that a Fishery Management Plan (FMP) (50 CFR 600), based on the best available scientific and economic data, be prepared for each commercial species (or related group of species) of fish in need of conservation and management within each respective region.

The FCMA was reauthorized by Congress through passage of the Sustainable Fisheries Act of 1996. This reauthorization implements a number of reforms and changes. One change required the NMFS to designate and conserve Essential Fish Habitat (EFH) for those species managed under an existing FMP. By designating EFH's, Congress hoped to minimize, to the extent practicable, any adverse effects on habitat caused by fishing or nonfishing activities and to identify other actions to encourage the conservation and enhancement of such habitat. The phrase "essential fish habitat," as defined in the Sustainable Fisheries Act of 1996, encompasses "those waters and substrate necessary to fishes for spawning, breeding, feeding, or growth to maturity." As a result of this change, Federal Agencies must consult with NMFS on those activities that may have direct (for example, physical disruption) or indirect (for example, loss of prey species) effects on EFH.

Of the FMPs for Alaskan fisheries, only the plan for salmon designates EFH present within the Alaska OCS Beaufort Sea Planning Area. The FMPs are amended and updated as new information from studies and public input is received and assessed. For OCS activities in the Alaska Region's Beaufort Sea Planning Area, the MMS consults with NMFS at each project stage individually (for example, the lease sale, the exploration plan, and the development and production plan). The MMS will enter into formal consultation with NMFS for EFH as part of this EIS process.

A.14. Endangered Species Act

The Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 et seq.), establishes the National policy for the protection and conservation of threatened and endangered species and the ecosystems on which they depend. The ESA is administered by USDOI, FWS and the USDOC, NMFS. Section 7 of the ESA (16 U.S.C. § 1536) governs interagency cooperation and consultation requiring Federal Agencies to formally consult with the NMFS and FWS, when there is a reason to believe that a species listed (or proposed to be listed) as endangered or threatened may be affected by an action, such as an OCS lease sale. Section 7 mandates Federal Agencies to consult with the FWS or NMFS to ensure that any agency action is not likely to jeopardize the continued existence of any endangered or threatened species, and/or destroy or adversely modify an endangered or threatened species' critical habitat.

Formal endangered species consultation is required to provide a threshold examination and to allow both the FWS and NMFS to each prepare a biological opinion on the likelihood that the proposed activity will or will not jeopardize the continued existence of the resource, and on the effect of the potential activities on the endangered species. The biological opinion may include recommendations for modification of the proposed activity. If, as a result of the threshold examination, insufficient information is available to conclude that the proposed activity is not likely to jeopardize the species or its habitat, the Federal Agency (i.e., MMS) is notified in writing by the FWS or NMFS. In such cases, the Federal Agency must obtain additional information and, if recommended by the FWS or NMFS, conduct appropriate biological surveys or studies to determine how the proposed activity may affect the endangered species or its critical habitat. After such additional information is received, FWS or NMFS usually concludes the consultation process by issuing a formal biological opinion.

As needed during the early stages and throughout prelease processes, the MMS will formally consult with both FWS and NMFS to ensure that the Federal activities proposed in the Beaufort Sea Planning Area do not

jeopardize the continued existence of threatened or endangered species and/or result in adverse modification or destruction of their critical habitat. This consultation covers only the proposed OCS lease sales and exploration activities scenarios. A separate Section 7 consultation is conducted for development, production, and decommissioning phases for OCS activities. The FWS and NMFS make recommendations regarding modifications to proposed OCS activity to minimize adverse environmental impacts; however, it remains the responsibility of the MMS to ensure that proposed actions do not impact threatened or endangered species.

Joint regulations published in 50 CFR § 402 by the USDOI (FWS) and the USDOC (NMFS) establish procedures and rules governing interagency consultation under Section 7 of the ESA.

Section 9 of the ESA (16 U.S.C. § 1538) contains prohibitions (except as provided in law) with respect to any endangered species of fish, wildlife, and plant. For example, it is unlawful for any person subject to the jurisdiction of the U.S. to (1) take any species within the U.S. or the territorial seas of the U.S. and (2) take any species upon the high seas. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.

The regulations that provide the rules for determining and listing endangered and threatened species and designating their critical habitats are found under 50 CFR § 424.

A.15. National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. § 470 et seq.), established a program for the preservation of historic properties throughout the U.S. and established the Advisory Council on Historic Preservation. This Act requires the head of any Federal Agency possessing licensing authority or having direct or indirect jurisdiction over a proposed Federal or federally assisted activity to consider the proposed activity's effect on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historical Places (30 CFR 60.4 or its successor). The historic properties (i.e., archaeological resources) on the OCS include historic shipwrecks, sunken aircraft, lighthouses, and prehistoric archaeological sites that have become inundated due to the 120-meter rise in global sea level since the height of the last ice age (about 19,000 years ago).

Because the OCS is not federally owned land and the Federal Government has not claimed direct ownership of historic properties on the OCS, the MMS has the authority under Section 106 of the NHPA only to ensure that any MMS funded and permitted actions do not adversely affect significant historic properties. Beyond avoidance of adverse impacts, the MMS does not possess the legal authority to manage the historic properties on the OCS.

The MMS has conducted archaeological baseline studies of the OCS to determine where known historic properties may be located and to outline areas where presently unknown historic properties may be located. These baseline studies are used to identify "archaeologically sensitive" areas that may contain significant historic properties. When proposing a Federal action (i.e., an oil and gas lease sale), the MMS may request comments concerning geological conditions, including archaeological sites on the seabed or nearshore (30 CFR 256.24).

Before approving any OCS exploration or development activities within an archaeologically sensitive area, the MMS requires the lessee to conduct a marine remote-sensing survey and to prepare an archaeological report (30 CFR 250.194).

Archaeological surveys are required both onshore and offshore in areas where there is the potential for archaeological resources to exist, so that potential impacts to archaeological resources from physical disturbance could be mitigated. If the marine remote-sensing survey indicates any evidence of a potential historic property, the lessee must either:

> move the site of the proposed lease operations a sufficient distance to avoid the potential historic property, or conduct further investigations to determine the nature and significance of the potential historic property. If further investigation determines that there is a significant historic property within the area of proposed OCS operations, NHPA consultation procedures are followed.

The MMS Alaska Region and the State of Alaska Historic Preservation Office have an agreement regarding procedures for invoking Section 106 of the NHPA.

The MMS responsibilities in archaeological resource management and protection on the OCS are found under 30 CFR 250.203(b)(15), 250.203(o), 250.204(b)(8)(v)(A), 250.204(s), 250.1007(a)(5), and 250.1009(c)(4).

A.16. Oil Pollution Act

The Oil Pollution Act of 1990 (OPA 90), as amended (33 U.S.C. § 2701 et seq.), establishes a single uniform Federal system of liability and compensation for damages caused by oil spills in U.S. navigable waters. The OPA 90 requires removal of spilled oil and establishes a national system of planning for and responding to oil-spill incidents. The OPA 90 includes provisions to:

- improve oil-spill prevention, preparedness, and response capability;
- establish limitations on liability for damages resulting from oil pollution;
- provide funding for natural resource damage assessment;
- implement a fund for the payment of compensation for such damages; and
- establish an oil pollution research and development program.

The U.S. Coast Guard is responsible for enforcing vessel compliance with OPA 90. The U.S. Coast Guard regulations on the oil-spill liability of vessels and operators are found under 33 CFR §§ 132, 135, and 136.

Section 1016 of OPA 90 (33 U.S.C. § 2716), as amended by the Coast Guard Authorization Act of 1996, supersedes the offshore oil-spill financial-responsibility provision of Title III of the OCS Lands Act Amendments of 1978, previously administered by the U.S. Coast Guard. Under OPA 90 and Executive Order 12777 (October 18, 1991), the Secretary of the Interior is given authority over covered offshore facilities and associated pipelines (except deepwater ports) for all Federal and State waters, including responsibility for spill prevention, oil-spill-contingency plans, oil-spill-containment and -cleanup equipment, financial-responsibility certification, and civil penalties. The Secretary delegated this authority to the MMS.

The MMS regulations found under 30 CFR § 253 that implement Title I of the OPA 90 establish the requirements for demonstrating oil-spill financial responsibility for covered offshore facilities requiring responsible parties to demonstrate they can pay for cleanup and damages caused by facility oil spills. These regulations govern financial responsibility requirements for oil spills for covered offshore facilities and related requirements for certain crude oil wells, production platforms, and pipelines located in the OCS and certain State waters became effective in October 1998. Responsible parties can be required to demonstrate as much as $150 million in oil-spill financial responsibility if the MMS determines that it is justified by the risks from potential oil spills from the covered offshore facilities. The minimum amount of oil-spill financial responsibility that must be demonstrated is $35 million for covered offshore facilities located in the OCS, and $10 million for covered offshore facilities located in State waters. The regulations exempt persons responsible for facilities having a potential worst-case, oil-spill discharge of 1,000 barrels or less, unless the risks posed by a facility justify a lower threshold.

A.17. Rivers and Harbors Appropriation Act

The geographic jurisdiction of the Rivers and Harbors Act of 1899 (33 U.S.C. § 401 et seq.) includes all navigable water of the U.S. (defined in 33 CFR § 329) as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce." This jurisdiction extends seaward to include all ocean waters within a zone 3 nautical miles from the coastline (the "territorial seas"). Limited authorities extend across the OCS for artificial islands, installations, and other devices (43 U.S.C. § 333 (e)).

Various sections of the Act establish permit requirements to prevent unauthorized obstruction or alteration of any navigable water of the U.S. The Corps of Engineers, through the Secretary of the Army, has permitting authority for any structure work conducted in or affecting U.S. navigable waters and for construction of artificial islands, fixed structures, and other installations on the OCS. This authority arises from a provision in the OCS Lands Act (43 U.S.C. § 1333(e)) that extends the Secretary of the Army's authority to prevent obstruction to navigation in U.S. navigable waters from structures located on the OCS that are used for exploring, developing, producing, or transporting natural resources.

In addition, Section 10 of the Act (33 U.S.C. § 403) authorizes the Corps of Engineers, through the Secretary of the Army, to issue permits for all offshore construction in U.S. navigable waters, including pipelines, exploratory drilling vessels, fixed and mobile platforms, piers, wharves, bulkheads, or other works. Permits also must be issued for onshore facilities that involve dredging, filling, and excavating in U.S. navigable waters.

A.18. Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) of 1976 (42 U.S.C. § 6901 et seq.), and as amended through 1996, provides a framework for the safe disposal and management of hazardous and solid wastes. Most oil-field wastes have been exempted from coverage under the RCRA hazardous-waste regulations. Any hazardous wastes generated on the OCS that are not exempt must be transported to shore for disposal at a hazardous-waste facility.

A.19. Ports and Waterways Safety Act

The Ports and Waterways Safety Act of 1972, as amended (33 U.S.C. § 1221 et seq.), authorizes the U.S. Coast Guard to designate safety fairways, fairway anchorages, and traffic separation schemes to provide unobstructed approaches through oil fields for vessels using ports. The Coast Guard regulations provide listings of these designated areas along with special conditions related to oil and gas production. In general, no fixed structures such as platforms are allowed in fairways. Temporary underwater obstacles such as anchors and attendant cables or chains attached to floating or semisubmersible drilling rigs may be placed in a fairway under certain conditions. Fixed structures may be placed in anchorages, but the number of structures is limited.

The Coast Guard regulations on port access routes are found under 33 CFR § 164.

A.20. Merchant Marine Act of 1920 (Jones Act)

the Merchant Marine Act of 1920, commonly referred to as the Jones Act (P.L. 66-261), regulates coastal shipping between U.S. ports and inland waterways. The Act provides that "no merchandise shall be transported by water, or by land and water...between points in the United States...in any other vessel than a vessel built in and documented under the laws of the United States and owned by persons who are citizens of the United States..." the Act requires that all goods shipped between different ports in the U.S. or its territories must be:

- carried on vessels built and documented (flagged) in the U.S.,
- crewed by U.S. citizens or legal aliens licensed by the U.S. Coast Guard, and
- owned and operated by U.S. citizens.

The rationale behind the Jones Act and earlier sabotage laws was that the U.S. needed a merchant marine fleet to ensure that its domestic waterborne commerce remains under government jurisdiction for regulatory, safety, and national defense considerations. The same general principles of safety regulations are applied to other modes of transportation in the U.S. While other modes of transportation can operate foreign-built equipment, these units must comply with U.S. standards. However, many foreign-built ships do not meet the standards required of U.S.-built ships and, thus, are excluded from domestic shipping.

The U.S. Customs Service has determined that facilities fixed or attached to the OCS for the purpose of oil exploration, as described under 43 U.S.C. § 333(a), are considered points within the U.S. The OCS oil facilities are considered U.S. sovereign territory and fall under the requirements of the Jones Act. This carries the implication that all shipping to and from these facilities related to oil exploration on the OCS can be conducted only by vessels meeting the requirements of the Jones Act. Therefore, OCS facilities can be legally served only by U.S.-registered vessels and aircraft that are properly endorsed for coastwise trade under the laws of the U.S.

A.21. Federal Oil and Gas Royalty Management Act

The Federal Oil and Gas Royalty Management Act (FOGRMA) of 1982 (30 U.S.C. § 701 et seq.), was enacted to ensure that all oil and gas originating on public land and on the OCS are properly accounted for under the direction of the Secretary of the Interior. This Act defines the responsibilities and obligations of lessees, operators, and other persons involved in the transportation of oil and gas from Federal, Indian, and OCS lands. The Secretary of the Interior has the responsibility to maintain a royalty management system and enforce the prompt collection and disbursement of oil and gas revenues owed to the U.S., Indian lessors, and the states.

The Secretary of the Interior oversees a comprehensive inspection and collection system with fiscal and production accounting and auditing system to accurately determine oil and gas royalties, interest, fines, penalties, fees, deposits, and other payments owed and to collect and account for the payments in a timely manner.

The FOGRMA requires a lessee, operator, or other person directly involved in the developing, producing, transporting, purchasing, or selling of oil and gas to establish and maintain records, make reports, and provide information as required by the Secretary of the Interior.

Regulations at 30 CFR 201 through 243 were published by the MMS to implement the provisions of the FOGRMA. For royalties, net profit shares, and rental payments on Federal OCS leases, see 30 CFR 218.150 through 156.

A.21.a Arctic Research and Policy Act

The Arctic Research and Policy Act of 1984 (15 U.S.C. § 4101 et seq.) provides national policy, priorities, and goals and a Federal program plan for basic and applied scientific research with respect to the Arctic, including natural resources and materials, physical, biological and health sciences, and social and behavioral sciences.

The Arctic Research Commission, in cooperation with the Interagency Arctic Research Policy Committee, both established under this Act, were directed to develop a national arctic research program plan to implement the arctic research policy and facilitate cooperation between the Federal Government and State and local governments with respect to research in the Arctic. The Commission guides the Interagency Arctic Research Policy Committee in the performance of its duties and submits to the President and Congress a report each year describing the activities and accomplishments of the Commission during the immediately preceding fiscal year.

The Interagency Arctic Research Policy Committee, with the National Science Foundation as lead agency, works with the Commission in developing and establishing an integrated National Arctic Research Policy that guides Federal Agencies in developing and implementing their research program in the Arctic. The public is provided with an opportunity to participate in the development and implementation of National Arctic Research Policy through public meetings. The Committee is directed to submit to Congress, through the President, a biennial statement of activities and accomplishments of the Interagency Committee and a description of the activities of the Commission with respect to Federal activities in arctic research.

Section 201 of the Arctic Research and Policy Act is cited as the National Critical Materials Act of 1984. The purpose of this section is to (1) establish National Critical Material Council, (2) establish a national Federal program for advanced materials research and technology, and (3) to stimulate innovation and technology use in basic as well as advanced materials industries.

B. Executive Orders

B.1. Executive Order 13212 – Actions to Expedite Energy-Related Projects (May 18, 2001)

Executive Order 13212 states that "... in order to take additional steps to expedite the increased supply and availability of energy to our Nation ...," it is necessary to improve the Federal Government's internal

management of actions associated with energy-related projects. In general, the executive order directs executive departments and agencies to take appropriate actions to expedite projects that will increase the production, transmission, or conservation of energy. Departments and agencies must expedite their review of permits or take other actions as necessary to accelerate the completion of such projects while maintaining safety, public health, and environmental protections. Agencies must take such actions to the extent permitted by law, the regulations, and where appropriate.

B.2. Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (February 11, 1994)

Executive Order 12898 on environmental justice provides that each Federal Agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high, and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Agencies are required to incorporate into their NEPA documents analysis of the environmental effects of their proposed action on minorities and low-income populations and communities. The environmental justice issues encompass a broad range of impacts covered by NEPA, and concerns may arise from impacts on the natural or physical environment or from interrelated social, cultural, and economic effects. These effects must be considered in EIS's and EA's.

The Department of the Interior has developed guidelines in accordance with Executive Order 12898 on environmental justice. The MMS participated in the development of these guidelines. In August 1994, the Secretary of the Interior directed the Department's bureaus to include environmental justice in NEPA documentation and, in February 1998, the CEQ issued guidance to assist Agencies in addressing environmental justice.

Environmental justice concerns are considered anywhere (including the MMS Pacific and Gulf of Mexico regions) where OCS projects and associated NEPA documentation take place; however, issues concerning Alaska OCS-related impacts primarily have focused on the subsistence hunting, fishing, and gathering activities that occur in coastal areas.

The MMS's existing process of involving all affected communities, Native Alaskans, and minority groups in the NEPA compliance process meets the intent and spirit of Executive Order 12898. Scoping and review for the EIS is an open process that provides an opportunity for all participants, including minority and low-income populations, to express concerns that can be addressed in the EIS. It should be emphasized that the reason the MMS holds scoping meetings is to encourage and facilitate public involvement into the EIS process. Valuable public input ensures that the EIS will be thorough and will address all pertinent issues that affect the quality of the human environment to the fullest extent possible and that will contribute a major role in the MMS's planning and final decisionmaking. The MMS will continue to identify ways to improve the input from all Alaskan residents, not only in commenting on official documents but also contributing their knowledge to the scientific and analytical sections of the EIS.

B.3. Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments (November 6, 2000)

The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, Executive Orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. The Federal Government has enacted numerous statutes and promulgated numerous regulations that establish and define a trust relationship with Indian tribes.

To strengthen the United States government-to-government relationships with Indian tribes (Indian tribe is defined as Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of

1994, 25 U.S.C. 479a), Executive Order 13175 requires the Secretary of the Interior to establish regular and meaningful consultation and collaboration with Indian tribal officials in the development of Federal policies that have tribal implications. Policies that have tribal implications refers to regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes. The United States continues to work with Indian tribes on a government-to-government basis to address issues concerning Indian tribal self-government, tribal trust resources, and Indian tribal treaty and other rights.

B.4. Executive Order 13007– Indian Sacred Sites (May 24, 1996)

The Indian Sacred Sites executive order directs Federal land-managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity of such sacred sites. It is MMS policy to consider the potential effects of all aspects of plans, projects, programs, and activities on Indian sacred sites, and to consult, to the greatest extent practicable and to the extent permitted by law, with tribal governments before taking actions that may affect Indian sacred sites located on Federal lands.

B.5. Executive Order 12114 – Environmental Effects Abroad (January 1979)

Executive Order 12114 requires that Federal officials be informed of environmental considerations, and take those considerations into account when making decisions on major Federal actions that could have environmental impacts anywhere beyond the borders of the U.S., including Antarctica. Such Federal actions include the following:

- All major Federal actions significantly affecting the environment outside the jurisdiction of any nation (the oceans or Antarctica). This would apply to proposals that result in actions within the U.S. that, because of ocean currents, winds, stream flow, or other natural processes, may affect parts of the oceans not claimed by any nation (high seas). Included in this category would be an OCS project that, because of ocean currents, could result in effluents or spilled oil reaching fishing grounds or areas not claimed by another nation.
- All major Federal actions significantly affecting the environment of a foreign nation not involved in the action. This would apply to proposals that result in actions within U.S. territory, or within the EEZ that, because of ocean currents, winds, stream flow, or other natural processes, may affect parts of another nation, or seas or oceans within the jurisdiction of other nations. This category would include an OCS project located upcurrent from the Mexican coastline that could affect Mexico's territory in the event of an oil spill. Also in this category are all major Federal actions in which a foreign nation is a participant and that normally would be covered by the EIS addressing the U.S. part of the Proposal. An example would be an OCS right-of-way pipeline bringing Canadian energy resources to the northeast U.S.
- All major Federal actions providing a foreign nation with a product or involving a project that produces an emission or effluent prohibited or regulated by U.S. Federal law because of its effects on the environment or the creation of a serious public health risk.

Federal actions causing significant impacts on environments outside the U.S. are to be addressed in:

- EIS's (generic, program [5-year OCS programmatic EIS]), and project-specific (OCS lease-sale EIS);
- documents prepared for decisionmakers containing reviews of environmental issues involved in Federal actions, or summaries of environmental analyses (for example, OCS lease-sale decision documents, Records of Decision); and
- environmental studies or research prepared by the U.S. and one or more foreign nations, or by an international body in which the U.S. is a member or participant.

The U.S., Canada, and Mexico are negotiating a Transboundary Environmental Impact Assessments (TEIA) Agreement through the North Atlantic Free Trade Agreement (NAFTA) Commission on Environmental Cooperation (CEC). The CEC deals with a wide range of environmental and natural resource protection issues common to Canada, the U.S., and Mexico. Developing a TEIA process is one of the requirements of the 1991

North American Agreement on Environmental Cooperation. Under this agreement, a transboundary environmental impact is any impact on the environment within the area under the jurisdiction of Canada, the U.S., or Mexico caused by a proposed project, the physical origin of which is situated wholly or in part within the area under the jurisdiction of one of the three countries. For example, a proposed project on the U.S. OCS that, because of ocean currents, winds, or proximity to the Mexican coastline, could affect Mexican waters (fishing industry, fish resources, etc.) or the Mexican coastline (oil-spill contacts, etc.) would be a project considered to have the potential to cause transboundary environmental impacts. The agreement recognizes that there is a significant bilateral nature to many transboundary issues and calls upon the three countries to develop an agreement to:

- assess the environmental impacts of proposed projects in any of the three countries party to the agreement (NAFTA) that would be likely to cause significant adverse transboundary impacts within the jurisdiction of any of the other parties;
- develop a system of notification, consultation, and sharing of relevant information between countries with respect to such projects; and
- give consideration to mitigating measures to address the potential adverse effects of such projects.

Negotiations are under way between the three parties to the agreement, but the final language has yet to be worked out. Because the requirements of the assessment portion of the agreement are somewhat similar to the requirements imposed by Executive Order 12114 (i.e., impacts to foreign territory must be addressed in NEPA documents), the MMS requires that EIS's prepared on major Federal OCS actions contain an assessment of potential significant impacts to foreign territory.

B.6. Executive Order 13158 – Marine Protected Areas (May 26, 2000)

Executive Order 13158 defines Marine Protected Areas (MPAs) as any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein.

This executive order directs Federal Agencies to work closely with State, local, and nongovernmental partners to create a comprehensive system of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources." Ultimately, the MPA system will include new sites, as well as enhancements to the conservation of existing sites. Five principal components of this executive order are:

1. **National MPA List**: the USDOC and the USDOI will develop and maintain a National list of MPAs in U.S. waters. Candidate sites for the list are drawn from existing programs for Federal, Tribal, State, and local protected areas. When completed, the list and the companion data on each site will serve several purposes such as ensuring that agencies "avoid harm" to MPAs, providing a foundation for the analysis of gaps in the existing system of protections, and helping improve the effectiveness of existing MPAs.
2. **MPA Web Site**: the USDOC and USDOI will develop and maintain a publicly accessible web site to provide information on MPAs and Federal Agency reports required by Executive Order 13158. Also, the web site will be used to publish and maintain the National MPA List and other useful information, such as maps of MPAs; a virtual library of MPA reference materials, including links to other web sites; information on the MPA Advisory Committee; activities of the National MPA Center; MPA program summaries; and background materials such as MPA definitions, benefits, management challenges, and management tools.
3. **MPA Federal Advisory Committee**: This committee was created to provide expert advice on, and recommendations for, a national system of MPAs. This advisory committee will include non-Federal representatives from science, resource management, environmental organizations, and industry.
4. **Mandate to Avoid Harmful Federal Actions**: This mandate directs Federal Agencies to avoid harm to MPAs or their resources through activities that they undertake, fund, or approve.
5. **MPA Center**: the executive order directs NOAA to create an MPA Center. In cooperation with the USDOI and working closely with other organizations, the MPA Center will coordinate the effort to implement the executive order and will:
   - develop the framework for a national system of MPAs;
   - coordinate the development of information, tools, and strategies;
   - provide guidance that will encourage efforts to enhance and expand the protection of existing MPAs and to establish or recommend new ones;
   - coordinate the MPA web site;

- partner with Federal and non-Federal organizations to conduct research, analysis, and exploration;
- help maintain the National MPA List; and
- support the MPA Advisory Committee.

B.7. Executive Order 13112 – Invasive Species (February 3, 1999)

Executive Order 13112 defines an "invasive species" as a species that is not native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. This executive order requires all Federal Agencies to:

- identify any actions affecting the status of invasive species;
- prevent invasive-species introduction;
- detect and respond to and control populations of invasive species in a cost-effective and environmentally sound manner;
- monitor invasive-species populations accurately and reliably;
- provide for restoration of native species and habitat conditions in invaded ecosystems;
- conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species;
- promote public education on invasive species and the means to address them; and,
- refrain from authorizing, funding, or carrying out actions that are likely to cause or promote invasive species introduction or spread, unless the Federal Agency has determined that the benefits of such actions clearly outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize risk of harm will be taken.

Additionally, this executive order established the National Invasive Species Council (Council), co-chaired by the Secretaries of Agriculture, Commerce, and the Interior and comprised of the Secretaries of State, Treasury, Defense, and Transportation, and the Administrator of the Environmental Protection Agency. The Council:

- provides national leadership on invasive species;
- sees that Federal efforts are coordinated and effective;
- promotes action at local, State, tribal, and ecosystem levels;
- identifies recommendations for international cooperation;
- facilitates a coordinated network to document and monitor invasive species;
- develops a web-based information network;
- provides guidance on invasive species for Federal Agencies to use in implementing the NEPA; and
- prepares an Invasive Species Management Plan to serve as the blueprint for Federal action to prevent introduction; provide control; and minimize economic, environmental, and human health impacts of invasive species.

The MMS requires that EIS's prepared on major Federal OCS actions (for example, 5-year OCS program and OCS lease sales) contain an assessment of the proposed action's contribution to the invasive species problem.

C. Mitigation Measures

C.1. Lease Term Stipulations

In each OCS planning area, oil and gas exploration and development activities have the potential for causing adverse environmental impacts. Many measures have been implemented by the MMS to "mitigate" or prevent and lessen possible impacts on environmental resources from both OCS and non-OCS activities. Mitigating measures are protective measures designed to prevent adverse impacts and to lessen and mitigate unavoidable impacts. Some of these protective measures are developed and applied to specific blocks in a planning area before leasing a block. The MMS develops and administers these requirements, which become a part of the lease-term conditions at lease issuance.

If a block is leased as a result of a lease sale, these protective measures are identified as lease-term stipulations and are attached to and become part of the lease and its conditions. These stipulations are designed to protect potentially sensitive resources in the affected block and to reduce possible multiple-use conflicts and are the requirements that the lessee must meet to mitigate adverse impacts. They also may be considered to apply to all activities that occur on the leased area throughout the life of the lease.

All stipulations are considered part of this proposed Federal action. All lease-term stipulations are considered part of this proposed Federal action and all alternatives are discussed in this EIS.

C.2. Special Stipulations

To mitigate adverse environmental impacts for actions associated with a specific project (i.e., proposed plans for exploration, development and production plans, and site-clearance activities in an area located on an OCS lease block), mitigating measures may be necessary. Mitigating measures are special stipulations that limit OCS operations and are in addition to the aforementioned lease-term stipulations.

Conditions of plan approval are mechanisms determined by the MMS to control or mitigate potential environmental or safety problems that are associated with a specific proposed Federal action. During the life of the action, these protective measures are applicable specifically to the individual activities proposed in a plan and are imposed following environmental reviews (according to the NEPA) of the OCS lease location and potential resources.

Protective measures for certain resources may be suggested or identified during the scoping process for this EIS and mitigating measures may develop as a result. The MMS will evaluate additional stipulations, if any, that may develop during this EIS process.

APPENDIX E

Scoping Report
Beaufort Sea Proposed Oil and Gas
Lease Sales 186 (2003), 195 (2005), and 202 (2007)

APPENDIX E: SCOPING REPORT: BEAUFORT SEA PROPOSED OIL AND GAS LEASE SALES 186 (2003), 195 (2005), AND 202 (2007)

A. Introduction

A.1. Purpose

This report summarizes scoping comments received and the significant environmental issues, reasonable alternatives for analysis, and potential mitigating measures that will be examined in the Minerals Management Service's (MMS's) environmental impact statement (EIS) for the proposed Beaufort Sea Outer Continental Shelf Lease Sales 186, 195, and 202 in the Beaufort Sea Planning Area.

A multiple-sale prelease process has been implemented for the Beaufort Sea sales in the proposed final 2002-2007 5-year program. From the initial step in the process (the Call for Information and Nominations [Call], and the Notice of Intent to Prepare an EIS [NOI]) through the final EIS/Consistency Determination step, this process covers proposed multiple sales. A multiple-sale EIS will analyze the first proposed sale (Sale 186) and the effects of the subsequent two proposed sales (Sale 195 and Sale 202). There also will be complete National Environmental Policy Act (NEPA) and Coastal Zone Management Act coverage for all sales after the first sale; either an Environmental Assessment (EA) or supplemental EIS, and a Consistency Determination (focusing primarily on new issues or changes in a State's federally approved coastal management plan) will be prepared for each subsequent sale. A proposed and final Notice of Sale will be prepared for each proposed lease sale identified in the draft proposed program.

One of the key features of the prelease process is the preparation of a multiple-sale EIS. One EIS covers three lease sales: Sale 186 scheduled for 2003; Sale 195 scheduled for 2005; and Sale 202 scheduled for 2007, according to the release of the 2002-2007 5-Year proposed final program. This will enable the MMS to conduct the prelease decision processes for subsequent sales (Sales 195 and 202) more efficiently, consistent with the new Executive Order of May 18, 2001, to expedite energy-related projects. Federal regulations (40 CFR 1502.4) allow several similar proposals to be analyzed in one EIS. The EIS will include: (a) an analysis for each of the three Beaufort Sea sales; (b) an analysis of the three sales collectively; and (c) a cumulative analysis of the incremental effects of holding the three sales when added to the other past, present, and reasonably foreseeable State and Federal onshore and offshore oil and gas activities on the North Slope and other activities that could affect the same resources.

This EIS will have a specific analysis for all issues, alternatives, and mitigating measures developed during the assessment process. Issues, alternatives, and mitigating measures that were determined to be insignificant will not be examined in the EIS but are identified in Sections II.B and IV of this report.

B. Summary of the Scoping Process

Scoping for the Beaufort Sea multiple-sale EIS included:

- reviewing the comments received from the Call/NOI;
- reviewing comments from scoping meetings;
- re-evaluating issues raised and analyzed in the EIS's for previous Beaufort Sea Planning Area lease sales (Sales BF, 71, 87, 97, 124, 144, and 170); and
- soliciting staff input.

Scoping comments for the proposed lease sale were requested from the public through newspaper, radio, and television advertisements in the North Slope Borough (NSB) communities of Barrow, Nuiqsut, and Kaktovik, and in Anchorage. The Call/NOI and scoping process provided a forum in which a wide variety of professionals and private citizens representing a broad spectrum of concerned groups had the opportunity to review and comment on areas of concern and appropriate areas for future studies. Environmental Justice was discussed with participants on the North Slope, both in the Government-to-Government meetings and with individual participants at the scoping meetings. The MMS provided an Inupiat translator for scoping meetings held on the North Slope to facilitate communication and comments. A Notice of Intent to prepare an EIS was published in the *Federal Register* on September 19, 2001, and comments were due by November 5, 2001.

B.1. Comments Received in Response to the Call/NOI and the Scoping Process

The MMS received nine written comments through the Call/NOI and scoping process from the following: State of Alaska, Office of the Governor, Division of Governmental Coordination; North Slope Borough, Office of the Mayor; North Slope Borough, Planning Department Director; Alaska Eskimo Whaling Commission, Director; City of Wainwright, Mayor; combined letter from the Sierra Club, Arctic Connections, the Wilderness Society, and Greenpeace; Phillips Alaska Exploration; Shell Oil; and British Petroleum (Alaska) Inc.

Specific Comments: Specific concerns expressed in the letters received in response to the Call/NOI are summarized in the following.

B.1.a State of Alaska, Office of the Governor, Division of Governmental Coordination

- The State supports the deferrals and mitigating measures that have been incorporated into previous outer continental shelf (OCS) lease sales.
- The State supports the Barter Island deferral that was included in Sale 144. This deferral area did not apply in Sale 170.
- The State recommends that the MMS retain the conflict avoidance measures developed for Lease Sale 170, especially in regard to subsistence resources. The Cross Island Stipulation for protection of subsistence resources in the Cross Island area should be retained.
- The Information to Lessees (ITL's) adopted for Sale 170 also should be included for the upcoming sales. The MMS may wish to consider expanding the ITL on polar bear interaction to include brown bears to minimize conflicts between bears and humans that might arise on onshore facilities associated with onshore development.
- The Alaska Department of Natural Resources and the Alaska Department of Fish and Game expressed support for a single EIS covering all three sales. However, the North Slope Borough opposes this change, and the State encourages MMS to work with the North Slope Borough to address their concerns before switching to a multiple-sale process.
- The State recommends that the MMS use the existing process for the coastal consistency review for the upcoming sales.

B.1.b North Slope Borough, Office of the Mayor

- There should be a full public process associated with each sale.
- An EIS should be developed, and a Coastal Management Program Consistency Analysis should be conducted for each sale.
- The MMS and other State and Federal leasing agencies are moving ahead with their plans without a good handle on the cumulative impacts of all of this (other related oil and gas activities) on the environment, wildlife resources, and residents of the North Slope. Serious cumulative impacts already have occurred.
- Areas deferred from past Beaufort Sea sales should be removed permanently from consideration for leasing.
- The spring-lead system and eastern Beaufort Sea should be deferred from leasing in all Beaufort Sea sales under the proposed 2002-2007 OCS leasing program. The spring-lead system around Point Barrow concentrates and renders highly vulnerable a variety of arctic marine resources. It is a critical subsistence-use area.
- The eastern Beaufort Sea is a feeding area for bowheads migrating westward in the fall. The level of industrial activity in waters east of Barter Island is of critical importance to the success or failure of subsistence-hunting efforts. In the past, fall exploratory drilling operations occurring to the east of the subsistence-harvest zone have deflected whales beyond the reach of subsistence hunting.
- The 10-mile distance (around Cross Island) is arbitrary and too small. The zone should be expanded to include a larger area based on the true area used by Nuiqsut in the traditional pursuit, harvest, retrieval, and processing of bowhead whales, in addition to the areas used for transportation and storage of the products of the bowhead whale hunt. This includes the areas to the east where production noise from permanent industrial facilities would have the potential to deflect whales out of reach of subsistence hunters. The goal should be to add protection for the area directly used by subsistence whalers and to the east of that area where noise from permanent industrial facilities would have the potential to deflect whales beyond the reach of subsistence whalers.
- A new whale-deferral zone should be defined in consultation with the Alaska Eskimo Whaling Commission (AEWC) and Nuiqsut and refined as noise-monitoring studies, including those associated with Northstar and Liberty, to produce more accurate information on (bowhead) impacts.

B.1.c North Slope Borough, Planning Department Director

- The NSB finds the lease sales (proposed) by MMS to be inconsistent with the policies of the NSB Coastal Management Plan and the Alaska Coastal Management Program.
- Industrial noise from seismic activities has proven to deter migrating bowhead whales by up to 12 miles.
- The continued availability of these waters for oil and gas exploration and development conflicts with (our) culture and the habitat values of the bowhead whale.
- Our culture is dependent on the continued availability of whales and our being able to hunt them close by. The spring migration area is particularly important.
- Oil-spill-cleanup trials have failed to meet response-planning standards for open-water and broken-ice conditions. The oil industry has yet to come up with a system for mechanical oil recovery that will work in ice-infested waters. It is irresponsible to continue leasing, exploratory drilling, and development in the arctic marine environment until the oil industry has demonstrated definitively that it has the capability to effectively respond to a significant oil spill in the entire range of environmental conditions that it may face in the region.
- If the need arises to provide relief-well operations in cases where a blowout or other catastrophic uncontrolled release should happen, no effective relief-well operations can occur within the unstable ice regimes that exist from 3-60 miles offshore. Completion of a relief well and well control could take 2-3 months under extreme broken-ice conditions.
- We believe that the MMS has underestimated the ice forces of the area, and that these forces could result in a significant release of oil. An ice-override event can occur at anytime when ice is present, subjecting all human activities in the area to great danger.
- The OCS from 3-60 miles offshore has not been extensively explored or studied for exploration or production activities. The placement and protection of fuel tanks, drilling rigs, and other oil and gas activities must be able to withstand the combined forces of current and wind-driven ice. These placements must be based on actual measurements of ice forces and movements.

- Other potential offshore hazards may exist, such as methane hydrate pockets. Historically, methane hydrate is responsible for the sinking of some ships and fires on or toppling of oil platforms.
- Spilled oil could persist in the migration path of the bowhead whale, with the potential to divert the animals from their preferred migratory path, or to subject the whales and other marine wildlife to the harmful effects of hydrocarbon exposure.
- The community of Nuiqsut, which uses the Cross Island area for subsistence, and other subsistence communities that use resources migrating through the Beaufort Sea, would suffer loss of resources, impaired access to resources, or the tainting of resources.
- Any perceived threat to the bowhead whale that results from a spill may elicit action by the International Whaling Commission (IWC). The IWC may reduce subsistence quotas as the only means of enhancing the protection of whale populations at risk.
- The North Slope Borough Planning Department stated that 10-mile no permanent facility area in Stipulation 6 as adopted in OCS Lease Sale 170 cannot now be developed without precluding reasonable subsistence access to fall-migrating bowhead whales.
- A study has not been forwarded to the NSB that concludes that the areas around the lease proposals can or cannot be developed, nor has (there been) any (information on) new technology in recovering oil from arctic waters (as well as) an assessment concerning subsistence-user access to subsistence resources and the effects on the (bowhead) migration path relative to Cross Island.
- The Beaufort Sea lease sales include areas 3-60 miles offshore and are in an area that cannot be developed without harming subsistence activities and the migratory route or feeding areas of the bowhead whale during the life expectancy of a field.
- Given the unpredictability of the arctic environment, opportunities for oil and gas leasing should be focused on land where proven systems exist and more accurate performance predictions can be made.

B.1.d Alaska Eskimo Whaling Commission Director

- The AEWC submitted comments to MMS on the Proposed draft 5-Year OCS Leasing Program 2002-2007 and the related EIS. The AEWC hereby incorporates those comments by reference.
- The present Notice of Proposed Lease Sales by MMS is premature, because the 5-Year OCS Leasing Program 2002-2007 has not been finalized and approved. The Secretary does not have the authority to act on planned leases that are part of a proposed leasing program until the Secretary fully complies with the notice and comment periods of the OCS Lands Act and the leasing program has reached the stage of final approval.
- MMS must address the mitigation of adverse impacts before going any further with OCS leasing in the Beaufort Sea.
- The AEWC claims that Congress gave the grant of authority in the OCS Lands Act and quotes 43 USC 1334(a): "Congress further authorized the Secretary to 'at any time prescribe and amend such rules and regulations as he determines to be necessary and proper in order to provide for the protection of correlative rights.'" the AEWC contends that their staff time is dominated by OCS-related matters with no Government funding to help them, in spite of repeated requests for assistance. They believe that the MMS has a statutory responsibility to provide for their correlative rights. As such, they request assistance so that they may be able to fully participate in mitigation of adverse effects.
- MMS is required to prepare an EIS for each lease sale it proposes to hold. The AEWC states: that according to NEPA, "the decision whether or not to prepare an EIS comes after the preparation of an EA not before." (MMS Note: Subsequent to the submission of this comment, the Executive Director of the AEWC acknowledged that this statement was based upon a rather unclear description of the multiple sale EIS process by MMS. MMS interprets this subsequent acknowledgement by the AEWC as a withdrawal of the previous comment)
- Areas used for our bowhead whale subsistence hunt should be permanently removed from any future consideration for OCS leasing. These removal areas must be of a size and configuration that will ensure their effectiveness as a means of mitigating adverse impacts to the bowhead whale subsistence hunt from OCS oil and gas activities.

B.1.e City of Wainwright, Mayor

- The majority of the community is opposed to leasing in the Beaufort Sea. The area available for leasing is in the path of migrating bowhead whales, and any activity in that area would interfere with the whale's migration and related subsistence activities.

B.1.f Sierra Club, Arctic Connection, Wilderness Society, and Greenpeace (joint letter)

- Industry is unable to contain and clean up oil spills in arctic waters during most of the year.
- The new subsea buried pipeline technology has unprecedented risks of oil spills.
- The environment and local communities are experiencing the simultaneous impacts of a massive surge of exploration (seismic surveys and drilling) on the North Slope as well as new offshore oil construction.
- Offshore lease sales jeopardize the integrity of the wilderness, wildlife, and coastal habitats of the Arctic National Wildlife Refuge (ANWR). The Refuge would be degraded from pollution from offshore development, transport and industrial noise, and potential oil spills.
- In the future, there would be intense pressure to construct sprawling onshore airports, pipelines, roads, docks, and other support facilities within the Refuge.
- The last Beaufort Sea Sale 170 set a precedent of not leasing off the coast of ANWR. Among the reasons cited by the Interior Department, was a lack of information on cumulative impacts on the Refuge, emergency response plans, and subsea pipelines. that lack of information still exists.
- They support a deferral requested by the city of Kaktovik, an offshore deferral area from the Canning River to the Canadian border.
- They oppose the streamlining proposal and desire the full process for each sale.
- The cumulative impacts of simultaneous onshore and offshore exploration and development must be considered.
- Areas that were deferred or deleted from past Beaufort Sea sales should be removed permanently from consideration for leasing. The importance and sensitivity of the Barrow-area spring-lead system and the eastern Beaufort Sea has been recognized in recent OCS lease sales, and the areas have been deferred from leasing. The spring-lead system and eastern Beaufort Sea should be deferred from leasing under the proposed 2002-2007 OCS leasing program.

B.1.g Phillips Alaska Exploration

- They support sales every other year covering an area within 30 miles of the shoreline.
- They do not support "discretionary sale deferrals and arbitrary exclusions." "the greater the foreseeable leasing area, the greater the incentive."
- "It is important that all nearshore acreage be included in upcoming sales."
- They encourage the MMS "to set and apply consistent and reasonable lease terms and mitigating measures for all upcoming sales."

B.1.h Shell Oil

- They support leasing the entire nearshore area out to about 15 miles.

B.1.i British Petroleum (Alaska) Inc.

- They applaud MMS's efforts to streamline the environmental review process, and they endorse the proposed Beaufort Sea sale schedule.
- They encourage the MMS to use existing EIS supporting documentation in upcoming work and coordinate information exchanges with the State of Alaska relative to research and studies already conducted in the Beaufort area.

B.2. Scoping Meetings

The Scoping Meeting for the Beaufort Sea multiple-sale EIS were held in Nuiqsut, Barrow, Kaktovik, and Anchorage on October 16, 18, 19, and 26, 2001, respectively. Meetings with the Native Village of Barrow, and the Mayor of the North Slope Borough and Alaska Eskimo Whaling Commission also were held while the scoping team was in Barrow. An additional meeting was requested by the AEWC and the Inupiat Community of the Arctic Slope (ICAS) and held on November 15, 2001. Environmental Justice concerns were accepted during the meeting held on the North Slope and those comments are included in summary of issues and concerns below. The EIS will include an Environmental Justice analysis. Following are the major concerns that were raised at these scoping meetings.

B.2.a Government-to-Government Nuiqsut Tribal Council Meeting, October 16, 2001

The meeting was held in the afternoon; five to six persons attended. The Council is concerned about the following:

- the safety of OCS activities and potential impacts from oil spills;
- the effects to subsistence resources including bowheads, seals, and fish;
- the breadth of the sale, from Barrow to Canada;
- that MMS is not using traditional knowledge when making decisions; and
- that OCS activities are impacting the local sociocultural and health systems.

The Council indicated the following:

- the preparation of a single EIS for all three sales will limit their input into the sale process;
- the MMS needs to look at the cumulative impacts and consequences of offshore leasing when making decisions; locals are not responsible for cumulative effects; and
- they also are requesting local impact assistance.

B.2.b Nuiqsut Public Scoping Meeting, October 16, 2001

The meeting was held in the evening; 31 persons attended.

- Individuals are concerned about the ability of oil companies to clean up oil. They are most concerned that three oil-spill drills have failed to pick up oil in ice-infested water under relatively mild conditions.
- The Mayor of Nuiqsut stated his concern that ice forces are capable of overriding manmade islands and can result in oil spills.
- Some expressed concern about adverse effects to their subsistence lifestyle, especially fish harvests.
- Some stated that they should have more input before the lease-sale decisions, and they feel that MMS is not using local traditional knowledge. They need to protect their natural resources—no drilling on the OCS. They support onshore drilling.
- The people of Nuiqsut want Cross Island completely deferred. The area should be permanently dropped from leasing consideration.
- Those commenting stated that the managing Federal Agencies and the oil companies should share resources found with the village.
- Others stated that:
  - MMS should fund local oversight subsistence programs,
  - bowhead whale feeding areas should be off limits to leasing,
  - industry is offering limited local job opportunities,
  - offshore pipelines which come onshore are restricting caribou movement, and
  - an EIS should be written for each Beaufort Sea sale, otherwise they will have limited input to the process.

B.2.c Government-to-Government Native Village of Barrow Scoping Meeting, October 18, 2001

The meeting was held in the morning; seven persons attended. The commenting expressed concerns about:

- industry's ability to contain a pipeline break and the long-term environmental effects from an offshore pipeline oil spill;
- the potential effects to their subsistence lifestyle;
- the lack of power the locals have to get information and learn the process; they stated that education is power;
- platform types in ice-infested waters and whether they would withstand the arctic winters; and
- circumpolar ice movement and the difficulty it adds to OCS drilling.

B.2.d Barrow Scoping Meeting with the North Slope Borough and AEWC, October 18, 2001

The meeting was held in the afternoon; seven persons attended:

- Those attending stated that they do not support the OCS program, as no efficient oil-spill cleanup technology is available. The Secretary and MMS should permanently remove from leasing and oil and gas activities those areas that are important subsistence areas, such as the spring lead system, the area near Cross Island, and the bowhead whale feeding areas.
- The NSB, AEWC, and Whaling Captains should be consulted and included in the development of mitigation and deferral areas.
- They want impact assistance and local participation in decisionmaking.
- They are concerned about oil-spill cleanup and pipeline design.
- The North Slope Borough wants to protect the food and cultural resources of the residents on the North Slope. The resources from the ocean are vital parts of the Inupiat culture.
- They view leasing, exploration, and development and production as a continuing process; one stage leads to the next with no stopping the momentum once it gets started.
- The Secretary of the Interior needs to approve the 5-year program before the MMS starts the individual lease-sale process under this program. They stated there should be an independent EIS for each lease sale. They want an independent Coastal Zone Consistency evaluation for each sale.
- They expressed concern that seismic vessels working on the northern gas route survey spooked the whales farther offshore this past year.
- MMS needs to be an advocate of the NSB positions. The MMS needs to deal with the NSB and local concerns and issues.
- MMS should require the employment of local NSB residents in OCS activities.
- The OCS Policy Committee recommended (a) funding to locals and (b) NSB oversight of the plans; this is through (1) peer review of studies material and technical material; (2) mitigation, if needed; and (3) impact funding to locals.
- They need mitigation for local economic/social impacts.
- The AEWC is against all offshore leasing, exploration, and development.
- They stated that cumulative impacts are really "snowballing" now. The NSB residents are becoming increasingly frustrated. It seems like cumulative impact is being left up to the locals to address/solve.

B.2.e Barrow Public Scoping Meeting, October 18, 2001

The meeting was held in the evening; six persons attended. Those attending stated the following:

- They are concerned about the potential adverse effects from an oil spill. They want a performance bond for catastrophic spill. They are concerned about adverse effects to fish, bowhead whales, and subsistence lifestyles.
- They wish they could repair Native sovereignty and control their own destiny in their own environment.
- They want oil and gas pipelines to be buried in the road system so pipelines will not impede caribou movement.

- They want impact assistance at the community level.

B.2.f Kaktovik Public Scoping Meeting, October 19, 2001

The meeting was held in the evening; six persons attended:

- They voiced concerns about the extensive barge traffic along the coast this summer bringing in the sewer and water pipes for their village, plus Canadian seismic boats working on the gas pipeline. Indications were that both actions seemed to push their subsistence whaling efforts farther offshore.
- They are against offshore oil and gas activities.

B.2.g Anchorage Public Scoping Meeting, October 26, 2001

The meeting was held in the evening; two persons attended:

- One individual from an environmental organization delivered a group joint letter, which is summarized earlier in this section under I.B.1.f on page E-4.
- The other individual, an MMS study subcontractor gave his perception of local reactions to OCS oil and gas activities.

B.2.h Barrow Meetings with Inupiat Community of the Arctic Slope and the Alaska Eskimo Whaling Commission on November 15, 2001

- The AEWC provided whale-strike information and two potential deferral alternatives, one near Barrow and one near Nuiqsut.
- The ICAS is against OCS drilling.

C. Environmental Concerns

C.1. Significant Environmental Issues

No entirely new significant environmental concerns were identified during the scoping process that was not identified in the previous Sale 170 final EIS. Since this last sale EIS, Northstar, the first partial OCS jurisdictional development and production island, has been built and has come online. This has raised feelings of environmental uncertainty by local residents, because many do not trust the engineering designs to overcome known North Slope environmental constraints. Many concerns extend to the Liberty Development and Production Project, which was under review.

The following environmental issues are identified for analysis in the EIS, because they are related to important resources, activities, systems, or programs that could be affected by petroleum exploration, development, and production, and transportation activities associated with the proposals for all three sales. The cumulative effects of present and future major activities on each of these resources, activities, systems, or programs will be analyzed.

C.1.a Effects of Spilled Oil on Marine Resources

Contamination and Effects: the likelihood of large oil spills is very small. However, if oil spilled, it could contaminate the affected marine and coastal environments and, depending on the amount and time of the year, have short- to long-term local to regional effects on those resources and sociocultural systems adjacent to the planning area. A hydrocarbon-spill event, especially a large one, could have a significant impact on water quality. In situ burning of spilled oil would affect the air quality of the region. Lower trophic-level organisms within the spill area also would be affected. Marine mammals, including the endangered bowhead whale, could

be affected as they migrate through the Beaufort Sea. The bowhead whale is integral to the continuation and survival of the cultural and subsistence lifestyle of the Inupiat. Both the spectacled eider and the Steller's eider are listed as threatened species.

Other resources affected by an oil spill that are crucial to Inupiat subsistence include anadromous fish, including the Arctic cisco, and various marine and coastal birds. The Inupiat are concerned that a spill could adversely affect many of the traditional food sources and, thereby, could affect the economic and cultural well-being of the North Slope. The temporary or permanent elimination of primary subsistence foods would cause North Slope residents to either shift to less desired subsistence resources or replace them with western foods.

C.1.b Fate, Behavior, and Cleanup of Spilled Oil in the Marine Environment

The fate and behavior of spilled oil in the marine and coastal environments and the capability and methods of spill cleanup are of major concern to local communities. Identified concerns include:

- the availability and adequacy of containment and cleanup technologies, especially under broken-ice conditions;
- the ability to detect and clean up pipeline spills and spills under ice;
- the effects of winds and currents on the transport of spilled oil within ice;
- the removal of oil from contaminated water sediments and ice;
- the toxicological properties of fresh and weathering oil; and
- the air pollution that would result from the at-sea evaporation or burning of spilled oil.

This concern has been intensified in recent years, as industry has on three occasions not proved their ability to adequately clean up spilled oil with mechanical equipment in relatively calm environmental conditions in ice-infested waters. Other non-mechanical tactics are available in these periods.

Oil spills and a general discussion of oil-spill contingency plans will be covered in this EIS.

C.2. Habitat Disturbance and Alteration

Habitat disturbance and alteration might result from both offshore and onshore construction activities associated with the operation of petroleum facilities, depending on location of activities.

C.2.a Habitat Disturbance

Habitat disturbance, including noise, might be associated with air traffic, vessel operations, traffic along gravel and ice roads, marine and over-the-ice seismic activities, offshore drilling, dredging, vessels involved in icebreaking and management operations, and facility construction. The primary concern in all communities and by the North Slope Borough is interference with the bowhead whale hunt. Depending on the type of operation and the time of occurrence, these habitat disturbances may have short- to long-term local to regional effects on fishes (particularly anadromous species such as the Arctic cisco), marine and coastal birds, marine mammals, caribou, and endangered and threatened species such as the bowhead whale, Steller's eider, and spectacled eider, all of which will have an effect on subsistence hunting and fishing. Issues related to the above will be evaluated in EIS analysis for new projects when they are submitted to the MMS.

C.2.b Habitat Alteration

Habitat alteration, including reduction, would be associated with both onshore and offshore construction activities that include pipeline and ice- and gravel-road construction, dredging-excavation and dumping of dredge material, removal of gravel from onshore sites, and dumping of onshore gravel in offshore locations. Depending on the type of operation and the time and location of occurrence, they could have short- to-long-term local to regional effects on lower trophic-level organisms; fishes (especially Arctic cisco) and other anadromous species; marine and coastal birds; marine mammals; endangered bowhead whales, especially in the spring-lead system and fall-feeding area; caribou; archaeological resources; and subsistence hunting and fishing activities

related to reduced access to the resources. The MMS does not have the authority to mitigate disturbances to wildlife due to onshore pipeline routing.

C.3. Protection of Inupiat Culture and Way of Life

The Inupiat believe their culture and way of life need to be protected from effects associated with petroleum development. As such, activities might lead to social disruption and a change in cultural values through employment changes (further displacement of the subsistence lifestyle by a cash economy), and the alteration of subsistence-harvest patterns as discussed in relation to other significant issues previously noted in this section. The EIS will discuss and evaluate sociocultural and health systems of local communities.

C.4. Other Significant Concerns

Following are other significant issues related to petroleum-development activities that were raised during the scoping process:

- Incorporation of "traditional knowledge" (TK) in the EIS, although acknowledged, still does not seem to satisfy those who criticize this aspect. Concern seems to center around a perception that MMS does not recognize TK on the same level as scientific knowledge. The implication is that although MMS has quoted TK within the EIS text, TK has not been a part of the decisionmaking process. Villages seemed to appreciate the fact that MMS gathered the last 25 years of public testimony and prepared a publicly available searchable CD-ROM. The MMS will continue to communicate with the AEWC and whaling captains to gain insight into local conditions. The TK (for example, about fish species and other subsistence values) will continue to be incorporated into EIS text and provided to MMS decisionmakers.
- Cumulative effects of oil and gas operations on the biological (i.e., caribou migration restricted in relation to pipeline routes, and onshore effects, including fishing in the Colville River) and physical resources and social systems (i.e., development impact to the Inupiat way of life, and no rights to visit family's ancestral ice cellars in Prudhoe Bay) in and adjacent to the planning area from past, present, and future Arctic oil and gas lease sales and other major projects, will be analyzed in the EIS. Criticism still arises from not having a definite database to tier off of before oil and gas operations even occurred on the North Slope. The National Research Council is conducting a 2-year review on cumulative effects of oil and gas operations on the North Slope. Results may be available for incorporation, as applicable, into the final EIS for this lease sale.
- Include all of the mitigating measures-stipulations and notices to lessees from the last lease sale (Sale 170) into this Beaufort Sea multiple-sale EIS.

C.5. Topics and Issues Not Analyzed in the EIS

This includes issues that were identified during the scoping process and that are not analyzed in the EIS.

C.5.a Revenue Sharing/Impact Assistance

One issue, repeatedly identified as being of primary concern to the North Slope Borough and all of the North Slope villages, is the need for revenue-sharing assistance to local communities from OCS receipts. Impact assistance beyond what is provided for under the OCS Lands Act would require congressional action and cannot be addressed or resolved through the EIS process. Under the 1997-2002 5-Year Oil and Gas Leasing Program, recommendations of the OCS Policy Committee for such revenues were passed through MMS to appropriate congressional constituents. However, it is Congress and not MMS that makes this decision. A version of this type of legislation (the CARA bill) was passed by Congress for FY 2001; however, monies derived did not filter down to the local villages. Funding was only at the State and Borough level. Locals do not like to be competing among themselves for monies they feel rightfully belong to them.

C.5.b Participation of Local Communities

The need for active participation and involvement, including decisionmaking authority, of the North Slope Borough and local communities was another issue raised at each of the scoping meetings. Examples are Borough, City, and Native village participation in the review of oil-industry operations, development of monitoring programs, and helping to write the various NEPA documents. Locals would like to be brought to Anchorage and be a part the of internal review process of industry-submitted projects. The MMS did solicit and receive Environmental Justice comments, which are included above, and the EIS will include an Environmental Justice analysis. The MMS will continue to engage local governments and tribes in government-to-government meetings to share information and will meet as often as needed to discuss potential solutions.

C.5.c Process Issues

Several commenters suggested that MMS should wait to start the individual lease-sale process until the Secretary had approved the final 5-year program for 2002-2007. They suggested it was illegal or improper for MMS to start the Beaufort Sea multiple-sale process before a final decision by the Secretary. However, to meet the proposed schedule, MMS must start the preliminary scoping and writing of the EIS based on the draft proposed program, otherwise it would be impossible to hold any sales in the first 2 years of any 5-year program. Once the proposed program is approved, adjustments will be made to any text within the draft EIS. Any 5-year program decisions concerning the Beaufort Sea Planning Area will be incorporated into this EIS and into the potential lease sale decisions for Sale 186, 195, and 202. The current proposed actions for this EIS are to conduct the three sales identified in the 2002-2007 5-Year Draft Proposed Program for the Beaufort Sea: Sale 186 to be held in 2003; Sale 195 to be held in 2005; and Sale 202 to be held in 2007. This will enable the MMS to conduct the prelease decision processes for subsequent sales (Sales 195 and 202) more efficiently, consistent with the new Executive Order of May 18, 2001, to expedite energy-related projects. Federal NEPA regulations allow several similar proposals to be analyzed in one EIS (40 CFR 1502.4). There also will be complete NEPA and Coastal Zone Management Act coverage for all sales after the first sale, either an Environmental Assessment or Supplemental EIS, and a Consistency Determination (focusing primarily on new issues or changes in a State's federally approved coastal management plan) will be prepared for each subsequent sale.

Commenters suggested that areas deferred (i.e., bowhead subsistence-hunt areas) or deleted from past Beaufort Sea sales should be removed permanently from consideration for leasing. The EIS looks at deferrals for each sale and in the areas considered in the 5-year planning process. Any 5-year program decision made by the Secretary whether to exclude or to continue to exclude areas will be incorporated into this EIS.

A suggestion was made that MMS have industry provide job opportunities and training for local communities to help their economy. Under a lease-sale or postlease-sale EIS, the MMS does look at and evaluate the local community in relation to the proposed actions. However, the MMS has no authority to require an operator to provide local hire. We can suggest, but not enforce, such a suggestion.

Some reviewing constituents consider a continuum between leasing, exploration, and eventual production and development phases of the Federal oil and gas-leasing program. They feel that once a decision is made to lease an area, any subsequent decisions are a "done deal" that cannot be stopped or altered. The OCS Lands Act and the regulations consider these as four separate phases, each of which has a separate decision process attached to that phase. Subsequently, there are four NEPA documents prepared for these various phases: (1) a national 5-Year leasing program EIS; (2)a leasing program EA or EIS; (3) an exploration program EA or EIS; and (4) a production and development plan EA or EIS. Each NEPA phase has a different level of analysis, depending on the specificity of the information being submitted for review. This concern is not supported by the history of leasing in the Alaskan OCS and the Beaufort Sea. Thousands of leases have been issued; however, fewer than 100 wells have been drilled and only one project, Northstar, has started production. A second project, Liberty, is under NEPA review.

C.5.d MMS Should Allow Locals to Provide Input in Development of Monitoring and Mitigation Measures and Should Provide Funding to Local Oversight Subsistence Programs

MMS will continue to consult local communities throughout the presale process about possible mitigation measures. Some involvement by locals is being considered separately, as this topic is outside the EIS process. MMS cannot obligate OCS revenues for support of local subsistence program, only Congress can appropriate funds. Please see the previous discussion of impact assistance.

C.5.e MMS and the Oil Companies Should Provide Local Communities with a Reasonable Energy Source

Commenters at the meetings on the North Slope feel that MMS should require the oil companies to provide energy to the residents of nearby local communities, which are the potential recipients of adverse impacts associated with offshore oil and gas development. Both Barrow (Barrow gas field) and Nuiqsut (from Alpine) have nearby natural gas supplies, which have been made available to local residents. Such arrangements are between the operator and the local community.

C.5.f Ice Override

Commenters at meetings in Nuiqsut and Barrow feel that proposed oil and gas activities could be adversely impacts by the movement of ice in the Arctic. A general discussion of known unstable ice regimes and historic ice-override events are included in our lease-sale EIS analysis. Specifics as to placement of fuel tanks, relief wells, and human safety factors relating to these topics are addressed in subsequent exploration plan and development and production plan analysis. The MMS takes traditional knowledge into consideration when evaluating ice forces. This procedure was used for both Northstar and Liberty development and production plans.

C.5.g Gas Hydrates

Some stated that methane-hydrate pockets might be present and a safety hazard to OCS operations. A general discussion of these phenomena is covered under the general geology section of lease sale EIS's. Specifics as to an actual drilling plan are discussed in the exploration plan or development and production plan, and are covered under MMS regulations.

C.5.h Unprecedented Subsea Buried Pipeline Technology

Some commenters stated the subsea buried pipelines are based on unproven technology, and they do not feel that such pipelines are safe. Within the lease-sale EIS, buried subsea pipelines are described and the potential effects from construction or from an oil spill are evaluated. Design criteria are set by Federal and State regulations; the operator can design as they see fit, but they must meet this criteria. The operator submits engineering analysis to back up their design specifications. The development and production plan EIS discusses the environmental effects of the overall pipeline analysis. This procedure was used for both the Northstar and Liberty development and production plans.

C.5.i Critical Habitat Should be Deleted from OCS Leasing

Some comments in Barrow suggested that the ongoing Federal process to identify and designate critical bowhead whale habitat automatically required its exclusion from consideration for future leasing. However, the designation of critical habitat requires additional analysis within the EIS and consultation with the responsible regulatory agency. This does not necessarily mean that the area designated will be automatically deleted from

future leasing proposals. Therefore, the MMS suggested that these commenters provide suggestions for deferral alternatives, which they did.

C.5.j Bonding for Operators

The NSB and the AEWC both indicated that locals have required the operator to put up a performance bond for operations on the North Slope to protect their subsistence resources. They stated that local communities should not have to require bonds, because requirements for bonding are an MMS responsibility. MMS regulations do require operator bonding for financial liability on their lease, but the Oil Pollution Act of 1990 covers this.

C.5.k Bury Pipelines in North Slope Roads to Eliminate Visual Pollution and to Eliminate Blockage of Caribou Migration Routes

A commenter in Barrow was concerned that existing onshore pipelines maybe inhibiting the movement of bull caribou. Onshore pipeline routes are under the jurisdiction of the State, not MMS. Cumulative effects to caribou will be evaluated in this EIS and in future NEPA documents for any OCS oil and gas exploration or development.

D. Alternatives Recommended for Inclusion in the EIS

Six alternatives have been identified by MMS, taking into consideration the area identification and scoping process, industry interest, and publicly available information on potential effects of the proposed action on the environment.

D.1. Description of Alternative I (Proposal for Sales 186, 195, and 202)

Alternative I, the proposal for each sale, would offer for lease those blocks selected as a result of the area identification. The Beaufort Sea Multiple-Sale Program Area includes 1,877 whole or partial blocks covering 9,770,000 acres (about 3,954,000 hectares) in the Beaufort Sea (See Maps 1 and 2). This area was identified as being of high and medium interest to industry and is the entire area of the Call. This alternative reflects a range of resource development and activity from 340-570 million barrels of recoverable oil for each sale. There are 55 active leases in this area, 21 of which were leased in Sale 170. Previous sales in this area have resulted in 688 leases; of these, 623 have been relinquished or have expired. A total of 30 wells have been drilled, and 10 wells have been found producible, but only two development proposals (Northstar and Liberty) have been submitted to the MMS. Two Federal leases are part of the Northstar Unit that went into production in November 2001. Recently, British Petroleum (Alaska), Inc. (BPXA) put the plan for development and production of the Liberty Prospect on hold but, because the final EIS essentially was completed, it was published in May 2002.

D.2. Alternative II (No Sale)

This alternative would remove the entire area of the Proposal for Sales 186, 195, and 202 from leasing for a sale.

D.3. Alternative III (Barrow Subsistence Whale Deferral)

This alternative was developed by the MMS in response to comments received in Barrow. This deferral was developed as a potential way to reduce conflicts between bowhead whale subsistence-hunter and offshore oil and gas operations and was based on bowhead whale-strike data provided by the AEWC. This alternative would offer for leasing all of the area described for Alternative I except for a subarea located in the western

portion of the proposed sale area. Alternative III would offer 1,851 whole or partial blocks, comprising 9,632,000 acres (about 3,898,000 hectares). The areas that would be removed by the Barrow Subsistence Whale Deferral (see Map 2) consist of 26 whole or partial blocks, approximately 138,000 acres, about 1% of the Alternative I area. This option is being analyzed to estimate potential protection of Barrow subsistence-use zones and wildlife areas, particularly comprising an area in which whales have been taken (based on known whale-strike data). This option analyzes whether the deferral would provide increased protection to bowhead whales from potential noise and disturbance from exploration or development and production activities. The majority of the bowhead whale subsistence-hunting area near Barrow is in an area of the Chukchi Sea, which was already removed from leasing consideration in the proposed final 5-Year Offshore Oil and Gas Leasing Program for 2002-2007.

D.4. Alternative IV (Nuiqsut Subsistence Whale Deferral)

This alternative would offer for leasing all of the area described for Alternative I except for a subarea located off of Cross Island. Alternative IV would offer 1,847 whole or partial blocks, comprising 9,608,000 acres (about 3,888,000 hectares). The areas that would be removed by the Nuiqsut Subsistence Whale Deferral (see Map 2) consist of 30 whole or partial blocks, approximately 162,000 acres, about 2 % of the Alternative I area. This option is being analyzed to assess the effectiveness of potential protection of Nuiqsut subsistence-use zones and wildlife areas where whales have been taken (based on known whale-strike data). Requests for such possible protection were made by the AEWC, the Native Village of Nuiqsut, and the NSB.

D.5. Alternative V (Kaktovik Subsistence Whale Deferral)

This alternative would offer for leasing all of the area described for Alternative I except for a subarea located off of Barter Island. Alternative V would offer 1,849 whole or partial blocks comprising 9,649,000 acres (about 3,905,000 hectares). The area that would be removed by the Kaktovik Subsistence Whale Deferral (see Map 2) consists of 28 whole or partial blocks, approximately 121,000 acres, about 1% of the Alternative I area. This area is being considered for deferral in response to a request by the Native Village of Kaktovik because of the potential disturbance to Kaktovik's traditional known subsistence-whaling areas. The area was delineated using whale-strike maps provided by the AEWC.

D.6. Alternative VI (Eastern Deferral)

This alternative would offer for leasing all of the area described for Alternative I except for a subarea located east of Kaktovik. Alternative VI would offer 1,817 whole or partial blocks, comprising 9,487,000 acres (about 3,839,000 hectares). The area that would be removed by the Eastern Deferral (see Map 2) consists of 60 whole or partial blocks, approximately 283,000 acres, about 3 % of the Alternative I area. It adjoins an area that the State of Alaska has deferred in recent state sales. This option evaluates the need for protection of this area as requested by the Native Village of Kaktovik, the AEWC, and the North Slope Borough regarding the possible importance of the area to bowhead whales and other general concerns about the environment there.

E. Alternatives Not Selected for Inclusion in the EIS

Four general areas in the Beaufort Sea were recommended for deferral in comments to the September 19, 2001, Call and NOI and in the October and November 2001 scoping meetings. These were areas east of Barrow, areas around and to the east of Cross Island, areas near Kaktovik, and areas off the Arctic National Wildlife Refuge the deferrals analyzed in the draft EIS (see Section III of this Scoping Report) respond to some of the specific deferral recommendations. This section responds to the balance of the deferral recommendations. In the following, we first discuss areas recommended for deferral and our conclusions regarding those deferrals for specific parts of the Beaufort Sea. Then we look at other considerations relevant to these recommendations.

Finally, we provide the rationale for our conclusions, on which recommended deferrals are analyzed in the EIS and which are scoped out.

E.1. Areas from Barrow East to Harrison Bay

As indicated in Section I.B.1 of this Scoping Report, in written comments, the State of Alaska supports all areas deferred from past sales, the Mayor of the North Slope Borough and the Sierra Club et al., recommended that such deferrals be removed permanently from leasing in the planning area. The Mayor also recommended that the spring-lead system and eastern Beaufort Sea should be deferred from all Beaufort Sea sales in the 2002-07 offshore leasing program. The AEWC recommended that areas used for the bowhead whale subsistence hunt be removed permanently from any future consideration for OCS leasing. Phillips Alaska Exploration opposed discretionary deferrals and arbitrary exclusions, Shell Oil supported leasing the entire nearshore area out to about 15 miles, and BPXA endorsed the sale schedule but did not comment on specific areas of the Beaufort Sea. In verbal comments at the Barrow meeting with the NSB and AEWC, those who spoke wanted MMS to permanently remove from leasing important subsistence-use areas, such as the spring-lead system and areas that might be used by bowhead whales for feeding. In the November meetings, the AEWC provided maps of potential deferral areas that were developed by the Barrow and Nuiqsut Whaling Captains, and ICAS stated their general opposition to all OCS drilling in the Beaufort Sea.

Although it is not the deferral area included in the Barrow Whaling Captains map, we are analyzing the Barrow Subsistence Whaling Deferral on the western edge of the planning area that, although much smaller (26 versus 588 whole or partial blocks), is based on whale-strike data provided by the AEWC. Also, in response to requests by Barrow residents, the NSB, and the AEWC, the Secretary removed other areas. Specifically, in her decision on the 5-Year proposed final program, she removed from leasing consideration portions of the subsistence-use area/spring-lead system to the west of this deferral area in the westernmost part of the Beaufort Sea Planning Area, and the subsistence-use area/spring-lead system in the Chukchi Sea.

Preliminary oil-field analysis of the Beaufort Sea Planning Area indicates that the 588 whole or partial blocks depicted as a candidate for deferral on the map submitted by the AEWC would reduce, by an estimated 18%, the opportunity of discovering and developing an economic oil field, if Alternative I were chosen for one of the three Beaufort Sea sales covered by this EIS. This compares to an estimated reduction of about 1% for the Barrow Subsistence Whaling Deferral.

E.2. Areas Around and East of Cross Island

In written scoping comments (see Section I.B.1 of this Scoping Report) applicable to Nuiqsut subsistence whaling, in addition to what appears for Barrow, the State of Alaska recommended that MMS apply a Cross Island Stipulation (No siting of Permanent Facilities within 10 Miles of Cross Island). The Mayor of the NSB believed this 10-mile distance is arbitrary and too small, and the area should be expanded to cover various aspects of the Nuiqsut traditional bowhead whale harvest and expanded more to the east to prevent the potential for whales to deflect due to production noise. The people of Nuiqsut want the Cross Island area permanently dropped from leasing consideration.

Although it is not the deferral recommended by the Nuiqsut Whaling Captains, we do include analysis of a smaller Nuiqsut Subsistence Whale Deferral (30 versus 94 whole and partial blocks) that is based on whale-strike data provided by the AEWC. This deferral option does include some blocks to the east of the 10-mile radius. We also analyze two versions of the no surface occupancy stipulation for Cross Island, one for seaward portions of the 10-mile radius area and one for shoreward portions. Furthermore, access to tracts in the vicinity of Cross Island may be needed, because the State has leased tracts in the adjacent State waters. Should oil be discovered on these State tracts, leasing of the adjacent Federal tracts would prevent drainage of Federal oil.

Regarding production noise from permanent industrial facilities on the OCS, companies will be required to demonstrate to the National Marine Fisheries Service that any such proposed facilities will be in compliance with the Marine Mammal Protection Act and Endangered Species Act as they seek to obtain incidental harassment authorizations and avoid conflicts with subsistence activities.

The 94 whole or partial blocks depicted as a candidate for deferral on the map developed by the Nuiqsut Whaling Captains would reduce, by an estimated 19%, the opportunity of discovering and developing an economic oil field. This compares to an estimated reduction of about 2% for the Nuiqsut Subsistence Whaling Deferral.

E.3. Areas Offshore from the Arctic National Wildlife Refuge

In scoping comments for this EIS, the Mayor of the NSB said that the eastern Beaufort Sea should be deferred from all three sales in the 2002-2007 leasing program. In comments on the 5-year offshore leasing program, the Mayor of the City of Kaktovik expressed a preference for onshore development, recommended that the area off of the Arctic National Wildlife Refuge be excluded from leasing until the Refuge is opened for development, and that all OCS blocks within 50 miles of the city be excluded. Citing these comments from Kaktovik, the Sierra Club et al. said in their scoping comments for this EIS that they supported the City of Kaktovik's request for a deferral area offshore from the Canning River to the Canadian border. This area includes 173 whole or partial blocks. Deferring it would reduce, by an estimated 23%, the opportunity of discovering and developing an economic oil field. The deferrals in Alternatives V (Kaktovik Subsistence Whaling Deferral) and VI (Eastern Deferral) cover 88 of these same blocks and run offshore of about 60% of the coastline of the Arctic National Wildlife Refuge. The selection of Alternatives V or VI would reduce (by an estimated 3% each) the opportunity of discovering and developing an economic oil field.

Although no prohibition on offshore leasing is included in the statutes governing the Arctic National Wildlife Refuge, its Comprehensive Management Plan restricts the use of the Refuge for infrastructure to support any offshore development. Also, any OCS activity or infrastructure (including pipelines to shore) would not be approved without thorough technical and environmental reviews and would have to meet the requirements of the Marine Mammals Protection Act, the Endangered Species Act, and other Federal and State statutes that help protect the natural resources of the area and environment.

The Kaktovik Whaling Captains did not submit a map but indicated that they wanted the area known as the "Barter Island" deferral from Sales 124 and 144 as a deferral for these three sales. The northern part of the "Barter Island" deferral from OCS Sale 144 is excluded from the proposed final 5-year offshore program. Alternative V, the Kaktovik Subsistence Whale Deferral, includes the Sale 144 deferral area plus a few extra blocks on the west side to more fully cover the area where AEWC data show whale strikes were made.

E.4. Other Considerations Relevant to Requests for Deferrals Off Barrow, Cross Island, and the Arctic National Wildlife Refuge

The five stipulations described (Section V) in this Scoping Report are included as part of all alternatives for Sales 186, 195, and 202. These are mitigating measures that will help protect the bowhead whale. The first four stipulations provide for specific protections, and the fifth is a mechanism to address unresolved conflicts between the oil and gas industry and subsistence activities. This mechanism has proven to be effective in protecting the whale hunt while allowing oil and gas activity to proceed. The mechanism can apply to whatever unreasonable subsistence-related conflicts are not resolved by other means. We also are including a possible addition to a notice of Information to Lessees (ITL 7 Information on the Availability of Bowhead Whales for Subsistence-Hunting Activities) indicating that for development plans, lessees are encouraged to consider noise-abatement methods if needed to reduce activity noise that may occur during and in the vicinity of the migration.

E.5. Rationale for Conclusions on These Three Recommended Deferrals

A primary objective of the OCS Lands Act is to make lands available for oil and gas leasing in an environmentally acceptable manner, taking into consideration protection of the marine, coastal, and human environments. An objective we undertake to meet NEPA requirements is to write an EIS that is as straightforward and as easy to understand as possible, given the inherent difficulty in estimating uncertain potential environmental effects of uncertain potential exploration and development activities based on projections of uncertain potential leasing results of planned future sales. Given the four deferral alternatives

already included for analysis, these three deferral options would contribute little in the way of additional analysis to an EIS that must cover an already complicated set of issues.

We consider that the Barrow, Nuiqsut, and Kaktovik Subsistence Whaling Deferral alternatives, when combined with the other mitigating measures (stipulations and ITL's) to be analyzed in the EIS, would provide about the same level of protection of the environment as the preceding three recommended deferral areas, but they would allow at least some oil and gas exploration and development to proceed. Regarding the Arctic National Wildlife Refuge, we believe that the merits of including such a deferral option are in large part covered by analysis of Alternatives V and VI.

Furthermore, the analyses of six alternatives (proposal, no action, and four deferral alternatives), and the mitigation measures cited above for the bowhead whale subsistence hunting and other natural resources possibly affected by offshore exploration and development, meet NEPA requirements and provide alternatives that achieve the objectives of the OCS Lands Act.

F. Mitigation Measures

F.1. Proposed Mitigation Measures to be Evaluated in the EIS

The following mitigation measures (stipulations and Information to Lessees [ITLs]) will be considered as part of all alternatives for the Beaufort Sea multiple-sale EIS process (a copy of proposed Beaufort Sea multiple-sale stipulations and ITLs is attached [Attachment 2]). These measures were analyzed as part of the proposal in Sale 170, expanded and modified during Section 19 consultation, and subsequently adopted. Extensive consultation with affected groups, including the State, the NSB, AEWC, the villages of Nuiqsut and Kaktovik, industry, the Alaska Oil and Gas Association, and the National Marine Fisheries Service resulted in adoption of innovative mitigation and protection stipulations to ensure consultation and cooperation during exploration and development and production activities, for bowhead whale monitoring activities, and for protection of subsistence whaling and other activities. The State of Alaska, the NSB, the Villages of Nuiqsut and Kaktovik, and others recommended in their comments on the Call and through scoping that all measures adopted for Sale 170 be adopted for the proposed Beaufort Sea multiple-sale EIS.

F.1.a Stipulations Included in the Proposed Action

The following stipulations are considered part of all alternatives.

- No. 1 Protection of Biological Resources
- No. 2 Orientation Program
- No. 3 Transportation of Hydrocarbons
- No. 4 Industry Site-Specific Bowhead Whale-Monitoring Program
- No. 5 Subsistence Whaling and Other Subsistence-Harvesting Activities

No.1 Protection of Biological Resources: If biological populations or habitats that may require additional protection are identified in the lease area by the Regional Supervisor, Field Operations (RS/FO), the RS/FO may require the lessee to conduct biological surveys to determine the extent and composition of such biological populations or habitats. Based on any surveys that the RS/FO may require of the lessee or on other information available to the RS/FO on special biological resources, the RS/FO may require the lessee to modify operations to ensure that significant biological populations or habitats deserving protection are not adversely affected.

No. 2 Orientation Program: The lessee shall include in any exploration or development and production plans submitted under 30 CFR 250.33 and 250.34 a proposed orientation program for all personnel involved in exploration or development and production activities (including personnel of the lessee's agents, contractors, and subcontractors) for review and approval by the RS/FO. The program shall be designed in sufficient detail to inform individuals working on the project of specific types of environmental, social, and cultural concerns, including subsistence, that relate to the sale and adjacent areas.

No. 3 Transportation of Hydrocarbons: This measure requires the use of pipelines: (a) if pipeline rights-of-way can be determined and obtained; (b) if laying such pipelines is technologically feasible and environmentally preferable; and (c) if, in the opinion of the lessor, pipelines can be laid without net social loss, taking into account any incremental costs of pipelines over alternative methods of transportation and any incremental benefits in the form of increased environmental protection or reduced multiple-use conflicts.

No. 4 Industry Site-Specific Bowhead Whale-Monitoring Program: This stipulation mandates that lessees conduct a site-specific monitoring program during exploratory drilling activities, including seismic activities, to determine when bowhead whales are present in the vicinity of lease operations and the extent of behavioral effects on bowhead whales due to these activities. The stipulation requires a peer review of monitoring plans and the resulting draft reports. The monitoring plan must include provisions for recording and reporting information on sightings of other marine mammals and must provide an opportunity for an AEWC or NSB representative to participate in the monitoring program. No monitoring program will be required if the RS/FO, in consultation with the NSB and the AEWC, determines that a monitoring program is not necessary based on the size, timing, duration, and scope of the proposed operations.

No. 5 Subsistence Whaling and Other Subsistence-Harvesting Activities: This stipulation mandates that all exploration and development and production operations shall be conducted in a manner that prevents unreasonable conflicts between the oil and gas industry and all subsistence activities, particularly the subsistence bowhead whale hunt. It provides a mechanism to address unresolved conflicts between the oil and gas industry and subsistence activities. This stipulation also requires the lessee to show in its exploration or development and production plan how its activities, in combination with other activities in the area, will be scheduled and located to prevent unreasonable conflicts with subsistence areas. The protection provided by this stipulation could reduce potential conflicts between potential subsistence activities and offshore oil and gas operations and provide protection as an option in lieu of the subsistence deferral alternatives.

F.1.b Stipulations to be Evaluated in the EIS

MMS will evaluate the inclusion of other stipulations that will be developed during the EIS process.

This includes two stipulations (Stipulation 6a and 6b) regarding a No Siting of Permanent Facilities in the Vicinity of Cross Island provision. These potential stipulations may reduce effects. They will be evaluated as mitigation and as an option to the aforementioned deferral alternatives.

Sale 170 included a stipulation for No Siting of Permanent Facilities in the Vicinity of Cross Island, which is not included as part of the committed stipulation package at this time. that ITL has been divided into two parts, 6A and 6B. The EIS will develop and evaluate a similar stipulation to reduce potential impacts by potentially limiting permanent facilities in the area. Such a stipulation may reduce potential conflicts between proposed oil and gas operations and subsistence activities. The State of Alaska, the NSB, the Villages of Nuiqsut and Kaktovik, and others recommended its adoption in responses to the Call for Information. The NSB and AEWC also proposed the Nuiqsut Deferral Alternative. In response to similar comments, the MMS also developed the Nuiqsut Subsistence Whale Deferral Alternative for evaluation in the EIS. While the issue and concerns being addressed by these options are the same, the aerial extent covered by each option is different. All three of these options are being evaluated in the EIS as a means of reducing potential effects to subsistence activities. The decision about the best option(s) will be made later in the process.

F.1.c Information to Lessees Included in the Proposed Action

Items 1 through 16 apply to OCS activities in the Beaufort Sea area and are considered part of the all alternatives, including the proposed action. Sale 170 had 21 ITL clauses. Five of them were outdated or superceded by regulations. These 16 ITL clauses provide mitigation for offshore oil and gas activities. We also are considering a possible addition to a notice of Information to Lessees (ITL 7 Information on the Availability of Bowhead Whales for Subsistence-Hunting Activities) indicating that for development plans, lessees are encouraged to consider noise abatement methods if needed to reduce activity noise that may occur during and in the vicinity of the migration.

No. 1 – Information on Community Participation in Operations Planning
No. 2 – Information on Kaktovikmiut Guide *In this Place*

No. 3 – Information on Nuiqsutmiut Paper
No. 4 – Information on Bird and Marine Mammal Protection
No. 5 – Information to Lessees on River Deltas
No. 6 – Information on Endangered Whales and the MMS Monitoring Program
No. 7 – The Availability of Bowhead Whales for Subsistence-Hunting Activities
No. 8 – Information on High-Resolution Geological and Geophysical Survey Activity
No. 9 – Information on Polar Bear Interaction
No. 10 – Information on the Spectacled Eider and the Steller's Eider
No. 11 – Information on Sensitive Areas to be Considered in Oil-Spill-Contingency Plans
No. 12 – Information on Coastal Zone Management
No. 13 – Information on Navigational Safety
No. 14 – Information on Offshore Pipelines
No. 15 – Information on Discharge of Produced Waters
No. 16 – Information on Use of Existing Pads and Islands

No. 1 – Information on Community Participation in Operations Planning: This ITL encourages lessees to bring residents on the North Slope communities into their planning process. Local communities often have the best understanding of how oil and gas activities can be safely conducted in and around their area without harming the environment or interfering with community activities. Community representation on management teams that develop plans of operation and oil-spill-contingency plans that involve local community residents in the earliest stages of the planning process for proposed oil and gas activities can be beneficial to the industry.

No. 2 – Information on Kaktovikmiut Guide *In This Place*: the people of Kaktovik, the Kaktovikmiut, have compiled *A Guide for Those Wishing to Work in the Country of the Kaktovikmiut.* The guide's intent, in part, is to provide information that may promote a better understanding of their concerns. Lessees are encouraged to obtain copies of the guide and to incorporate it into their Orientation Program to assist in fostering sensitivity and understanding of personnel to community values, customs, and lifestyles in areas in which they will be operating.

No. 3 – Information on Nuiqsutmiut Paper: the people of Nuiqsut, the Nuiqsutmiut, have compiled a paper that provides information that may promote a better understanding of their concerns. Lessees are encouraged to obtain copies of this guide and to incorporate it into Orientation Programs to assist in fostering understanding and sensitivity to community values, customs, and lifestyles in areas in which they will be operating.

No. 4 – Information on Bird and Marine Mammal Protection: This ITL advises lessees that during the conduct of all activities related to leases issued as a result of this sale, the lessee and its agents, contractors, and subcontractors will be subject to the following laws, among others, the provisions of the Marine Mammal Protection Act (MMPA) of 1972, as amended (16 U.S.C. 1361 et seq.); the Endangered Species Act (ESA), as amended (16 U.S.C. 1531 et seq.); and applicable International Treaties.

No. 5 – Information to Lessees on River Deltas: Lessees are advised that certain river deltas of the Beaufort Sea coastal plain (such as the Kongakut, Canning, and Colville) have been identified by the FWS as special habitats for bird-nesting and fish-overwintering areas, as well as other forms of wildlife. Shore-based facilities in these river deltas may be prohibited by the permitting agency.

No. 6 – Information on Endangered Whales and MMS Monitoring Program: This ITL advises lessees that the MMS intends to continue its areawide endangered whale-monitoring program in the Beaufort Sea during exploration activities. The program will gather information on whale distribution and abundance patterns and will provide additional assistance to determine the extent, if any, of adverse effects to the species.

No. 7– The Availability of Bowhead Whales for Subsistence-Hunting Activities: Lessees are advised that the NMFS issues regulations for incidental take of marine mammals, including bowhead whales. Incidental-take regulations are promulgated only upon request, and the NMFS must be in receipt of a petition prior to initiating the regulatory process. Incidental takes of bowhead whales are allowed only if a Letter of Authorization (LOA) is obtained from the NMFS pursuant to the regulations in effect at the time. An LOA must be requested annually. In issuing an LOA, the NMFS must determine that proposed activities will not have an unmitigable adverse effect on the availability of the bowhead whale to meet subsistence needs by causing whales to abandon or avoid hunting areas, directly displacing subsistence users, or placing physical barriers between whales and subsistence users.

No. 8 – Information on High Resolution Geological and Geophysical Survey Activity: This ITL advises lessees of the potential effects of geological and geophysical (G&G) activity to bowhead whales and subsistence hunting activities, and reminds lessees of the specifics of the bowhead whale-monitoring program. This ITL also informs lessees that MMS intends to treat prelease G&G activities in a manner similar to the post lease G&G activities. The MMS may impose restrictions (including the timing of operations relative to open water) and other requirements (such as having a locally approved coordinator on board) on G&G surveys to minimize unreasonable conflicts between the G&G survey and subsistence whaling activities. Lessees will coordinate any proposed G&G activity with potentially affected subsistence communities, the NSB, and the AEWC to identify potential conflicts and develop plans to avoid these conflicts.

No. 9 – Information on Polar Bear Interaction: Lessees are advised that polar bears may be present in the area of operations, particularly during the solid-ice period. Lessees should conduct their activities in a manner that will limit potential encounters and interaction between lease operations and polar bears, particularly during the solid-ice period. Lessees should conduct their activities in a manner that will limit potential encounters and interaction between lease operations and polar bears. Lessees need to contact the FWS regarding proposed operations and actions that might be taken to minimize interactions with polar bears.

No. 10 – Information on Spectacled Eider and Steller's Eider: Lessees are advised that the spectacled eider (*Somateria fischeri*) and the Steller's eider (*Polysticta stelleri*) are listed as threatened endangered species by the FWS and are protected by the ESA of 1973, as amended, 16 U.S.C. 1531 et seq.

No. 11 – Information on Sensitive Areas to be Considered in the Oil-Spill Contingency Plans: Lessees are advised that certain areas are especially valuable for their concentrations of marine birds, marine mammals, fishes, or other biological resources or cultural resources and should be considered when developing oil-spill-contingency plans.

No. 12 – Information on Coastal Zone Management: Lessees are advised that the State of Alaska will review OCS plans through the review process for consistency with the Alaska Coastal Management Program. Oil-spill-contingency plans will be reviewed for compliance with State standards, the use of best available and safest technologies, and with State and regional contingency plans on a case-by-case basis.

No. 13 – Information on Navigational Safety: Operations on some of the blocks offered for lease may be restricted by designation of fairways, precautionary zones, Anchorage, safety zones, or traffic-separation schemes established by the USCG pursuant to the Ports and Waterways Safety Act (33 U.S.C. 1221 et seq.), as amended.

No. 14 – Information on Offshore Pipelines: This ITL advises lessees that the Department of the Interior and the Department of Transportation have entered into a Memorandum of Understanding, dated December 10, 1996, concerning the design, installation, operation, inspection, and maintenance of offshore pipelines. Bidders should consult both departments for regulations applicable to offshore pipelines.

No. 15 – Information on Discharge of Produced Waters: This ITL advises lessees that the State of Alaska prohibits discharges of produced waters on State tracts within the ten-meter depth contour. It informs lessees that discharges of produced waters into marine waters are subject to conditions of NPDES permits issued by the USEPA, and may also include a zero-discharge requirement on Federal tracts within the 10-meter depth contour.

No. 16 – Information on Use of Existing Pads and Islands: This ITL advises lessees that during the review and approval process for exploration and development and production plans, MMS will encourage lessees to use existing pads and islands wherever feasible.

F.1.d Mitigating Measures Not Recommended for Analysis in the EIS

There are no additional mitigating measures identified by commenters to be considered for analysis in the EIS during scoping.

Appendix F

Exploration and Development Scenarios

APPENDIX F: EXPLORATION AND DEVELOPMENT SCENARIOS

Scenarios are conceptual views of the future. In this document, we offer scenarios regarding the timing and extent of future petroleum activities in the Beaufort Sea. The scenarios are based on economic factors, industry trends, and a large dose of professional judgment. The scenarios described here are plausible views of the future, although they project more activities than have occurred in the past in the Beaufort OCS.

Future activities primarily are scaled to assumptions of anticipated oil production. Future oil production will depend on many factors, the most important of which are access to prime areas for exploration, industry spending for leasing and exploration, and oil prices. Although seven lease sales have been held in the Beaufort Sea OCS since 1979, only a small fraction of the tracts offered (10,280 tracts) were leased by industry (692 leases). Thirty exploration wells tested 20 prospects and made 11 discoveries classified as "capable of producing in paying quantities." However, only one field including Federal acreage (Northstar) has begun production. A summary of historical OCS leasing in the Beaufort Sea is shown in Figure III.A.2 of the EIS.

Although oil production from the Beaufort OCS has fallen short of initial expectations, this offshore province is still considered as one of the most prospective areas in the U.S. Proven geologic plays extend offshore from some of the largest fields in North America on Alaska's North Slope (Figure III.A.1 of the EIS). The current MMS petroleum assessment indicates that recoverable oil resources could range from 3.6-11.8 billion barrels, of which 1.7-2.3 billion barrels could be economically viable at prices between $18 and $30 per barrel. Most government and industry analysts agree that this province could hold oil fields comparable in size to any frontier area in the world. Past exploration efforts have only partially tested the potential of the Beaufort shelf.

The economic potential of the Beaufort OCS has not yet been realized, because petroleum activities face a number of hurdles. These hurdles, outlined in the following, generally are not accounted for in resource-assessment models, which assume the entire area is available for exploration and funding is not a consideration. Any of the hurdles could stop the process of converting undiscovered resources to producing reserves. Because environmental and political hurdles are especially difficult to overcome in Alaska, it is important to recognize that estimates of anticipated production, and consequent effects, are likely to be overstated in environmental impact statements.

Leasing Hurdles

- A lease sale is held (lease sales often are postponed).
- Industry has access to high-potential tracts (prime areas often are placed off-limits in deferrals).
- the tracts containing oil/gas resources are leased (only a small fraction of the offered tracts are leased).

Exploration Hurdles

- Companies must drill to test for oil/gas pools (most leases are never drilled).
- Oil/gas pools are present in the prospects tested (most exploration wells are dry holes).
- Discoveries are large enough for commercial development (most discoveries are too small or costly).

Economic Hurdles

- Oil and gas prices support commercial development (costs are high and future prices are uncertain).
- Technology is adequate for project location (new technologies may be required).
- Project meets the company's investment criteria (most companies have other worldwide opportunities).

Legal Hurdles

- Necessary permits are approved in a timely manner (permitting delays are common).
- Environmental mitigation could impact project economics (mitigation usually adds to project costs).
- Project survives legal challenges (lawsuits are common).

The MMS resource-assessment model simulates the discovery and development of offshore fields but cannot define where or when production would occur from specific tracts. Each modeling trial is likely to simulate a different development project and set of pool characteristics among the numerous geologic plays. In the real world, future offshore development depends mostly on the effort and financial commitment by industry. The steps leading from leasing to production are complicated by many factors that cannot be accurately predicted such as oil prices, technology breakthroughs, and corporate strategies. For example, higher oil prices could lead to accelerated exploration and production activities. In contrast, low oil prices could prompt industry to abandon the area without a thorough exploration effort.

A. Multiple-Sale Methodology

A new approach is taken in this multiple-sale EIS with respect to exploration and development (E&D) scenarios. Although there is a need to base E&D activities using anticipated production, our knowledge of the location and timing of future development activities cannot be defined with accuracy. For purposes of environmental analysis, we assume that 20% of the total available economic resources could be converted to future production for each sale in the 2002-2007 program area. This would seem to imply that after five areawide sales, all of the economic resource base would be discovered. This conclusion is not necessarily true. All of the oil resources would not discovered in a few lease sales, because new play concepts would emerge from new discoveries. Exploration success would cause future resource estimates to be revised higher. Also, the expansion of infrastructure would lower the costs for remote, marginally uneconomic pools, perhaps allowing them to become viable.

One subjective view of future exploration and development scenarios is summarized in Table F-1. This table lists activities associated with leasing and development for a 3-sale schedule in the Beaufort OCS. The table is organized around three geographic zones and three representative sale scenarios. The geographic zones are defined by proximity to the existing North Slope infrastructure and water depths (see Figure III.A.2 in the EIS), with proximity the primary factor. Water-depth zones were picked mainly on the platform types used for development, and are broadly defined as less than 15 meters (gravel islands), 15-35 meters (bottom-founded platforms), and greater than 35 meters (subsea wells).

the percentages given for leasing and exploration are estimates of temporary activities, such as permit-related studies, seismic surveys, and exploration-well drilling. We expect that leasing would be concentrated in the near/shallow area for all three sales, with activities expanding into remote areas in later sales. For example, if a total of 30 leases were issued in the first sale, 21 of these leases are expected to be in the near/shallow zone, 6 leases would be in the mid-range/medium depth zone, and 3 leases would be in the far/deepwater zone. These percentages simply represent possible trends; no one can accurately foresee future leasing patterns, because each participating company could have a different strategy.

Estimates for development projects are also grouped by both sale and location. Development projects are associated with long-term disturbances and potentially higher environmental effects, because these projects last for decades. General implications for long-term activities are indicated by Table F-1. For example, in the third sale, 40% of the leasing could occur in the near/shallow zone, but the only commercial discovery resulting from this sale is expected to occur on tracts leased in the far/deepwater zone. Note that areas of both shallow and medium water depths occur in remote (far) zones, and the development characteristics could be transitional between adjacent zones.

One important conclusion from this analysis is that tracts could be leased anywhere in the Beaufort OCS Planning Area in each areawide sale. Although both exploration and development are expected to be concentrated in areas near existing infrastructure (near/shallow areas), activities are likely to expand into more remote zones after opportunities are exhausted in easily accessible areas. This scenario does not mean that only large discoveries would be made in the midrange/medium and far/deepwater zones. Small discoveries could be made in remote areas, but they would be too small for commercial development. Discoveries near existing

infrastructure are likely to be developed sooner, because development costs are lower. Oil pools in more remote locations must be larger to support higher development and transportation costs.

B. Individual Sale Scenarios

The following is a broad overview of the development scenario for the Beaufort Sea. Oil produced through offshore facilities on manmade gravel islands or bottom-founded platforms is carried by subsea pipelines buried in trenches to the onshore pipeline network connecting to the Trans-Alaska Pipeline System (TAPS). The TAPS carries oil to Valdez and marine tankers carry oil to west coast refineries.

Associated and solution gas recovered with oil production is used as fuel for facilities or is reinjected to enhance oil recovery. After the oil reservoirs are depleted (decades), reinjected gas could be recovered through oil facilities.

Future gas production from the North Slope to outside markets would be delayed until a transportation system is constructed. Various proposals are being studied at present with no clear favorite or firm timetable for completion. Therefore, large-scale production of natural gas is not likely within the timeframe considered.

For the first Beaufort sale in the multiple-sale program, we assume the discovery/development of smaller fields in the central part of the program area. Some satellite pools could be produced by wells drilled from existing facilities, while others could require new offshore platforms. Generally, these fields would have shorter subsea pipelines through shallow water. The second sale would result in fewer, but somewhat larger, fields located outside the core area. Production from the third sale would come from a single large field in a more remote location (perhaps in deeper water). This remote field would have a longer, larger diameter offshore pipeline and require a new onshore pipeline to connect to the North Slope gathering system. A summary of the new infrastructure estimated for the three-sale program is given in Table F-2. Production profiles for all three sales are given in Figure F-1. More detailed E&D schedules are generated for each OCS sale.

One basic assumption is that the TAPS would remain operable as the regional transportation system. Studies generally have concluded that mechanical limits will be encountered at rates below 200,000 barrels per day. Throughput rates lower than 300,000 barrels per day will require modifications to the pipeline and pump stations. The lower limit for profitable operations is perhaps 400,000 barrels per day to cover the costs of administration, personnel, and continuing maintenance/repairs. Production from North Slope fields has declined since 1988 and, at the present rate of decline, the TAPS could reach an operational limit in the next 10-20 years. Production from new fields is necessary to maintain minimum flow rates through this vital transportation link now carrying approximately 20% of U.S. daily oil production. If the TAPS were to shutdown, future oil production would have to rely on tanker transportation to southern markets. It is unlikely that remaining fields in the northern Alaska would be able to support this transportation scenario. For purposes of analysis, we assume that the TAPS would continue to carry oil from northern Alaska.

The development scenarios assume adequate funding and effort by industry and no regulatory delays. We acknowledge that the activity schedules are more aggressive than past experience in the Beaufort OCS. If the present economic and regulatory climate continues, the assumed production and associated environmental impacts for the 2002-2007 leasing program probably are overstated.

As previously discussed, the level of activities associated with oil exploration and development is largely dependent on the market price for oil. Because of the many uncertainties associated with generating resource estimates, oil volumes are best represented by a range of possible volumes. In our resource assessment models, the benchmark prices of $18 and $30 per barrel (in 2000$) are linked to production volumes ranging between 340 million barrels and 570 million barrels for each sale. If long-term prices remain below the $18 benchmark, exploration in the Beaufort OCS is expected to be minimal and discoveries may not be developed. This low-price "exploration-only" scenario represents conditions where discoveries are too small or costly for commercial development.

Because most of the potential impacts are not very different for these two resource levels, we use a single production volume of 460 million barrels for each sale. Although the same production volumes are assumed for each sale, there would be differences in activities for the series of lease sales. The working assumption is that activities would progressively expand away from the core infrastructure area (near the existing Prudhoe Bay complex).

B.1. Sale 186

B.1.a Exploration Activities

Exploration activity (seismic surveys and drilling) is assumed to begin in the year following Sale 186 (to be held in 2003) and continue at a rate of one exploration well per year for a total of six exploration wells (Table F-3). Our optimistic assumption is that three commercial discoveries would be made (a 50% success rate). When a discovery is made, delineation wells would use the same drilling rig and continue over a 2-year period. Two delineation wells may be drilled in a single season, as rig mobilization has already taken place. Artificial ice islands grounded on the seabed are likely to be employed as drilling platforms in shallow water (less than 10 meters deep), and nearshore operations would be supported by ice roads over the landfast ice. It is unlikely that gravel islands would be constructed to drill exploration wells in OCS waters, although older artificial islands or natural shoals could be used as a base for gravel or ice islands. Bottom-founded platforms (placed on the seafloor or on berms) could be used to drill prospects in water depths of 10-20 meters, and drillships would be used to drill prospects deeper than 20 meters. Because mobile ice conditions make ice roads unfeasible, deeper water operations would take place during the summer open-water season and be supported by icebreakers and supply boats.

B.1.b Development Activities

The development schedule (Table F-3) assumes that the first commercial discovery would be made 2 years (in 2005) after Sale 186. We assume that three new fields ranging in size from 120-220 million barrels would be discovered in alternate years. Assuming no delays in permitting, production platforms could be installed in 4 years following the discovery well. Because of their relatively small size, fields would be developed by one production platform, perhaps as a satellite with minimal onsite processing facilities. Each platform would contain one rig for development-well drilling and well-workover operations. Gravel islands would be the favored design for production facilities in water depths less than approximately 15 meters, and bottom-founded platforms would be used for production facilities in water depths to 35 meters. It is possible that some oil would be produced from extended-reach wells drilled from existing production islands. However, the volumes of oil developed by extended-reach drilling are likely to represent a minor proportion of the total production from the three new fields.

The route selection and installation of offshore pipelines would take 1-2 years, and could occur either in the summer open-water season or during mid- to late winter when landfast ice has stabilized. New onshore pipeline sections would take 1 year to complete, with construction activities taking place simultaneously with the offshore pipeline installation. We assume that offshore pipelines would be trenched as a protective measure against damage by ice in all water depths less than 50 meters. At coastal landfalls, pipelines would be elevated on short gravel causeways to protect them against shoreline processes. Onshore pipelines would be elevated 2 meters on vertical support members. The onshore pipeline corridor and shore facility construction would be concurrent with the offshore platform installation.

Because of their relatively small size, new offshore projects would use the existing infrastructure (processing facilities and pipeline gathering systems) wherever possible. Produced oil would be gathered by existing pipeline systems within the Prudhoe Bay/Kuparuk field areas and transported to Pump Station #1 of the TAPS. We assume that Oliktok Point (using the Kuparuk or Milne Point field infrastructure), the Northstar pipeline landfall, West Dock (using the Prudhoe Bay field infrastructure), and the Badami field would be the primary landfalls.

Production rates would quickly ramp up to peak production rates for 3 years before declining. A typical field cycle from discovery to abandonment is 21 years, or approximately 5 years from discovery to startup, 15-year production life, and 1-year abandonment. Considering staggered discovery times of the three fields, activities resulting from Sale 186 could last until the year 2033 (Figure F-2).

B.2. Sale 195

B.2.a Exploration Activities

Exploration seismic surveys could begin the year after the sale, and drilling is assumed to begin in the second year following Sale 195, scheduled for 2005 (Table F-4). We assume one or two exploration wells would be drilled in alternating years for a total of six exploration prospects tested. Our optimistic assumption is that two commercial discoveries would be made (a 33% success rate). Because of operating limitations, it is likely that only one exploration well would be drilled at each site in a year. If a discovery is made, two delineation wells would be drilled in the following season. Artificial ice islands grounded on the seabed are likely to be used as drilling platforms in water depths less than 10 meters. These operations would be supported by ice roads over the landfast-ice zone. It is unlikely that gravel islands would be constructed to drill exploration wells in OCS waters, although older artificial islands or natural shoals could be used to construct short-term exploration islands. Bottom-founded platforms of various designs could be used to drill prospects in water depths of 10-20 meters, and drillships would be used to test prospects in water depths greater than 20 meters. Because of mobile ice conditions, deeper water operations would be supported by icebreakers and supply boats during the summer open-water season.

B.2.b Development Activities

The development schedule assumes that the first commercial discovery would be made 3 years (in 2008) after Sale 195 (Table F-4). A total of two new fields ranging in size from 120-240 million barrels would be developed on tracts leased in this sale. Assuming no delays in permit approvals, production platforms could be installed in 4-5 years following the discovery well. Each field would be developed by one or two production platforms with full processing facilities. Each platform would contain one rig to drill development wells and would remain on the platform for well-workover operations. Gravel islands probably would be constructed for production facilities in water depths less than approximately 15 meters. From water depths of 15-35 meters, bottom-founded platforms would be used for production facilities and ice management strategies (spray-ice berms) would be used to control ice forces.

The installation of offshore pipelines between production platforms and onshore facilities would take 1-2 years and could occur either in the summer open-water season or during mid- to late winter when landfast ice has stabilized. New onshore pipeline sections would take 1-2 years to complete, with construction activities taking place simultaneously with the offshore pipeline installation. We assume that offshore pipelines would be trenched and buried in the seafloor as a protective measure against damage by ice in water depths less than 50 meters. At coastal landfalls, pipelines would be elevated on short gravel causeways to protect them against shoreline erosion processes. Booster stations may be required at the landfalls to maintain pressure in the onshore oil pipeline sections. Onshore, pipelines would be elevated on vertical support members. Shore facility construction would be concurrent with installation of the offshore platforms.

New offshore projects would tie into existing onshore pipeline-gathering systems at the nearest possible points. Produced oil would be gathered by existing pipeline systems to Pump Station #1 of the TAPS. We assume that landfalls would be Oliktok Point, Northstar pipeline, West Dock, and Bullen Point (new facility to support development in the Point Thomson unit).

Production would ramp up over several years before peak production rates are achieved. The overall field life from discovery to abandonment is assumed to be 25 years, or approximately 6 years from discovery to startup, 18 year production life, and 1 year abandonment. Considering the staggered discovery and startup of several offshore fields, activities related to Sale 195 could last to the year 2036 (Figure F-3).

B.3. Sale 202

B.3.a Exploration Activities

Exploration seismic surveys could begin the year after Sale 202 scheduled for 2007 (Table F-5), and drilling is assumed to begin in the third open-water season. We assume that drilling would occur at a rate of one exploration well in each 3-year period. Because of limited operating times, it is likely that only one exploration well would be drilled in a year. We assume that six prospects would be tested by drilling, resulting in the discovery of one commercial-size field (a success rate of 17%). If a discovery is made, delineation wells would be drilled at the rate of two per year. The reservoir beneath each platform site would be evaluated by two or three delineation wells. The type of exploration equipment selected would depend on water depth. Artificial ice islands grounded on the seabed are likely to be employed as drilling platforms in water depths less than 10 meters, and these operations would be supported largely by ice roads over the landfast-ice zone. It is unlikely that gravel islands would be constructed to drill exploration wells, although artificial islands or natural shoals could be used to construct short-term exploration islands. Bottom-founded platforms could be used to drill prospects in water depths of 10-20 meters. Because of mobile ice conditions, these operations would be supported by supply boats during the open-water season. For water depths greater than 20 meters, floating drilling rigs (drillships or floating platforms) would be used in the summer, and these operations would be supported by icebreakers.

B.3.b Development Activities

The development schedule assumes that one field of approximately 460 million barrels would be made 5 years (in 2012) after the sale (Table F-5). Assuming no delays in permitting, production platforms could be installed 6-7 years after the discovery well. This large field would be developed from two production platforms with processing facilities on one of the platforms. Each platform would hold one rig that would drill development wells and remain on the platform for well-workover operations. Production facilities in water depths less than 15 meters would be based on artificial gravel islands. In water depths ranging from 15-35 meters, production structures would be contained on bottom-founded platforms designed for pack-ice conditions. Active ice-management strategies (spray-ice berms) and icebreaker support ships would also be required. Oil pools in deeper water (greater than 35 meters) could be tapped by a combination of extended-reach drilled wells or subsea wells tied back to the main production platform. Subsea production technology is well established in difficult operation areas (very deep water and extreme sea-state conditions) and represents another method of deepwater production in arctic pack-ice conditions.

Installation of offshore pipelines between production platforms and onshore facilities would take 2-4 years, considering that route surveys, trenching, and pipeline laying would take place in the relatively short open-water season. New onshore pipeline sections would take 2-4 years to complete, with construction activities taking place simultaneously with the offshore pipeline installation. We assume that offshore pipelines would be trenched as a protective measure against damage by ice in all water depths less than 50 meters. At coastal landfalls, pipelines would be elevated on short gravel causeways to protect them against shoreline erosion processes. Booster stations at the landfalls would be required to maintain pressure in the long pipeline segments. Onshore, pipelines would be elevated on vertical support members. Construction of the onshore pipeline and shore facility would be concurrent with installation of the offshore platforms.

Because this project is in a remote location, new onshore pipelines would be required to reach the existing North Slope gathering system connecting to Pump Station #1 of the TAPS. Depending on the location of the field, a new landfall would be constructed in Smith Bay (discovery in the western Beaufort) and traverse south of Teshekpuk Lake through the National Petroleum Reserve-Alaska to the Kuparuk field infrastructure. Existing field infrastructure in the central Beaufort (Oliktok, Northstar, Endicott, and Badami) could be used for oil production from deepwater areas offshore from the central Beaufort coastline. If the new field is found in the eastern Beaufort, a new landfall and facility expansion in the Point Thomson area would be constructed. As only one remote field is expected, there would be only one landfall.

The installation of several platforms and drilling by one rig on each platform would result in a ramp-up period of several years before peak production rates are achieved. The overall field life from discovery to abandonment is

30 years, or approximately 8 years from discovery to production startup, 20-year production life, and 2-year abandonment period. Considering the long lead times for exploration and development at remote sites, activities resulting from Sale 202 could last until 2039 (Figure F-4).

C. Estimates of Muds and Cuttings for Sales 186, 195, and 202

Geologic studies indicate that exploration and delineation wells generally would test prospects from 3,000-15,000 feet in the subsurface. Based on the characteristics of geologic plays with economic resources, we assume that a representative exploration well depth is 7,000 feet. Also based on economic plays, production wells are assumed to average 10,000 feet (drilled depth), because they would include a mix of near-vertical and lateral-extended wells. We assume that one-third of the total wells would be injection wells (production: injection well ratio of 2:1). Injection wells are used for subsurface waste disposal and to optimize oil recovery (waterflood, gas-cycling, and pressure maintenance).

For these assumed drilling depths, a typical exploration well would use 425 tons (ton = 2,000 pounds) of dry mud and produce 525 tons of dry rock cuttings. We assume that 80% of the drilling mud would be recycled and, therefore, 85 tons of "spent mud" would be discharged at the exploration site. All of the cuttings (525 tons per well) would be discharged at the exploration site. A typical production well would use approximately 650 tons of dry mud and produce approximately 825 tons of rock cuttings. We assume that 80% of the drilling mud would be recycled in the multiple-well program and, therefore, 130 tons per well would be waste. Waste drilling mud, rock cuttings, and produced water would be disposed of in the subsurface by service wells on the production platform. If required, waste products could be transported to land facilities for treatment and subsurface disposal.

Spent drilling mud discharged offshore could have this typical composition:

Component	Weight %
Bentonite	6.5
Lignosulfonate	2.0
Lignite	1.4
Caustic	0.7
Lime	0.3
Barite	75.0
Drilled solids	13.0
Soda ash/Sodium Bicarbonate	0.4
Cellulose Polymer	0.7
Seawater/Freshwater	as needed
Total	**100.0**

Source: EPA Type 2, Lignosulfonate Mud

D. Changes in Activities Because of Area Deferrals

The petroleum resource assessment of the Beaufort OCS is based on geologic and engineering analysis of the entire planning area. As previously discussed, all mapped and inferred prospects are grouped into 14 geologic plays extending over broad areas of the Beaufort shelf. The results of the economic modeling indicate that only 3 or 4 of the 14 geologic plays could contain economically recoverable oil at prices ranging from $18-$30 per barrel. The play areas with economic oil resources (Appendix B, Figure B-1 , Figure B-2 , Figure B-3 , and Figure B-4) broadly define the maximum limits of the play; however, specific portions of each play area could lack any commercial potential (no petroleum traps, reservoirs are too deep, ice conditions too severe, technology is inadequate).

It is impossible to accurately define future production from specific parts of the planning area because (1) the locations of commercial-sized pools are unknown and cannot be determined without drilling; (2) future industry efforts to lease and drill specific tracts cannot be accurately predicted; and (3) commercial oil pools are not uniformly distributed over the broad play areas.

In a frontier area such as the Beaufort OCS, a simple concept often holds true: "area equals opportunity." Removing areas from leasing certainly would eliminate the chance that commercial production would occur in that area. However, deferring one area could redirect exploration effort into remaining open areas. If excessively large areas are excluded, industry would abandon the Beaufort OCS program area and pursue other worldwide options.

Another important point is that merely leasing tracts in an OCS sale does not mean that commercial discoveries would be made on these tracts. Most tracts leased are never drilled, and many discoveries would be too small to support commercial development. Exploration activities (seismic surveys, exploration well drilling) could cause temporary disturbances, whereas long-term impacts would occur only if a commercial field is present over several decades.

Because commercial oil resources are not uniformly distributed, oil pools covered by only a few tracts could contain all of the economically recoverable reserves in the sale area. The remainder of the area could either lack the geology to produce large oil pools or have environmental conditions that would preclude commercially viability. It is important to note that this analysis reflects MMS's current data and knowledge. Industry groups could have a much different view of the oil potential in the Beaufort OCS. Future leasing patterns may reflect different industry views regarding the possible location of commercial-sized fields in the program area.

Given the inherent uncertainties for the location of future commercial discoveries, we must subjectively rank areas based on the petroleum resource assessment. This method is based primarily on the identification of geologic plays with economic potential and the projection of historical exploration trends. Table F-6 provides probabilities and risk-weighted resources for six deferral areas under consideration. The "opportunity index" represents the probability that commercial fields would be leased, drilled, discovered, and developed in a specific deferral area. The risk-weighted volumes are simply the portions of the total economic resources (460 million barrels) allocated to each deferral area. The risked resources are given in millions of barrels; however, they do not represent actual field sizes or future oil production.

Using the Opportunity Index for the deferral areas indicates that if all of these areas were removed from leasing, only 39% of the original petroleum potential would be available to industry. This restriction on exploration opportunity in a high-cost frontier province would affect leasing revenues and the chance for future commercial production

Table F-1 Representation of Possible Sale-Related Activities

	Near/Shallow		Midrange/Medium Depth		Far/Deepwater		Total Projects
	Leasing & Exploration	Development Projects	Leasing & Exploration	Development Projects	Leasing & Exploration	Development Projects	
Sale 1	70%	2	20%	1	10%	0	3
Sale 2	50%	1	30%	1	20%	0	2
Sale 3	40%	0	30%	0	30%	1	1
Total	53%	3	27%	2	20%	1	6

Notes: Development zones are broadly defined by distance from the core Prudhoe Bay infrastructure and by water depths.
The Near/Shallow zone is less than 50 miles away in water depths less than 15 meters.
The Midrange/Medium zone is between 50 and 100 miles away in water depths less than 35 meters.
The Far/Deepwater zone is more than 100 miles away or in water depths greater than 35 meters.

Table F-2 Infrastructure Associated with the Beaufort Sea Multiple-Sale

Activity	First Sale (2003)	Second Sale (2005)	Third Sale (2007)	Sum of 3 Sales
Oil Production (BBO)	0.46	0.46	0.46	1.38
Gas Production (TCFG)	N/a	N/a	N/a	N/a
Period of Activity	2004-2034	2006-2037	2008-2039	35 years
Number of Fields	3	2	1	6
Number of Platforms	3	3	2	8
Exploration and Delineation Wells	12	12	11	35
Production Wells	69	69	68	206
Injection Wells	33	33	34	100
Offshore Pipelines (miles)	40	40	35	115
New Landfalls	0	1	1	2
New Shore Bases	0	0	1	1
New Processing Facilities	0	1	1	2

Notes:

Exploration success: Sale 186 (3 wet/6 wildcat = .50); Sale 195 (2 wet/6 wildcat = 0.33); Sale 202 (1 wet/6 wildcat = 0.17). We assume each sale will be followed by 6 wildcat tests.

Assume 2-3 wet exploration/delineation wells for each platform.

Assume 1/3 of development wells are injection (2:1 production/injection).

Average platform holds 34 development wells. Some wells in the third sale scenario could be subsea wells with flowline tiebacks to production platforms in shallow water or onshore.

Offshore pipelines include infield flowlines (less than 10 inches) and sales oil line (greater than 10 inches) shortest distance to landfall.

Landfalls include staging areas and pump stations and are likely to be collocated with onshore processing facilities.

Shore bases are temporary logistical centers associated with exploration and construction. Shore bases might be expanded to include pipeline landfalls and processing facilities associated with production operations.

Abandonment begins in the last year of production and finishes the year following shutdown.

Table F-3 Representative Development Schedule for Sale 186

Year	Exploration Wells	Delineation Wells	Exploration Drilling Rigs	Production Platforms	Production Wells	Injection Wells	Production Drilling Rigs	Offshore Pipelines (miles)	New Shorebases	Oil Production (MMbbl)	Oil Production (MMbbl)	Oil Production (MMbbl)	Combined Oil Production (MMbbl)	Cumulative Oil Production (MMbbl)
2003														
2004	1		1											
2005	1		1											
2006	1	2	2											
2007	1		1											
2008	1	2	2											
2009	1		1	1	3	3	1	10						
2010		2	1		10	4	1			7.9			7.9	7.9
2011				1	13	7	2	10		15.7			15.7	23.6
2012					10	4	1			15.7	7.9		23.6	47.2
2013					10	4	1			15.7	15.7		31.5	78.7
2014				1	3	3	1	20		13.0	15.7		28.7	107.4
2015					10	4	1			10.7	15.7	13.2	39.6	147.0
2016					10	4	1			8.8	13.0	22.0	43.8	190.8
2017										7.3	10.7	22.0	40.0	230.8
2018										6.0	8.8	22.0	36.8	267.6
2019										5.0	7.3	22.0	34.2	301.9
2020										4.1	6.0	18.9	29.0	330.9
2021										3.4	5.0	16.3	24.6	355.5
2022										2.8	4.1	14.0	20.9	376.4
2023										2.3	3.4	12.0	17.7	394.1
2024										1.9	2.8	10.3	15.0	409.1
2025											2.3	8.9	11.2	420.3
2026											1.9	7.7	9.5	429.9
2027												6.6	6.6	436.5
2028												5.7	5.7	442.1
2029												4.9	4.9	447.0
2030												4.2	4.2	451.2
2031												3.6	3.6	454.8
2032												3.1	3.1	457.9
2033												2.7	2.7	460.5
	6	**6**		**3**	**69**	**33**		**40**		**120**	**120**	**220**	**460.5**	

Table F-4 Representative Development Schedule for Sale 195

Year	Exploration Wells	Delineation Wells	Exploration Drilling Rigs	Production Platforms	Production Wells	Injection Wells	Production Drilling Rigs	Offshore Pipelines (miles)	New Shore Bases	Oil Production (MMbbl)	Oil Production (MMbbl)	Combined Oil Production (MMbbl)
2003												
2004												
2005												
2006												
2007	1		1									
2008	1		1									
2009		2	1									
2010	1		1									
2011												
2012	2		2	1	3	3	1	10				
2013	1	2	2		10	4	1			7.9		7.9
2014		2	1		10	4	1			15.7		15.7
2015										15.7		15.7
2016				1	3	3	1	30		15.7		15.7
2017				1	13	7	2			13.0	21.5	34.5
2018					20	8	2			10.7	28.6	39.4
2019					10	4	1			8.8	28.6	37.5
2020										7.3	28.6	35.9
2021										6.0	28.6	34.7
2022										5.0	28.6	33.6
2023										4.1	25.2	29.3
2024										3.4	22.2	25.6
2025										2.8	19.5	22.3
2026										2.3	17.2	19.5
2027										1.9	15.1	17.0
2028											13.3	13.3
2029											11.7	11.7
2030											10.3	10.3
2031											9.1	9.1
2032											8.0	8.0
2033											7.0	7.0
2034											6.2	6.2
2035											5.4	5.4
2036											4.8	4.8
2037												
	6	**6**		**3**	**69**	**33**		**40**		**120**	**340**	**460**

Table F-5 Representative Development Schedule for Sale 202

Year	Exploration Wells	Delineation Wells	Exploration Drilling Rigs	Production Platforms	Production Wells	Injection Wells	Production Drilling Rigs	Offshore Pipelines (miles)	New Shore-bases	Oil Production (MMbbl)	Cumulative Oil Production (MMbbl)
2003											
2004											
2005											
2006											
2007											
2008											
2009											
2010	1		1								
2011											
2012	1		1								
2013	1	1	1								
2014		2	1								
2015	1	2	1						1		
2016											
2017	1		1								
2018	1		1	1	4	4	1	35			
2019				1	14	8	2			30.8	30.8
2020					20	8	2			38.6	69.4
2021					20	9	2			38.6	108.0
2022					10	5	1			38.6	146.6
2023										38.6	185.2
2024										38.6	223.8
2025										34.0	257.8
2026										29.9	287.7
2027										26.3	314.0
2028										23.2	337.2
2029										20.4	357.6
2030										17.9	375.5
2031										15.8	391.3
2032										13.9	405.2
2033										12.2	417.4
2034										10.8	428.2
2035										9.5	437.7
2036										8.3	446.0
2037										7.3	453.3
2038										6.7	460.0
2039											
	6	**5**		**2**	**68**	**34**		**35**	**1**	**460.0**	

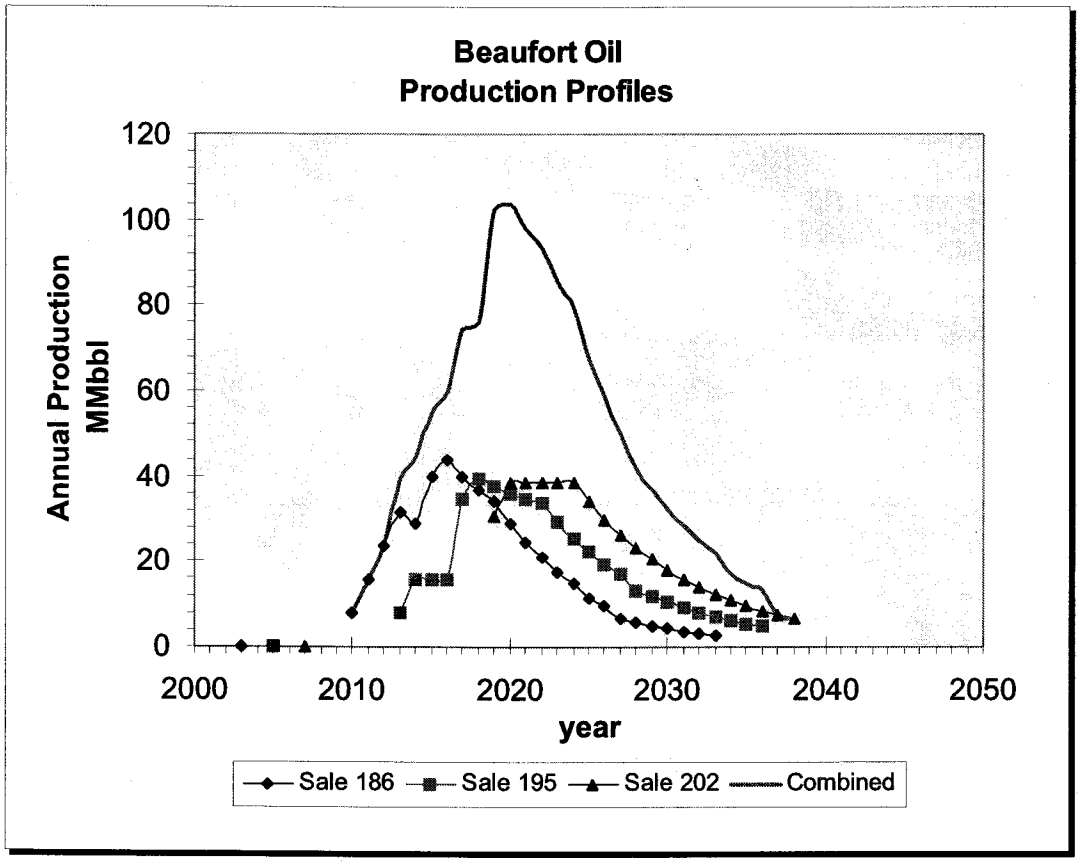

Figure F-1 Oil Production Profiles for Beaufort Sea Multiple-Sales 186, 195, and 202 and Combined

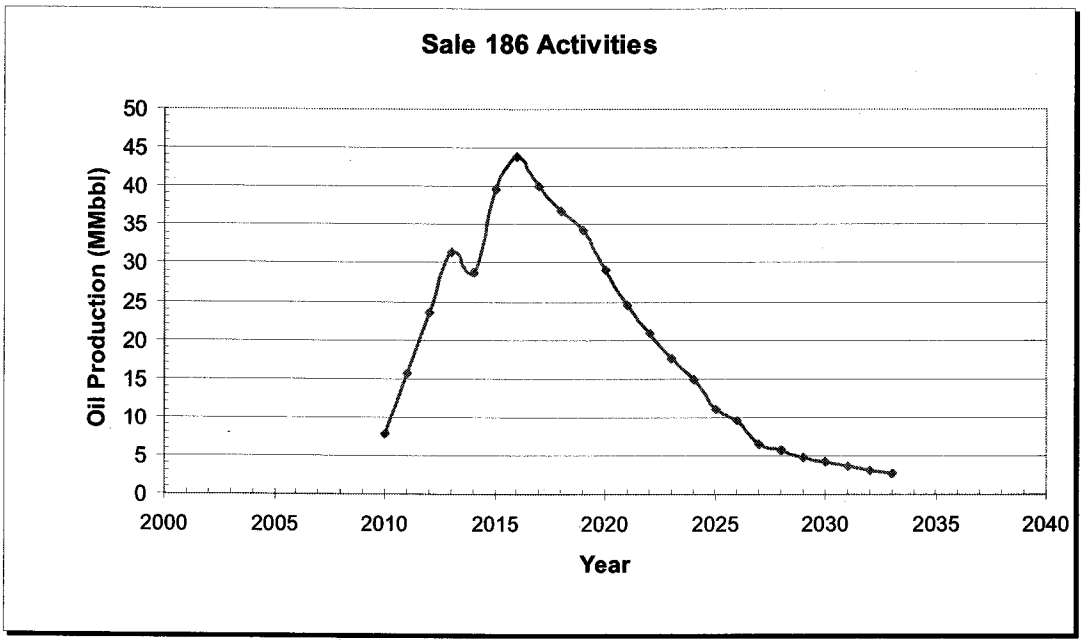

Figure F-2 Oil Production Profile for Beaufort Sea Multiple-Sale 186

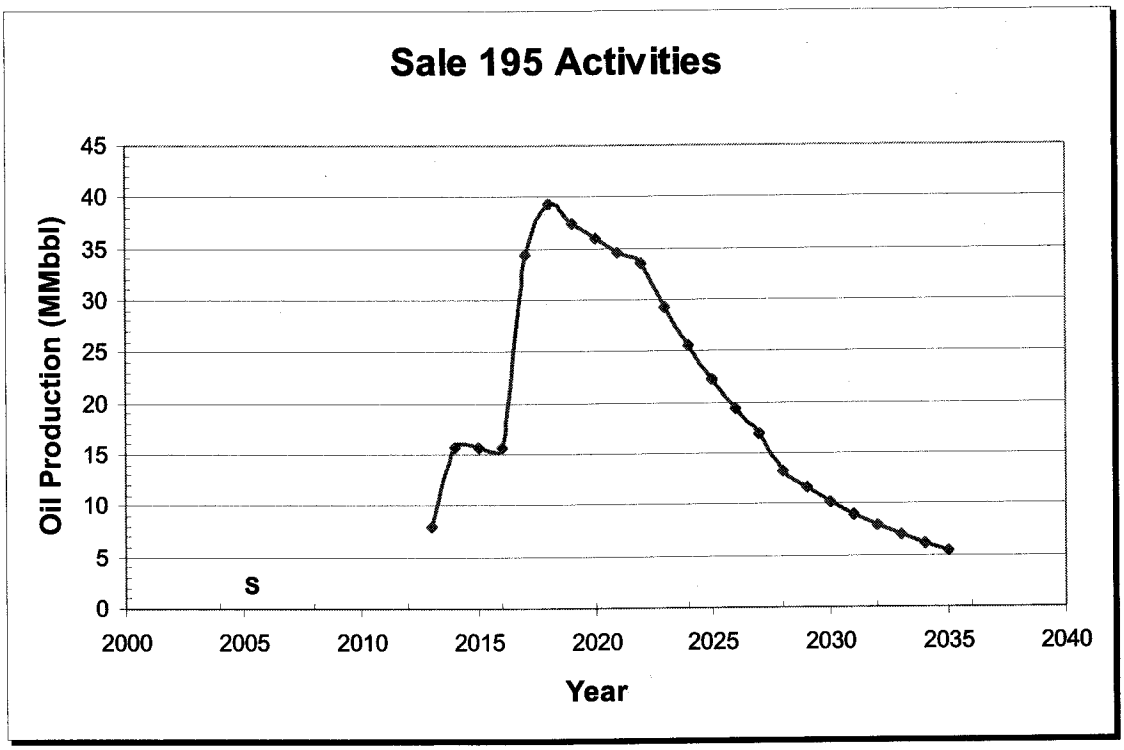

Figure F-3 Oil Production Profile for Beaufort Sea Multiple-Sale 195

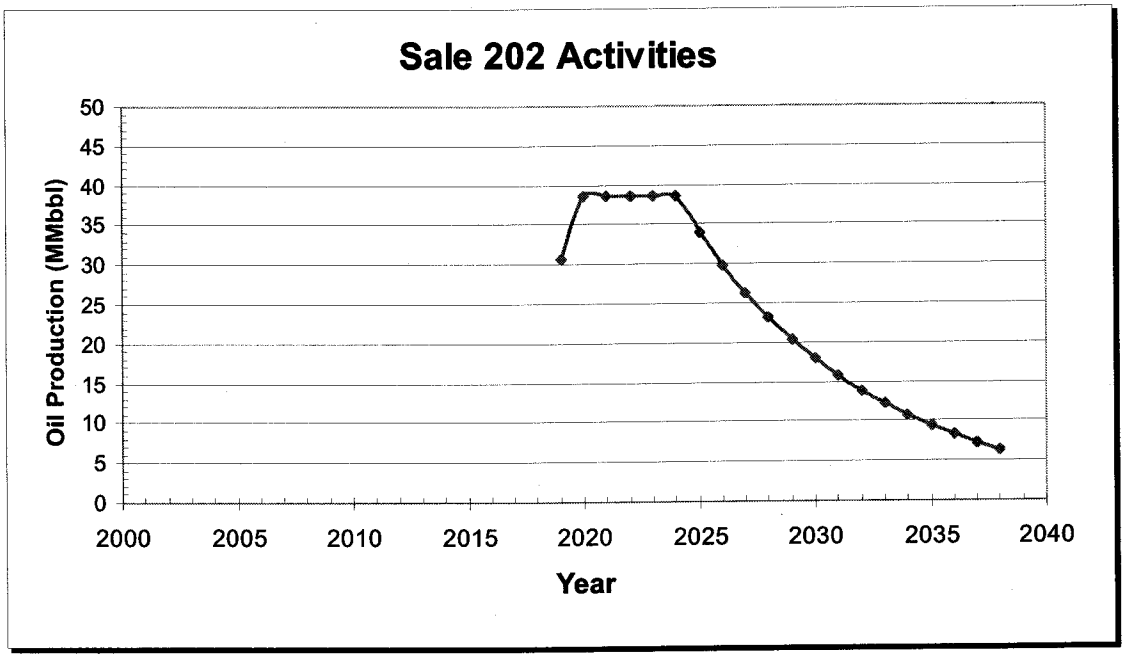

Figure F-4 Production Profiles for Beaufort Sea Multiple-Sale 202