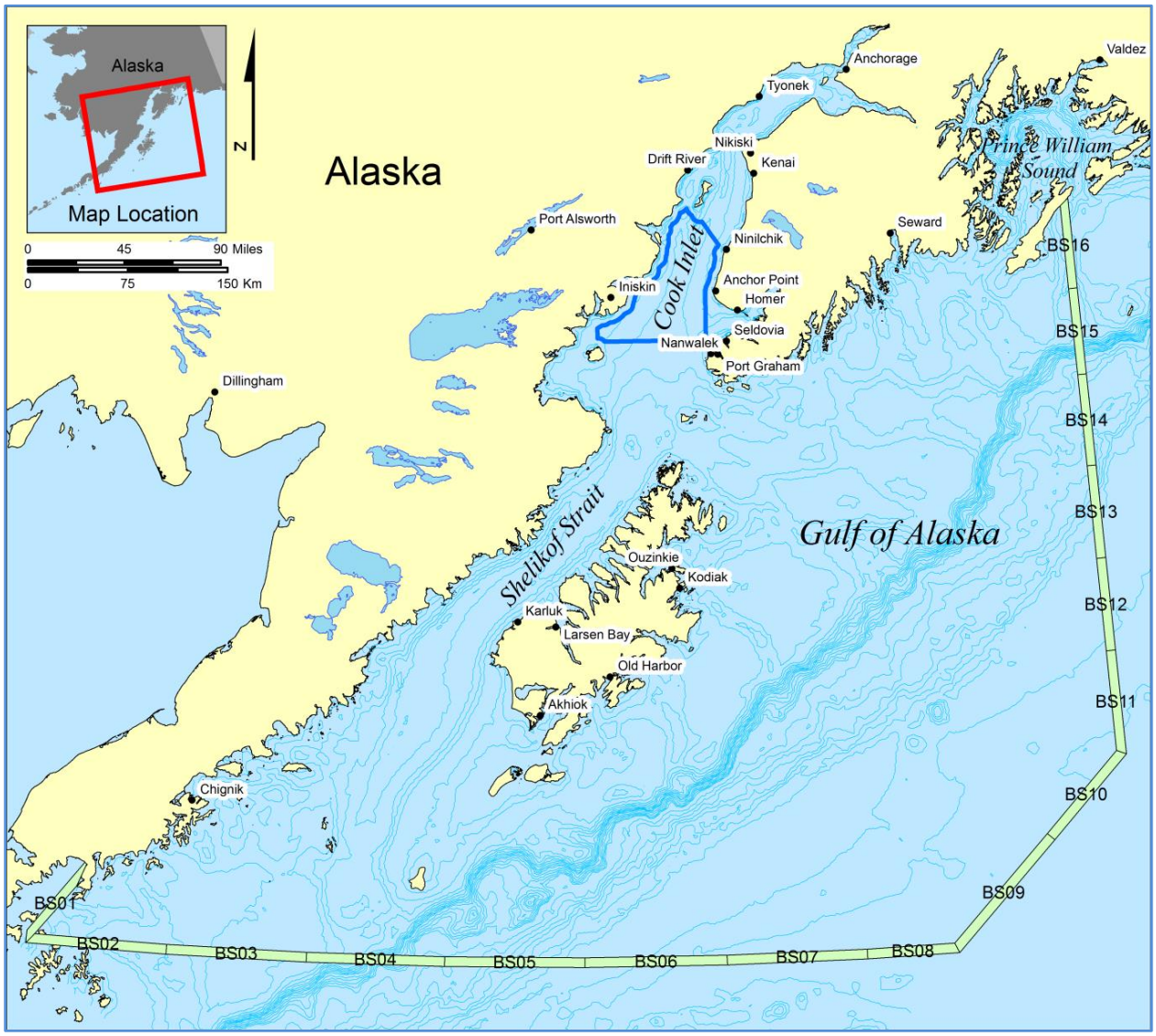
OCS Report
BOEM 2021-061

# Oil Spill Risk Analysis:
## Cook Inlet Planning Area
## OCS Lease Sale 258 (Revised)




**US Department of the Interior**
**Bureau of Ocean Energy Management**
**Sterling (VA)**

BOEM
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# Oil Spill Risk Analysis: Cook Inlet Planning Area OCS Lease Sale 258 (Revised)

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**US Department of the Interior**
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## ABOUT THE COVER

The map shows the study area in Cook Inlet, Shelikof Strait, and Gulf of Alaska, and boundary segments used in the oil spill trajectory analysis.

# Table of Contents

# List of Tables

# List of Figures

## List of Abbreviations and Acronyms

| | |
|---|---|
| AMNWR | Alaska Maritime National Wildlife Refuge |
| bbl | barrel (1 barrel = 42 U.S. gallons) |
| Bbbl | billion barrels ($10^9$ barrels) |
| BOEM | Bureau of Ocean Energy Management |
| BS | boundary segment |
| CH | Critical Habitat |
| EIS | environmental impact statement |
| ESI | Environmental Sensitivity Index |
| EVP | elastic-viscous-plastic |
| ERA | environmental resource area |
| GLS | grouped land segment |
| GMT | Greenwich Mean Time |
| GOA | Gulf of Alaska |
| HS | harbor seal |
| IBA | Important Bird Area |
| ID | identification number |
| Is | island |
| LA | launch area |
| LS | land segment |
| MERRA | Modern Era Retrospective Analysis for Research and Applications |
| MM | marine mammal |
| NM&P | National Monument and Park |
| NP | National Park |
| NPRW | North Pacific right whale |
| NWR | National Wildlife Refuge |
| OCS | Outer Continental Shelf |
| OSRA | oil spill risk analysis |
| PL | pipeline |
| ROMS | Regional Ocean Modeling System |
| SRA | State Recreation Area |
| STEI | Steller's eider |
| SUA | Subsistence Use Area |
| SW | southwest |
| USDOI | U.S. Department of the Interior |

# 1 Introduction

The Federal Government proposes to offer for oil and gas leasing a portion of the U.S. Outer Continental Shelf (OCS) lands in the northern Cook Inlet Planning Area. Because oil spills may occur from activities associated with offshore oil and gas exploration, production, or transportation resulting from a lease sale, the U.S. Department of the Interior (USDOI) Bureau of Ocean Energy Management (BOEM) conducts a formal oil spill risk analysis (OSRA) to support the environmental impact statement (EIS) that is completed prior to conducting the proposed lease sale of this area. This report summarizes the methods and results of OSRA conducted for the proposed Cook Inlet OCS Oil and Gas Lease Sale 258.

The analysis in this report estimates the probability of oil spill contact, probability of oil spill occurrence, and probability of oil spill occurrence and contact to sensitive offshore and onshore environmental resources and socioeconomic features from oil spills accidentally occurring from OCS oil and gas-related activities. The occurrence of oil spills is fundamentally a matter of probability. There is no certainty regarding the amount of oil and gas that would be discovered and then produced, or the size or likelihood of a spill that could occur during the estimated life of a given lease sale. Also, the winds, ocean currents, and sea ice that transport oil spills cannot be known for certain. A probabilistic event, such as an oil spill occurrence or oil spill contact to an environmental, social, or economic resource, cannot be predicted, but an estimate of its likelihood (its probability) can be quantified.

# 2 Framework of the Analysis

Many factors are considered when producing an OSRA report for a proposed lease sale. These include the study area, proposed action and its alternatives, estimated volume of oil and gas resources in the area proposed for leasing, and individual components of the OSRA model.

## 2.1 Study Area

As shown in Figure B-1a, the study area for this analysis, which extends from 147º W to 160º 15'W and 55º 15' N to 61º 15' N, encompasses the geographic boundaries of the environmental resources evaluated for spill risk from OCS operations in and adjacent to the area proposed for Cook Inlet OCS Lease Sale 258. The study area is bounded by 16 offshore boundary segments and the Cook Inlet, Kodiak, Alaska Peninsula, and Gulf of Alaska coastlines (Figure B-1a). The northeast corner of the study area is treated as land segments (#74 and #75), as shown in Figure B-3d.

## 2.2 Summary of the Proposed Action and Alternatives

The proposed Federal action and its alternatives addressed in this report considered excluding OCS blocks from proposed Cook Inlet OCS Lease Sale 258; inclusion of the OCS blocks with additional mitigation; or inclusion of the OCS blocks with no additional mitigation (the proposed action). The purpose of the proposed action or its alternatives is to offer for lease certain OCS blocks located within the federally owned portion of Cook Inlet that may contain economically recoverable oil and gas resources (Figures B-1a and B-1b).

## 2.3 Volume of Resources

For this analysis, both benefits and risks are functions of the volume of oil and gas produced and are mutually dependent. For example, greater volumes of produced oil are associated with greater economic benefits, as well as greater risks. If the benefits are evaluated by assuming production of a specific amount of oil, then the corresponding risks should be stated conditionally, such as "the risks are…, given

that the volume is…" Any statements about the likelihood of a particular volume of oil and gas being developed also apply to the likelihood of the corresponding benefits and risks.

BOEM estimated that an undiscovered economic resource of approximately 0.1923 billion barrels (Bbbl) of oil and 301.9 billion cubic feet of natural gas in two fields within the proposed Cook Inlet OCS Lease Sale area could be discovered and developed as a result of proposed Cook Inlet OCS Lease Sale 258. BOEM Alaska Regional Office, Resource and Economic Analysis Section evaluated the alternatives and determined them to be essentially the same in terms of resource volumes as the proposed action. Further information about proposed Cook Inlet OCS Lease Sale 258 oil and gas resources and prospects was presented in BOEM (2021a, Section 4.1; 2021b).

The estimated life of all exploration, development, production, and decommissioning activities that result from proposed Cook Inlet OCS Lease Sale 258 is 40 years (Year 1 through Year 40). The exploration and development scenario assumed that oil and gas produced in the proposed lease sale area would be transported to shore by pipelines and used within the State of Alaska (BOEM 2021a, Section 4.1). No tankering of resources was estimated within the proposed lease sale area or to markets outside Alaska.

## 2.4 OSRA Components

For this report, OSRA was conducted in three parts, corresponding to different aspects of the overall scientific problem:

1. Probability of large oil spill occurrence (Section 3.1)
2. Trajectories of large oil spills from hypothetical spill locations to various resources (Section 3.2)
3. Combination of the first two analyses to estimate the overall oil spill risk of both spill occurrence and spill contact if there is oil development and production (Section 3.3)

Risk analyses may be characterized as "hazard-based" or "risk-based." A hazard-based analysis examines possible events regardless of their low (or high) likelihood. For example, a potential impact would not lose significance because the occurrence frequency has been reduced due to an increase in the level of control, such as engineering standards. A risk-based analysis, on the other hand, does take into account the likelihood of the event occurring or the measures that can be taken to mitigate against potential impacts.

This OSRA was designed as a risk-based assessment. Therefore, the likelihood of large oil spills (greater than or equal to [≥] 1,000 bbl in size) occurring on the OCS plays an integral role in the analysis. In addition to the estimated chance of large spills occurring, the analysis required an extensive oil spill trajectory model. Results from the trajectory analysis provide an interim product as well as input to the final product by estimating where large spills might travel on the ocean's surface and what resources might be contacted, assuming a large spill has occurred.

The final results from the OSRA are, therefore, expressed as the combined probability of one or more large spills both occurring and contacting modeled offshore and coastal environmental resource locations. Note that the OSRA analysis estimates the chance of spill contacts or occurrence and contact, not spill impacts. The spill impact analysis is conducted in the Cook Inlet OCS Oil and Gas Lease Sale 258 Draft EIS.

# 3 OSRA

This section discusses in detail the three components of OSRA for the proposed Cook Inlet OCS Lease Sale 258. This OSRA report focuses on large spills, which BOEM defines as ≥ 1,000 bbl, meaning that 1,000 bbl was the minimum threshold size for a large spill. A small spill (< 1,000 bbl) would not be expected to persist on the water long enough for the model to follow its path in a trajectory analysis, but a large spill would. Small spills were analyzed in the Cook Inlet OCS Lease Sale 258 Draft EIS without the use of a trajectory analysis (BOEM 2021a).

## 3.1 Probability of One or More Large Oil Spills Occurring

The probability of one or more large spills occurring was derived from three components:

1. The rate of large spills on the OCS (Gulf of Mexico and Pacific)
2. The proposed Cook Inlet OCS Lease Sale 258 resource-volume estimate
3. A Poisson distribution

For the occurrence rates of large spills from OCS platforms and pipelines, this report uses data from ABS Consulting Inc. (2016). ABS Consulting Inc. (2016) analyzed Gulf of Mexico and Pacific large OCS platform and pipeline spills that occurred from OCS oil and gas development from 1964 through 2015. Every large spill record was examined and verified, and each spill was classified for size, product spilled, and spill source according to its applicability to the analysis. Results indicated that no significant changes had occurred in the large spill rates for platforms and pipelines since 1970. Results were based upon more complete databases than were available for earlier analyses, where trends were identified (Anderson and LaBelle, 1990, 1994, 2000, 2012; Lanfear and Amstutz, 1983). The large OCS platform and pipeline spill rates in Table 1 are based on a 42-year period (1974–2015) and best represent current technology (ABS Consulting Inc. 2016).

ABS Consulting Inc. (2016) used volume of oil handled as the exposure variable. Oil handled is the volume of oil produced or transported by pipeline, barge, or tanker. Two basic criteria were used in selecting the volume of oil handled as the exposure variable: (1) it should be simple to define, and (2) it should be a quantity that can be estimated. The volume of oil handled was the chosen exposure variable because

- historical volumes of oil produced and transported are well documented;
- using these volumes simplifies the calculation of the estimated oil spill occurrence rate—the ratio of the number of historical spills to the volume of oil produced or transported; and
- future volumes of oil production and transportation are routinely estimated.

**Table 1. Large (≥ 1,000 bbl) OCS oil spill rates**

| Spill Source | Mean Number of Spills per Bbbl |
|---|---|
| Platform | 0.22 |
| Pipeline | 0.89 |
| Total | 1.11 |

Source: ABS Consulting Inc. (2016)

BOEM multiplied the large OCS spill rate by the resource volume to estimate the mean number of spills. Using the above mean large OCS spill rates, Table 2 shows the estimated mean number of large oil spills. BOEM estimated that 0.17 pipeline spills and 0.04 platform (and well) spills could occur, for a total of 0.21 spills, over the life of proposed Cook Inlet OCS Lease Sale 258.

**Table 2. Mean number of large oil spills estimated for proposed OCS Lease Sale 258**

| Alternative | Mean Number of Platform/ Well Spills | Mean Number of Pipeline Spills | Mean Number of Spills Total |
|---|---|---|---|
| **Proposed Action and its Alternatives** | 0.04 | 0.17 | 0.21 |

The Poisson is a statistical distribution that is commonly used to model random events. The probability of oil spills occurring assumes that spills occur independently of each other as a Poisson process. If BOEM constructed a histogram of the chance of exactly zero spills occurring during some period, the chance of exactly one spill, or exactly two spills, and so on, the histogram would have a shape known as a Poisson distribution. An important and interesting feature of this distribution is that it is entirely described by a single parameter, the mean number of large spills. The entire histogram and estimate of the chance of one or more large spills occurring can be calculated from the mean number of large spills.

Using Bayesian techniques, Devanney and Stewart (1974) showed that the probability of a specific number (*n*) of oil spills occurring can be described by a negative binomial distribution. Smith et al. (1982), however, noted that when actual exposure is much less than historical exposure, as is the case here, the negative binomial distribution can be approximated by a Poisson distribution. The Poisson distribution has a significant advantage in calculating spill probability, because it is defined by only one parameter. The probability, *p(n)*, of *n* spills in the course of handling oil volume *t* can be calculated from equation (1):

$$p(n) = \frac{(\lambda t)^n e^{-\lambda t}}{n!} \quad (1)$$

where *n* is the specific number of spills (0, 1, 2, ..., *n*), *e* is the base of the natural logarithm, and $\lambda$ is the spill rate (in mean number of spills per Bbbl), and *t* is the oil volume (in Bbbl). The spill rate ($\lambda$) can be for oil spills from 1) OCS platforms, 2) pipelines, or 3) the total of OCS platforms and pipelines. The probability of one or more large spills is equal to one minus the probability of zero spills. It can be calculated from equation (2):

$$p(n \geq 1) = 1 - e^{-\lambda t} \quad (2)$$

Using the Poisson distribution, Table 3 shows the estimated probability of one or more large spills occurring over the life of the proposed action and its alternatives for platforms, pipelines, and both. For proposed Cook Inlet OCS Lease Sale 258, crude oil and natural gas production is assumed to occur over a production period of 32 years.

**Table 3. Probability of one or more large spills occurring**

| Alternative | Platform/ Well Spills | Pipeline Spills | Total[1] |
|---|---|---|---|
| **Proposed Action and its Alternatives** | 4% | 16% | 19% |

Note: [1] The total was calculated on a mean spill number of 0.21

## 3.2 Oil Spill Trajectory Simulations

The OSRA model was designed to track the movements of hypothetical large oil spills and calculate the potential contacts to the environmental resources that include environmental resource areas (ERAs), land segments (LSs), grouped land segments (GLSs), and boundary segments (BSs). The OSRA model, originally developed by Smith et al. (1982), has been enhanced by BOEM over the years (Ji 2004; Ji et al. 2003, 2004, 2011; Price et al. 2003, 2004). The OSRA model performs four functions:

- Uses model-simulated wind, sea ice, and ocean current information from hindcasts to estimate where a hypothetical spill from a particular point would move over a specific period of time within a given model domain. Model-simulated current, ice, and wind data; model domain; time periods; and hypothetical launch points are described in Sections 3.2.1, 3.2.2, and 3.2.3.
- Geographically tracks each hypothetical spill trajectory versus the environmental resources. Trajectories and contacts are detailed in Sections 3.2.3 and 3.2.4.
- Counts every time a hypothetical spill contacts one of these environmental resources that include ERAs, LSs, and BSs. Contact tracking is addressed in Section 3.2.5.
- Estimates the probability of contact based on the total number of hypothetical spills launched from a given point and the number of contacts to each specific environmental resource that includes ERAs, LSs, and BSs. OSRA also estimates the combined probabilities of one or more large spills both occurring and contacting environmental resources. This is summarized in Section 3.3.

### 3.2.1 Model-Simulated Ocean Currents, Sea Ice, and Winds as Inputs to OSRA

The OSRA model estimated oil spill trajectories using model-simulated hindcast fields of winds, sea ice movement and concentration, and surface ocean currents in the Cook Inlet and Gulf of Alaska. BOEM used the results from a coupled ice-ocean general circulation model to simulate oil spill trajectories. The wind-driven and density-induced ocean-flow fields and the ice-motion and concentration fields were simulated using a state-of-the-art three-dimensional, coupled, ice-ocean hydrodynamic model based on the Regional Ocean Modeling System (ROMS) (Danielson et al. 2016, 2020). ROMS is a terrain-following, finite volume (Arakawa C-grid) model with the following advanced features: high-order, weakly dissipative algorithms for tracer advection; a unified treatment of surface and bottom boundary layers (Large et al. 1994); and atmosphere-ocean flux computations based on the ocean model prognostic variables using bulk formulae (Fairall et al. 2003; Large and Yeager 2009). The vertical discretization is based on a terrain-following coordinate system with the ability to increase the resolution near the surface and bottom boundary layers. The ROMS model includes a wetting and drying algorithm appropriate for the large tidal range in upper Cook Inlet (Oey et al. 2007). ROMS has been coupled to a sea ice model (Budgell 2005) consisting of the elastic-viscous-plastic (EVP) rheology (Hunke and Dukowicz 1997) and Mellor and Kantha (1989) thermodynamics. The ice module is fully explicit and implemented on the ROMS Arakawa C-grid and is therefore fully parallel using Message Passing Interface, just as ROMS is. The model also includes frazil ice growth in the ocean being passed to the ice (Steele et al.1989). It currently follows a single ice category, which exhibits accurate results in a marginal ice zone such as upper Cook Inlet.

BOEM used the same Modern Era Retrospective Analysis for Research and Applications (MERRA) wind fields used by Danielson et al. (2016). The wind data were from 1999–2009 and were interpolated to the coupled ocean model grid at three-hour intervals.

### 3.2.2 Model Domain

The OSRA model domain included the entire Cook Inlet, surrounding Shelikof Strait, and portions of the Gulf of Alaska (Figure B-1a). It extended from 147º W to 160º 15’ W and 55º 15’ N to 61º 15’ N. The OSRA model had a resolution of 245 m by 256 m and a total of eight million grid cells in the model domain. The model domain was formed by 16 offshore BSs and the Cook Inlet, Kodiak, Alaska Peninsula, and Gulf of Alaska coastline. The BSs were vulnerable to spills in both summer and winter.

The OSRA model domain was chosen to be large enough to allow most hypothetical oil spill trajectories to develop without contacting the BSs through as long as 110 days. Although few hypothetical trajectories were likely to travel beyond the boundaries of the domain within 110 days after release (the

maximum elapsed time considered), BOEM tracked and tabulated the few trajectories that contacted the open-ocean boundaries. If a spill were large enough to persist more than 110 days, these trajectories could contact land or other environmental resources outside the domain.

### 3.2.3 Hypothetical Launch Points

Hypothetical launch points are the locations where oil spill trajectories start. Hypothetical launch points were spaced at approximately one per lease block within the proposed Cook Inlet OCS Lease Sale 258 area plus two additional launch points in state waters for hypothetical pipelines leading to shore. Hypothetical launch points were spaced every 4.8 km in the east-west and north-south direction. At this resolution, there were 219 total launch points in space, grouped into the six launch areas (LAs 1–6) and four pipelines (PLs 1–4) representing the proposed Cook Inlet OCS Lease Sale 258 area and potential associated infrastructure as shown in Figure B-1b.

The PLs were not meant to represent four proposed pipelines or any real or planned pipeline locations. They were distributed throughout the proposed Cook Inlet OCS Lease Sale 258 area to evaluate differences in oil spill trajectories from different locations. If and when any commercial hydrocarbons are discovered, detailed development scenarios would be engineered, designed, reviewed, and evaluated by industry, the Bureau of Safety and Environmental Enforcement (BSEE), BOEM, and other applicable regulatory agencies.

### 3.2.4 Oil Spill Trajectory Simulations

The trajectory-simulation portion of the OSRA model consists of many hypothetical oil spill trajectories that collectively represent the mean surface transport and 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. Hundreds of thousands of 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 OSRA study area.

There are factors not explicitly considered by the oil spill trajectory simulation that can affect the transport of spilled oil as well as the dimensions, volume, and nature of the oil spill contacting environmental resources. These include possible cleanup operations, physical or biological weathering of oil spills, and the spreading and splitting of oil spills. The OSRA analysts have chosen to take a more conservative analytical approach by presuming persistence of spilled oil over the selected time duration of the trajectories. These assumptions make the OSRA model's calculated probabilities conservative, as they do not take into account weathering of oils or accidental event prevention and response measures.

The OSRA model launched a hypothetical oil spill trajectory from a hypothetical location called a launch point starting on day 1 in 1999, and it continuously launched the trajectory every day for a total of 10 years (1999–2009). A total of 3,600 trajectories were simulated from each of 219 launch points, for a total of 799,350 trajectories. For purposes of this trajectory simulation, all spills occurred instantaneously. For each trajectory simulation, the start time for the first trajectory was the first day of the season (winter or summer) of the first year of wind data (1999) at 6 a.m. Greenwich Mean Time (GMT). Each subsequent trajectory was started every day at 6 a.m. GMT. The trajectory simulations were performed three seasons, annual (January 1–December 31), winter (November 1–March 31), and summer (April 1–October 31). The choice of this seasonal division was based on meteorological, climatological, and biological cycles, as well as consultation with BOEM Alaska Regional Office analysts.

The trajectories were driven by the hourly wind and ice or current data from a coupled ocean model with 10 years (1999–2009) of simulation, described in Section 3.2.1 and, in detail, in Danielson et al. (in press). The OSRA model integrates the spill velocities (a linear superposition of surface ocean currents

and empirical wind drift) by integrating velocity in time to produce the spill trajectories. The time step selected was 3 minutes to fully utilize the spatial resolution of the ocean current field and achieve a stable set of trajectories. The velocity field was bi-linearly interpolated from the 1-hourly grid to get velocities at 3-minute intervals. Time steps smaller than 3 minutes were analyzed and were found to not produce significant differences in the simulated trajectories after 110 model days, so the 3-minute time step was chosen for this analysis. The chosen number of trajectories was small enough to be computationally practical and large enough to reduce the random sampling error to an insignificant level (Price et al. 2004).

Trajectories were constructed to produce an oil transport vector. For cases where the ice concentration was below 80%, each trajectory was 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 was 80% or greater, the model ice velocity was used to transport the oil. Equation (3) shows the components of motion simulated and used to describe the oil transport for each trajectory:

$$U_{oil} = \begin{cases} U_{current} + 0.035\, U_{wind} & if\ ice\ concentration < 80\% \\ U_{ice} & if\ ice\ concentration \geq 80\% \end{cases} \quad (3)$$

where $U_{oil}$ = oil drift vector, $U_{current}$ = current vector (when ice concentration was < 80%), $U_{wind}$ = wind speed at 10 m above the sea surface, and $U_{ice}$ = ice vector (when ice concentration was ≥ 80%). The wind-drift factor was estimated to be 0.035, with a variable drift angle ranging from 0º–25º clockwise. The drift angle was computed as a function of wind speed according to the formula in Samuels et al. (1982). The drift angle is inversely related to wind speed.

### 3.2.5 Environmental Resources Considered in the Analysis

Environmental resources consist of ERAs, LSs, GLSs, and BSs. ERAs represent offshore areas of social, economic, or biological resources or resource habitats, while LSs and GLSs represent onshore areas of social, economic, or biological resources or resource habitats.

BOEM Alaska Regional Office analysts designate these resources by working with scientists in other Federal and state agencies, academia, and various stakeholders who provide scientific information as well as local and traditional knowledge about these resources. BOEM analysts also used information from Environmental Studies Program results, literature reviews, and professional exchange with scientists to define these resources.

The analysts used geographic information on biological, physical, and socioeconomic resources to map resource locations potentially vulnerable to oil spill contact and designated 155 ERAs. These resource areas represent concentrations of wildlife, habitat, subsistence-hunting areas, or subsurface habitats and are shown in Figures B-2a through B-2h. For biological resources, ERAs are determined by several factors, including density, important habitat, and life history features. Although multiple species may occur within an ERA, ERAs are assigned to those species for which there is sufficient information to confidently identify the area as important. The names or abbreviations of the ERAs, the general resource they represent, and their vulnerability (i.e., months of habitat or resource use) are shown in Table A.1-1. Information regarding the specific ERAs for lower trophic level organisms; anadromous fish; whales; seals and sea lions; sea otters; terrestrial mammals; birds; subsistence resources; and parks, refuges, and special areas is found in Tables A.1-2, 3, 4, 5, 6, 7, 8, 9, and 10 respectively. Discussions of the results of the OSRA model, as related to all considered resources, can be found in the Cook Inlet OCS Lease Sale 258 Draft EIS (BOEM 2021a).

All the onshore coastal resource locations were represented by one or more partitions of the coastline (i.e., LSs). The study area coastline was partitioned into 112 equidistant LSs of approximately 12–15 miles (20–25 kilometers) in length. The partitions were formed by creating straight lines between two points projected onto the coast; therefore, the actual miles of shoreline represented by each LS could be greater than 15 miles, depending upon the complexity of the coastal area. The locations of these 112 LSs are shown in Figures B-3a through B-3d. The names of geographic locations within LSs are shown in Table A.1-11. BOEM compiled the Environmental Sensitivity Index (ESI) numbers for each of the LSs along the coastline of Alaska within the study area. In general, the higher the ESI number, the longer the oil is estimated to persist in that type of substrate. For each LS, the percentage of each ESI number by length is shown in Table A.1-12.

The LSs were further grouped into 52 larger geographic areas, or GLSs, and were evaluated as unique environmental resources. Figures B-4a and B-4b show the location of these 52 GLSs. The GLSs, their names, the individual LSs that make them up, and the months they are vulnerable to spills are shown in Table A.1-13.

## 3.3 Conditional and Combined Probability Calculation

A critical difference exists between the conditional probabilities and the combined probabilities calculated. Conditional probabilities depend only on the winds, currents, and ice in the study area. Combined probabilities, on the other hand, depend not only on the winds, currents, and ice, but also on the chance of spill occurrence, estimated volume of oil to be produced or transported, and oil transportation scenario. The combined probabilities represent the estimated overall (combined) chance that one or more large spills (≥1,000 bbl) will both occur and contact a specific resource.

### 3.3.1 Conditional Probability of Contact

The chance that a large oil spill will contact an environmental resource within a given time of travel from a certain location is termed a conditional probability. The condition is that a spill is assumed to have occurred. In the analysis, each trajectory is allowed to continue for as long as 110 days. However, if the hypothetical spill contacts an LS sooner than 110 days after the start of the spill, the spill trajectory is terminated, and the contact is recorded. A contact to an ERA that is not an LS will not stop the calculation of the trajectory.

Conditional probabilities of contact with environmental resources within 1, 3, 10, 30, and 110 days of travel time are calculated for each of the hypothetical launch points by the model to serve as input into the final calculation of the combined probabilities. They are calculated by dividing the total number of contacts by the total number of oil spill trajectories initiated in the model from a given hypothetical spill location (LA or PL) (Tables A.2-1 through A.2-60). At each successive time step, the OSRA model compares the location of the oil spill trajectories against the geographic boundaries of resources and their temporal vulnerability (the time in which the resource is there). The OSRA model then counts the number of "contacts," which is comprised of the number of trajectories contacting during the time periods that the habitat or area is known to be used by the resource. The OSRA model collates the statistics for individual shoreline contacts by the trajectories to calculate the average probabilities of contact to the entire shoreline.

### 3.3.2 Combined Probability of Occurrence and Contact

Combined probabilities are the chance of one or more large spills occurring and contacting an environmental resource. They are estimated using the conditional probabilities, large oil spill rates, resource estimates, and assumed transportation scenarios. These are combined through matrix

multiplication to estimate the mean number of one or more large spills occurring from operations in and adjacent to the proposed lease sale area and making a contact.

In calculating the combined probabilities of both oil spill contact and oil spill occurrence, the following steps are performed:

1. To address the probability of spill contact for a set of $n_t$ environmental resources and $n_l$ launch points, the conditional probabilities can be represented in a matrix form. Let [C] be an $n_t \times n_l$ matrix, where each element $c_{i,j}$ is the probability that an oil spill will contact environmental resource *i*, given that a spill occurs at launch point *j*. Note that launch points can represent potential starting points of spills from production areas or from transportation routes.
2. Oil spill occurrence can be represented by another matrix [S]. With $n_l$ launch points and $n_s$ production sites, the dimensions of [S] are $n_l \times n_s$. Let each element $s_{j,k}$ be the estimated mean number of spills occurring at launch point *j* owing to production of a unit volume (1 Bbbl) of oil at site *k*. These spills can result from either production or transportation. The $s_{j,k}$ can be determined as a function of the volume of oil (spills/Bbbl). Each column of [S] corresponds to one production site and one transportation route. If alternative and mutually exclusive transportation routes are considered for the same production site, they can be represented by additional columns of [S], thus increasing $n_s$.
3. The unit risk matrix [U] is defined as

$$[U] = [C] \times [S] \qquad (4)$$

4. [U] has dimensions $n_t \times n_s$. Each element $u_{i,k}$ corresponds to the estimated mean number of spills occurring and contacting environmental resource *i*, owing to the production of a unit volume (1 Bbbl) of oil at site *k*.
5. To convert this number into a number that reflects the expected oil production volume, a value for volume must be included. With [U], the mean contacts to each environmental resource are estimated, given a set of oil volumes at each site. Let [V] be a vector of dimension $n_s$, where each element $v_k$ corresponds to the volume of oil expected to be found at production site *k*. Then, if [L] is a vector of dimension $n_t$, where each element $\lambda_i$ corresponds to the mean number of contacts to environmental resource *i*, the formula is

$$[L] = [U] \times [V] \qquad (5)$$

Using the above steps, BOEM estimates the mean number of one or more large oil spills that are likely to occur and contact environmental resources (or LSs). Note that, as a statistical parameter, the mean number of spills can assume a fractional value, even though fractions of oil spills have no physical meaning.

# 4 Results and Discussion

## 4.1 Conditional Probabilities

The conditional probability results for the oil spill trajectory model are summarized generally below and are listed in Tables A.2-1 through A.2-60 for the proposed lease sale area. The figures referenced in this discussion are as follows:

- BSs are shown in Figure B-1a
- ERAs are shown in Figures B-2a through B-2h
- LSs are shown in Figures B-3a through B-3d
- GLSs are shown in Figures B-4a through B-4b
- Hypothetical LAs and PLs are shown in Figure B-1b

Probabilities in the following discussions, unless otherwise noted, are conditional probabilities estimated by the OSRA model (expressed as percent chance) of a spill ≥ 1,000 bbl in size contacting ERAs, LSs, and GLSs within the days and seasons as specified above.

### 4.1.1 Comparisons Between Spill Location and Season

Contact between spill locations differ geographically from east to west, and between northern lower Cook Inlet versus southern lower Cook Inlet and Shelikof Strait. The LSs along the western shores of lower Cook Inlet in Kamishak Bay and Shelikof Strait generally had the highest chance of contact from all LAs. Contacts to the western shorelines are greater in magnitude and length of coastline contacted is longer for LAs located on the western side of Cook Inlet. LAs in southern Cook Inlet tend to produce patterns of contacts that show spills overall move more southward in the inlet. For a particular LA, contacts to the south are further away and higher in magnitude than contacts to the north. This reflects the predominate flow in the inlet and strait to the south. PLs generally have balanced east and west contacts. Winter contacts are generally slightly higher in magnitude than summer contacts for the same LA or PL.

### 4.1.2 Generalities Through Time

**3 Days:** Generally, the highest chances of contacts within 3 days to ERAs, LSs, and GLSs are directly adjacent to the LAs or PLs.

**10 Days:** Generally, a large portion of the trajectories contact shoreline within 10 days due to the enclosed nature of the shoreline of lower Cook Inlet and upper Shelikof Strait. In many cases, there is little difference between the 10-day and 30-day estimated chances of contact. This is because the study area is restricted within Cook Inlet and Shelikof Strait, and long travel times for oil spill trajectories are not observed.

**30 Days:** The chance of contacts within 30 days generally increase only slightly, if at all, from 10 days. Some ERAs, primarily lower Shelikof Strait and the northeastern side of Kodiak (farther from the LAs), have chances of contact ranging from 1–5%. The majority of ERAs distant from the proposed lease sale area have a < 0.5% chance of contact.

## 4.2 Combined Probabilities

The combined probability results are summarized generally below and are listed in Tables A.2-61 through A.2-64. As expected, resource locations closest to the proposed lease sale area have the highest chance of occurrence and contact. As the trajectory travel time increases, more of the identified environmental

resources and shoreline segments have meaningful probabilities of occurrence and contact (≥ 0.5%). Longer transit times (up to 30 days) enable more hypothetical spills to reach the environmental resources and the shoreline from more distant spill locations. With increased travel time, the complex patterns of wind and ocean currents produce multiple opportunities for a trajectory to make occurrence and contact with any given environmental resource or shoreline segment.

Within 30 days, 98 of the 155 ERAs identified within the OSRA study area had a < 0.5% combined probability. ERA 0 (Land) has the highest combined probability (19%). Except for ERA 0, the combined probability for individual ERAs was 13% or less. Those ERAs with a 5–13% combined probability are within or adjacent to the proposed lease sale area from south of Kalgin Island to northern Shelikof Strait, with the highest combined probabilities along western Cook Inlet. ERAs with a 1–4% combined probability are farther from the proposed lease sale area, ranging from the Forelands in central Cook Inlet to southern Shelikof Strait, and to the eastern Gulf of Alaska near the entrance to Cook Inlet.

For LSs, the highest combined probabilities within 30 days are 3% for LS 33 (Chinitna Bay) and 2% for LS 35 (Chisik Island, Tuxedni Bay); both are on the western side of Cook Inlet. Ten other LSs have a combined probability of 1% and are mainly on the western side of Cook Inlet from Cape Douglas to Redoubt Point (LS 25, 28–36), except for LS 56 (Cape Starichkof, Happy Valley) and LS 62 (Nanwalek, Port Graham), which are on the eastern side of Cook Inlet.

GLSs follow a similar pattern to the LSs because the GLSs were made up of multiple LSs. The highest combined probabilities are on the western side of Cook Inlet (7–10%), with much lower combined probabilities (1–2%) on the eastern side of Cook Inlet and northern Shelikof Strait/Kodiak Island.

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# Appendix A. Oil-Spill Risk Analysis Tables

## A.1. Environmental Resource Area, Land Segment, and Grouped Land Segment Tables

**Table A.1-1. ERAs used in the OSRA model**

| ID | Name | General Resource | Vulnerable | Figure |
|---|---|---|---|---|
| 1 | SUA: Tyonek Beluga | Subsistence | March–October | B-2a |
| 2 | SUA: Tyonek North | Subsistence | March–October | B-2a |
| 3 | SUA: Tyonek South | Subsistence | March–October | B-2a |
| 4 | SUA: Seldovia, Port Graham, Nanwalek | Subsistence | January–December | B-2a |
| 5 | SUA: Port Lions | Subsistence | January–December | B-2d |
| 6 | SUA: Ouzinke | Subsistence | January–December | B-2d |
| 7 | SUA: Larsen Bay | Subsistence | January–December | B-2d |
| 8 | SUA: Karluk | Subsistence | January–December | B-2d |
| 9 | SUA: Akhiok | Subsistence | January–December | B-2d |
| 10 | SUA: Old Harbor | Subsistence | January–December | B-2d |
| 11 | Augustine | Marine Mammals, Lower Trophic Level Organisms | January–December | B-2a |
| 12 | South Cook HS 1a | Marine Mammals | January–December | B-2a |
| 13 | South Cook HS 1b | Marine Mammals | January–December | B-2a |
| 14 | South Cook HS 1c | Marine Mammals | January–December | B-2a |
| 15 | South Cook HS 1d | Marine Mammals | January–December | B-2a |
| 16 | Inner Kachemak Bay | Marine Mammals | January–December | B-2b |
| 17 | Clam Gulch HS | Marine Mammals | January–December | B-2a |
| 18 | Tuxedni HS | Marine Mammals | March–December | B-2a |
| 19 | Kalgin Island HS | Marine Mammals | March–December | B-2a |
| 20 | Redoubt Bay HS | Marine Mammals | March–December | B-2b |
| 21 | Trading Bay HS | Marine Mammals | March–December | B-2b |
| 22 | Susitna Flats HS | Marine Mammals | March–December | B-2a |
| 23 | Barren Is. Pinniped | Marine Mammals | January–December | B-2b |
| 24 | Shelikof MM 2 | Marine Mammals, Whales | January–December | B-2d |
| 25 | Shelikof MM 3 | Marine Mammals, Whales | January–December | B-2d |
| 26 | Shelikof MM 4 | Marine Mammals, Whales | January–December | B-2d |
| 27 | Shelikof MM 5 | Marine Mammals, Whales | January–December | B-2d |
| 28 | Shelikof MM 6 | Marine Mammals | January–December | B-2d |
| 29 | Shelikof MM 7 | Marine Mammals | January–December | B-2d |
| 30 | Shelikof MM 8 | Marine Mammals | January–December | B-2d |
| 31 | Kodiak Pinniped 1 | Marine Mammals | January–December | B-2e |
| 32 | Kodiak Pinniped 2 | Marine Mammals | January–December | B-2e |
| 33 | Kodiak Pinniped 3 | Marine Mammals | January–December | B-2e |
| 34 | Kodiak Pinniped 4 | Marine Mammals | January–December | B-2e |
| 35 | Kodiak Pinniped 5 | Marine Mammals | January–December | B-2e |
| 36 | Kodiak Pinniped 6 | Marine Mammals | January–December | B-2e |
| 37 | Port Chatham Pinniped | Marine Mammals | January–December | B-2b |
| 38 | Port Dick Pinniped | Marine Mammals | January–December | B-2b |
| 39 | Two Arm Bay Pinniped | Marine Mammals | January–December | B-2b |
| 40 | Nuka Bay Pinniped | Marine Mammals | January–December | B-2c |
| 41 | Resurrection/Chiswell | Marine Mammals, Whales | January–December | B-2c |
| 42 | Cape Puget Pinniped | Marine Mammals | January–December | B-2c |
| 43 | AK Peninsula Pinniped 1 | Marine Mammals | January–December | B-2h |
| 44 | AK Peninsula Pinniped 2 | Marine Mammals | January–December | B-2h |
| 45 | Clam Gulch | Marine Mammals | January–December | B-2a |
| 46 | Outer Kachemak Bay | Marine Mammals | January–December | B-2b |
| 47 | SW Cook Inlet | Marine Mammals | January–December | B-2b |
| 48 | Kamishak Bay | Marine Mammals | January–December | B-2b |
| 49 | Katmai NP | Marine Mammals | January–December | B-2e |

| ID | Name | General Resource | Vulnerable | Figure |
|---|---|---|---|---|
| 50 | Becharof NWR | Marine Mammals | January–December | B-2e |
| 51 | Alaska Peninsula NWR- N | Marine Mammals | January–December | B-2f |
| 52 | Aniakchak NM&P | Marine Mammals | January–December | B-2h |
| 53 | Alaska Peninsula NWR South | Marine Mammals | January–December | B-2h |
| 54 | Sutwick Island | Marine Mammals | January–December | B-2h |
| 55 | Semidi Islands | Marine Mammals | January–December | B-2h |
| 56 | Chirikof Island | Marine Mammals | January–December | B-2h |
| 57 | Trinity Islands | Marine Mammals | January–December | B-2h |
| 58 | Kodiak NWR-East | Marine Mammals | January–December | B-2e |
| 59 | Kodiak NWR-South | Marine Mammals | January–December | B-2e |
| 60 | Kodiak NWR-West | Marine Mammals | January–December | B-2e |
| 61 | NE Kodiak | Marine Mammals | January–December | B-2e |
| 62 | Chiniak Bay | Marine Mammals | January–December | B-2e |
| 63 | Ugak Bay | Marine Mammals | January–December | B-2e |
| 64 | Afognak-West | Marine Mammals | January–December | B-2e |
| 65 | Afognak-North | Marine Mammals | January–December | B-2e |
| 66 | Afognak-East | Marine Mammals | January–December | B-2e |
| 67 | Shuyak | Marine Mammals | January–December | B-2e |
| 68 | Kenai Fjords-West | Marine Mammals | January–December | B-2b |
| 69 | Upper Cook Inlet- Beluga CH | Whales | January–December | B-2a |
| 70 | Forelands- Beluga CH | Whales | January–December | B-2a |
| 71 | Middle Cook Inlet-Beluga CH | Whales | January–December | B-2b |
| 72 | West Cook Inlet-Beluga CH | Whales | January–December | B-2b |
| 73 | NPRW Feeding Area | Whales | June–September | B-2f |
| 74 | NPRW CH | Whales | June–December | B-2d |
| 75 | Kachemak- Humpback Whale | Whales | May–December | B-2c |
| 76 | Shelikof- Humpback Whale | Whales | May–December | B-2f |
| 77 | N Kodiak- Humpback Whale | Whales | May–December | B-2c |
| 78 | E Kodiak- Humpback Whale | Whales | May–December | B-2f |
| 79 | S Kodiak- Humpback Whale | Whales | May–December | B-2f |
| 80 | Shelikof MM 1 | Whales | January–December, | B-2d |
| 81 | Shelikof MM 1a | Whales | June–August | B-2d |
| 82 | Shelikof MM 2a | Whales | June–August | B-2d |
| 83 | Shelikof MM 3a | Whales | June–August | B-2d |
| 84 | Shelikof MM 4a | Whales | June–August | B-2d |
| 85 | Shelikof MM 5a | Whales | June–August | B-2d |
| 86 | Shelikof MM 6a | Whales | June–August | B-2d |
| 87 | Shelikof MM 9 | Whales | June–August | B-2d |
| 88 | Shelikof MM 10 | Whales | June–August | B-2h |
| 89 | Shelikof MM 11 | Whales | January–December | B-2h |
| 90 | Barren Islands- Fin Whale | Whales | January–December | B-2f |
| 91 | NE Kodiak- Fin Whale | Whales | January–December | B-2f |
| 92 | Kodiak- Gray Whale Feeding | Whales | June–August | B-2g |
| 93 | Upper E Kenai- Gray Whale | Whales | April–December | B-2c |
| 94 | Lower E Kenai- Gray Whale | Whales | April–December | B-2c |
| 95 | NE Kodiak- Gray Whale | Whales | April–December | B-2g |
| 96 | E Kodiak- Gray Whale | Whales | April–December | B-2g |
| 97 | SE Kodiak- Gray Whale | Whales | April–December | B-2f |
| 98 | Shelikof- Gray Whale | Whales | April–December | B-2g |
| 99 | N Shumagin- Gray Whale | Whales | April–December | B-2h |
| 100 | S Shumagin- Gray Whale | Whales | October–December | B-2h |
| 101 | Cook Inlet 1- Harbor Porpoise | Whales | June–September | B-2a |
| 102 | Cook Inlet 2- Harbor Porpoise | Whales | June–September | B-2a |
| 103 | Cook Inlet 3- Harbor Porpoise | Whales | June–September | B-2c |
| 104 | Cook Inlet 4- Harbor Porpoise | Whales | June–September | B-2c |
| 105 | Cook Inlet 5- Harbor Porpoise | Whales | June–September | B-2b |
| 106 | SE Kodiak- Harbor Porpoise | Whales | June–September | B-2g |

| ID | Name | General Resource | Vulnerable | Figure |
|---|---|---|---|---|
| 107 | S Kodiak- Harbor Porpoise | Whales | June–September | B-2g |
| 108 | Shelikof- Killer Whale | Whales | January–December | B-2e |
| 109 | E Kodiak- Killer Whale | Whales | January–December | B-2e |
| 110 | SE Kenai- Dall's Porpoise | Whales | June–August | B-2c |
| 111 | NW Afognak Is IBA | Birds | May–August | B-2c |
| 112 | Uganik and Viekoda Bay IBAs | Birds | May–August | B-2d |
| 113 | Marmot Bay/ Colonies IBAs | Birds | January–December | B-2c |
| 114 | Chiniak Bay IBA | Birds | January–December | B-2d |
| 115 | Ugak Bay: Birds | Birds | November–April | B-2d |
| 116 | Eastern Kodiak Is IBA | Birds | January–December | B-2d |
| 117 | Flat Is Colony IBA | Birds | May–August | B-2d |
| 118 | Sitkinak Strait STEI Habitat | Birds | November–April | B-2d |
| 119 | Gulf of Alaska Shelf IBA | Birds | May–August | B-2f |
| 120 | Chirikof Is Marine IBA | Birds | May–August | B-2f |
| 121 | Semidi Islands Colonies IBA | Birds | May–August | B-2h |
| 122 | Semidi Islands Marine IBA | Birds | May–August | B-2h |
| 123 | Spitz Is Colony IBA | Birds | May–August | B-2h |
| 124 | Seal Cape Marine IBA | Birds | May–August | B-2h |
| 125 | Chignik Bay Vicinity: Birds | Birds | January–December | B-2h |
| 126 | Ugaiushak Is Colonies IBA | Birds | May–August | B-2g |
| 127 | Wide Bay IBA | Birds | May–August | B-2g |
| 128 | Wide Bay STEI Habitat | Birds | November–April | B-2g |
| 129 | Cape Unalishagvak Vicinity: Birds | Birds | May–August | B-2g |
| 130 | South Alinchak Bay Colony | Birds | May–August | B-2g |
| 131 | Katmai Bay Colonies | Birds | May–August | B-2g |
| 132 | Amalik Bay Colonies IBA | Birds | May–August | B-2g |
| 133 | Ninagiak Is Colonies | Birds | May–August | B-2g |
| 134 | Kiukpalik Is Colony | Birds | May–August | B-2g |
| 135 | Shaw Is Colony | Birds | May–August | B-2g |
| 136 | Kamishak Bay IBA | Birds | May–August | B-2b |
| 137 | Kamishak Bay STEI Habitat | Birds | November–April | B-2b |
| 138 | Tuxedni Is Colony IBA | Birds | May–August | B-2c |
| 139 | Tuxedni Bay IBA | Birds | July–April | B-2c |
| 140 | Redoubt Bay IBA | Birds | January–December | B-2b |
| 141 | Trading Bay IBA | Birds | January–December | B-2b |
| 142 | Susitna Flats IBA | Birds | January–December | B-2b |
| 143 | Anchorage Coastal IBA | Birds | March–October | B-2b |
| 144 | Clam Gulch STEI Habitat | Birds | November–April | B-2c |
| 145 | Outer Kachemak Bay/IBA | Birds, Marine Mammals | January–December | B-2a |
| 146 | Lower Cook Inlet 153W59N IBA | Birds | November–April | B-2c |
| 147 | Barren Islands Marine IBA | Birds | May–August | B-2b |
| 148 | Barren Islands Colonies IBA | Birds | May–August | B-2a |
| 149 | SW Kenai Pen Marine IBA | Birds | May–August | B-2a |
| 150 | Kenai Fjords | Birds | May–August | B-2c |
| 151 | Gulf of AK Shelf 151W58N IBA | Birds | January–December | B-2c |
| 152 | Gulf of AK Shelf Edge 148W59N | Birds | January–December | B-2c |
| 153 | Polly Creek Beach | Lower Trophic Level Organisms | January–December | B-2a |
| 154 | Chinitna Bay | Lower Trophic Level Organisms | January–December | B-2a |
| 155 | Barren Islands | Lower Trophic Level Organisms | January–December | B-2a |

Compiled by USDOI, BOEM, Alaska OCS Region.

Notes: Table columns contain: Identification Number (ID), Name of Environmental Resource Areas (ERA), Vulnerability Represented in the Oil Spill Trajectory Model and ERA map Location in Appendix B.

Key: AK = Alaska, CH = Critical Habitat, E = East, HS = Harbor Seal, IBA = Important Bird Area, Is = Island, MM = Marine Mammal, N= North, NE= Northeast, NM&P = National Monument and Park, NP= National Park, NPRW = North Pacific Right Whale, NW = Northwest, NWR = National Wildlife Refuge, Pen = Peninsula, S = South, STEI = Steller's Eider, SUA = Subsistence Use Area, SW = Southwest, W=West

## Table A.1-2. ERAs and GLSs used in the analysis of lower trophic level organisms

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| **ERAs** | | | | | |
| 11 | Augustine | B-2a | January–December | Clams, Scallops, Seagrass | NPFMC 2014 (pp. 29-35) |
| 153 | Polly Creek Beach | B-2a | January–December | Clams, Seagrass | Lees and Driskell 2006 (Table 4, pp. 19-2, Table 5, pp. 23, Table 6, pp. 25-27) |
| 154 | Chinitna Bay | B-2a | January–December | Clams | Lees and Driskell 2006 (Fig. 2, pp. 5, Table 6, pp 25-27) |
| 155 | Barren Islands | B-2a | January–December | Crabs | Bechtol and Gustafson 2002 (pp. 2-5, 19-25) |
| **GLSs** | | | | | |
| 138 | Clam Gulch Critical Habitat | B-4a.1 | January–December | Clams | Kerkvliet and Booz 2013 (Table 1, pp. 23, Table 2, p. 24) |

Compiled by USDOI, BOEM, Alaska OCS Region.

## Table A.1-3. LSs used in the analysis of anadromous fish

| ID | Name | Figure | Vulnerable | Specific Resource |
|---|---|---|---|---|
| 1 | Unnamed stream(s) | B-3a | May–November | CHs,Pp,Ss,Ps,CHp,SHp,Sp,COs,Psr |
| 2 | Unnamed stream(s), Kupreanof Creek, Ivanof River, Wolverine Creek, Smokey Hollow Creek, Osterback Creek, Big River, Bluff Point Creek | B-3a | May–November | CHp,Pp,CHs,Ps,COp,COs,Sp,CHsp |
| 3 | Unnamed stream(s), Kametolook River, Candlefish Slough, Artemie's Creek, Ivanof River, Humpback Creek, Red Bluff Creek, Three Star River, Cross Creek Slough, Spring Creek | B-3a | May–November | CHp,Pp,COp,CHs,Ps,COr,Sp,COs,Psr |
| 4 | Unnamed stream(s), Ivan River, Fishrack Creek, Red Bluff Creek | B-3a | May–November | CHp,COsr,Ps,Pp,SHp,CHs,COp,Sp |
| 5 | Windy Creek, Foot Creek, Unnamed stream(s) | B-3a | May–November | CHs,Ps,Pp |
| 6 | Unnamed stream(s), Spoon Creek, Portage Creek, Metrofania Creek, Castle Creek, Chignik River | B-3a | May–November | COsr,Psr,CHs,Ps,Pp,DVr,CHp |
| 7 | Chignik River, Unnamed stream(s), Through Creek, Frank Creek, Alfred Creek, Metrofania Creek, Mallard Duck Creek, Marshinlak Creek, Packers Creek, Lake Bay Creek, Owen Creek | B-3a | May–November | CHp,COp,Ks,Ps,Ss,DVp,SHp,CHs,Pp,Sp,DVsr,COs,Psr,DVr |
| 8 | McKinsey Creek, Thompson Creek, Neketa Creek, Unnamed stream(s), Dry Creek, Hook Creek, Bear Creek | B-3a | May–November | Ps,CHs,Pp,COs,COsr,COp |
| 9 | Bear Creek, Packers Creek, Unnamed stream(s), Rudy Creek, Blue Violet Creek, Kumliun Creek, New Creek, Meshik L | B-3a | May–November | CHs,Ps,Pp,Ks,Ss,CHp,COr |
| 10 | Unnamed stream(s), West Creek, North Fork Aniakchak River, Aniakchak River, New Creek, Black Creek, Wolverine Creek, Mystery Creek, Albert Johnson Creek | B-3a | May–November | Pp,CHp,Ps,CHs,Ss,COp,Sp |
| 11 | Northeast Creek, Unnamed stream(s), Yantarni Creek, Misery Creek, Home Creek, Mountain Creek, West Creek, Main Creek | B-3a | May–November | CHs,COp,Ps,CHp,Pp,Ssr,Sp,Ss |
| 12 | Unnamed stream(s), Camp Creek, Nakalilok Bay Creek | B-3a | May–November | CHp,COp,Pp,COpr,Kp,Ss,CHs,Ps,Sp |
| 13 | Unnamed stream(s), Agripina River | B-3a | May–November | Ps,CHs,Pp,Ss,CHp,Sp,COp |
| 14 | Glacier Creek, Unnamed stream(s), Kilokak Creek, Agripina River, Circ Creek, Alai Creek, Imuya Creek, Kialaguik Creek | B-3a | May–November | CHp,Pp,Ssr,CHs,Ps,Sp,COp,CHsr |
| 15 | Big Creek, Unnamed stream(s), Tiny Creek, Pass Creek, Des Moines Creek, Black Creek, Short Creek, Beach Creek | B-3a | May–November | CHs,COp,Ps,Pp,Ss,CHsr,Psr |
| 16 | Unnamed stream(s), Jute Creek, Salmon Creek, Bear Creek, Porcupine Creek, Rex Creek, South Fork Rex Creek, North Fork Rex Creek, Sulphur Creek, Little Kanatak Creek, Kanatak Creek, Otter Creek | B-3a | May–November | Ps,DVp,CHs,Ss,Pp,CHp,COp,Sp,COs |

| ID | Name | Figure | Vulnerable | Specific Resource |
|---|---|---|---|---|
| 17 | Unnamed stream(s), Teresa Creek, Dry Creek, Trail Creek, Katie Creek, Becharof Creek, Oil Creek, Helen Creek, Portage Creek | B-3b | May–November | CHs,COp,Ps,DVp,DVs,CHsr,Ss,CHp,Pp |
| 18 | North Creek, Moose Creek, Portage Creek, Helen Creek, Little Alinchak Creek, Big Alinchak Creek, Unnamed stream(s), West Creek | B-3b | May–November | CHs,COsr,Ps,DVp,CHp,Pp,Sp |
| 19 | Big Kashvik Creek, Unnamed stream(s), Katmai River, Soluka Creek, Alagogshak Creek | B-3b | May–November | CHs,Ps,DVp,CHp,Pp |
| 20 | Unnamed stream(s), Geographic Creek, Dakavak Creek | B-3b | May–November | Ps,Pp,CHsr,CHs,COsr |
| 21 | Unnamed stream(s), Kinak Creek, Halferty Creek, Missak Creek, Low Pass Creek | B-3b | May–November | CHp,COp,Pp,Ss,COr,Ssr,CHs,Ps,CHs.Ps,COsr |
| 22 | Serpent Creek, Hook Creek, Unnamed stream(s), Ninagiak River, Hallo Creek | B-3b | May–November | CHp,COsr,Pp,CHs,Ps,Psr |
| 23 | Big River, Unnamed stream(s), Swikshak River, Chiniak Lagoon, Cape Chiniak Creek | B-3b | May–November | CHs,COsr,Ps,COp,Ss,DVp,CHp,Pp,COr,Sr,COs,Sp,Psr,CHsr |
| 24 | Unnamed stream(s), Swikshak River, Bluff Creek, Long Slough Creek | B-3b | May–November | Ps,DVp,Pp,CHs,Ss,COr,Sr,COp,CHp,Psr,Sp |
| 25 | Douglas Creek, Unnamed stream(s), Clear Creek | B-3b | May–November | CHsr,Ps,CHs,COp,COsr |
| 26 | Unnamed stream(s), Douglas River | B-3c | May–November | Ps,CHs,CHp,COp,Pp,Sp,COr,COs,Ss,ACp |
| 27 | Unnamed stream(s), McNeil River, Mikfik Creek, Little Kamishak River, Strike Creek, Kamishak River, Paint River | B-3c | May–November | Ss,ACp,CHs,Ps,COs,COr,Ks,Pp,COp,Kp,CHp,Sp |
| 28 | Chenik Lake, Unnamed stream(s), Amakdedori Creek | B-3c | May–November | Ss,ACp,CHp,COp,Pp,SHp,Sp,COs,CHs,Ps,COr |
| 30 | Unnamed stream(s), Sunday Creek | B-3c | May–November | CHs,COs,Ps,ACp,Sp,CHp,Pp,Ss |
| 31 | Unnamed stream(s), Y-Valley Creek | B-3c | May–November | Ss,Sp,Ps,Pp,ACp,CHs,CHp,COs,COr,COp,Kp,Kr |
| 32 | Bowser Creek, Brown Creek, Chinitna River, Unnamed stream(s), Iniskin River, Right Arm Creek, Portage Creek, Fitz Creek, Trail Creek, Wrong Branch Trail Creek, Clearwater Creek, Roscoe Creek, Marsh Creek | B-3c | May–November | COp,CHs,Ps,CHp,Sp,ACp,Pp,COs |
| 33 | West Glacier Creek, Fitz Creek, Silver Salmon Creek, East Glacier Creek | B-3c | May–November | CHp,Sp,COs,ACp,CHs,COp |
| 34 | Silver Salmon Lakes, Johnson River, Unnamed stream(s), Shelter Creek | B-3c | May–November | CHp,COp,DVp,CHs,COs,Pp,Ps,Sp,COr |
| 35 | Crescent River, Unnamed stream(s), Hungryman Creek, Bear Creek | B-3c | May–November | CHp,COp,Kp,Pp,Sp,DVp,COr |
| 36 | Wadell Lake, Bear Lake, Polly Creek, Harriet Creek, Unnamed stream(s), Redoubt Creek, Little Polly Creek, Redoubt Creek trib, Crescent River | B-3c | May–November | Ss,DVp,CHs,COs,CHp,COp,Ps,Sp,COr,Kr,Kp,COsr,Pp |
| 37 | Unnamed stream(s), Rust Slough, Cannery Creek, Drift River, Little Jack Slough | B-3c | May–November | Ss,Sp,COp,DVp,COpr,COr,Pp |
| 38 | Packers Creek Lake, Unnamed stream(s), Packers Creek | B-3c | May–November | COp,Ss,DVp,COs,Sp |
| 39 | Unnamed stream(s), Montana Bill Creek, Big River, Johnson Slough, Seal River, Bachatna Creek | B-3c | May–November | COs,COp,DVp,COr,Kp,Pp,Sp,Sr |
| 40 | Kustatan River, Unnamed stream(s) | B-3c | May–November | COp,Kp,Pp,Sp,DVp |
| 41 | Nikolai Creek, Stedatna Creek, Middle River, Chakachatna River, Chuitkilnachna Creek, McArthur River, Unnamed stream(s) | B-3c | May–November | Ps,DVr,COr,COp,Sp,CHs,COpr,Kp,Pp,Spr,DVpr,CHp,Kr |
| 42 | Tyonek Creek, Old Tyonek Creek, Unnamed stream(s), Nikolai Creek, Indian Creek, Chuitna River, Chuitna Braid | B-3c | May–November | Ps,COpr,Kp,OUp,COp,COr,CHr,Pr,Kpr,Pp,DVr,CHp,Sp,DVp,ALp,PCp |
| 43 | Tukallah Lake, Threemile Creek, Unnamed stream(s), Chuitna River | B-3c | May–November | COsr,Kpr,Pp,Ss,CHp,Kr,COs,Ps,Sp,COr,CHr,Pr,CHs,COpr,Kp,Spr,ALp,DVp,PCp |
| 44 | Ivan River, Beluga River, Pretty Creek, Theodore River, Lewis River, Unnamed stream(s) | B-3c | May–November | COp,Ks,Pp,Ksr,Kr,COpr,Kpr,Spr,COr,Ps,Sr,CHp |
| 45 | Unnamed stream(s), Maguire Creek, Little Susitna River, Susitna River | B-3c | May–November | COp,Kr,COr,CHp,Kp,Pp,Sp,COs,ALp,DVp,HWp,OUs |
| 46 | Fish Creek, Unnamed stream(s) | B-3c | May–November | COr,COp |
| 49 | Seven Egg Creek, Miller Creek | B-3c | May–November | COs,COr |
| 50 | Otter Creek, Seven Egg Creek, Unnamed stream(s) | B-3c | May–November | COs,DVp,COr |
| 51 | Bishop Lake, Unnamed stream(s), Parsons Lake, Daniels Lake, Duck Lake, Bishop Creek, Stormy Lake Outlet Creek, Swanson River, Stormy Lake | B-3c | May–November | COs,Ss,DVp,COp,Sp,COsr,COr,Ps,Pp |
| 52 | Unnamed stream(s) | B-3c | May–November | Kr,COr,Sr |
| 53 | Unnamed stream(s), Kasilof River, Kenai River | B-3c | May–November | Sr,COr,Kr,COp,Ks,Ps,Sm,DVp,PCp,SHp,CHp,Sp,LPp,OUp,Wp |

| ID | Name | Figure | Vulnerable | Specific Resource |
|---|---|---|---|---|
| 54 | Coal Creek, Crooked Creek, Unnamed stream(s), Kasilof River | B-3c | May–November | Ps,COs,DVp,Ks,Pp,Ss,PCp,SHp,COr,Kr |
| 55 | Ninilchik River, Deep Creek, Unnamed stream(s), Clam Creek | B-3c | May–November | Ks,Pp,Kp,COs,DVp,SHp,Ps,COsr,Ksr,DVpr,COr,Kr,Kpr,DVr |
| 56 | Stariski Creek, Chakok River, Unnamed stream(s), Clam Creek, Deep Creek | B-3c | May–November | Ps,COs,Ks,SHp,COr,DVp,Kp,Kr,COsr,DVr,COp |
| 57 | Anchor River, Unnamed stream(s), Bridge Creek, Chakok River, Ruby Creek, Two Moose Creek, North Fork Anchor River, Twitter Creek, Telephone Creek | B-3c | May–November | Ps,CHp,COsr,Ksr,Pp,Sp,DVp,SHp,SHs,COr,Kr,DVr,SHr,COp,COs,Ks,DVpr |
| 58 | Bridge Creek, Fritz Creek, Beluga Sough | B-3c | May–November | DVp,Ps,COr |
| 59 | Humpy Creek, Beaver Creek, Unnamed stream(s) | B-3c | May–November | COr,CHs,COsr,Ksr,Ps,COp,DVpr |
| 60 | Unnamed stream(s), Stonehocker Creek, Silver Creek, Estuary Creek, Wosnesenski River | B-3c | May–November | COp,COs,Pp,CHs,Ps,Ss,COr,Ssr,CHp,Sp |
| 61 | Jakolof Creek, Unnamed stream(s), Barabara Creek, Seldovia River, Seldovia Slough | B-3c | May–November | COp,Sp,CHs,Ps,Pp,CHp,COs,Ss,DVs |
| 62 | Unnamed stream(s), English Bay River | B-3c | May–November | COs,Pp,Ss,DVsr,CHs,Ps,CHp,DVp,COp,DVs,COr,Sp |
| 63 | Unnamed stream(s), Perl Island Stream, English Bay River | B-3d | May–November | Pp,COp,Sp,COr,Ss,DVr,DVp,Ps,CHs,COs,CHp,Sr,DVsr |
| 64 | Unnamed stream(s), Rocky River | B-3d | May–November | COp,Ss,CHs,COs,Ps,DVs,COr,DVsr,Sp,DVp,COsr,DVr |
| 65 | Port Dick Creek, Unnamed stream(s), Island Creek, Slide Creek, Port Dick Creek | B-3d | May–November | CHs,COs,Ps,Sp,CHp,Pp |
| 66 | Unnamed stream(s) | B-3d | May–November | CHs,Ps,CHp |
| 67 | Unnamed stream(s), Ferrum Creek, Nuka Delta, Shelter Cove Creek | B-3d | May–November | Ps,CHs,COp,Pp,Sp |
| 68 | Unnamed stream(s), Nuka River, Babcock Creek | B-3d | May–November | Ps,Pp,CHs,CHp,COp,SMp |
| 69 | Delight Lake, Unnamed stream(s) | B-3d | May–November | COp,Kp,Ps,Ss,Pp,CHs,COs,Sp,Ks,COr |
| 70 | Unnamed stream(s), Crescent Beach Pond, Boulder Creek | B-3d | May–November | Pp,Ps,CHs,COs,CHp,COp,Sp |
| 71 | Unnamed stream(s) | B-3d | May–November | CHp,COp,Pp,Sp,Ss,Ps |
| 72 | Unnamed stream(s), Likes Creek | B-3d | May–November | CHp,Pp,CHs,Ps |
| 73 | Little Johnstone Lake, Unnamed stream(s), Puget Lake, Puget River | B-3d | May–November | CHsr,COsr,Pp,Ssr,DVsr,Ps,Ss |
| 74 | Unnamed stream(s) | B-3d | May–November | Pp,Ps |
| 75 | Unnamed stream(s), San Juan Creek, Trap Creek | B-3d | May–November | Pp,COr,Ssr |
| 76 | Unnamed stream(s), Nellie Martin River, Braided Creek, Patton Creek, Jeanie Creek, Slide Creek, Deception Creek, San Juan Creek, Stump Lake, Point Creek, Trap Creek, McLeod Creek, Clam Beach, Strike Creek, Patton River, Old Patton River Channel, Hanning Creek | B-3d | May–November | COr,Pp,COsr,Sr,CHp,Ps,CTp,DVp,Sp,COs,COpr,Psp,DVr,COp,Ssr,CHsp,CHs |
| 77 | Unnamed stream(s), Montague Creek, Montague Island #4 (Clearcut), Beach River, Montague Island #5 (Glacial), Montague Island #2, Montague Island #3, Montague Island #6, Behymer Creek, Quadra Creek | B-3d | May–November | COr,Ps,Pp,DVp,CHp,CHs,COp |
| 78 | Unnamed stream(s), Kelez Creek, Cabin Creek, Chalmers River, Wilby Creek, Wild Creek, Schuman Creek, Dry Creek, Stockdale Harbor, Stockdale Creek, Gilmour Creek, Carr Creek, McKernan Creek, Rosswog Creek, Pautzke Creek, Udall Creek, Shad Creek, Swamp Creek, Russell Creek | B-3d | May–November | Pp,CHp,COr,DVp,Ps,COs,CHsp,Psp,Sp,DVr,CHs |
| 81 | Unnamed stream(s), Shangin Narrows, Carry Bear Creek, Danny's Slough | B-3b | May–November | Ps,COsr,Pp,Ssr,DVp,COs,Sr,COp,Psr |
| 82 | Unnamed stream(s), Carry Inlet Lagoon, Big Bay Creek, SW Redfox Creek, Blue Fox Creek | B-3b | May–November | Ps,COr,DVp,COs,COsr,Pp,Sp,COp, Psr,Psr,Ssr,CHsr |
| 83 | Unnamed stream(s), Long Lagoon, Devil Inlet Creek | B-3b | May–November | COs,Pp,Ss,DVp,SHp,Ps,CHp,COp,CHsr,Psr,COr,Pr |
| 84 | Lower Malina Lake, Upper Malina Lake, Selief, Bear Creek, Unnamed stream(s), Malina Creek | B-3b | May–November | COp,Sp,DVp,SHp,COs,Ss,Ps,Pp,SHs |
| 85 | Unnamed stream(s) | B-3b | May–November | Ps |
| 86 | California Creek, Little River, Unnamed stream(s) | B-3b | May–November | CHs,COs,Ps,COp,Sp,SHp |
| 87 | Unnamed stream(s) | B-3b | May–November | Ps,CHs,COs |

| ID | Name | Figure | Vulnerable | Specific Resource |
|---|---|---|---|---|
| 88 | Sturgeon River, Unnamed stream(s), Karluk River | B-3b | May–November | CHpr,COp,Pp,DVp,SHp,CHs,Ps,COs,CHsr,CHr,COr,Kp,Sr,Ks,Ss,Ssr |
| 89 | Unnamed stream(s), Grant Lagoon, Ayakulik River, Sturgeon River | B-3b | May–November | COr,Pr,DVp,Kp,Pp,COs,Ps,DVs,Ks,CHs,COsr,COp,SHp |
| 90 | Unnamed stream(s), Ayakulik River, Red River | B-3b | May–November | CHsr,COsr,Psr,DVp,Ss,CHs,COs,Ps,CHp,COp,Kp,Pp,Sp,SHp |
| 91 | Olga Creek, Big Sukhoi, Unnamed stream(s) | B-3b | May–November | CHsr,COp,Pp,Sp,DVp,SHp,CHs,COsr,CHp |
| 92 | Unnamed stream(s), Little Sukhoi | B-3b | May–November | CHp,Pp,CHs,Ssr |
| 93 | Mark Lake, Unnamed stream(s) | B-3b | May–November | Sp,Ps,CHs,COp,Pp,CHp,COr |
| 94 | Unnamed stream(s) | B-3b | May–November | COr,COp,COs,CHp,Ps |
| 95 | Unnamed stream(s) | B-3b | May–November | Pp |
| 98 | Unnamed stream(s), Seven Rivers, Humpy River, East Portage Creek | B-3b | May–November | CHpr,Ppr,Sp,DVp,Pp,Ssr,CHr,Pr,Ps,CHp,COp,CHs,CHsr |
| 99 | Unnamed stream(s), Japanese Bay, Rolling Bay, Avnulu Creek, Kaiugnak Point, NE Portage | B-3b | May–November | Pp,CHs,Ps,DVp,CHp,CHsr,COsr |
| 100 | Unnamed stream(s), Lagoon Creek Headwaters, Natalia Cabin Creek, Rolling Bay, Ranch Creek, Fugitive Creek, Kuingcuk Creek, Sculpin Creek | B-3b | May–November | Pp,Ps,CHs,DVp,COs,Sp,Ss,COp,COpr,COr,Psr,CHsr,CHp |
| 101 | Unnamed stream(s) | B-3b | May–November | CHs,Ps,COs,DVp,Pp,CHp,Ss |
| 102 | Miam, Lake, Unnamed stream(s), Rose Tead, Lake, Zenter Stream, Delta Creek, Wild Creek, Saltery Creek | B-3b | May–November | CHs,COs,Pp,Ss,DVp,SHp,COp,Kp,Sp,Ps,COsr,Sr,COr,CHp,Ks,CHsr |
| 103 | Chiniak Lake, Unnamed stream(s), Roslyn Creek, West Fork Twin Creek, Twin Creek, East Fork Twin Creek, Chiniak River, Chiniak Lagoon Creek, Sacramento River, Myrtle Creek, Kalsin Creek, Olds River, Kalsin Pond, Franks Creek, Little Navy Creek, Sequel Point Creek, Saturn Creek, Little Creek, Chiniak Springs, Big Creek | B-3b | May–November | COsr,COs,Ps,DVp,Psr,CHs,Pp,COr,COp,Pr,COpr,CHsr |
| 104 | Unnamed stream(s), Orbin, Lake, Mayflower Lake, Panamaroff Creek, Devils Creek, Sargent Creek, Salonie Creek, Mayflower Creek, Russian Creek, Salt Creek, American River, Brechan's Channel, Cliff Point Creek | B-3b | May–November | CHs,COr,Ps,COsr,DVp,COs,CHp,Pp,COp,DVr,Pr,Ksr,Ssr,Sp,Ss,DVs |
| 105 | Otmeloi Point Creek, Monashka Creek, Unnamed stream(s), Buskin Lake, Catherine, Lake, Island Lake, Dark Lake, Beaver Lake, Mission Lake, Potatopatch Lake, Seredni Point Creek, Virgina Creek, Pillar Creek, Red Cloud River, Buskin River, Devils Creek, Bear Creek, Hollie Creek, Elbow Creek, Battery Creek | B-3b | May–November | CHsr,COs,Ps,COp,CHp,Kp,Ss,DVp,COsr,Pp,Sp,CHs,DVr,COr,CHr,Pr,Sr,SHr,DVs,Ksr,Psr,Ssr,DVpr,SHsr,SHs |
| 106 | Unnamed stream(s) | B-3b | May–November | COsr,Ps,COp,Pp |
| 107 | Afognak River, Unnamed stream(s), Crack Creek | B-3b | May–November | CHs,COp,Pp,Ss,DVp,SHp,Ps,Sp,COr,COs,COsr |
| 108 | Unnamed stream(s), Little Kitoi Lake, Little Afognak Lake, Big Kitoi, Portage Creek, Lefthand Bay | B-3b | May–November | COsr,Ps,COr,COs,Ss,Sp,COp,Pp,DVp,SHp,CHp,COpr,Pr,CHsr,SHr |
| 109 | Unnamed stream(s) | B-3b | May–November | CHp,COs,Ps,DVp,Pp,Ss,COr |
| 111 | Pauls Lake, Laura Lake, Gretchen Lake, Portage Lake, Otter Lake, Unnamed stream(s), South Creek, Portage Creek | B-3b | May–November | CHp,COp,Pp,Ss,DVp,SHs,COsr,SHp,COr,DVr,Ps,COs,Sp,SHr,Psr,CHsr |
| 112 | Pauls Lake, Unnamed stream(s), Big Bay Creek, East Shangin Bay, Little Waterfall Creek | B-3b | May–November | CHp,COp,Pp,Ss,DVp,SHs,COr,Ps,COs,COsr,Ssr,Psr |

Key:

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC | Arctic Char | CH | Chum Salmon | DV | Dolly Varden | LP | Lamprey, undifferentiated | SM | Smelts, undifferentiated | W | Whitefishes, undifferentiated | p | present |
| AL | Arctic Lamprey | CO | Coho Salmon | OU | Eulachon | PC | Pacific Lamprey | S | Sockeye Salmon | m | migration | r | rearing |
| K | Chinook Salmon | CT | Cutthroat Trout | HW | Humpback Whitefish | P | Pink Salmon | SH | Steelhead Trout | s | spawning | | |

Compiled by USDOI, BOEM, Alaska OCS Region from Johnson and Coleman (2014).

**Table A.1-4. ERAs and BSs used in the analysis of marine mammals (whales)**

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 16 | Inner Kachemak Bay | B-2b | January–December | Beluga Whale, CH | Ashford et al. 2013, Ezer et al. 2008, Ezer et al. 2013, 76 *FR* 20180 April 11 2011, Hobbs et al. 2000, Hobbs et al. 2005, Laidre et al. 2000, Moore and DeMaster 2000, Rugh et al. 2004, Rugh et al. 2000, Shelden et al. 2012, 2013,2015, Speckman and Piatt 2000 |
| 24 | Shelikof MM 2 | B-2d | January–December | Fin Whale | Brueggeman et al. 1987, 1988, Consiglieri et al. 1982, Hanson and Hubbard 1999, Leatherwood et al. 1983, Manly 2007, NMML1991, 1992, 1993, 1998, 2001, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Waite 2003, Waite et al. 1999, Witteveen and Wynne 2012, 2013, Witteveen et al. 2015, Wynne Foy and Buck 2011, Zerbini Waite and Wade 2006 |
| 25 | Shelikof MM 3 | B-2d | January–December | Fin Whale | Same as ERA 24 |
| 26 | Shelikof MM 4 | B-2d | January–December | Fin Whale | Same as ERA 24 |
| 27 | Shelikof MM 5 | B-2d | January–December | Fin Whale | Same as ERA 24 |
| 28 | Shelikof MM 6 | B-2d | January–December | Fin Whale | Same as ERA 24 |
| 30 | Shelikof MM 8 | B-2d | January–December | Fin Whale | Same as ERA 24 |
| 41 | Resurrection- Killer Whale | B-2c | January–December | Killer Whale | Brueggeman et al. 1988, Consiglieri et al. 1982, Hansen and Hubbard 1999, Leatherwood et al. 1983, Matkin et al. 2012, NMML 1998, 2001, 2003a, 2003b, 2012, Rice and Wolman 1981, Rone 2014, Rone et al. 2010, Rugh et al. 2005a 2005b, Shelden et al. 2013, Speckman 2002, Zerbini et al. 2007 |
| 69 | Upper Cook Inlet-Beluga CH | B-2a | January–December | Beluga Whale, CH | Same as ERA 16 |
| 70 | Forelands- Beluga CH | B-2a | January–December | Beluga Whale, CH | Same as ERA 16 |
| 71 | Middle Cook Inlet-Beluga CH | B-2b | January–December | Beluga Whale, CH | Same as ERA 16 |
| 72 | West Cook Inlet-Beluga CH | B-2b | January–December | Beluga Whale, CH | Same as ERA 16 |
| 73 | NPRW Feeding Area | B-2f | June–September | North Pacific Right Whale | Ferguson et al. 2015 |
| 74 | NPRW CH | B-2d | June–December | North Pacific Right Whale, CH | 73 *FR* 19000 April 8 2008 |
| 75 | Kachemak- Humpback Whale | B-2c | May–December | Humpback Whale | Braham 1984, Bruggeman et al. 1987, 1988, Calambokidis et al. 2008, Consiglieri et al. 1982, Dahlheim 1994, Ferguson et al. 2015, Leatherwood et al. 1983, Manly 2007, NMML 1991, 1993, 1998, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Waite 2003, Waite et al. 1999, Witteveen and Wynne 2012, Witteveen et al. 2007, 2008, 2011a, 2011b, 2015, Zerbini et al. 2006 |
| 76 | Shelikof- Humpback Whale | B-2f | May–December | Humpback Whale | Braham 1984, Bruggeman et al. 1987, 1988, Calambokidis et al. 2008,Consiglieri et al. 1982, Dahlheim 1994, Ferguson et al. 2015, Leatherwood et al. 1983, Manly 2007, NMML 1992, 1993, 1998, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Waite 2003, Waite et al. 1999, Witteveen and Wynne 2012, Witteveen et al. 2007, 2008, 2011a, 2011b, 2015, Wright et al. 2015, Wynne et al. 2011, Zerbini et al. 2006 |
| 77 | N Kodiak-Humpback Whale | B-2c | May–December | Humpback Whale | Same as ERA 76 excepting NMML 2003a |
| 78 | E Kodiak-Humpback Whale | B-2f | May–December | Humpback Whale | Same as ERA 76 |
| 79 | S Kodiak-Humpback Whale | B-2f | May–December | Humpback Whale | Same as ERA 76 excepting NMML 2003a |

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 80 | Shelikof MM 1 | B-2d | January–December | Fin Whale | Brueggeman et al. 1987 1988, Consiglieri et al. 1982, Hanson and Hubbard 1999, Leatherwood et al. 1983, Manly 2007, NMML1991, 1992, 1993, 1998, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Waite 2003, Waite et al. 1999, Witteveen and Wynne 2012, 2013, Witteveen et al. 2015, Wynne et al. 2011, Zerbini et al. 2006 |
| 81 | Shelikof MM 1a | B-2d | June–August | Dall's Porpoise | Brueggeman et al. 1987 1988, Consiglieri et al. 1982, Hansen and Hubbard 1999, Leatherwood et al. 1983, Manly 2007, NMML 1992, 1993, 1998, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, Shelden et al. 2013, Speckman 2002, Witteveen and Wynne 2012, 2013 |
| 82 | Shelikof MM 2a | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 83 | Shelikof MM 3a | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 84 | Shelikof MM 4a | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 85 | Shelikof MM 5a | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 86 | Shelikof MM 6a | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 87 | Shelikof MM 9 | B-2d | June–August | Dall's Porpoise | Same as ERA 81 |
| 88 | Shelikof MM 10 | B-2h | June–August | Dall's Porpoise | Same as ERA 81 |
| 89 | Shelikof MM 11 | B-2h | January–December | Fin Whale | Same as ERA 80 |
| 90 | Barren Islands-Fin Whale | B-2f | January–December | Fin Whale | Same as ERA 80 |
| 91 | NE Kodiak-Fin Whale | B-2f | January–December | Fin Whale | Same as ERA 80 |
| 92 | Kodiak- Gray Whale Feeding | B-2g | June–August | Gray Whale | Braham 1984, Brueggeman et al. 1987, Consiglieri et al. 1982, Cowen et al. 1987, Ferguson et al. 2015, Leatherwood et al. 1983, Moore et al. 2007, NMML 1992, 1993, 1998, 2003a, 2012, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Witteveen and Wynne 2012, 2013 |
| 93 | Upper E Kenai-Gray Whale | B-2c | April–December | Gray Whale | Braham 1984, Brueggeman et al. 1987, Consiglieri et al. 1982, Cowen et al. 1987, Ferguson et al. 2015, Leatherwood et al.1983, Moore et al. 2007, NMML 1992, 1998, 2003a, 2003b, 2009, 2012, 2013, Rone 2014, Rone et al. 2010, Rugh et al. 2005a, 2005b, Shelden et al. 2013 |
| 94 | Lower E Kenai-Gray Whale | B-2c | April–December | Gray Whale | Same as ERA 93 |
| 95 | NE Kodiak-Gray Whale | B-2g | April–December | Gray Whale | Braham 1984, Brueggeman et al. 1987, Consiglieri et al. 1982, Cowen et al. 1987, Ferguson et al. 2015, Leatherwood et al. 1983, Moore et al. 2007, NMML 1992, 1993, 1998, 2003a, 2003b, 2012, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Witteveen and Wynne 2012 2013, Wynne et al. 2005 |
| 96 | E Kodiak-Gray Whale | B-2g | April–December | Gray Whale | Same as ERA 95 |
| 97 | SE Kodiak-Gray Whale | B-2f | April–December | Gray Whale | Same as ERA 95 |
| 98 | Shelikof-Gray Whale | B-2g | April–December | Gray Whale | Same as ERA 95 |
| 99 | N Shumagin-Gray Whale | B-2h | April–December | Gray Whale | Braham, 1984, Brueggeman et al. 1987, Consiglieri et al. 1982, Cowen et al. 1987, Ferguson et al. 2015, Leatherwood et al. 1983, Moore et al. 2007, NMML 1992, 1993, 2001, 2003a, 2003b, 2012, Rugh et al. 2001, 2005a, 2005b, Shelden et al. 2013, Witteveen and Wynne 2012, 2013 |
| 100 | S Shumagin-Gray Whale | B-2h | October–December | Gray Whale | Braham 1984, Brueggeman et al. 1987, Consiglieri et al. 1982, Cowen et al. 1987, Ferguson et al. 2015, Leatherwood et al. 1983, Moore et al. 2007, NMML 1992, 1993,1998, 2001, 2003a, 2012, Rugh et al. 2001, Witteveen and Wynne 2012, 2013 |
| 101 | Cook Inlet 1-Harbor Porpoise | B-2a | June–September | Harbor Porpoise | Brueggeman et al. 1987, Consiglieri et al. 1982, Dahlheim et al. 2000. Hansen and Hubbard 1999, Leatherwood et al. 1983, Manly 2006, 2007, NMML 1991, 1998, 2012, 2013, Nemeth et al. 2007, Rone 2014, Rugh et al. 2005a, 2005b, Shelden et al. 2013, 2014, Speckman 2002, Speckman and Piatt 2000 |

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 102 | Cook Inlet 2-Harbor Porpoise | B-2a | June–September | Harbor Porpoise | Same as ERA 101 plus NMML 2001 |
| 103 | Cook Inlet 3-Harbor Porpoise | B-2c | June–September | Harbor Porpoise | Same as ERA 101 |
| 104 | Cook Inlet 4-Harbor Porpoise | B-2c | June–September | Harbor Porpoise | Same as ERA 101 |
| 105 | Cook Inlet 5-Harbor Porpoise | B-2b | June–September | Harbor Porpoise | Same as ERA 101 |
| 106 | SE Kodiak-Harbor Porpoise | B-2g | June–September | Harbor Porpoise | Brueggeman et al. 1987, Consiglieri et al. 1982, Dahlheim et al. 2000, Hansen and Hubbard 1999, Manly 2006, 2007, NMML 1992, 1993, 1998, 2003a, 2012, Nemeth et al. 2007, Rugh et al. 2005a, 2005b, Shelden et al. 2013, 2014, Speckman 2002, Speckman and Piatt 2000, Witteveen and Wynne 2012, 2013 |
| 107 | S Kodiak-Harbor Porpoise | B-2g | June–September | Harbor Porpoise | Same as ERA 106 |
| 108 | Shelikof-Killer Whale | B-2e | January–December | Killer Whale | Brueggeman et al. 1988, Consiglieri et al. 1982, Hansen and Hubbard 1999, Leatherwood et al 1983, Matkin et al. 2012, NMML 1992, 1993,1998, 2001, 2003a, 2003b, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Witteveen and Wynne 2012, 2013, Zerbini et al. 2007 |
| 109 | E Kodiak-Killer Whale | B-2e | January–December | Killer Whale | Brueggeman et al. 1988, Consiglieri et al. 1982, Hansen and Hubbard 1999, Leatherwood et al. 1983, Matkin et al. 2012, NMML 1992, 1993, 1998, 2003a, 2003b, 2009, 2012, 2013, Rice and Wolman 1981, Rone 2014, Rone et al. 2010, Rugh et al. 2005a. 2005b, Shelden et al. 2013, Speckman 2002, Witteveen and Wynne 2012, 2013, Zerbini et al. 2007 |
| 110 | SE Kenai-Dall's Porpoise | B-2c | June–August | Dall's Porpoise | Brueggeman et al. 1987, 1988, Consiglieri et al. 1982, Hansen and Hubbard 1999, Leatherwood et al. 1983, Manly 2007, NMML 1992, 1993, 1998, 2001, 2003a, 2003b, 2009 2012, 2013, Rice and Wolman, 1981, Rone 2014, Rone et al. 2010, Rugh et al. 2005a, Shelden et al. 2013, Speckman 2002, Witteveen and Wynne 2012, 2013 |
| **BSs** | | | | | |
| 2 | Shumagin-Humpback Whale- | B-1a | May–December | Humpback Whale | Braham 1984, Brueggeman et al. 1987, 1988, Calambokidis et al. 2008, Consiglieri et al. 1982, Dahlheim 1994, Leatherwood et al. 1983, Manly 2007, NMML 1992, 2001, 2003a, 2012, Rice and Wolman 1981, Rugh et al. 2005a, 2005b, Shelden et al. 2013, Speckman 2002, Waite 2003, Waite et al. 1999, Witteveen and Wynne 2013, Witteveen et al. 2007, 2008, 2011a, 2011b, 2015, Wynne et al. 2011, Zerbini et al. 2006 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: BS=Boundary Segment, CH=Critical Habitat; E = East; ERA = Environmental Resource Areas, MM=Marine Mammal; N = North; NE = Northeast; NPRW=North Pacific Right Whale; SE = Southeast.

**Table A.1-5. ERAs used in the analysis of marine mammals (seals and sea lions)**

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 11 | Augustine | B-2a | January–December | Harbor seals | Boveng et al. 2003, 2011, 2012, Lowry et al. 2001, Montgomery et al. 2007, NOAA 2014b O'Corry-Crowe et al. 2003, Pitcher and Calkins 1979, Rugh et al. 2005b, Ver Hoef and Boveng 2007 |
| 12 | South Cook HS 1a | B-2a | January–December | Harbor seals | Same as ERA 11 |
| 13 | South Cook HS 1b | B-2a | January–December | Harbor seals | Same as ERA 11 |
| 14 | South Cook HS 1c | B-2a | January–December | Harbor seals | Same as ERA 11 |
| 15 | South Cook HS 1d | B-2a | January–December | Harbor seals | Same as ERA 11 |
| 16 | Inner Kachemak Bay | B-2b | January–December | Harbor seals | ADEC 2019, ADFG 1985a, 1988, 2014, Boveng et al. 2003, 2011, 2012, Lowry et al. 2001, Montgomery et al. 2007, NOAA 2014a,b,c, O'Corry-Crowe et al. 2003, Pitcher and Calkins 1979, Rugh et al. 2005b |
| 17 | Clam Gulch HS | B-2a | January–December | Harbor seals | Same as ERA 16 |
| 18 | Tuxedni HS | B-2a | March–December | Harbor seals | Same as ERA 16 |
| 19 | Kalgin Island HS | B-2a | March–December | Harbor seals | Same as ERA 16 |
| 20 | Redoubt Bay HS | B-2b | March–December | Harbor seals | Same as ERA 16 |
| 21 | Trading Bay HS | B-2b | March–December | Harbor seals | Same as ERA 16 |
| 22 | Susitna Flats HS | B-2a | March–December | Harbor seals | Same as ERA 16 |
| 23 | Barren Is. Pinniped | B-2b | January–December | Harbor seals, Steller sea lions | Boveng et al. 2003, 58 *FR* 45269 August 27 1993, Lowry et al. 2001, NOAA 2014a,b,c |
| 24 | Shelikof MM 2 | B-2d | January–December | Harbor seals, Steller sea lions | ADEC 2019, ADFG 1985b, 1997, 2014, Boveng et al. 2003, 58 *FR* 45269 August 27 1993, Lowry et al. 2001, NOAA 2014 a,b,c |
| 25 | Shelikof MM 3 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 26 | Shelikof MM 4 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 27 | Shelikof MM 5 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 28 | Shelikof MM 6 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 29 | Shelikof MM 7 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 30 | Shelikof MM 8 | B-2d | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 31 | Kodiak Pinniped 1 | B-2e | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 32 | Kodiak Pinniped 2 | B-2e | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 33 | Kodiak Pinniped 3 | B-2e | January–December | Harbor seals, Steller sea lions | Same as ERA 24 |
| 34 | Kodiak Pinniped 4 | B-2e | January–December | Harbor seals, Steller sea lions | ADEC 2019, ADFG 1985b, 1997, 2014, Boveng et al. 2003, 58 *FR* 45269 August 27 1993 |
| 35 | Kodiak Pinniped 5 | B-2e | January–December | Harbor seals, Steller sea lions | ADEC 2019, ADFG 1985b, 1997, 2014, Boveng et al. 2003, 58 *FR* 45269 August 27 1993, Lowry et al. 2001, NOAA 2014 a,b,c |
| 36 | Kodiak Pinniped 6 | B-2e | January–December | Harbor seals, Steller sea lions | Same as ERA 35 |
| 37 | Port Chatham Pinniped | B-2b | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 38 | Port Dick Pinniped | B-2b | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 39 | Two Arm Bay Pinniped | B-2b | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 40 | Nuka Bay Pinniped | B-2c | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 41 | Chiswell Pinniped | B-2c | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 42 | Cape Puget Pinniped | B-2c | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 43 | AK Peninsula Pinniped 1 | B-2h | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |
| 44 | AK Peninsula Pinniped 2 | B-2h | January–December | Harbor seals, Steller sea lions | Same as ERA 23 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: AK= Alaska; HS = Harbor Seal; Is. = Island, MM=Marine Mammal

**Table A.1-6. ERAs, LSs, and GLSs used in the analysis of marine mammals (sea otters)**

| ID | Name | Map | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| **ERAs** | | | | | |
| 45 | Clam Gulch | B-2a | January–December | Sea otters | Bodkin et al. 2003, Doroff and Badajos 2010, Gill et al. 2009, 79 FR 51584 August 29 2014 |
| 16 | Inner Kachemak Bay | B-2b | January–December | Sea otters | Doroff and Badajos 2010, Gill et al. 2009 |
| 46 | Outer Kachemak Bay | B-2b | January–December | Sea otters | Same as ERA 45 |
| 145 | Outer Kachemak Bay/IBA | B-2a | January–December | Sea otters | Same as ERA 45 |
| 47 | SW Cook Inlet | B-2b | January–December | Sea otters | Bodkin et al. 2003, 74 *FR* 51988 October 8 2009, USFWS 2013 |
| 48 | Kamishak Bay | B-2b | January–December | Sea otters | Same as ERA 47 |
| 49 | Katmai NP | B-2e | January–December | Sea otters | Coletti et al. 2014, 74 *FR* 51988 October 8 2009, USFWS 2013 |
| 50 | Becharof NWR | B-2e | January–December | Sea otters | Coletti et al. 2014, 74 *FR* 51988 October 8 2009, USFWS 2013, 2015c |
| 51 | Alaska Peninsula NWR North | B-2f | January–December | Sea otters | 74 *FR* 51988 October 8 2009, USFWS 2013 |
| 52 | Aniakchak NM&P | B-2h | January–December | Sea otters | Same as ERA 51 |
| 53 | Alaska Peninsula NWR South | B-2h | January–December | Sea otters | Same as ERA 51 |
| 54 | Sutwick Island | B-2h | January–December | Sea otters | Same as ERA 51 |
| 55 | Semidi Islands | B-2h | January–December | Sea otters | Same as ERA 51 |
| 56 | Chirikof Island | B-2h | January–December | Sea otters | Same as ERA 51 |
| 57 | Trinity Islands | B-2h | January–December | Sea otters | 74 *FR* 51988 October 8 2009, USFWS 2013, 2014 |
| 58 | Kodiak NWR-East | B-2e | January–December | Sea otters | Same as ERA 57 |
| 59 | Kodiak NWR-South | B-2e | January–December | Sea otters | Same as ERA 57 |
| 60 | Kodiak NWR-West | B-2e | January–December | Sea otters | Same as ERA 57 |
| 61 | NE Kodiak | B-2e | January–December | Sea otters | Same as ERA 57 |
| 62 | Chiniak Bay | B-2e | January–December | Sea otters | Same as ERA 57 |
| 63 | Ugak Bay | B-2e | January–December | Sea otters | Same as ERA 57 |
| 64 | Afognak-West | B-2e | January–December | Sea otters | Same as ERA 57 |
| 65 | Afognak-North | B-2e | January–December | Sea otters | Same as ERA 57 |
| 66 | Afognak-East | B-2e | January–December | Sea otters | Same as ERA 57 |
| 67 | Shuyak | B-2e | January–December | Sea otters | Same as ERA 57 |
| 68 | Kenai Fjords-West | B-2b | January–December | Sea otters | Bodkin et al. 2003 |
| **LSs** | | | | | |
| 7 | Chignik Bay | B-3a | January–December | Sea otters | Same as ERA 51 |
| 15 | Wide Bay | B-3a | January–December | Sea otters | Same as ERA 51 |
| 35 | Tuxedni Bay | B-3c | January–December | Sea otters | Same as ERA 47 |
| 65 | West arm Port Dick | B-3d | January–December | Sea otters | Bodkin et al. 2003, Coletti et al. 2011 |
| 84 | Raspberry Strait | B-3b | January–December | Sea otters | Same as ERA 57 |
| 87 | Uyak Bay | B-3b | January–December | Sea otters | Same as ERA 57 |
| 86 | Uginak Bay/Passage | B-3b | January–December | Sea otters | Same as ERA 57 |
| 92 | Alitak Bay | B-3b | January–December | Sea otters | Same as ERA 57 |
| **GLSs** | | | | | |
| 119 | Kuiukta Bay | B-4b.5 | January–December | Sea otters | Same as ERA 57 |
| 124 | Kukak Bay | B-4a.2 | January–December | Sea otters | Same as ERA 57 |
| 141 | Seldovia side Kachemak Bay | B-4b.3 | January–December | Sea otters | Gill et al. 2009 |
| 144 | Kenai Fjords National Park | B-4b.3 | January–December | Sea otters | Same as LS 65 |
| 146 | Resurrection Bay | B-4b.2 | January–December | Sea otters | Same as LS 65 |
| 149 | Elrington-Bambridge-LaTouche Islands | B-4b.1 | January–December | Sea otters | Same as ERA 68 |

| ID | Name | Map | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 150 | E Montague Island | B-4b.1 | January–December | Sea otters | Same as ERA 68 |
| 152 | Barren Islands | B-4a.2 | January–December | Sea otters | USFWS 2013 |
| 159 | Kupreanof Strait | B-4a.3 | January–December | Sea otters | Same as ERA 57 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: E = East; IBA= Important Bird Area; NE= Northeast; NM&P= National Monument and Preserve; NP= National Park; NWR = National Wildlife Refuge.

## Table A.1-7. GLSs used in the analysis of terrestrial mammals

| ID | Name | LSs | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|---|
| 117 | Spring Bear Concentration-2 | 4–9 | B-4a.4 | March–May | Brown Bears | ADFG 1985b, 2014 |
| 118 | Bear Feeding Concentration -1 | 4–9 | B-4b.5 | June–August | Brown Bears | ADFG 1985b, 2014 |
| 121 | Spring Bear Concentration-3 | 10–14 | B-4b.5 | March–May | Brown Bears | ADFG 1985b, 2014 |
| 125 | Spring Bear Concentration-1 | 21–23 | B-4a.3 | March–May | Brown Bears | ADFG 1985b, 2014 |
| 129 | Redoubt Bay Brown Bears | 37–40 | B-4a.1 | March –October | Brown Bear (Spring, Summer, Fall) | ADFG 1994 |
| 131 | Trading Bay Moose | 40–42 | B-4a.1 | December–March | Moose (wintering) | ADFG 1985a, 1994 |
| 132 | Susitna Flats Black Bear | 43–46 | B-4a.1 | April–June | Black Bear | ADEC 2019, ADFG 1985a |
| 133 | Susitna Flats Moose | 43–46 | B-4a.1 | December–June | Moose (wintering and calving areas) | ADFG 1985a, 1988 |
| 136 | West Kenai Brown Bears | 52–59 | B-4a.1 | June–October | Brown Bear (feeding areas) | ADFG 2015a |
| 140 | West Kenai Black Bears | 59–62 | B-4a.1 | June–October | Black Bear (feeding areas) | ADFG 2015a |
| 137 | West Kenai Moose | 53–55 | B-4a.1 | October–May | Moose (Rutting, wintering and calving) | ADFG 1985a, 2015a |
| 150 | Montague Blacktail Deer | 76–78 | B-4b.1 | December–March | Blacktail Deer (wintering area) | ADFG 1985a |
| 155 | Afognak & Raspberry Winter Elk | 81–85, 106–112 | B-4a.2 | December–March | Elk (Wintering) | ADFG 1985b, 2014 |
| 157 | Afognak Blacktail Deer | 82–85, 107–109, 111–112 | B-4b.4 | December–March | Blacktail Deer (wintering area) | ADFG 1985b |
| 160 | Kodiak Blacktail D.3eer | 89–95, 99–105 | B-4a.3 | December–March | Blacktail Deer (wintering area) | ADFG, 1985b |

Compiled by USDOI, BOEM, Alaska OCS Region.

## Table A.1-8. ERAs, LSs, and GLSs used in the analysis of birds

| ID | Name | Map | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| **BSs** | | | | | |
| 111 | NW Afognak Is IBA | B-2c | May–August | BLKI (Seabird Colony), BLOY | Audubon Alaska 2015 |
| 112 | Uganik And Viekoda Bay IBAs | B-2d | May–August | BLKI (Seabird Colony), BLOY (Criteria B1), KIMU (Criteria A1), MAMU (Criteria A1) | Audubon Alaska 2015 |
| 113 | Marmot Bay/Colonies IBAs | B-2c | January–December | Seabird Colonies: BLKI, TUPU, FTSP; Wintering Area: BLSC | Audubon Alaska 2015 |
| 114 | Chiniak Bay IBA | B-2d | January–December | STEI Wintering Habitat Area. Wintering Habitat Also For EMGO, YBLO; Seabird Colonies: BLKI and Others | Audubon Alaska 2015, Lance 2014, Corcoran et al. 2010, Larned and Zweifelhofer 2002 |
| 115 | Ugak Bay: Birds | B-2d | November–April | STEI Wintering Habitat Area | Lance 2014, Corcoran et al. 2010, Larned and Zweifelhofer 2002 |
| 116 | Eastern Kodiak Is IBA | B-2d | January–December | Open Water Habitat (WWSC). Seabird Colonies: BLKI, Others | Audubon Alaska 2015 |
| 117 | Flat Is Colony IBA | B-2d | May–August | TUPU (Seabird Colony) | Audubon Alaska 2015 |

| ID | Name | Map | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 118 | Sitkinak Strait STEI Habitat | B-2d | November–April | STEI Wintering Area | Lance 2014, Corcoran et al. 2010, Larned and Zweifelhofer 2002 |
| 119 | Gulf Of Alaska Shelf IBA | B-2f | May–August | CAAU (Foraging) | Audubon Alaska 2015 |
| 120 | Chirikof Is Marine IBA | B-2f | May–August | HOPU (Seabird Colony & Foraging) | Audubon Alaska 2015 |
| 121 | Semidi Islands Colonies IBA | B-2h | May–August | Seabird Colonies: NOFU, HOPU, Numerous Species | Audubon Alaska 2015 |
| 122 | Semidi Islands Marine IBA | B-2h | May–August | Seabird Foraging: HOPU | Audubon Alaska 2015 |
| 123 | Spitz Is Colony IBA | B-2h | May–August | Seabird Colonies: BLKI | Audubon Alaska 2015 |
| 124 | Seal Cape Marine IBA | B-2h | May–August | Seabird Colonies: HOPU. Foraging: HOPU, GWGU | Audubon Alaska 2015 |
| 125 | Chignik Bay Vicinity: Birds | B-2h | January–December | STEI Wintering Area; Seabird Colonies: BLKI, TUPU, COMU. Wintering: | Audubon Alaska 2015, Lance 2014 |
| 126 | Ugaiushak Is Colonies IBA | B-2g | May–August | Seabird Colonies: HOPU, TUPU, RFCO, BLKI | Audubon Alaska 2015 |
| 127 | Wide Bay IBA | B-2g | May–August | Seabird Colonies: RFCO. BLOY | Audubon Alaska 2015 |
| 128 | Wide Bay STEI Habitat | B-2g | November–April | STEI Wintering Area | Lance 2014 |
| 129 | Cape Unalishagvak Vicinity: Birds | B-2g | May–August | Seabird Colonies: UNMU, BLKI | USGS 2015 |
| 130 | South Alinchak Bay Colony | B-2g | May–August | Seabird Colony: TUPU | USGS 2015 |
| 131 | Katmai Bay Colonies | B-2g | May–August | Seabird Colonies: GWGU, PECO | USGS 2015 |
| 132 | Amalik Bay Colonies IBA | B-2g | May–August | Seabird Colonies: RFCO, UNCO | Audubon Alaska 2015 |
| 133 | Ninagiak Is Colonies | B-2g | May–August | Seabird Colonies: TUPU, HOPU, GWGU | USGS 2015 |
| 134 | Kiukpalik Is Colony | B-2g | May–August | Seabird Colony: GWGU | USGS 2015 |
| 135 | Shaw Is Colony | B-2g | May–August | Seabird Colony: GWGU | USGS 2015 |
| 136 | Kamishak Bay IBA | B-2b | May–August | Seabird Colonies: GWGU, Others | Audubon Alaska 2015 |
| 137 | Kamishak Bay STEI Habitat | B-2b | November–April | STEI Wintering Area | Lance 2014, Larned 2006, Rosenberg 2007 pp. 3 |
| 138 | Tuxedni Is Colony IBA | B-2c | May–August | Seabird Colonies: BLKI, COMU, HOPU, GWGU, Others | Audubon Alaska 2015 |
| 139 | Tuxedni Bay IBA | B-2c | July–April | Shorebird Migration Stopover: WESA. Waterfowl Migration Stopover: CANG. Waterfowl Molting: SUSC, WWSC | Audubon Alaska 2015 |
| 140 | Redoubt Bay IBA | B-2b | January–December | Shorebird Migration Stopover. Waterfowl Migration Stopover and Breeding Area: Tule GWFG and Others | Audubon Alaska 2015 |
| 141 | Trading Bay IBA | B-2b | January–December | Waterfowl Migration Stopover and Breeding Area: Wrangell Is SNGO And Others. Shorebird Wintering: ROSA | Audubon Alaska 2015 |
| 142 | Susitna Flats IBA | B-2b | January–December | Waterfowl Migration Stopover and Breeding Area: Many Species. Shorebird Wintering: ROSA | Audubon Alaska 2015 |
| 143 | Anchorage Coastal IBA | B-2b | March–October | Waterfowl Migration Area: SNGO and SACR | Audubon Alaska 2015 |
| 144 | Clam Gulch STEI Habitat | B-2c | November–April | STEI Wintering Area | Lance 2014, Rosenberg 2007 Fig 1 |
| 145 | Outer Kachemak Bay/IBA | B-2a | January–December | Seabird and Seaduck Wintering; Waterfowl and Shorebird Migration Stopover; Seabird Foraging - MAMU | Audubon Alaska 2015 |
| 146 | Lower Cook Inlet 153W59N IBA | B-2c | November–April | Foraging – GWGU | Audubon Alaska 2015 |
| 147 | Barren Islands Marine IBA | B-2b | May–August | Foraging-TUPU | Audubon Alaska 2015 |
| 148 | Barren Islands Colonies IBA | B-2a | May–August | Seabird Colonies – TUPU, FTSP, BLKI, COMU, RHAU, GWGU, PECO, HOPU, Etc. | Audubon Alaska 2015 |
| 149 | SW Kenai Pen Marine IBA | B-2a | May–August | Seabird Colonies – TUPU, Etc. | Audubon Alaska 2015 |
| 150 | Kenai Fjords | B-2c | May–August | Seabird Colonies-BLKI, TUPU, RHAU, GWGU | Audubon Alaska 2015 |
| 151 | Gulf of AK Shelf 151W58N IBA | B-2c | January–December | Foraging – GWGU | Audubon Alaska 2015 |

| ID | Name | Map | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| 152 | Gulf of AK Shelf Edge 148W59N | B-2c | January–December | Foraging – BFAL, GWGU | Audubon Alaska 2015 |
| **LSs** | | | | | |
| 1 | Ivanof Bay IBA | B-3a | January–December | Seabird Colonies – TUPU. Wintering: EMGO | Audubon Alaska 2015 |
| 53 | Kenai River Flats IBA | B-3c | March–October | Waterfowl Migration Area: SNGO, SACR, Others | Audubon Alaska 2015 |
| 53 | Kasilof River Flats IBA | B-3c | July–April | Shorebird Wintering: ROSA; Waterfowl Migration Stopover | Audubon Alaska 2015 |
| 59 | Fox River Flats IBA | B-3c | July–April | Shorebird and Waterfowl Migration Stopover; WESA; TRSW | Audubon Alaska 2015 |
| 87 | Uyak Bay | B-3b | May–August | BLKI (Seabird Colony) | USGS 2015 |
| **GLSs** | | | | | |
| 148 | Prince William Sound IBA | B-4b.2 | January–December | Seabird Colonies-BLKI, etc. Molting-HADU, etc. | Audubon Alaska 2015 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: IBA= Important Bird Area; Black-footed Albatross (BFAL), Black-legged Kittiwake (BLKI), Black Oystercatcher (BLOY), Black Scoter (BLSC), Cassin's Auklet (CAAU), Canada Goose (GANG), Common Murre (COMU), Emperor Goose (EMGO), Fork-tailed Storm-Petrel (FTSP), Glaucous-winged Gull (GWGU), Greater White-fronted Goose (GWFG), Harlequin Duck (HADU), Horned Puffin (HOPU), Kittlitz's Murrelet (KIMU), Marbled Murrelet (MAMU), Northern Fulmar (NOFU), Pelagic Cormorant (PECO), Red-faced Cormorant (RFCO), Rhinoceros Auklet (RHAU), Rock Sandpiper (ROSA), Sandhill Crane (SACR), Snow Goose (SNGO): Surf Scoter (SUSC), Tufted Puffin (TUPU), STEI (Steller's Eider), Surf Scoter (SUSC), Western Sandpiper (WESA), White-winged Scoter (WWSC) (Pyle and DeSante 2020).

## Table A.1-9. ERAs and GLSs used in the analysis of subsistence resources

| ID | Name | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|
| **ERAs** | | | | | |
| 1 | SUA: Tyonek; Beluga | B-2a | March–October | Beluga | SRB&A and Huntington Consulting 2011 (pp.37): Stanek, 1984 |
| 2 | SUA: Tyonek North | B-2a | March–October | Salmon (5 Species) Tomcod, Herring, Eulachon, Harbor Seal, Beluga, Clams, Cockle | Fall et al. 1984, Schroeder et al. 1987, Stanek et al. 1982 |
| 3 | SUA: Tyonek South | B-2a | March–October | Salmon (5 Species) Tomcod, Herring, Eulachon, Harbor Seal, Beluga, Clams, Cockle | Fall et al. 1984, Schroeder et al. 1987, Stanek et al. 1982 |
| 4 | SUA: Seldovia, Port Graham, Nanwalek | B-2a | January–December | Salmon (5 Species), Halibut, Trout, Cod, Flounder, Rockfish, Sculpin, Herring, Clams, Crab, Bidarkies, Octopus, Waterfowl, Seals, Sea Lions, Eggs, Seaweed, Kelp | KPB 1992 (Fig. B pp. 4), Schroeder et al. 1987, Merrill and Opheim 2013, Stanek 1985 |
| 5 | SUA: Port Lions | B-2d | January–December | Salmon (5 Species), Halibut, Seals, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| 6 | SUA: Ouzinke | B-2d | January–December | Salmon (4 Species), Halibut, Steelhead, Seals, Sea Lion, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| 7 | SUA: Larsen Bay | B-2d | January–December | Salmon (5 Species), Halibut, Steelhead, Seals, Sea Lions, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| 8 | SUA: Karluk | B-2d | January–December | Salmon (5 Species), Halibut, Seals, Sea Lions, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| 9 | SUA: Akhiok | B-2d | January–December | Salmon (5 Species), Halibut, Steehead, Seals, Sea Lions, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| 10 | SUA: Old Harbor | B-2d | January–December | Salmon (5 Species), Halibut, Steehead, Seals, Sea Lions, Clams, Crab | Schroeder et al. 1987, Wolfe et al. 2012 |
| **GLSs** | | | | | |
| 115 | SUA: Chignik Lake, Ivanof Bay, Perryville | B-4a.4 | January–December | Salmon, Halibut, Herring, Pacific Cod, Shellfish, Caribou, Deer, Moose, Brown Bear, Seals, Sea Lions, and Sea Otters | Morris 1987 |
| 116 | SUA: Chignik, Chignik Lagoon | B-4a.4 | January–December | Salmon, Halibut, Herring, Pacific Cod, Shellfish, Caribou, Deer, Moose, Brown Bear, Seals, Sea Lions, and Sea Otters | Morris 1987 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: SUA= Subsistence Use Area

**Table A.1-10. GLSs, and LSs used in the analysis of parks, refuges, and special areas**

| ID | Name | LSs | Figure | Vulnerable | Specific Resource | Reference |
|---|---|---|---|---|---|---|
| **LSs** | | | | | | - |
| 35 | Tuxedni State Game Refuge | 35 | B-3c | January–December | State Game Refuge | SOA 2014a |
| 38 | Kalgin Island Critical Habitat | 38 | B-3c | January–December | State Critical Habitat Area | ADFG 2015b, SOA 2014b |
| **GLSs** | | | | | | - |
| 113 | Alaska Peninsula NWR | 01–09, 11–15 | B-4a.4 | January–December | National Wildlife Refuge | USFWS 2010, 2015a |
| 114 | AMNWR SW Shelikof/GOA | 1–17 | B-4b.5 | January–December | National Wildlife Refuge | USFWS 2010, 2015b |
| 120 | Aniakchak National Monument & Preserve | 10–11 | B-4b.5 | January–December | National Monument and Preserve | NPS 2015a |
| 122 | Becharof NWR | 16–18 | B-4b.3 | January–December | National Wildlife Refuge | USFWS 2010, 2015c |
| 123 | Katmai National Park | 19–27 | B-4a.2 | January–December | National Park | NPS 2015b |
| 126 | McNeil River State Game Sanctuary & Refuge | 27–28 | B-4a.2 | January–December | State Game Sanctuary and Refuge | ADFG 2015c |
| 127 | AMNWR W Cook Inlet | 27–29, 31–33, 35–36 | B-4a.2 | January–December | National Wildlife Refuge Tuxedni Bay and islands along Cook Inlet's western coast | USFWS 2010, 2015b |
| 128 | Lake Clark National Park & Preserve | 33–36 | B-4a.1 | January–December | National Park and Preserve | KPB 2015, NPS 2015c |
| 130 | Redoubt Bay CHA & Trading Bay SGR | 39–40 | B-4a.1 | January–December | State Critical Habitat Area and State Game Refuge | ADFG 1994 2015d |
| 134 | Susitna Flats State Game Refuge | 43–46 | B-4a.1 | January–December | State Game Refuge | ADFG 1988 2015e |
| 135 | Kenai AK State Rec Mgmt Areas | 51–57 | B-4a.1 | January–December | State Recreation Areas & State Special Management Areas: Anchor River State Recreation Area (SRA), Captain Cook SRA, Deep Creek SRA, Kasilof River SRA, Kenai River Special Management Area | ADNR 2015a, 2015b, 2015c, 2015d, 2015e, KPB 2020 |
| 138 | Clam Gulch Critical Habitat | 54–56 | B-4a.1 | January–December | State Critical Habitat Area | ADFG 2015f |
| 139 | Kachemak Bay State Park and Wilderness Park Kachemak Bay State Critical Habitat Area | 59–60, 64–67 | B-4b.3 | January–December | State Park and Wilderness Park, State Critical Habitat Areas | ADFG 1993, 2015g, ADNR 2015f, KPB 2020 |
| 142 | AMNWR E Cook Inlet | 60–62 | B-4b.3 | January–December | National Wildlife Refuge | USFWS 2012, 2015b |
| 143 | AMNWR W Outer Kenai/GOA | 63–66 | B-4b.3 | January–December | National Wildlife Refuge | USFWS 2012, 2015b |
| 144 | Kenai Fjords National Park | 66–71 | B-4b.3 | January–December | National Park | KPB 2020, NPS 2015d |
| 145 | AMNWR E Outer Kenai/GOA | 67–73 | B-4b.1 | January–December | National Wildlife Refuge | USFWS 2012 2015b |
| 147 | Chugach National Forest | 72–78 | B-4b.1 | January–December | National Forest | USFS 2015 |
| 153 | Shuyak Island State Park | 81–82, 112 | B-4a.2 | January–December | State Park | ADNR 2015g |
| 154 | AMNWR Afognak and Shuyak Islands | 81–84, 106–112 | B-4a.3 | January–December | National Wildlife Refuge | USFWS 2012, 2015b |
| 156 | Kodiak National Wildlife Refuge | 81–101, 110 | B-4b.4 | January–December | National Wildlife Refuge | USFWS 2012, 2015d |
| 158 | AMNWR W Kodiak/Shelikof | 85–88, 90 | B-4a.2 | January–December | National Wildlife Refuge | USFWS 2012, 2015b |
| 161 | AMNWR S Kodiak/GOA and Tugidak Island Critical Habitat Area | 93–97 | B-4b.4 | January–December | National Wildlife Refuge, State Critical Habitat Areas | ADFG 1995, 2015h, USFWS 2015b |
| 162 | AMNWR E Kodiak/GOA | 92, 98– 105 | B-4b.4 | January–December | National Wildlife Refuge | USFWS 2012 2015c |
| 163 | Woody Island and Buskin River State Recreation Sites | 102, 105 | B-4b.4 | January–December | State Rec & Special Management Areas | ADNR 2015h 2015i |
| 164 | Afognak Island State Park | 109–111 | B-4a.3 | January–December | State Park | ADNR 2015j |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: AMNWR = Alaska Maritime National Wildlife Refuge; CHA = Critical Habitat Area; E = East; GOA= Gulf of Alaska; NWR= National Wildlife Refuge, S = South; SGR = State Game Refuge; SW= Southwest; W = West.

## Table A.1-11. LSs used in the OSRA model

| ID | Geographic Place Names | ID | Geographic Place Names |
|---|---|---|---|
| 1 | Stepovak & Ivanoff Bays, Kupreanof Peninsula | 57 | Anchor Point, Anchor River |
| 2 | Jacob Island, Perryville | 58 | Homer, Homer Spit |
| 3 | Mitrofania & Chiachi Island, Sosbee Bay | 59 | Fritz Creek, Halibut Cove |
| 4 | Mitrofania & Anchor Bays, Stirni Point | 60 | China Poot Bay, Gull Island |
| 5 | Kuiukta Bay, Seal Cape | 61 | Barabara Point, Seldovia Bay |
| 6 | Warner Bay | 62 | Nanwalek, Port Graham |
| 7 | Castle Bay, Chignik, Chignik Lagoon | 63 | Elizabeth Island, Port Chatham, Koyuktolik Bay |
| 8 | Chignik Bay | 64 | Chugach Bay, Rocky Bay, Windy Bay |
| 9 | Kujulik Bay, Unavikshak Island | 65 | West Arm Port Dick, Qikutulig & Touglaalek Bays |
| 10 | Aniakchak Bay, Cape Kumlik, Kumlik Island | 66 | Gore Point, Port Dick, Tonsina Bay |
| 11 | Amber Bay, Yantarni Bay | 67 | Nuka Passage, Nuka Bay, Nuka Island |
| 12 | Nakalilok Bay, Ugaiushak Island | 68 | Pye Islands, Surprise Bay |
| 13 | Cape Providence, Chiginagak Bay | 69 | Black Bay, Thunder Bay, Two Arm Bay |
| 14 | Agripina Bay, Ashiiak Island, Cape Kilokak | 70 | Aialik Bay, Harris Bay |
| 15 | Cape Kayakliut, Wide Bay | 71 | Aialik Cape, Aialik Bay, Resurrection Bay |
| 16 | Capes Kanatak, Igvak, & Unalishagvak, Portage Bay | 72 | Cape Resurrection, Day Harbor, Whidbey Bay |
| 17 | Cape Aklek, Puale Bay | 73 | Johnstone Bay, Puget Bay |
| 18 | Alinchak Bay, Cape Kekurnoi, Bear Bay | 74 | Elrington Island, Latouche Island |
| 19 | Cape Kubugakli, Kashvik Bay, Katmai Bay | 75 | Montague Strait, Cape Clear |
| 20 | Amalik, Dakavak & Kinak Bays, Cape Iiktugitak, Takli Is. | 76 | Monatgue Island (a) |
| 21 | Kaflia, Kukak, Kuliak & Missak Bays | 77 | Monatgue Island (b) |
| 22 | Devils Cove, Hallo Bay | 78 | Monatgue Island (c) |
| 23 | Cape Chiniak, Swikshak Bay | 79 | Barren Islands, Ushagat Island |
| 24 | Fourpeaked Glacier | 80 | Amatuli Cove, East & West Amatuli Island |
| 25 | Cape Douglas, Sukoi Bay | 81 | Shuyak Island |
| 26 | Douglas River | 82 | Bluefox Bay, Shuyak Island, Shuyak Strait |
| 27 | Akumwarvik Bay, McNeil Cove, Nordyke Island | 83 | Foul Bay, Paramanof Bay |
| 28 | Amakdedulia Cove, Bruin Bay, Chenik Head | 84 | Malina Bay, Raspberry Island, Raspberry Strait |
| 29 | Augustine Island | 85 | Kupreanof Strait, Viekoda Bay |
| 30 | Rocky Cove, Tignagvik Point | 86 | Uganik Bay Uganik Strait, Cape Ugat |
| 31 | Iiamna Bay, Iniskin Bay, Ursus Cove | 87 | Cape Kuliuk, Spiridon Bay, Uyak Bay |
| 32 | Chinitna Point, Dry Bay | 88 | Karluk Lagoon, Northeast Harbor, Karluk |
| 33 | Chinitna Bay | 89 | Halibut Bay, Middle Cape, Sturgeon Head |
| 34 | Iliamna Point | 90 | Ayakulik, Bumble Bay, Gurney Bay |
| 35 | Chisik Island, Tuxedni Bay | 91 | Low Cape, Sukhoi Bay |
| 36 | Redoubt Point | 92 | Aiaktalik, Alitak Bay, Cape Alitak |
| 37 | Drift River, Drift River Terminal | 93 | Sitkinak Island |
| 38 | Kalgin Island | 94 | Tugidak Island |
| 39 | Seal River, Big River | 95 | Chirikof Island |
| 40 | Kustatan River,West Foreland | 96 | Semidi Islands |
| 41 | Chakachatna, McArthur & Middle River, Trading Bay | 97 | Sutwik Island |
| 42 | Beshta Bay | 98 | Aiaktalik Is., Japanese & Kaguyak Bays, Russian Harbor |
| 43 | Tyonek, Chuitna River, Beluga | 99 | Kiavak Bay, Knoll Bay, Natalia Bay, Rolling Bay |
| 44 | Beluga, Theodore, Lewis & Ivan Rivers | 100 | McCord, Newman, & Ocean Bays, Old Harbor |
| 45 | Susitna & Little Susitna Rivers, Big Is., Magot Point | 101 | Boulder Bay, Outer Right Cape, Kiluida Bay |
| 46 | Susitna Flats, Knik Arm | 102 | Gull Point, Pasagshak Bay, Ugak Bay |
| 47 | Fire Island | 103 | Barry Lagoon, Cape Chiniak, Cape Greville |
| 48 | Anchorage, Turnagain Arm | 104 | Long Island, Chiniak Bay |
| 49 | Point Possession, Miller Creek | 105 | Anton Larsen Bay, Narrow Strait, Kodiak, Spruce Is |
| 50 | Moose Point, Otter Creek | 106 | Afognak Strait, Whale Island, Kizhuyak & Sharatin Bays |
| 51 | Bishop Creek, Boulder Point, Swanson River | 107 | Kazakof Bay, Duck Bay |
| 52 | East Forelands, Kenai, Nikiski | 108 | Izhut Bay, Pillar Cape |
| 53 | Kalifornsky, Kasilof River, Kenai River | 109 | King Cove, Tonki Cape Peninsula |
| 54 | Clam Gulch, Kasilof | 110 | Marmot Cape, Marmot Island, Marmot Strait |
| 55 | Deep Creek, Ninilchik, Ninilchik River | 111 | Seal Bay, Tonki Bay |
| 56 | Cape Starichkof, Happy Valley | 112 | Andreon Bay, Big Fort Is. Big Waterfall & Perenosa Bay |

Compiled by USDOI, BOEM, Alaska OCS Region.

Key: ID = identification (number).

**Table A.1-12. LS ID and the percent type of Environmental Sensitivity Index shoreline closest to the ocean for United States, Alaska shoreline**

| ID | Geographic Place Names | 1A | 2A | 3A | 4 | 5 | 6A | 7 | 8A | 9A | 10A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | Stepovak Bay, Kupreanof Peninsula, Ivanoff Bay | 9 | 31 | 1 | 2 | 20 | 12 | 11 | 3 | 2 | 10 |
| **2** | Jacob Island, Perryville | 26 | 11 | 3 | 20 | 23 | 15 | 3 | 0 | 0 | 0 |
| **3** | Mitrofania& Chiachi Island, Sosbee Bay | 65 | 0 | 0 | 1 | 23 | 8 | 0 | 2 | 0 | 0 |
| **4** | Mitrofania Bay, Stirni Point, Anchor Bay | 24 | 10 | 0 | 21 | 6 | 18 | 4 | 4 | 0 | 13 |
| **5** | Kuiukta Bay, Seal Cape | 34 | 4 | 1 | 0 | 12 | 24 | 3 | 21 | 0 | 2 |
| **6** | Warner Bay | 11 | 5 | 0 | 0 | 12 | 24 | 4 | 35 | 4 | 5 |
| **7** | Castle Bay, Chignik, Chignik Lagoon | 1 | 17 | 0 | 0 | 16 | 13 | 22 | 6 | 15 | 10 |
| **8** | Chignik Bay | 4 | 32 | 1 | 0 | 22 | 21 | 9 | 1 | 9 | 0 |
| **9** | Kujulik Bay, Unavikshak Island | 8 | 29 | 1 | 0 | 24 | 6 | 28 | 1 | 3 | 0 |
| **10** | Aniakchak Bay, Cape Kumlik, Kumlik Island | 0 | 46 | 3 | 0 | 12 | 5 | 27 | 0 | 5 | 1 |
| **11** | Amber Bay, Yantarni Bay | 1 | 49 | 2 | 0 | 6 | 9 | 21 | 0 | 12 | 0 |
| **12** | Nakalilok Bay, Ugaiushak Island | 9 | 41 | 7 | 4 | 3 | 9 | 14 | 5 | 6 | 2 |
| **13** | Cape Providence, Chiginagak Bay | 15 | 19 | 0 | 0 | 17 | 23 | 14 | 4 | 8 | 0 |
| **14** | Agripina Bay, Ashiiak Island, Cape Kilokak | 15 | 14 | 1 | 0 | 21 | 11 | 6 | 1 | 28 | 4 |
| **15** | Cape Kayakliut, Wide Bay | 0 | 45 | 0 | 1 | 35 | 2 | 7 | 0 | 10 | 1 |
| **16** | Capes Kanatak, Lgvak, and Unalishagvak, Portage Bay | 12 | 40 | 0 | 1 | 19 | 4 | 5 | 1 | 18 | 0 |
| **17** | Cape Aklek, Puale Bay | 23 | 36 | 0 | 14 | 10 | 0 | 5 | 0 | 12 | 0 |
| **18** | Alinchak Bay, Cape Kekurnoi, Bear Bay | 5 | 28 | 0 | 1 | 14 | 0 | 17 | 0 | 34 | 1 |
| **19** | Cape Kubugakli, Kashvik Bay, Katmai Bay | 3 | 16 | 0 | 0 | 3 | 0 | 48 | 0 | 30 | 0 |
| **20** | Amalik, Dakavak and Kinak Bays, Cape Iiktugitak, Takli Island | 12 | 5 | 0 | 2 | 13 | 1 | 17 | 26 | 24 | 0 |
| **21** | Kaflia Bay, Kukak Bay, Kuliak Bay, Missak Bay | 10 | 9 | 0 | 0 | 25 | 1 | 3 | 11 | 37 | 3 |
| **22** | Devils Cove, Hallo Bay | 12 | 21 | 0 | 0 | 22 | 0 | 24 | 7 | 6 | 7 |
| **23** | Cape Chiniak, Swikshak Bay | 4 | 10 | 0 | 0 | 40 | 0 | 36 | 0 | 9 | 1 |
| **24** | Fourpeaked Glacier | 9 | 5 | 0 | 0 | 42 | 3 | 28 | 0 | 5 | 7 |
| **25** | Cape Douglas, Sukoi Bay | 0 | 46 | 1 | 1 | 28 | 0 | 10 | 4 | 10 | 1 |
| **26** | Douglas River | 0 | 23 | 0 | 0 | 15 | 0 | 52 | 5 | 0 | 6 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | 0 | 26 | 0 | 0 | 1 | 0 | 3 | 8 | 47 | 15 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 0 | 29 | 0 | 0 | 18 | 2 | 13 | 15 | 24 | 0 |
| **29** | Augustine Island | 1 | 54 | 12 | 0 | 0 | 5 | 0 | 16 | 3 | 9 |
| **30** | Rocky Cove, Tignagvik Point | 0 | 31 | 0 | 4 | 22 | 4 | 9 | 10 | 1 | 20 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 2 | 28 | 0 | 0 | 21 | 2 | 0 | 8 | 39 | 0 |
| **32** | Chinitna Point, Dry Bay | 3 | 19 | 1 | 0 | 9 | 7 | 0 | 6 | 47 | 7 |
| **33** | Chinitna Bay | 4 | 10 | 0 | 2 | 17 | 14 | 23 | 0 | 25 | 5 |
| **34** | Iliamna Point | 1 | 0 | 0 | 4 | 12 | 1 | 28 | 0 | 12 | 42 |
| **35** | Chisik Island, Tuxedni Bay | 2 | 0 | 0 | 0 | 21 | 16 | 19 | 0 | 35 | 7 |
| **36** | Redoubt Point | 0 | 0 | 0 | 0 | 0 | 1 | 79 | 0 | 0 | 20 |
| **37** | Drift River, Drift River Terminal | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 31 | 42 |
| **38** | Kalgin Island | 0 | 0 | 0 | 0 | 0 | 2 | 96 | 0 | 2 | 0 |
| **39** | Seal River, Big River | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 46 |
| **40** | Kustatan River, West Foreland | 0 | 0 | 0 | 0 | 26 | 2 | 9 | 0 | 49 | 14 |
| **41** | Chakachatna, McArthur & Middle River, Trading Bay | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 48 | 41 |
| **42** | Beshta Bay | 0 | 0 | 0 | 0 | 14 | 0 | 24 | 0 | 29 | 32 |
| **43** | Tyonek, Chuitna River, Beluga | 0 | 0 | 0 | 16 | 15 | 0 | 0 | 0 | 35 | 34 |
| **44** | Beluga, Theodore, Lewis & Ivan Rivers | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 35 | 61 |
| **45** | Susitna&Little Susitna Rivers, Big Island, Magot Point | 0 | 0 | 0 | 3 | 0 | 0 | 11 | 0 | 26 | 60 |
| **46** | Susitna Flats, Knik Arm | 0 | 0 | 0 | 0 | 5 | 0 | 17 | 0 | 78 | 0 |
| **47** | Fire Island | 0 | 0 | 0 | 0 | 33 | 0 | 67 | 0 | 0 | 0 |
| **48** | Anchorage, Turnagain Arm | 0 | 0 | 0 | 0 | 15 | 0 | 85 | 0 | 0 | 0 |
| **49** | Point Possession, Miller Creek | 0 | 0 | 0 | 0 | 49 | 0 | 47 | 0 | 0 | 4 |
| **50** | Moose Point, Otter Creek | 0 | 46 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 28 |
| **51** | Bishop Creek, Boulder Point, Swanson River | 0 | 0 | 0 | 0 | 16 | 0 | 71 | 0 | 0 | 12 |
| **52** | East Forelands, Kenai, Nikiski | 0 | 0 | 0 | 61 | 34 | 0 | 6 | 0 | 0 | 0 |
| **53** | Kalifornsky, Kasilof River, Kenai River | 0 | 0 | 0 | 0 | 30 | 0 | 52 | 0 | 0 | 18 |

| ID | Geographic Place Names | 1A | 2A | 3A | 4 | 5 | 6A | 7 | 8A | 9A | 10A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **54** | Clam Gulch, Kasilof | 0 | 0 | 0 | 0 | 94 | 0 | 6 | 0 | 0 | 0 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | 0 | 0 | 0 | 0 | 44 | 0 | 25 | 0 | 0 | 31 |
| **56** | Cape Starichkof, Happy Valley | 0 | 0 | 0 | 0 | 87 | 0 | 11 | 0 | 0 | 1 |
| **57** | Anchor Point, Anchor River | 0 | 0 | 0 | 0 | 45 | 0 | 55 | 0 | 0 | 0 |
| **58** | Homer, Homer Spit | 0 | 0 | 0 | 0 | 11 | 0 | 67 | 0 | 22 | 0 |
| **59** | Fritz Creek, Halibut Cove | 3 | 0 | 0 | 0 | 36 | 0 | 42 | 16 | 1 | 2 |
| **60** | China Poot Bay, Gull Island | 14 | 3 | 0 | 0 | 20 | 0 | 10 | 34 | 18 | 1 |
| **61** | Barabara Point, Seldovia Bay | 8 | 13 | 0 | 0 | 26 | 0 | 13 | 32 | 9 | 1 |
| **62** | Nanwalek, Port Graham | 7 | 32 | 0 | 0 | 31 | 1 | 8 | 8 | 10 | 3 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 15 | 25 | 0 | 2 | 29 | 1 | 4 | 13 | 12 | 0 |
| **64** | Chugach Bay, Rocky Bay, Windy Bay | 24 | 18 | 0 | 0 | 17 | 0 | 0 | 22 | 19 | 0 |
| **65** | West Arm Port Dick, Qikutulig Bay, Touglaalek Bay | 17 | 13 | 0 | 0 | 11 | 2 | 0 | 47 | 10 | 1 |
| **66** | Gore Point, Port Dick, Tonsina Bay | 52 | 0 | 0 | 4 | 13 | 3 | 0 | 24 | 4 | 1 |
| **67** | Nuka Passage, Nuka Bay, Nuka Island | 30 | 0 | 0 | 1 | 8 | 2 | 5 | 49 | 4 | 1 |
| **68** | Pye Islands, Surprise Bay | 47 | 0 | 0 | 0 | 3 | 0 | 4 | 45 | 0 | 1 |
| **69** | Black Bay, Thunder Bay, Two Arm Bay | 26 | 0 | 0 | 0 | 24 | 1 | 3 | 44 | 0 | 2 |
| **70** | Aialik Bay, Harris Bay | 47 | 0 | 0 | 0 | 14 | 2 | 5 | 32 | 0 | 1 |
| **71** | Aialik Cape, Aialik Bay, Resurrection Bay | 52 | 0 | 0 | 0 | 25 | 1 | 0 | 22 | 0 | 0 |
| **72** | Cape Resurrection, Day Harbor, Whidbey Bay | 41 | 0 | 0 | 2 | 19 | 9 | 0 | 28 | 0 | 1 |
| **73** | Johnstone Bay, Puget Bay | 19 | 7 | 0 | 1 | 19 | 50 | 4 | 0 | 0 | 0 |
| **74** | Elrington Island, Latouche Island | 16 | 27 | 0 | 0 | 7 | 44 | 3 | 2 | 0 | 0 |
| **75** | Montague Strait, Cape Clear | 0 | 82 | 3 | 0 | 7 | 8 | 0 | 0 | 0 | 0 |
| **76** | Monatgue Island (a) | 6 | 42 | 5 | 0 | 7 | 35 | 4 | 0 | 0 | 0 |
| **77** | Monatgue Island (b) | 0 | 34 | 5 | 0 | 4 | 51 | 7 | 0 | 0 | 0 |
| **78** | Monatgue Island (c) | 0 | 27 | 0 | 0 | 2 | 60 | 8 | 0 | 0 | 2 |
| **79** | Barren Islands, Ushagat Island | 52 | 14 | 0 | 0 | 29 | 4 | 0 | 2 | 0 | 0 |
| **80** | Amatuli Cove, East and West Amatuli Island | 92 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |
| **81** | Shuyak Island | 7 | 27 | 0 | 0 | 20 | 9 | 0 | 24 | 8 | 5 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 9 | 19 | 0 | 0 | 60 | 3 | 0 | 7 | 2 | 1 |
| **83** | Foul Bay, Paramanof Bay | 23 | 13 | 0 | 0 | 34 | 15 | 2 | 10 | 2 | 0 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 27 | 8 | 0 | 0 | 49 | 13 | 0 | 2 | 1 | 0 |
| **85** | Kupreanof Strait, Viekoda Bay | 22 | 21 | 0 | 0 | 39 | 19 | 0 | 0 | 0 | 0 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | 36 | 4 | 0 | 0 | 46 | 6 | 0 | 0 | 8 | 0 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | 21 | 18 | 0 | 0 | 43 | 8 | 0 | 10 | 0 | 0 |
| **88** | Karluk Lagoon, Northeast Harbor, Karluk | 4 | 9 | 0 | 0 | 51 | 3 | 0 | 0 | 26 | 9 |
| **89** | Halibut Bay, Middle Cape, Sturgeon Head | 8 | 15 | 0 | 0 | 57 | 0 | 0 | 0 | 9 | 11 |
| **90** | Ayakulik, Bumble Bay, Gurney Bay | 26 | 14 | 0 | 0 | 50 | 1 | 0 | 0 | 8 | 1 |
| **91** | Low Cape, Sukhoi Bay | 0 | 3 | 0 | 0 | 43 | 0 | 0 | 32 | 23 | 0 |
| **92** | Aiaktalik, Alitak Bay, Cape Alitak | 7 | 19 | 0 | 0 | 26 | 1 | 0 | 15 | 27 | 4 |
| **93** | Sitkinak Island | 0 | 10 | 0 | 0 | 38 | 2 | 19 | 28 | 4 | 0 |
| **95** | Tugidak Island | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **96** | Chirikof Island | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| **94** | Semidi Islands | 0 | 0 | 0 | 0 | 47 | 0 | 17 | 36 | 0 | 0 |
| **97** | Sutwik Island | 11 | 17 | 0 | 0 | 53 | 20 | 0 | 0 | 0 | 0 |
| **98** | Aiaktalik Island, Japanese Bay, Kaguyak Bay, Russian Harbor | 0 | 26 | 0 | 0 | 55 | 0 | 0 | 18 | 0 | 1 |
| **99** | Kiavak Bay, Knoll Bay, Natalia Bay, Rolling Bay | 14 | 31 | 2 | 0 | 24 | 4 | 0 | 20 | 5 | 0 |
| **100** | McCord Bay, Newman Bay, Ocean Bay, Sitkalidak Island, Sitka | 2 | 15 | 0 | 0 | 54 | 5 | 3 | 12 | 4 | 4 |
| **101** | Boulder Bay, Outer Right Cape, Kiluida Bay | 3 | 28 | 0 | 0 | 45 | 16 | 0 | 2 | 5 | 1 |
| **102** | Gull Point, Pasagshak Bay, Ugak Bay | 0 | 43 | 2 | 1 | 17 | 21 | 0 | 16 | 0 | 1 |
| **103** | Barry Lagoon, Cape Chiniak, Cape Greville | 3 | 40 | 0 | 0 | 0 | 0 | 0 | 57 | 0 | 0 |
| **104** | Long Island, Chiniak Bay | 9 | 32 | 0 | 2 | 0 | 2 | 0 | 42 | 9 | 3 |
| **105** | Anton Larsen Bay, Narrow Strait, Kodiak, Spruce Island, Spruce Cape | 1 | 26 | 0 | 0 | 8 | 11 | 0 | 50 | 3 | 0 |
| **106** | Afognak Strait, Whale Island, Kizhuyak&Sharatin Bay | 14 | 46 | 0 | 0 | 9 | 20 | 0 | 11 | 0 | 0 |
| **107** | Kazakof Bay, Duck Bay | 24 | 0 | 0 | 0 | 5 | 18 | 0 | 53 | 0 | 0 |
| **108** | Izhut Bay, Pillar Cape | 24 | 0 | 0 | 0 | 4 | 9 | 0 | 62 | 0 | 0 |

| ID | Geographic Place Names | 1A | 2A | 3A | 4 | 5 | 6A | 7 | 8A | 9A | 10A |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **109** | King Cove, Tonki Cape Peninsula | 26 | 9 | 0 | 0 | 17 | 6 | 0 | 41 | 0 | 0 |
| **110** | Marmot Cape, Marmot Island, Marmot Strait | 23 | 32 | 0 | 0 | 13 | 32 | 0 | 0 | 0 | 0 |
| **111** | Seal Bay, Tonki Bay | 0 | 27 | 0 | 0 | 0 | 14 | 0 | 58 | 1 | 0 |
| **112** | Andreon Bay, Big Fort Island, Big Waterfall Bay, Perenosa Bay | 16 | 14 | 0 | 0 | 3 | 22 | 0 | 45 | 0 | 0 |

Compiled by USDOI, BOEM, Alaska OCS Region from NOAA (1997; 2002; 2004).
Key: ND = no data

| ID = identification (number). Number Description | | |
|---|---|---|
| 1A Exposed rocky cliffs | 5 Mixed sand and gravel beaches | 9A Sheltered tidal flats |
| 2A Wavecut bedrock mud clay rocky shoals | 6A Gravel beaches | 10A Salt- and brackish-water marshes |
| 3A Fine- to medium-grained sand beaches | 7 Exposed tidal flats | |
| 4 Coarse-grained sand beaches | 8A Sheltered scarps in bedrock, mud, or clay | |

## Table A.1-13. GLS identification, vulnerable months, and Appendix B location

| GLS ID | GLS Name | LS IDs | Vulnerable | Figure |
|---|---|---|---|---|
| 113 | Alaska Peninsula National Wildlife Refuge | 01–09, 11–15 | January–December | B-4a 4 |
| 114 | AMNWR SW Shelikof/GOA | 1–17 | January–December | B-4b 5 |
| 115 | SUA: Chignik Lake, Ivanof Bay, Perryville | 02–11 | January–December | B-4a 4 |
| 116 | SUA: Chignik Chignik Lagoon | 02–15 | January–December | B-4a 4 |
| 117 | Spring Bear Concentration-2 | 04–09 | March–May | B-4a 4 |
| 118 | Bear Feeding Concentration –1 | 04-09 | June-August | B-4b 5 |
| 119 | Kuiukta Bay | 05–06 | January–December | B-4b 5 |
| 120 | Aniakchak National Monument and Preserve | 10–11 | January–December | B-4b 5 |
| 121 | Spring Bear Concentration-3 | 10–14 | March–May | B-4b 5 |
| 122 | Becharof National Wildlife Refuge | 16–18 | January–December | B-4a 3 |
| 123 | Katmai National Park | 19–27 | January–December | B-4a 2 |
| 124 | Kukak Bay | 21–22 | January–December | B-4a 2 |
| 125 | Spring Bear Concentration-1 | 21–23 | March–May | B-4a 3 |
| 126 | McNeil River State Game Sanctuary & Refuge | 27–28 | January–December | B-4a 2 |
| 127 | AMNWR W Cook Inlet | 27–29, 31–33, 35–36 | January–December | B-4a 2 |
| 128 | Lake Clark National Park and Preserve | 33–36 | January–December | B-4a 1 |
| 129 | Redoubt Bay Brown Bears | 37–40 | April–October | B-4a 1 |
| 130 | Redoubt Bay Critical Habitat Area | 39–40 | January–December | B-4a 1 |
| 131 | Trading Bay Moose | 40–42 | December–March | B-4a 1 |
| 132 | Susitna Flats Black Bear | 43–46 | April–June | B-4a 1 |
| 133 | Susitna Flats Moose | 43–46 | December–June | B-4a 1 |
| 134 | Susitna Flats State Game Refuge | 43–46 | January–December | B-4a 1 |
| 135 | Kenai AK State Recreation Mgmt Areas | 51–61 | January–December | B-4a 1 |
| 136 | West Kenai Brown Bears | 52–59 | June–October | B-4a 1 |
| 137 | West Kenai Moose | 53–55 | October–May | B-4a 1 |
| 138 | Clam Gulch Critical Habitat | 54–56 | January–December | B-4a 1 |
| 139 | Kachemak Bay State Park & Wilderness Park | 59–60, 64–67 | January–December | B-4b 3 |
| 140 | West Kenai Black Bears | 59–62 | Jun–October | B-4a 1 |
| 141 | Seldovia side Kachemak Bay | 59–62 | January–December | B-4b 3 |
| 142 | AMNWR E Cook Inlet | 60–62 | January–December | B-4b 3 |
| 143 | AMNWR W Outer Kenai/GOA | 63–66 | January–December | B-4b 3 |
| 144 | Kenai Fjords National Park | 66–71 | January–December | B-4b 3 |
| 145 | AMNWR E Outer Kenai/GOA | 67–73 | January–December | B-4b 1 |
| 146 | Resurrection Bay | 71–72 | January–December | B-4b 2 |
| 147 | Chugach National Forest | 72–78 | January–December | B-4b 1 |
| 148 | Prince William Sound IBA, AMNWR | 74 –78 | January–December | B-4b 2 |
| 149 | Elrington-Bambridge-LaTouche Islands | 74–75 | January–December | B-4b 1 |
| 150 | Montague Blacktail Deer | 76–78 | December–March | B-4b 1 |
| 151 | Montague Island | 76–78 | January–December | B-4b 2 |
| 152 | Barren Islands | 79–80 | January–December | B-4a 2 |
| 153 | Shuyak Island State Park | 81–82, 112 | January–December | B-4a 2 |
| 154 | AMNWR Afognak and Shuyak Islands | 81–84, 106–112 | January–December | B-4a 3 |
| 155 | Afognak & Raspberry Winter Elk | 81–85, 106–112 | December–March | B-4a 2 |
| 156 | Kodiak National Wildlife Refuge | 81–101, 110 | January–December | B-4b 4 |
| 157 | Afognak Blacktail Deer | 82–85, 107–109, 111–112 | December–March | B-4b 4 |
| 158 | AMNWR W Kodiak/Shelikof | 85–88, 90 | January–December | B-4a 2 |
| 159 | Kupreanof Strait | 85, 106 | January–December | B-4a 3 |
| 160 | Kodiak Blacktail Deer | 89–95, 99–105 | December–March | B-4a 3 |
| 161 | AMNWR S Kodiak/GOA | 93–97 | January–December | B-4b 4 |
| 162 | AMNWR E Kodiak/GOA | 92, 98–105 | January–December | B-4b 4 |
| 163 | Woody Buskin River | 102, 105 | January–December | B-4b 4 |
| 164 | Afognak Island State Park | 109–111 | January–December | B-4a 3 |

Compiled by USDOI, BOEM, Alaska OCS Region.

Note: Table contains GLS ID, geographic names, LS IDs which make up the GLS, vulnerable times, and map location in Appendix B.

Key: AK=Alaska, AMNWR= Alaska Maritime National Wildlife Refuge, E= East, GOA=Gulf of Alaska, IBA=Important Bird Area, S=South, SW=Southwest

## A.2. OSRA Conditional and Combined Probability Tables

Tables A.2-1 through A.2-60 represent conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location (launch area [LA] or pipeline [PL]) will contact an environmental resource area (ERA), land segment (LS), boundary segment (BS), or grouped land segment (GLS). The tables are further organized as annual or seasonal (summer, winter). Tables A.2-1 through A.2-20 represent annual conditional probabilities, while Tables A.2-21 through A.2-60 represent seasonal conditional probabilities. Tables A.2-61 through A.2-64 represent combined probabilities (expressed as percent chance) of one or more large spills, and the estimated number of spills (mean), occurring and contacting a resource over the assumed life of the proposed Lease Sale 258. If the chance of contacting a given resource area is > 99.5%, it is shown with a double asterisk (**). If the chance of a large spill contacting a resource area is < 0.5%, it is shown with a dash (-). Resources with a < 0.5% chance of contact from all LAs and PLs are not shown.

Tables A.2-1 through A.2-5 represent annual conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain ERA within 1, 3, 30, 90, and 110 day(s), respectively.

**Table A.2-1. Conditional probability of a large oil spill contacting an ERA in 1 day (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 25 | 8 | 14 | 2 | 11 | 2 | 9 | 6 | 9 | 1 |
| **3** | SUA: Tyonek South | 13 | 2 | - | - | - | - | 1 | - | - | - |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | - | - | - | 1 | - | 10 | - | - | - | 4 |
| **11** | Augustine | 1 | - | 20 | 1 | 48 | 1 | - | 1 | 32 | - |
| **12** | South Cook HS 1a | 50 | 27 | 83 | 48 | 3 | 11 | 44 | 39 | 42 | 28 |
| **13** | South Cook HS 1b | 13 | 2 | 79 | 16 | 85 | 22 | 7 | 8 | 95 | 9 |
| **14** | South Cook HS 1c | - | - | 10 | - | 47 | 4 | - | - | 35 | 1 |
| **15** | South Cook HS 1d | - | - | - | - | 4 | - | - | - | 3 | - |
| **16** | Inner Kachemak Bay | - | - | - | 1 | - | - | - | - | - | - |
| **17** | Clam Gulch HS | - | 44 | - | 4 | - | - | 29 | 32 | - | 2 |
| **18** | Tuxedni HS | 32 | 14 | - | - | - | - | 24 | 1 | - | - |
| **19** | Kalgin Island HS | 15 | 10 | - | - | - | - | 3 | - | - | - |
| **20** | Redoubt Bay HS | 6 | 1 | - | - | - | - | - | - | - | - |
| **45** | Clam Gulch | - | 10 | - | 4 | - | - | 16 | 35 | - | 2 |
| **46** | Outer Kachemak Bay | - | 5 | 1 | 37 | - | 37 | 1 | 22 | - | 28 |
| **47** | SW Cook Inlet | 49 | 11 | 28 | 2 | 6 | - | 28 | 3 | 10 | 1 |
| **48** | Kamishak Bay | - | - | 4 | - | 23 | - | - | - | 13 | - |
| **68** | Kenai Fjords-West | - | - | - | - | - | 1 | - | - | - | 1 |
| **70** | Forelands-Beluga CH | 1 | - | - | - | - | - | - | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 28 | 26 | - | - | - | - | 17 | 4 | - | - |
| **72** | West Cook Inlet-Beluga CH | 31 | 7 | 27 | 1 | 15 | - | 16 | 2 | 14 | - |
| **75** | Kachemak-Humpback Whale | - | - | - | - | 2 | 6 | - | - | 1 | 3 |
| **90** | Barren Islands-Fin Whale | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **94** | Lower E Kenai- Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **95** | NE Kodiak- Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **101** | Cook Inlet 1-Harbor Porpoise | 4 | - | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 10 | 10 | - | - | - | - | 7 | 2 | - | - |
| **103** | Cook Inlet 3-Harbor Porpoise | 18 | 13 | 4 | 9 | - | - | 19 | 11 | - | 5 |
| **104** | Cook Inlet 4-Harbor Porpoise | 9 | 2 | 25 | 7 | 2 | 9 | 6 | 5 | 14 | 4 |
| **105** | Cook Inlet 5-Harbor Porpoise | 1 | - | 14 | - | 19 | 1 | - | - | 20 | - |
| **136** | Kamishak Bay IBA | - | - | 2 | - | 9 | - | - | - | 7 | - |
| **137** | Kamishak Bay STEI Habitat | - | - | - | - | 4 | - | - | - | 2 | - |
| **138** | Tuxedni Is Colony IBA | 12 | 3 | - | - | - | - | 7 | - | - | - |
| **139** | Tuxedni Bay IBA | 19 | 6 | - | - | - | - | 11 | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **140** | Redoubt Bay IBA | 6 | 1 | - | - | - | - | - | - | - | - |
| **144** | Clam Gulch STEI Habitat | - | 3 | - | 2 | - | - | 8 | 12 | - | 1 |
| **145** | Outer Kachemak Bay/IBA | 3 | 21 | 5 | 76 | 2 | 67 | 7 | 53 | 3 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 2 | - | 27 | 13 | 33 | 32 | 1 | 4 | 37 | 16 |
| **153** | Polly Creek Beach | 87 | 40 | 6 | 5 | - | - | 65 | 11 | - | 3 |
| **154** | Chinitna Bay | 6 | - | 14 | 1 | - | - | 2 | 1 | 3 | - |

## Table A.2-2. Conditional probability of a large oil spill contacting an ERA in 3 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 55 | 36 | 39 | 25 | 38 | 22 | 37 | 29 | 37 | 23 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 17 | 5 | - | - | - | - | 4 | 1 | - | - |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 1 | 1 | 3 | 9 | 2 | 21 | 1 | 3 | 2 | 14 |
| **11** | Augustine | 12 | 9 | 38 | 16 | 63 | 18 | 11 | 12 | 49 | 14 |
| **12** | South Cook HS 1a | 59 | 56 | 83 | 63 | 5 | 27 | 66 | 61 | 43 | 46 |
| **13** | South Cook HS 1b | 35 | 30 | 85 | 44 | 86 | 41 | 37 | 35 | 96 | 38 |
| **14** | South Cook HS 1c | 11 | 7 | 35 | 15 | 59 | 24 | 10 | 9 | 54 | 16 |
| **15** | South Cook HS 1d | 2 | 1 | 12 | 3 | 27 | 8 | 2 | 2 | 22 | 4 |
| **16** | Inner Kachemak Bay | - | - | - | 3 | - | 3 | - | 1 | - | 3 |
| **17** | Clam Gulch HS | 2 | 47 | - | 9 | - | 1 | 33 | 36 | - | 6 |
| **18** | Tuxedni HS | 35 | 24 | - | 2 | - | - | 31 | 8 | - | 2 |
| **19** | Kalgin Island HS | 16 | 14 | - | - | - | - | 6 | 3 | - | - |
| **20** | Redoubt Bay HS | 8 | 2 | - | - | - | - | 1 | - | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | - | - | 2 | 1 | 3 | 5 | - | - | 3 | 3 |
| **24** | Shelikof MM 2 | - | - | - | - | 3 | - | - | - | 2 | - |
| **37** | Port Chatham Pinniped | - | - | - | - | - | 1 | - | - | - | 1 |
| **45** | Clam Gulch | 1 | 15 | - | 8 | - | 2 | 19 | 39 | - | 6 |
| **46** | Outer Kachemak Bay | 4 | 11 | 5 | 44 | 2 | 46 | 6 | 28 | 4 | 37 |
| **47** | SW Cook Inlet | 61 | 37 | 38 | 19 | 10 | 9 | 50 | 24 | 17 | 15 |
| **48** | Kamishak Bay | 5 | 3 | 21 | 8 | 46 | 10 | 4 | 5 | 36 | 7 |
| **49** | Katmai NP | - | - | - | - | 1 | - | - | - | 1 | - |
| **68** | Kenai Fjords-West | - | - | 1 | 1 | 1 | 5 | - | - | 1 | 3 |
| **70** | Forelands-Beluga CH | 1 | - | - | - | - | - | - | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 29 | 33 | - | 2 | - | - | 22 | 13 | - | 2 |
| **72** | West Cook Inlet-Beluga CH | 48 | 31 | 43 | 21 | 31 | 12 | 39 | 23 | 32 | 16 |
| **75** | Kachemak-Humpback Whale | 3 | 1 | 10 | 6 | 12 | 16 | 2 | 2 | 12 | 10 |
| **77** | N Kodiak-Humpback Whale | - | - | - | - | 1 | - | - | - | 1 | - |
| **80** | Shelikof MM 1 | 1 | - | 5 | 1 | 13 | 3 | - | 1 | 11 | 2 |
| **81** | Shelikof MM 1a | - | - | 2 | - | 4 | - | - | - | 5 | - |
| **82** | Shelikof MM 2a | - | - | - | - | 1 | - | - | - | 1 | - |
| **90** | Barren Islands-Fin Whale | 2 | 1 | 9 | 4 | 17 | 13 | 1 | 2 | 14 | 8 |
| **94** | Lower E Kenai-Gray Whale | - | - | 1 | 1 | 1 | 4 | - | - | 1 | 2 |
| **95** | NE Kodiak- Gray Whale | - | - | 1 | 1 | 1 | 4 | - | - | 1 | 3 |
| **101** | Cook Inlet 1-Harbor Porpoise | 5 | 1 | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 11 | 12 | - | 1 | - | - | 9 | 6 | - | 1 |
| **103** | Cook Inlet 3-Harbor Porpoise | 20 | 20 | 4 | 13 | - | 2 | 24 | 17 | 1 | 9 |
| **104** | Cook Inlet 4-Harbor Porpoise | 17 | 14 | 26 | 17 | 4 | 14 | 18 | 14 | 14 | 14 |
| **105** | Cook Inlet 5-Harbor Porpoise | 8 | 6 | 20 | 9 | 21 | 7 | 8 | 7 | 23 | 7 |
| **135** | Shaw Is Colony | - | - | - | - | 1 | - | - | - | 1 | - |
| **136** | Kamishak Bay IBA | 2 | 1 | 7 | 3 | 14 | 3 | 2 | 2 | 11 | 2 |
| **137** | Kamishak Bay STEI Habitat | 1 | - | 5 | 2 | 12 | 3 | 1 | 1 | 9 | 1 |
| **138** | Tuxedni Is Colony IBA | 12 | 6 | - | - | - | - | 9 | 2 | - | - |
| **139** | Tuxedni Bay IBA | 23 | 14 | - | 1 | - | - | 17 | 5 | - | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **140** | Redoubt Bay IBA | 11 | 3 | - | - | - | - | 1 | - | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 5 | - | 3 | - | 1 | 9 | 13 | - | 3 |
| **145** | Outer Kachemak Bay/IBA | 11 | 29 | 14 | 81 | 7 | 74 | 19 | 59 | 10 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 10 | 11 | 31 | 26 | 34 | 38 | 11 | 17 | 38 | 28 |
| **147** | Barren Islands Marine IBA | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **148** | Barren Islands Colonies IBA | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **153** | Polly Creek Beach | 88 | 58 | 7 | 12 | - | 1 | 78 | 28 | 1 | 9 |
| **154** | Chinitna Bay | 14 | 9 | 18 | 8 | 1 | 3 | 12 | 9 | 5 | 6 |
| **155** | Barren Islands | - | - | 2 | 1 | 3 | 4 | - | - | 3 | 2 |

**Table A.2-3. Conditional probability of a large oil spill contacting an ERA in 10 days (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 86 | 79 | 81 | 76 | 82 | 75 | 80 | 77 | 81 | 76 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 18 | 7 | - | 1 | - | - | 5 | 3 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 5 | 6 | 9 | 17 | 6 | 29 | 7 | 9 | 7 | 21 |
| **5** | SUA: Port Lions | 4 | 4 | 8 | 6 | 11 | 8 | 4 | 5 | 10 | 6 |
| **6** | SUA: Ouzinke | 2 | 3 | 5 | 4 | 7 | 5 | 3 | 3 | 7 | 4 |
| **7** | SUA: Larsen Bay | - | - | - | - | 1 | - | - | - | 1 | - |
| **8** | SUA: Karluk | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **11** | Augustine | 23 | 26 | 50 | 36 | 71 | 38 | 28 | 31 | 60 | 35 |
| **12** | South Cook HS 1a | 61 | 64 | 84 | 70 | 8 | 36 | 72 | 70 | 44 | 56 |
| **13** | South Cook HS 1b | 42 | 47 | 87 | 58 | 86 | 54 | 51 | 52 | 97 | 53 |
| **14** | South Cook HS 1c | 24 | 27 | 45 | 35 | 63 | 42 | 29 | 30 | 60 | 36 |
| **15** | South Cook HS 1d | 15 | 17 | 29 | 23 | 40 | 28 | 18 | 20 | 37 | 24 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 5 | 1 | 6 | 1 | 2 | 1 | 5 |
| **17** | Clam Gulch HS | 3 | 48 | 1 | 11 | - | 4 | 34 | 38 | 1 | 9 |
| **18** | Tuxedni HS | 36 | 27 | 1 | 5 | - | 1 | 34 | 12 | - | 4 |
| **19** | Kalgin Island HS | 17 | 15 | - | 2 | - | - | 8 | 5 | - | 1 |
| **20** | Redoubt Bay HS | 8 | 2 | - | - | - | - | 1 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 5 | 5 | 9 | 8 | 10 | 12 | 6 | 6 | 10 | 9 |
| **24** | Shelikof MM 2 | 6 | 7 | 13 | 10 | 17 | 13 | 7 | 8 | 16 | 11 |
| **25** | Shelikof MM 3 | 2 | 2 | 5 | 4 | 7 | 5 | 3 | 3 | 7 | 4 |
| **26** | Shelikof MM 4 | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 3 | 2 |
| **27** | Shelikof MM 5 | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **28** | Shelikof MM 6 | - | - | - | - | 1 | - | - | - | 1 | - |
| **31** | Kodiak Pinniped 1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **37** | Port Chatham Pinniped | 1 | 1 | 3 | 2 | 3 | 3 | 1 | 1 | 3 | 2 |
| **45** | Clam Gulch | 3 | 18 | 1 | 11 | 1 | 4 | 21 | 41 | 1 | 9 |
| **46** | Outer Kachemak Bay | 9 | 17 | 10 | 49 | 6 | 50 | 13 | 33 | 7 | 42 |
| **47** | SW Cook Inlet | 65 | 50 | 42 | 32 | 12 | 18 | 60 | 39 | 20 | 27 |
| **48** | Kamishak Bay | 17 | 20 | 37 | 28 | 58 | 31 | 21 | 24 | 50 | 28 |
| **49** | Katmai NP | 3 | 3 | 6 | 4 | 9 | 6 | 3 | 3 | 8 | 5 |
| **59** | Kodiak NWR-South | - | - | - | - | 1 | - | - | - | 1 | - |
| **60** | Kodiak NWR-West | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **64** | Afognak-West | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **67** | Shuyak | 2 | 2 | 4 | 3 | 5 | 4 | 2 | 2 | 5 | 3 |
| **68** | Kenai Fjords-West | 2 | 2 | 4 | 5 | 3 | 9 | 2 | 3 | 3 | 6 |
| **70** | Forelands-Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 30 | 35 | - | 5 | - | 2 | 24 | 16 | - | 4 |
| **72** | West Cook Inlet-Beluga CH | 57 | 50 | 55 | 42 | 42 | 32 | 57 | 45 | 43 | 38 |
| **75** | Kachemak-Humpback Whale | 10 | 11 | 17 | 15 | 18 | 23 | 12 | 12 | 18 | 19 |
| **76** | Shelikof-Humpback Whale | 1 | 1 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **77** | N Kodiak-Humpback Whale | 3 | 3 | 7 | 5 | 9 | 6 | 4 | 4 | 9 | 5 |
| **78** | E Kodiak-Humpback Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **80** | Shelikof MM 1 | 12 | 13 | 24 | 19 | 31 | 24 | 15 | 16 | 30 | 20 |
| **81** | Shelikof MM 1a | 4 | 3 | 7 | 4 | 9 | 4 | 4 | 4 | 9 | 3 |
| **82** | Shelikof MM 2a | 2 | 2 | 4 | 2 | 5 | 1 | 2 | 2 | 5 | 1 |
| **83** | Shelikof MM 3a | 1 | - | 2 | 1 | 2 | - | 1 | 1 | 2 | - |
| **84** | Shelikof MM 4a | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **90** | Barren Islands-Fin Whale | 13 | 14 | 24 | 21 | 27 | 29 | 15 | 16 | 27 | 24 |
| **91** | NE Kodiak-Fin Whale | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 3 | 2 |
| **94** | Lower E Kenai-Gray Whale | 2 | 2 | 4 | 4 | 3 | 7 | 2 | 3 | 4 | 5 |
| **95** | NE Kodiak-Gray Whale | 3 | 3 | 5 | 5 | 5 | 8 | 3 | 3 | 5 | 6 |
| **98** | Shelikof-Gray Whale | 3 | 3 | 7 | 5 | 10 | 6 | 4 | 4 | 9 | 5 |
| **101** | Cook Inlet 1-Harbor Porpoise | 5 | 1 | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 11 | 13 | - | 3 | - | 1 | 9 | 7 | - | 2 |
| **103** | Cook Inlet 3-Harbor Porpoise | 21 | 23 | 5 | 16 | 1 | 6 | 26 | 21 | 1 | 13 |
| **104** | Cook Inlet 4-Harbor Porpoise | 19 | 21 | 27 | 23 | 5 | 19 | 23 | 21 | 15 | 20 |
| **105** | Cook Inlet 5-Harbor Porpoise | 12 | 13 | 23 | 16 | 22 | 14 | 14 | 14 | 25 | 14 |
| **108** | Shelikof-Killer Whale | 4 | 4 | 8 | 6 | 11 | 8 | 4 | 5 | 10 | 6 |
| **109** | E Kodiak-Killer Whale | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **111** | NW Afognak Is IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **134** | Kiukpalik Is Colony | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **135** | Shaw Is Colony | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 3 | 1 |
| **136** | Kamishak Bay IBA | 5 | 6 | 11 | 8 | 16 | 8 | 6 | 7 | 14 | 8 |
| **137** | Kamishak Bay STEI Habitat | 4 | 5 | 10 | 8 | 17 | 10 | 5 | 7 | 14 | 8 |
| **138** | Tuxedni Is Colony IBA | 13 | 8 | - | 1 | - | - | 10 | 4 | - | 1 |
| **139** | Tuxedni Bay IBA | 24 | 16 | 1 | 3 | - | 1 | 19 | 7 | - | 3 |
| **140** | Redoubt Bay IBA | 11 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 6 | 1 | 5 | - | 2 | 10 | 14 | - | 4 |
| **145** | Outer Kachemak Bay/IBA | 16 | 36 | 19 | 82 | 11 | 76 | 26 | 63 | 14 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 14 | 17 | 32 | 31 | 34 | 40 | 18 | 24 | 38 | 32 |
| **147** | Barren Islands Marine IBA | 2 | 2 | 4 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **148** | Barren Islands Colonies IBA | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 1 | 4 | 2 |
| **151** | Gulf of AK Shelf 151W58N IBA | - | - | - | - | - | 1 | - | - | - | - |
| **153** | Polly Creek Beach | 88 | 64 | 8 | 19 | 1 | 5 | 82 | 36 | 1 | 15 |
| **154** | Chinitna Bay | 17 | 14 | 20 | 13 | 1 | 6 | 17 | 15 | 6 | 11 |
| **155** | Barren Islands | 5 | 4 | 8 | 7 | 9 | 11 | 5 | 5 | 9 | 8 |

## Table A.2-4. Conditional probability of a large oil spill contacting an ERA in 30 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 97 | 96 | 96 | 95 | 95 | 95 | 97 | 96 | 96 | 95 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 18 | 8 | - | 1 | - | - | 5 | 3 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 6 | 8 | 10 | 18 | 7 | 30 | 8 | 11 | 8 | 23 |
| **5** | SUA: Port Lions | 6 | 8 | 11 | 10 | 14 | 12 | 8 | 9 | 13 | 11 |
| **6** | SUA: Ouzinke | 4 | 5 | 7 | 7 | 9 | 8 | 5 | 6 | 9 | 7 |
| **7** | SUA: Larsen Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **8** | SUA: Karluk | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **9** | SUA: Akhiok | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **11** | Augustine | 25 | 29 | 52 | 39 | 72 | 41 | 31 | 34 | 62 | 38 |
| **12** | South Cook HS 1a | 61 | 65 | 84 | 71 | 8 | 37 | 72 | 71 | 44 | 56 |
| **13** | South Cook HS 1b | 42 | 48 | 87 | 60 | 86 | 56 | 52 | 54 | 97 | 55 |
| **14** | South Cook HS 1c | 25 | 29 | 46 | 38 | 64 | 44 | 31 | 32 | 60 | 39 |
| **15** | South Cook HS 1d | 17 | 20 | 31 | 27 | 41 | 32 | 22 | 23 | 39 | 27 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 5 | 1 | 6 | 1 | 2 | 1 | 5 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **17** | Clam Gulch HS | 4 | 48 | 1 | 12 | 1 | 4 | 34 | 38 | 1 | 9 |
| **18** | Tuxedni HS | 36 | 28 | 1 | 5 | - | 2 | 34 | 13 | - | 5 |
| **19** | Kalgin Island HS | 17 | 16 | - | 2 | - | 1 | 8 | 5 | - | 1 |
| **20** | Redoubt Bay HS | 8 | 2 | - | - | - | - | 1 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 6 | 7 | 10 | 9 | 11 | 14 | 7 | 7 | 11 | 11 |
| **24** | Shelikof MM 2 | 9 | 11 | 16 | 14 | 20 | 17 | 11 | 12 | 19 | 15 |
| **25** | Shelikof MM 3 | 4 | 5 | 8 | 7 | 9 | 8 | 6 | 6 | 9 | 7 |
| **26** | Shelikof MM 4 | 2 | 3 | 4 | 4 | 5 | 4 | 3 | 3 | 5 | 4 |
| **27** | Shelikof MM 5 | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **28** | Shelikof MM 6 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **30** | Shelikof MM 8 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **37** | Port Chatham Pinniped | 2 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |
| **43** | AK Peninsula Pinniped 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **45** | Clam Gulch | 3 | 18 | 1 | 12 | 1 | 4 | 22 | 41 | 1 | 10 |
| **46** | Outer Kachemak Bay | 9 | 18 | 11 | 49 | 6 | 50 | 14 | 34 | 8 | 42 |
| **47** | SW Cook Inlet | 66 | 51 | 43 | 33 | 13 | 20 | 61 | 40 | 21 | 29 |
| **48** | Kamishak Bay | 19 | 24 | 39 | 32 | 60 | 35 | 25 | 27 | 52 | 32 |
| **49** | Katmai NP | 5 | 5 | 9 | 7 | 11 | 9 | 6 | 6 | 11 | 8 |
| **50** | Becharof NWR | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **51** | Alaska Peninsula NWR North | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **59** | Kodiak NWR-South | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **60** | kodiak nwr-West | 2 | 2 | 3 | 3 | 4 | 3 | 2 | 3 | 4 | 3 |
| **64** | afognak-West | 3 | 4 | 5 | 5 | 7 | 6 | 4 | 4 | 7 | 5 |
| **66** | Afognak-East | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **67** | Shuyak | 3 | 3 | 5 | 4 | 6 | 5 | 3 | 3 | 6 | 4 |
| **68** | Kenai Fjords-West | 3 | 3 | 4 | 5 | 4 | 9 | 3 | 4 | 4 | 7 |
| **70** | Forelands- Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 30 | 35 | 1 | 6 | - | 2 | 24 | 16 | - | 5 |
| **72** | West Cook Inlet-Beluga CH | 59 | 53 | 57 | 45 | 43 | 35 | 60 | 48 | 45 | 42 |
| **73** | NPRW Feeding Area | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **75** | Kachemak-Humpback Whale | 11 | 12 | 18 | 17 | 18 | 25 | 13 | 14 | 19 | 20 |
| **76** | Shelikof-Humpback Whale | 3 | 3 | 5 | 4 | 6 | 5 | 4 | 4 | 6 | 5 |
| **77** | N Kodiak-Humpback Whale | 5 | 5 | 8 | 7 | 10 | 8 | 6 | 6 | 10 | 7 |
| **78** | E Kodiak Humpback Whale | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **80** | Shelikof MM 1 | 15 | 18 | 27 | 24 | 33 | 28 | 19 | 20 | 32 | 25 |
| **81** | Shelikof MM 1a | 4 | 5 | 8 | 5 | 10 | 5 | 5 | 5 | 10 | 5 |
| **82** | Shelikof MM 2a | 3 | 3 | 5 | 3 | 6 | 3 | 3 | 3 | 6 | 3 |
| **83** | Shelikof MM 3a | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **84** | Shelikof MM 4a | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **85** | Shelikof MM 5a | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Shelikof MM 6a | - | - | 1 | - | 1 | - | 1 | - | 1 | - |
| **89** | Shelikof MM 11 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **90** | Barren Islands-Fin Whale | 14 | 16 | 25 | 23 | 27 | 31 | 17 | 19 | 27 | 26 |
| **91** | NE Kodiak-Fin Whale | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| **94** | Lower E Kenai-Gray Whale | 3 | 3 | 4 | 5 | 4 | 7 | 3 | 3 | 4 | 6 |
| **95** | NE Kodiak-Gray Whale | 4 | 4 | 6 | 6 | 6 | 9 | 4 | 5 | 6 | 7 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **98** | Shelikof-Gray Whale | 6 | 7 | 10 | 8 | 13 | 10 | 7 | 7 | 12 | 9 |
| **99** | N Shumagin-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **101** | Cook Inlet 1-Harbor Porpoise | 5 | 1 | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 11 | 13 | - | 3 | - | 1 | 9 | 7 | - | 3 |
| **103** | Cook Inlet 3-Harbor Porpoise | 21 | 24 | 5 | 17 | 1 | 6 | 26 | 22 | 2 | 14 |
| **104** | Cook Inlet 4-Harbor Porpoise | 19 | 21 | 27 | 24 | 6 | 20 | 23 | 22 | 16 | 21 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **105** | Cook Inlet 5-Harbor Porpoise | 12 | 14 | 23 | 17 | 23 | 16 | 15 | 15 | 25 | 16 |
| **108** | Shelikof-Killer Whale | 6 | 7 | 11 | 10 | 13 | 12 | 8 | 8 | 13 | 10 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **111** | NW Afognak Is IBA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **134** | Kiukpalik Is Colony | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 |
| **135** | Shaw Is Colony | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **136** | Kamishak Bay IBA | 6 | 7 | 11 | 9 | 17 | 10 | 7 | 8 | 15 | 9 |
| **137** | Kamishak Bay STEI Habitat | 5 | 6 | 10 | 9 | 17 | 10 | 6 | 8 | 14 | 9 |
| **138** | Tuxedni Is Colony IBA | 13 | 8 | - | 2 | - | 1 | 10 | 4 | - | 2 |
| **139** | Tuxedni Bay IBA | 24 | 16 | 1 | 3 | - | 1 | 19 | 8 | - | 3 |
| **140** | Redoubt Bay IBA | 11 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 6 | 1 | 5 | - | 2 | 10 | 14 | - | 4 |
| **145** | Outer Kachemak Bay/IBA | 17 | 37 | 19 | 83 | 11 | 76 | 27 | 63 | 14 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 14 | 18 | 32 | 31 | 34 | 40 | 18 | 24 | 38 | 32 |
| **147** | Barren Islands Marine IBA | 3 | 3 | 4 | 3 | 5 | 4 | 3 | 3 | 5 | 3 |
| **148** | Barren Islands Colonies IBA | 2 | 2 | 4 | 3 | 4 | 4 | 3 | 2 | 5 | 3 |
| **151** | Gulf of AK Shelf 151W58N IBA | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 89 | 65 | 8 | 19 | 1 | 6 | 83 | 37 | 2 | 16 |
| **154** | Chinitna Bay | 17 | 15 | 20 | 14 | 1 | 7 | 18 | 15 | 6 | 12 |
| **155** | Barren Islands | 5 | 6 | 9 | 9 | 10 | 12 | 6 | 7 | 10 | 10 |

## Table A.2-5. Conditional probability of a large oil spill contacting an ERA in 110 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 98 | 97 | 96 | 96 | 96 | 95 | 97 | 96 | 96 | 96 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 18 | 8 | - | 1 | - | - | 5 | 3 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 6 | 8 | 10 | 18 | 7 | 30 | 8 | 11 | 8 | 23 |
| **5** | SUA: Port Lions | 6 | 8 | 11 | 10 | 14 | 12 | 8 | 9 | 13 | 11 |
| **6** | SUA: Ouzinke | 4 | 5 | 7 | 7 | 9 | 8 | 5 | 6 | 9 | 7 |
| **7** | SUA: Larsen Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **8** | SUA: Karluk | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **9** | SUA: Akhiok | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **11** | Augustine | 25 | 29 | 52 | 39 | 72 | 41 | 31 | 34 | 62 | 39 |
| **12** | South Cook HS 1a | 61 | 65 | 84 | 71 | 8 | 37 | 72 | 71 | 44 | 56 |
| **13** | South Cook HS 1b | 42 | 48 | 87 | 60 | 86 | 56 | 52 | 54 | 97 | 55 |
| **14** | South Cook HS 1c | 25 | 29 | 46 | 38 | 64 | 44 | 31 | 32 | 60 | 39 |
| **15** | South Cook HS 1d | 17 | 20 | 31 | 27 | 41 | 32 | 22 | 23 | 39 | 27 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 5 | 1 | 6 | 1 | 2 | 1 | 5 |
| **17** | Clam Gulch HS | 4 | 48 | 1 | 12 | 1 | 4 | 34 | 38 | 1 | 9 |
| **18** | Tuxedni HS | 36 | 28 | 1 | 5 | - | 2 | 34 | 13 | - | 5 |
| **19** | Kalgin Island HS | 17 | 16 | - | 2 | - | 1 | 8 | 5 | - | 1 |
| **20** | Redoubt Bay HS | 8 | 2 | - | - | - | - | 1 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 6 | 7 | 10 | 9 | 11 | 14 | 7 | 7 | 11 | 11 |
| **24** | Shelikof MM 2 | 9 | 11 | 16 | 14 | 20 | 17 | 11 | 12 | 19 | 15 |
| **25** | Shelikof MM 3 | 4 | 5 | 8 | 7 | 9 | 8 | 6 | 6 | 9 | 7 |
| **26** | Shelikof MM 4 | 2 | 3 | 4 | 4 | 5 | 4 | 3 | 3 | 5 | 4 |
| **27** | Shelikof MM 5 | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **28** | Shelikof MM 6 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **30** | Shelikof MM 8 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **37** | Port Chatham Pinniped | 2 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **43** | AK Peninsula Pinniped 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **45** | Clam Gulch | 3 | 18 | 1 | 12 | 1 | 4 | 22 | 41 | 1 | 10 |
| **46** | Outer Kachemak Bay | 9 | 18 | 11 | 49 | 6 | 50 | 14 | 34 | 8 | 42 |
| **47** | SW Cook Inlet | 66 | 51 | 43 | 33 | 13 | 20 | 61 | 40 | 21 | 29 |
| **48** | Kamishak Bay | 19 | 24 | 39 | 32 | 60 | 35 | 25 | 27 | 52 | 32 |
| **49** | Katmai NP | 5 | 5 | 9 | 7 | 11 | 9 | 6 | 7 | 11 | 8 |
| **50** | Becharof NWR | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **51** | Alaska Peninsula NWR North | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **59** | Kodiak NWR-South | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **60** | Kodiak NWR-West | 2 | 2 | 3 | 3 | 4 | 3 | 2 | 3 | 4 | 3 |
| **64** | Afognak-West | 3 | 4 | 5 | 5 | 7 | 6 | 4 | 4 | 7 | 5 |
| **66** | Afognak-East | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **67** | Shuyak | 3 | 3 | 5 | 4 | 6 | 5 | 3 | 3 | 6 | 4 |
| **68** | Kenai Fjords-West | 3 | 3 | 4 | 5 | 4 | 9 | 3 | 4 | 4 | 7 |
| **70** | Forelands Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 30 | 35 | 1 | 6 | - | 2 | 24 | 16 | - | 5 |
| **72** | West Cook Inlet-Beluga CH | 59 | 53 | 57 | 45 | 43 | 35 | 60 | 48 | 45 | 42 |
| **73** | NPRW Feeding Area | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **75** | Kachemak-Humpback Whale | 11 | 12 | 18 | 17 | 18 | 25 | 13 | 14 | 19 | 20 |
| **76** | Shelikof-Humpback Whale | 3 | 3 | 5 | 4 | 6 | 5 | 4 | 4 | 6 | 5 |
| **77** | N Kodiak-Humpback Whale | 5 | 5 | 8 | 7 | 10 | 8 | 6 | 6 | 10 | 7 |
| **78** | E Kodiak-Humpback Whale | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **80** | Shelikof MM 1 | 15 | 18 | 27 | 24 | 33 | 28 | 19 | 20 | 32 | 25 |
| **81** | Shelikof MM 1a | 4 | 5 | 8 | 5 | 10 | 5 | 5 | 5 | 10 | 5 |
| **82** | Shelikof MM 2a | 3 | 3 | 5 | 3 | 6 | 3 | 3 | 3 | 6 | 3 |
| **83** | Shelikof MM 3a | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **84** | Shelikof MM 4a | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **85** | Shelikof MM 5a | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Shelikof MM 6a | - | - | 1 | - | 1 | - | 1 | - | 1 | - |
| **89** | Shelikof MM 11 | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **90** | Barren Islands-Fin Whale | 14 | 17 | 25 | 23 | 28 | 31 | 17 | 19 | 27 | 26 |
| **91** | NE Kodiak-Fin Whale | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| **94** | Lower E Kenai-Gray Whale | 3 | 3 | 4 | 5 | 4 | 8 | 3 | 4 | 4 | 6 |
| **95** | NE Kodiak-Gray Whale | 4 | 4 | 6 | 6 | 6 | 9 | 4 | 5 | 6 | 7 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **98** | Shelikof-Gray Whale | 6 | 7 | 10 | 9 | 13 | 10 | 7 | 8 | 12 | 9 |
| **99** | N Shumagin-Gray Whale | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **101** | Cook Inlet 1-Harbor Porpoise | 5 | 1 | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 11 | 13 | - | 3 | - | 1 | 9 | 7 | - | 3 |
| **103** | Cook Inlet 3-Harbor Porpoise | 21 | 24 | 5 | 17 | 1 | 7 | 26 | 22 | 2 | 14 |
| **104** | Cook Inlet 4-Harbor Porpoise | 19 | 21 | 27 | 24 | 6 | 20 | 23 | 22 | 16 | 21 |
| **105** | Cook Inlet 5-Harbor Porpoise | 12 | 14 | 23 | 17 | 23 | 16 | 15 | 15 | 25 | 16 |
| **108** | Shelikof-Killer Whale | 6 | 8 | 11 | 10 | 13 | 12 | 8 | 8 | 13 | 10 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **111** | NW Afognak Is IBA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **134** | Kiukpalik Is Colony | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **135** | Shaw Is Colony | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **136** | Kamishak Bay IBA | 6 | 7 | 11 | 9 | 17 | 10 | 7 | 8 | 15 | 9 |
| **137** | Kamishak Bay STEI Habitat | 5 | 6 | 10 | 9 | 17 | 10 | 6 | 8 | 14 | 9 |
| **138** | Tuxedni Is Colony IBA | 13 | 8 | - | 2 | - | 1 | 10 | 4 | - | 2 |
| **139** | Tuxedni Bay IBA | 24 | 16 | 1 | 3 | - | 1 | 19 | 8 | - | 3 |
| **140** | Redoubt Bay IBA | 11 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 6 | 1 | 5 | - | 2 | 10 | 14 | - | 4 |
| **145** | Outer Kachemak Bay/IBA | 17 | 37 | 19 | 83 | 11 | 76 | 27 | 63 | 14 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 14 | 18 | 32 | 31 | 34 | 40 | 18 | 24 | 38 | 32 |
| **147** | Barren Islands Marine IBA | 3 | 3 | 4 | 3 | 5 | 4 | 3 | 3 | 5 | 3 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **148** | Barren Islands Colonies IBA | 2 | 2 | 4 | 3 | 5 | 4 | 3 | 2 | 5 | 3 |
| **151** | Gulf of AK Shelf 151W58N IBA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 89 | 65 | 8 | 19 | 1 | 6 | 83 | 37 | 2 | 16 |
| **154** | Chinitna Bay | 17 | 15 | 20 | 14 | 1 | 7 | 18 | 15 | 6 | 12 |
| **155** | Barren Islands | 6 | 6 | 9 | 9 | 10 | 12 | 7 | 7 | 10 | 10 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

Tables A.2-6 through A.2-10 represent annual conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain LS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-6. Conditional probability of a large oil spill contacting an LS in 1 day (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **29** | Augustine Island | - | - | - | - | 4 | - | - | - | 3 | - |
| **30** | Rocky Cove, Tignagvik Point | - | - | - | - | 1 | - | - | - | - | - |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | - | - | - | - | 3 | - | - | - | 1 | - |
| **32** | Chinitna Point, Dry Bay | - | - | 4 | - | 3 | - | - | - | 3 | - |
| **33** | Chinitna Bay | 2 | - | 9 | - | - | - | 1 | - | 2 | - |
| **34** | Iliamna Point | 3 | - | - | - | - | - | 2 | - | - | - |
| **35** | Chisik Island, Tuxedni Bay | 9 | 2 | - | - | - | - | 4 | - | - | - |
| **36** | Redoubt Point | 8 | 1 | - | - | - | - | 1 | - | - | - |
| **37** | Drift River, Drift River Terminal | 1 | - | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 1 | 2 | - | - | - | - | - | - | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | - | - | - | - | - | 1 | - | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 1 | - | 1 | - | - | - | 5 | - | - |
| **61** | Barabara Point, Seldovia Bay | - | - | - | - | - | 1 | - | - | - | - |
| **62** | Nanwalek, Port Graham | - | - | - | - | - | 1 | - | - | - | 1 |

**Table A.2-7. Conditional probability of a large oil spill contacting an LS in 3 days (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | Spotted Glacier, Sukoi Bay | - | - | - | - | 1 | - | - | - | 1 | - |
| **26** | Douglas River | - | - | - | - | 1 | - | - | - | 1 | - |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | - | - | - | - | 1 | - | - | - | 1 | - |
| **29** | Augustine Island | 1 | - | 5 | 1 | 11 | 2 | 1 | 1 | 9 | 1 |
| **30** | Rocky Cove, Tignagvik Point | - | - | 3 | 1 | 7 | 1 | - | - | 5 | - |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 1 | - | 4 | 1 | 10 | 2 | 1 | 1 | 7 | 1 |
| **32** | Chinitna Point, Dry Bay | 3 | 2 | 10 | 3 | 6 | 3 | 2 | 3 | 7 | 3 |
| **33** | Chinitna Bay | 10 | 6 | 15 | 7 | 1 | 2 | 9 | 7 | 5 | 5 |
| **34** | Iliamna Point | 5 | 4 | 1 | 1 | - | - | 5 | 2 | - | 1 |
| **35** | Chisik Island, Tuxedni Bay | 14 | 9 | - | 1 | - | - | 10 | 3 | - | 1 |
| **36** | Redoubt Point | 14 | 5 | - | - | - | - | 3 | 1 | - | - |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 2 | 3 | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 3 | - | 3 | - | - | 1 | 7 | - | 2 |
| **57** | Anchor Point, Anchor River | - | - | - | 1 | - | 1 | - | 1 | - | 1 |
| **60** | China Poot Bay, Gull Island | - | - | - | - | - | 1 | - | - | - | - |
| **61** | Barabara Point, Seldovia Bay | - | - | - | 2 | - | 3 | - | 1 | - | 2 |
| **62** | Nanwalek, Port Graham | - | - | 1 | 1 | - | 5 | - | - | - | 3 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | - | - | - | 1 | - | - | - | - |

**Table A.2-8. Conditional probability of a large oil spill contacting an LS in 10 days (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **26** | Douglas River | 1 | 1 | 2 | 2 | 4 | 2 | 2 | 2 | 3 | 2 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 1 | 1 | 3 | 2 | 5 | 3 | 1 | 2 | 4 | 2 |
| **29** | Augustine Island | 4 | 4 | 8 | 6 | 14 | 6 | 5 | 5 | 13 | 6 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 3 | 6 | 4 | 10 | 5 | 3 | 4 | 8 | 4 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 3 | 7 | 5 | 12 | 6 | 4 | 4 | 9 | 5 |
| **32** | Chinitna Point, Dry Bay | 5 | 5 | 11 | 7 | 7 | 6 | 5 | 6 | 8 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 17 | 12 | 1 | 6 | 14 | 13 | 6 | 10 |
| **34** | Iliamna Point | 6 | 5 | 1 | 2 | - | 1 | 7 | 4 | - | 2 |
| **35** | Chisik Island, Tuxedni Bay | 15 | 11 | - | 2 | - | 1 | 12 | 5 | - | 2 |
| **36** | Redoubt Point | 15 | 6 | - | 1 | - | - | 4 | 2 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 3 | 3 | - | - | - | - | 1 | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 4 | - | 4 | - | 1 | 2 | 8 | - | 3 |
| **57** | Anchor Point, Anchor River | - | 1 | - | 2 | - | 2 | 1 | 1 | - | 2 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | 1 | 5 | 1 | 2 | 1 | 4 |
| **62** | Nanwalek, Port Graham | 1 | 1 | 2 | 4 | 2 | 7 | 1 | 2 | 2 | 5 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | 1 | 1 | 1 | 2 | - | 1 | 1 | 1 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **80** | Amatuli Cove, East & West Amatuli Island | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 1 |
| **83** | Foul Bay, Paramanof Bay | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 3 | 2 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **85** | Kupreanof Strait, Viekoda Bay | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |

## Table A.2-9. Conditional probability of a large oil spill contacting an LS in 30 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | Amalik, Dakavak & Kinak Bays, Cape Iiktugitak, Takli Island | - | - | - | - | 1 | - | - | - | - | - |
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 4 | 3 | 4 | 4 | 3 | 3 | 4 | 3 |
| **26** | Douglas River | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **29** | Augustine Island | 4 | 5 | 9 | 7 | 14 | 7 | 6 | 6 | 13 | 7 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 7 | 5 | 10 | 6 | 4 | 4 | 9 | 5 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 4 | 8 | 6 | 12 | 6 | 5 | 5 | 10 | 6 |
| **32** | Chinitna Point, Dry Bay | 5 | 6 | 12 | 8 | 7 | 7 | 6 | 7 | 9 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 17 | 13 | 1 | 6 | 15 | 13 | 6 | 11 |
| **34** | Iliamna Point | 6 | 5 | 1 | 2 | - | 1 | 7 | 4 | - | 2 |
| **35** | Chisik Island, Tuxedni Bay | 15 | 11 | - | 2 | - | 1 | 12 | 5 | - | 2 |
| **36** | Redoubt Point | 15 | 6 | - | 1 | - | - | 4 | 3 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 2 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 3 | 3 | - | - | - | - | 1 | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **54** | Clam Gulch, Kasilof | - | 3 | - | 1 | - | - | 3 | 2 | - | 1 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 4 | 1 | 4 | - | 2 | 2 | 8 | - | 3 |
| **57** | Anchor Point, Anchor River | - | 1 | 1 | 2 | - | 2 | 1 | 1 | - | 2 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | 1 | 5 | 1 | 2 | 1 | 4 |
| **62** | Nanwalek, Port Graham | 2 | 2 | 3 | 4 | 2 | 8 | 2 | 2 | 2 | 6 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 |
| **83** | Foul Bay, Paramanof Bay | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 3 | 3 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **85** | Kupreanof Strait, Viekoda Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **88** | Karluk Lagoon, Northeast Harbor, Karluk | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |

## Table A.2-10. Conditional probability of a large oil spill contacting an LS in 110 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | Amalik, Dakavak & Kinak Bays, Cape Iiktugitak, Takli Island | - | - | - | - | 1 | - | - | - | 1 | - |
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 4 | 3 | 5 | 4 | 3 | 3 | 4 | 3 |
| **26** | Douglas River | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **29** | Augustine Island | 4 | 5 | 9 | 7 | 14 | 7 | 6 | 6 | 13 | 7 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 7 | 5 | 10 | 6 | 4 | 4 | 9 | 5 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 4 | 8 | 6 | 12 | 6 | 5 | 5 | 10 | 6 |
| **32** | Chinitna Point, Dry Bay | 5 | 6 | 12 | 8 | 7 | 7 | 6 | 7 | 9 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 17 | 13 | 1 | 6 | 15 | 13 | 6 | 11 |
| **34** | Iliamna Point | 6 | 5 | 1 | 2 | - | 1 | 7 | 4 | - | 2 |
| **35** | Chisik Island, Tuxedni Bay | 15 | 11 | - | 2 | - | 1 | 12 | 5 | - | 2 |
| **36** | Redoubt Point | 15 | 6 | - | 1 | - | - | 4 | 3 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 2 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 3 | 3 | - | - | - | - | 1 | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 3 | - | 1 | - | - | 3 | 2 | - | 1 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 4 | 1 | 4 | - | 2 | 2 | 8 | - | 3 |
| **57** | Anchor Point, Anchor River | - | 1 | 1 | 2 | - | 2 | 1 | 1 | - | 2 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | 1 | 5 | 1 | 2 | 1 | 4 |
| **62** | Nanwalek, Port Graham | 2 | 2 | 3 | 4 | 2 | 8 | 2 | 3 | 2 | 6 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **81** | Shuyak Island | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 |
| **83** | Foul Bay, Paramanof Bay | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 3 | 3 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **85** | Kupreanof Strait, Viekoda Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **88** | Karluk Lagoon, Northeast Harbor, Karluk | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |

Tables A.2-11 through A.2-15 represent annual conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a GLS in 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-11. Conditional probability of a large oil spill contacting a GLS in 1 day (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **127** | AMNWR W Cook Inlet | 19 | 3 | 13 | - | 10 | - | 6 | - | 9 | - |
| **128** | Lake Clark National Park and Preserve | 22 | 3 | 9 | - | - | - | 8 | - | 2 | - |
| **129** | Redoubt Bay Brown Bears | 2 | 2 | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | - | 2 | - | 1 | - | 1 | 2 | 6 | - | 1 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 3 | - | - |
| **137** | West Kenai Moose | - | - | - | - | - | - | 1 | - | - | - |
| **138** | Clam Gulch Critical Habitat | - | 2 | - | 1 | - | - | 2 | 5 | - | - |
| **140** | West Kenai Black Bears | - | - | - | - | - | 1 | - | - | - | - |
| **141** | Seldovia side Kachemak Bay | - | - | - | - | - | 2 | - | - | - | 1 |
| **142** | AMNWR E Cook Inlet | - | - | - | - | - | 2 | - | - | - | 1 |

**Table A.2-12. Conditional probability of a large oil spill contacting a GLS in 3 days (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | - | - | 1 | - | 2 | - | - | - | 2 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | - | - | - | - | 1 | - | - | - | 1 | - |
| **127** | AMNWR W Cook Inlet | 42 | 22 | 34 | 14 | 28 | 9 | 25 | 15 | 29 | 11 |
| **128** | Lake Clark National Park and Preserve | 43 | 23 | 16 | 9 | 1 | 2 | 27 | 13 | 5 | 7 |
| **129** | Redoubt Bay Brown Bears | 4 | 2 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 1 | 6 | - | 7 | - | 5 | 5 | 11 | - | 6 |
| **136** | West Kenai Brown Bears | - | 3 | - | 3 | - | 1 | 3 | 6 | - | 2 |
| **137** | West Kenai Moose | - | 2 | - | - | - | - | 2 | 1 | - | - |
| **138** | Clam Gulch Critical Habitat | 1 | 5 | - | 3 | - | - | 5 | 10 | - | 2 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | - | - | 1 | - | - | - | - |
| **140** | West Kenai Black Bears | - | - | - | 2 | - | 4 | - | - | - | 3 |
| **141** | Seldovia side Kachemak Bay | - | - | 1 | 4 | - | 8 | - | 1 | 1 | 6 |
| **142** | AMNWR E Cook Inlet | - | - | 1 | 4 | - | 8 | - | 1 | 1 | 6 |
| **143** | AMNWR W Outer Kenai/GOA | - | - | - | - | - | 1 | - | - | - | - |
| **152** | Barren Islands | - | - | - | - | - | 1 | - | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

## Table A.2-13. Conditional probability of a large oil spill contacting a GLS in 10 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | 5 | 5 | 11 | 8 | 15 | 10 | 6 | 6 | 14 | 8 |
| **124** | Kukak Bay | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **125** | Spring Bear Concentration-1 | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 2 | 4 | 3 | 6 | 3 | 2 | 2 | 5 | 3 |
| **127** | AMNWR W Cook Inlet | 56 | 44 | 48 | 36 | 39 | 28 | 46 | 38 | 41 | 33 |
| **128** | Lake Clark National Park and Preserve | 49 | 34 | 18 | 17 | 1 | 7 | 37 | 24 | 6 | 14 |
| **129** | Redoubt Bay Brown Bears | 5 | 3 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 3 | 10 | 3 | 14 | 1 | 12 | 10 | 16 | 2 | 13 |
| **136** | West Kenai Brown Bears | 1 | 5 | 1 | 6 | 1 | 4 | 4 | 9 | 1 | 5 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 1 | 8 | 1 | 6 | - | 2 | 7 | 13 | - | 5 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **140** | West Kenai Black Bears | 1 | 1 | 2 | 4 | 2 | 7 | 1 | 2 | 2 | 5 |
| **141** | Seldovia side Kachemak Bay | 2 | 3 | 4 | 9 | 2 | 13 | 3 | 4 | 3 | 10 |
| **142** | AMNWR E Cook Inlet | 2 | 3 | 4 | 8 | 2 | 13 | 3 | 4 | 3 | 10 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | - | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **152** | Barren Islands | 1 | 1 | 2 | 2 | 3 | 3 | 1 | 1 | 3 | 2 |
| **153** | Shuyak Island State Park | 2 | 1 | 3 | 2 | 5 | 4 | 2 | 2 | 4 | 3 |
| **154** | AMNWR Afognak and Shuyak Islands | 3 | 3 | 6 | 5 | 9 | 7 | 3 | 3 | 9 | 5 |
| **155** | Afognak & Raspberry Winter Elk | 1 | 1 | 2 | 2 | 3 | 4 | 1 | 2 | 3 | 3 |
| **156** | Kodiak National Wildlife Refuge | 4 | 4 | 8 | 6 | 11 | 8 | 4 | 4 | 10 | 7 |
| **157** | Afognak Blacktail Deer | 1 | 1 | 2 | 2 | 3 | 3 | 1 | 1 | 3 | 2 |
| **158** | AMNWR W Kodiak/Shelikof | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **159** | Kupreanof Strait | - | - | - | - | 1 | 1 | - | - | 1 | - |

## Table A.2-14. Conditional probability of a large oil spill contacting a GLS in 30 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **113** | Alaska Peninsula National Wildlife Refuge | - | - | - | - | - | - | - | - | 1 | - |
| **114** | AMNWR SW Shelikof/GOA | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **116** | SUA: Chignik Chignik Lagoon | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **122** | Becharof National Wildlife Refuge | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **123** | Katmai National Park | 7 | 9 | 14 | 12 | 18 | 14 | 9 | 10 | 17 | 12 |
| **124** | Kukak Bay | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 3 | 4 | 4 | 7 | 5 | 2 | 3 | 6 | 4 |
| **127** | AMNWR W Cook Inlet | 58 | 48 | 50 | 40 | 41 | 32 | 49 | 42 | 43 | 37 |
| **128** | Lake Clark National Park and Preserve | 49 | 35 | 18 | 18 | 2 | 8 | 38 | 25 | 7 | 15 |
| **129** | Redoubt Bay Brown Bears | 5 | 3 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 4 | 11 | 3 | 15 | 2 | 12 | 10 | 17 | 2 | 14 |
| **136** | West Kenai Brown Bears | 1 | 6 | 1 | 6 | 1 | 4 | 5 | 9 | 1 | 6 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 2 | 8 | 1 | 6 | - | 2 | 8 | 13 | 1 | 5 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | 1 | 1 | - | 2 | 1 | 1 | 1 | 1 |
| **140** | West Kenai Black Bears | 2 | 2 | 2 | 4 | 2 | 8 | 2 | 2 | 2 | 6 |
| **141** | Seldovia side Kachemak Bay | 3 | 3 | 4 | 9 | 3 | 14 | 4 | 5 | 3 | 11 |
| **142** | AMNWR E Cook Inlet | 3 | 3 | 4 | 9 | 3 | 14 | 4 | 5 | 3 | 11 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 |
| **152** | Barren Islands | 2 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |
| **153** | Shuyak Island State Park | 3 | 3 | 4 | 4 | 6 | 5 | 3 | 3 | 5 | 4 |
| **154** | AMNWR Afognak and Shuyak Islands | 5 | 6 | 9 | 8 | 12 | 11 | 7 | 7 | 11 | 9 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **155** | Afognak & Raspberry Winter Elk | 2 | 2 | 3 | 4 | 4 | 5 | 2 | 3 | 4 | 4 |
| **156** | Kodiak National Wildlife Refuge | 7 | 9 | 13 | 12 | 16 | 15 | 9 | 10 | 15 | 13 |
| **157** | Afognak Blacktail Deer | 1 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |
| **158** | AMNWR W Kodiak/Shelikof | 2 | 2 | 3 | 3 | 4 | 4 | 2 | 3 | 4 | 3 |
| **159** | Kupreanof Strait | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **161** | AMNWR E Kodiak/GOA | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **164** | Afognak Island State Park | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |

## Table A.2-15. Conditional probability of a large oil spill contacting a GLS in 110 days (annual timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **113** | Alaska Peninsula National Wildlife Refuge | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **114** | AMNWR SW Shelikof/GOA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **116** | SUA: Chignik Chignik Lagoon | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **122** | Becharof National Wildlife Refuge | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **123** | Katmai National Park | 8 | 9 | 14 | 12 | 18 | 14 | 10 | 10 | 17 | 12 |
| **124** | Kukak Bay | 1 | 2 | 3 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 3 | 4 | 4 | 7 | 5 | 2 | 3 | 6 | 4 |
| **127** | AMNWR W Cook Inlet | 58 | 48 | 50 | 40 | 41 | 32 | 49 | 42 | 43 | 37 |
| **128** | Lake Clark National Park and Preserve | 49 | 35 | 18 | 18 | 2 | 8 | 38 | 25 | 7 | 15 |
| **129** | Redoubt Bay Brown Bears | 5 | 3 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 4 | 11 | 3 | 15 | 2 | 12 | 10 | 17 | 2 | 14 |
| **136** | West Kenai Brown Bears | 1 | 6 | 1 | 6 | 1 | 4 | 5 | 9 | 1 | 6 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 2 | 8 | 1 | 6 | - | 2 | 8 | 13 | 1 | 5 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **140** | West Kenai Black Bears | 2 | 2 | 2 | 4 | 2 | 8 | 2 | 2 | 2 | 6 |
| **141** | Seldovia side Kachemak Bay | 3 | 3 | 4 | 9 | 3 | 14 | 4 | 5 | 3 | 11 |
| **142** | AMNWR E Cook Inlet | 3 | 3 | 4 | 9 | 3 | 14 | 4 | 5 | 3 | 11 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **152** | Barren Islands | 2 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |
| **153** | Shuyak Island State Park | 3 | 3 | 4 | 4 | 6 | 5 | 3 | 3 | 5 | 4 |
| **154** | AMNWR Afognak and Shuyak Islands | 5 | 6 | 9 | 9 | 12 | 11 | 7 | 7 | 11 | 9 |
| **155** | Afognak & Raspberry Winter Elk | 2 | 2 | 3 | 4 | 4 | 5 | 2 | 3 | 4 | 4 |
| **156** | Kodiak National Wildlife Refuge | 8 | 9 | 13 | 12 | 16 | 15 | 10 | 10 | 16 | 13 |
| **157** | Afognak Blacktail Deer | 1 | 2 | 3 | 3 | 3 | 4 | 2 | 2 | 3 | 3 |
| **158** | AMNWR W Kodiak/Shelikof | 2 | 2 | 3 | 3 | 4 | 4 | 2 | 3 | 4 | 3 |
| **159** | Kupreanof Strait | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **161** | AMNWR E Kodiak/GOA | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **164** | Afognak Island State Park | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

Tables A.2-16 through A.2-20 represent annual conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain boundary segment (BS) within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-16. Conditional probability of a large oil spill contacting a BS in 1 day (annual timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-17. Conditional probability of a large oil spill contacting a BS in 3 days (annual timeframe).**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-18. Conditional probability of a large oil spill contacting a BS in 10 days (annual timeframe).**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-19. Conditional probability of a large oil spill contacting a BS in 30 days (annual timeframe).**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-20. Conditional probability of a large oil spill contacting a BS in 110 days (annual timeframe).**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4** | Gulf of Alaska | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |

Tables A.2-21 through A.2-25 represent summer conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain ERA within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-21. Conditional probability of a large oil spill contacting an ERA in 1 day (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 20 | 7 | 11 | 2 | 7 | 2 | 8 | 7 | 6 | 1 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 20 | 2 | - | - | - | - | 2 | - | - | - |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | - | - | - | 1 | - | 10 | - | - | - | 4 |
| **11** | Augustine | 2 | - | 19 | 1 | 44 | 1 | - | 1 | 28 | - |
| **12** | South Cook HS 1a | 51 | 27 | 85 | 47 | 4 | 13 | 45 | 35 | 43 | 26 |
| **13** | South Cook HS 1b | 16 | 3 | 80 | 15 | 86 | 20 | 10 | 9 | 95 | 8 |
| **14** | South Cook HS 1c | - | - | 15 | - | 47 | 2 | - | - | 40 | - |
| **15** | South Cook HS 1d | - | - | - | - | 5 | - | - | - | 4 | - |
| **17** | Clam Gulch HS | 1 | 51 | - | 6 | - | - | 32 | 40 | - | 2 |
| **18** | Tuxedni HS | 40 | 16 | - | - | - | - | 30 | 1 | - | - |
| **19** | Kalgin Island HS | 21 | 14 | - | - | - | - | 4 | - | - | - |
| **20** | Redoubt Bay HS | 9 | 1 | - | - | - | - | - | - | - | - |
| **45** | Clam Gulch | - | 12 | - | 6 | - | - | 16 | 40 | - | 2 |
| **46** | Outer Kachemak Bay | - | 5 | 1 | 38 | - | 41 | 1 | 19 | - | 34 |
| **47** | SW Cook Inlet | 43 | 10 | 27 | 2 | 6 | - | 27 | 3 | 8 | 1 |
| **48** | Kamishak Bay | - | - | 4 | - | 19 | - | - | - | 11 | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **68** | Kenai Fjords-West | - | - | - | - | - | 1 | - | - | - | 1 |
| **70** | Forelands-Beluga CH | 1 | - | - | - | - | - | - | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 30 | 30 | - | - | - | - | 21 | 5 | - | - |
| **72** | West Cook Inlet-Beluga CH | 27 | 6 | 24 | 1 | 13 | - | 16 | 2 | 11 | - |
| **75** | Kachemak-Humpback Whale | - | - | 1 | - | 3 | 5 | - | - | 2 | 3 |
| **90** | Barren Islands-Fin Whale | - | - | - | - | 2 | 1 | - | - | 2 | - |
| **94** | Lower E Kenai-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **95** | NE Kodiak-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **101** | Cook Inlet 1-Harbor Porpoise | 8 | 1 | - | - | - | - | - | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 20 | 20 | - | - | - | - | 14 | 4 | - | - |
| **103** | Cook Inlet 3-Harbor Porpoise | 36 | 25 | 7 | 18 | - | - | 38 | 22 | 1 | 10 |
| **104** | Cook Inlet 4-Harbor Porpoise | 18 | 3 | 50 | 15 | 4 | 17 | 12 | 9 | 28 | 8 |
| **105** | Cook Inlet 5-Harbor Porpoise | 2 | - | 27 | 1 | 38 | 2 | - | 1 | 40 | - |
| **136** | Kamishak Bay IBA | - | - | 4 | - | 18 | - | - | - | 13 | - |
| **137** | Kamishak Bay STEI Habitat | - | - | - | - | 1 | - | - | - | - | - |
| **138** | Tuxedni Is Colony IBA | 23 | 6 | - | - | - | - | 14 | - | - | - |
| **139** | Tuxedni Bay IBA | 12 | 3 | - | - | - | - | 9 | - | - | - |
| **140** | Redoubt Bay IBA | 7 | 1 | - | - | - | - | - | - | - | - |
| **144** | Clam Gulch STEI Habitat | - | 1 | - | 1 | - | - | 3 | 4 | - | - |
| **145** | Outer Kachemak Bay/IBA | 4 | 20 | 5 | 77 | 2 | 67 | 8 | 48 | 2 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | - | - | 8 | 3 | 11 | 10 | - | 1 | 11 | 3 |
| **153** | Polly Creek Beach | 87 | 37 | 8 | 5 | - | - | 63 | 11 | - | 2 |
| **154** | Chinitna Bay | 6 | - | 13 | 1 | - | - | 3 | 1 | 2 | - |

## Table A.2-22. Conditional probability of a large oil spill contacting an ERA in 3 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 50 | 31 | 32 | 23 | 31 | 20 | 33 | 28 | 29 | 21 |
| **2** | SUA: Tyonek North | 1 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 27 | 8 | - | - | - | - | 6 | 2 | - | - |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 1 | 1 | 3 | 8 | 3 | 22 | 1 | 2 | 2 | 14 |
| **11** | Augustine | 12 | 8 | 35 | 15 | 57 | 15 | 11 | 11 | 43 | 13 |
| **12** | South Cook HS 1a | 60 | 54 | 85 | 64 | 7 | 32 | 65 | 57 | 44 | 47 |
| **13** | South Cook HS 1b | 38 | 30 | 86 | 43 | 87 | 40 | 39 | 33 | 96 | 36 |
| **14** | South Cook HS 1c | 14 | 8 | 38 | 13 | 59 | 17 | 13 | 9 | 57 | 11 |
| **15** | South Cook HS 1d | 3 | 1 | 13 | 3 | 26 | 4 | 2 | 2 | 23 | 2 |
| **16** | Inner Kachemak Bay | - | - | - | 3 | - | 5 | - | - | - | 3 |
| **17** | Clam Gulch HS | 3 | 55 | - | 13 | - | 2 | 35 | 45 | - | 9 |
| **18** | Tuxedni HS | 43 | 27 | 1 | 2 | - | - | 38 | 9 | - | 2 |
| **19** | Kalgin Island HS | 23 | 20 | - | 1 | - | - | 9 | 5 | - | - |
| **20** | Redoubt Bay HS | 12 | 2 | - | - | - | - | 1 | - | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | - | - | 2 | 1 | 4 | 4 | - | - | 3 | 2 |
| **24** | Shelikof MM 2 | - | - | 1 | - | 3 | - | - | - | 2 | - |
| **37** | Port Chatham Pinniped | - | - | - | - | - | 1 | - | - | 1 | 1 |
| **45** | Clam Gulch | 2 | 19 | - | 13 | - | 2 | 20 | 45 | - | 9 |
| **46** | Outer Kachemak Bay | 4 | 10 | 6 | 46 | 4 | 52 | 6 | 25 | 4 | 44 |
| **47** | SW Cook Inlet | 55 | 32 | 35 | 16 | 9 | 7 | 45 | 21 | 14 | 12 |
| **48** | Kamishak Bay | 5 | 3 | 19 | 7 | 39 | 8 | 4 | 5 | 31 | 6 |
| **49** | Katmai NP | - | - | - | - | 1 | - | - | - | 1 | - |
| **68** | Kenai Fjords-West | - | - | 1 | 1 | 1 | 5 | - | - | 1 | 3 |
| **70** | Forelands-Beluga CH | 2 | - | - | - | - | - | - | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 32 | 39 | - | 3 | - | - | 27 | 18 | - | 2 |
| **72** | West Cook Inlet-Beluga CH | 42 | 26 | 39 | 17 | 28 | 9 | 36 | 19 | 27 | 13 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **75** | Kachemak-Humpback Whale | 4 | 1 | 13 | 4 | 16 | 14 | 3 | 2 | 16 | 8 |
| **77** | N Kodiak-Humpback Whale | - | - | - | - | 1 | - | - | - | 1 | - |
| **80** | Shelikof MM 1 | 1 | - | 6 | 1 | 14 | 1 | 1 | 1 | 13 | - |
| **81** | Shelikof MM 1a | 1 | - | 5 | - | 9 | - | - | - | 9 | - |
| **82** | Shelikof MM 2a | - | - | - | - | 2 | - | - | - | 2 | - |
| **90** | Barren Islands-Fin Whale | 3 | 1 | 11 | 3 | 18 | 8 | 2 | 1 | 17 | 4 |
| **94** | Lower E Kenai-Gray Whale | - | - | 1 | 1 | 1 | 4 | - | - | 1 | 2 |
| **95** | NE Kodiak-Gray Whale | - | - | 1 | 1 | 2 | 4 | - | - | 1 | 2 |
| **98** | Shelikof-Gray Whale | - | - | - | - | 1 | - | - | - | 1 | - |
| **101** | Cook Inlet 1-Harbor Porpoise | 11 | 2 | - | - | - | - | 1 | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 21 | 25 | - | 2 | - | - | 17 | 12 | - | 1 |
| **103** | Cook Inlet 3-Harbor Porpoise | 40 | 40 | 8 | 27 | - | 5 | 48 | 35 | 1 | 19 |
| **104** | Cook Inlet 4-Harbor Porpoise | 34 | 28 | 52 | 35 | 7 | 28 | 36 | 28 | 29 | 27 |
| **105** | Cook Inlet 5-Harbor Porpoise | 17 | 12 | 41 | 18 | 42 | 14 | 17 | 14 | 46 | 14 |
| **135** | Shaw Is Colony | - | - | 1 | - | 2 | - | - | - | 2 | - |
| **136** | Kamishak Bay IBA | 4 | 3 | 13 | 5 | 27 | 6 | 4 | 4 | 22 | 5 |
| **137** | Kamishak Bay STEI Habitat | - | - | 1 | - | 3 | - | - | - | 2 | - |
| **138** | Tuxedni Is Colony IBA | 25 | 12 | - | 1 | - | - | 18 | 4 | - | 1 |
| **139** | Tuxedni Bay IBA | 15 | 9 | - | 1 | - | - | 12 | 3 | - | 1 |
| **140** | Redoubt Bay IBA | 13 | 2 | - | - | - | - | 1 | - | - | - |
| **144** | Clam Gulch STEI Habitat | - | 2 | - | 2 | - | - | 3 | 5 | - | 1 |
| **145** | Outer Kachemak Bay/IBA | 12 | 29 | 16 | 81 | 10 | 76 | 19 | 54 | 11 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 2 | 2 | 9 | 6 | 11 | 11 | 2 | 3 | 12 | 7 |
| **147** | Barren Islands Marine IBA | - | - | 2 | - | 2 | 2 | - | - | 2 | 1 |
| **148** | Barren Islands Colonies IBA | - | - | 2 | - | 2 | 1 | - | - | 2 | 1 |
| **153** | Polly Creek Beach | 88 | 55 | 9 | 13 | - | 1 | 75 | 29 | 1 | 9 |
| **154** | Chinitna Bay | 14 | 8 | 16 | 7 | - | 2 | 12 | 7 | 4 | 5 |
| **155** | Barren Islands | 1 | - | 2 | 1 | 4 | 3 | - | - | 3 | 1 |

## Table A.2-23. Conditional probability of a large oil spill contacting an ERA in 10 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 81 | 74 | 75 | 71 | 75 | 68 | 74 | 72 | 74 | 70 |
| **2** | SUA: Tyonek North | 2 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 28 | 11 | - | 1 | - | - | 8 | 4 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 6 | 6 | 11 | 16 | 10 | 32 | 8 | 8 | 10 | 22 |
| **5** | SUA: Port Lions | 3 | 3 | 6 | 3 | 10 | 3 | 3 | 3 | 9 | 3 |
| **6** | SUA: Ouzinke | 2 | 1 | 3 | 2 | 6 | 2 | 2 | 1 | 5 | 1 |
| **11** | Augustine | 23 | 25 | 48 | 34 | 67 | 35 | 27 | 29 | 55 | 33 |
| **12** | South Cook HS 1a | 62 | 66 | 86 | 75 | 11 | 47 | 73 | 70 | 46 | 62 |
| **13** | South Cook HS 1b | 46 | 49 | 88 | 60 | 87 | 58 | 54 | 53 | 97 | 56 |
| **14** | South Cook HS 1c | 26 | 27 | 49 | 33 | 64 | 36 | 30 | 28 | 63 | 31 |
| **15** | South Cook HS 1d | 15 | 15 | 29 | 19 | 40 | 21 | 17 | 16 | 38 | 18 |
| **16** | Inner Kachemak Bay | 1 | 1 | 2 | 5 | 1 | 9 | 1 | 1 | 1 | 6 |
| **17** | Clam Gulch HS | 5 | 56 | 2 | 17 | 1 | 6 | 37 | 47 | 1 | 14 |
| **18** | Tuxedni HS | 44 | 33 | 1 | 6 | - | 2 | 42 | 16 | - | 5 |
| **19** | Kalgin Island HS | 24 | 23 | - | 3 | - | 1 | 12 | 8 | - | 2 |
| **20** | Redoubt Bay HS | 13 | 3 | - | - | - | - | 2 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 6 | 5 | 11 | 7 | 13 | 10 | 6 | 5 | 13 | 8 |
| **24** | Shelikof MM 2 | 5 | 5 | 12 | 7 | 17 | 8 | 6 | 6 | 16 | 7 |
| **25** | Shelikof MM 3 | 2 | 2 | 5 | 2 | 7 | 3 | 2 | 2 | 7 | 2 |
| **26** | Shelikof MM 4 | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 3 | 1 |
| **27** | Shelikof MM 5 | - | - | 1 | - | 2 | - | - | - | 1 | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **28** | Shelikof MM 6 | - | - | - | - | 1 | - | - | - | 1 | - |
| **31** | Kodiak Pinniped 1 | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **37** | Port Chatham Pinniped | 2 | 1 | 3 | 2 | 4 | 3 | 2 | 1 | 4 | 2 |
| **45** | Clam Gulch | 4 | 23 | 2 | 18 | 1 | 7 | 23 | 48 | 1 | 14 |
| **46** | Outer Kachemak Bay | 10 | 18 | 14 | 52 | 10 | 58 | 14 | 31 | 11 | 50 |
| **47** | SW Cook Inlet | 60 | 47 | 39 | 31 | 11 | 17 | 56 | 37 | 17 | 26 |
| **48** | Kamishak Bay | 16 | 18 | 35 | 25 | 53 | 28 | 19 | 21 | 45 | 26 |
| **49** | Katmai NP | 3 | 3 | 7 | 4 | 9 | 4 | 3 | 3 | 9 | 3 |
| **50** | Becharof NWR | - | - | - | - | 1 | - | - | - | - | - |
| **60** | Kodiak NWR-West | - | - | 1 | - | 2 | - | - | - | 1 | - |
| **64** | Afognak-West | 1 | 1 | 3 | 1 | 4 | 1 | 1 | 1 | 4 | 1 |
| **67** | Shuyak | 2 | 1 | 4 | 2 | 5 | 2 | 2 | 1 | 5 | 2 |
| **68** | Kenai Fjords-West | 3 | 2 | 5 | 4 | 5 | 8 | 3 | 3 | 5 | 6 |
| **70** | Forelands-Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 33 | 42 | 1 | 8 | - | 2 | 29 | 22 | - | 6 |
| **72** | West Cook Inlet-Beluga CH | 52 | 47 | 51 | 40 | 39 | 30 | 54 | 42 | 39 | 36 |
| **73** | NPRW Feeding Area | - | - | - | - | 1 | - | - | - | - | - |
| **75** | Kachemak-Humpback Whale | 13 | 13 | 23 | 16 | 25 | 24 | 15 | 13 | 26 | 19 |
| **76** | Shelikof-Humpback Whale | 1 | 1 | 3 | 1 | 4 | 1 | 1 | 1 | 4 | 1 |
| **77** | N Kodiak-Humpback Whale | 4 | 4 | 8 | 4 | 11 | 5 | 4 | 4 | 11 | 4 |
| **78** | E Kodiak-Humpback Whale | 1 | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **80** | Shelikof MM 1 | 12 | 11 | 24 | 15 | 32 | 17 | 13 | 12 | 31 | 14 |
| **81** | Shelikof MM 1a | 7 | 7 | 14 | 8 | 18 | 7 | 8 | 7 | 18 | 7 |
| **82** | Shelikof MM 2a | 3 | 3 | 7 | 3 | 9 | 3 | 4 | 3 | 9 | 3 |
| **83** | Shelikof MM 3a | 1 | 1 | 3 | 1 | 4 | 1 | 1 | 1 | 4 | 1 |
| **84** | Shelikof MM 4a | - | - | 1 | - | 2 | - | - | - | 2 | - |
| **85** | Shelikof MM 5a | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **90** | Barren Islands-Fin Whale | 14 | 13 | 26 | 17 | 31 | 22 | 15 | 13 | 31 | 18 |
| **91** | NE Kodiak-Fin Whale | 1 | 1 | 3 | 1 | 3 | 2 | 1 | 1 | 3 | 1 |
| **94** | Lower E Kenai-Gray Whale | 3 | 3 | 5 | 4 | 5 | 8 | 3 | 3 | 6 | 5 |
| **95** | NE Kodiak-Gray Whale | 4 | 4 | 8 | 5 | 8 | 9 | 4 | 4 | 8 | 7 |
| **98** | Shelikof-Gray Whale | 3 | 3 | 7 | 3 | 10 | 4 | 3 | 3 | 10 | 3 |
| **101** | Cook Inlet 1-Harbor Porpoise | 11 | 2 | - | - | - | - | 1 | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 22 | 26 | - | 6 | - | 2 | 18 | 14 | - | 5 |
| **103** | Cook Inlet 3-Harbor Porpoise | 42 | 47 | 10 | 33 | 2 | 12 | 52 | 43 | 3 | 26 |
| **104** | Cook Inlet 4-Harbor Porpoise | 39 | 42 | 53 | 46 | 10 | 38 | 46 | 42 | 30 | 41 |
| **105** | Cook Inlet 5-Harbor Porpoise | 24 | 26 | 45 | 31 | 45 | 28 | 29 | 28 | 49 | 29 |
| **108** | Shelikof-Killer Whale | 3 | 2 | 7 | 3 | 10 | 4 | 3 | 3 | 9 | 3 |
| **109** | E Kodiak-Killer Whale | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **111** | NW Afognak Is IBA | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **132** | Amalik Bay Colonies IBA | - | - | - | - | 1 | - | - | - | - | - |
| **133** | Ninagiak Is Colonies | - | - | - | - | 1 | - | - | - | 1 | - |
| **134** | Kiukpalik Is Colony | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **135** | Shaw Is Colony | 2 | 2 | 4 | 3 | 6 | 3 | 2 | 2 | 6 | 2 |
| **136** | Kamishak Bay IBA | 10 | 12 | 21 | 16 | 33 | 17 | 12 | 14 | 29 | 16 |
| **137** | Kamishak Bay STEI Habitat | 1 | 1 | 2 | 1 | 5 | 2 | 1 | 1 | 4 | 2 |
| **138** | Tuxedni Is Colony IBA | 26 | 16 | - | 3 | - | 1 | 21 | 8 | - | 3 |
| **139** | Tuxedni Bay IBA | 16 | 11 | - | 2 | - | 1 | 14 | 6 | - | 2 |
| **140** | Redoubt Bay IBA | 14 | 3 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 3 | - | 3 | - | 1 | 4 | 6 | - | 2 |
| **145** | Outer Kachemak Bay/IBA | 19 | 38 | 23 | 83 | 16 | 79 | 29 | 60 | 18 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 4 | 4 | 10 | 8 | 11 | 12 | 4 | 5 | 12 | 8 |
| **147** | Barren Islands Marine IBA | 4 | 3 | 7 | 4 | 8 | 6 | 4 | 3 | 9 | 4 |
| **148** | Barren Islands Colonies IBA | 4 | 3 | 7 | 4 | 8 | 5 | 4 | 3 | 8 | 4 |
| **153** | Polly Creek Beach | 89 | 65 | 10 | 22 | 1 | 6 | 81 | 41 | 1 | 17 |
| **154** | Chinitna Bay | 17 | 15 | 18 | 13 | 1 | 5 | 18 | 14 | 5 | 10 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **155** | Barren Islands | 6 | 5 | 10 | 6 | 11 | 9 | 6 | 5 | 12 | 7 |

## Table A.2-24. Conditional probability of a large oil spill contacting an ERA in 30 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 96 | 96 | 94 | 94 | 94 | 94 | 96 | 95 | 94 | 94 |
| **2** | SUA: Tyonek North | 2 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 28 | 11 | - | 2 | - | 1 | 8 | 5 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 8 | 9 | 13 | 18 | 11 | 34 | 10 | 11 | 12 | 24 |
| **5** | SUA: Port Lions | 6 | 6 | 10 | 8 | 14 | 9 | 7 | 6 | 13 | 8 |
| **6** | SUA: Ouzinke | 4 | 4 | 6 | 5 | 8 | 6 | 4 | 4 | 8 | 5 |
| **7** | SUA: Larsen Bay | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **8** | SUA: Karluk | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **9** | SUA: Akhiok | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **11** | Augustine | 26 | 30 | 51 | 39 | 69 | 40 | 31 | 34 | 58 | 38 |
| **12** | South Cook HS 1a | 62 | 67 | 86 | 76 | 13 | 48 | 73 | 71 | 47 | 63 |
| **13** | South Cook HS 1b | 46 | 51 | 88 | 63 | 87 | 60 | 56 | 55 | 97 | 58 |
| **14** | South Cook HS 1c | 27 | 30 | 50 | 36 | 65 | 39 | 32 | 31 | 64 | 35 |
| **15** | South Cook HS 1d | 18 | 19 | 32 | 23 | 42 | 26 | 21 | 20 | 40 | 23 |
| **16** | Inner Kachemak Bay | 1 | 2 | 2 | 6 | 1 | 9 | 2 | 2 | 2 | 7 |
| **17** | Clam Gulch HS | 5 | 57 | 2 | 18 | 1 | 7 | 37 | 48 | 2 | 14 |
| **18** | Tuxedni HS | 44 | 33 | 1 | 7 | - | 2 | 42 | 17 | 1 | 6 |
| **19** | Kalgin Island HS | 24 | 23 | - | 3 | - | 1 | 12 | 8 | - | 2 |
| **20** | Redoubt Bay HS | 13 | 3 | - | - | - | - | 2 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 8 | 8 | 13 | 10 | 14 | 13 | 8 | 8 | 14 | 11 |
| **24** | Shelikof MM 2 | 9 | 10 | 17 | 12 | 21 | 14 | 10 | 11 | 20 | 13 |
| **25** | Shelikof MM 3 | 5 | 5 | 9 | 6 | 11 | 7 | 5 | 5 | 10 | 7 |
| **26** | Shelikof MM 4 | 3 | 3 | 5 | 3 | 6 | 4 | 3 | 3 | 6 | 4 |
| **27** | Shelikof MM 5 | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **28** | Shelikof MM 6 | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **30** | Shelikof MM 8 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 1 | 2 | 2 |
| **32** | Kodiak Pinniped 2 | - | - | - | - | 1 | - | - | - | - | - |
| **37** | Port Chatham Pinniped | 2 | 2 | 4 | 3 | 4 | 4 | 3 | 2 | 5 | 3 |
| **38** | Port Dick Pinniped | - | - | 1 | 1 | 1 | 1 | - | - | 1 | - |
| **43** | AK Peninsula Pinniped 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **45** | Clam Gulch | 4 | 24 | 3 | 18 | 1 | 7 | 24 | 48 | 2 | 15 |
| **46** | Outer Kachemak Bay | 11 | 20 | 15 | 53 | 10 | 59 | 16 | 33 | 12 | 51 |
| **47** | SW Cook Inlet | 61 | 50 | 41 | 33 | 13 | 20 | 59 | 40 | 18 | 29 |
| **48** | Kamishak Bay | 19 | 23 | 38 | 31 | 55 | 33 | 24 | 26 | 48 | 31 |
| **49** | Katmai NP | 6 | 6 | 10 | 7 | 13 | 8 | 7 | 7 | 13 | 8 |
| **50** | Becharof NWR | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **51** | Alaska Peninsula NWR North | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | - |
| **59** | Kodiak NWR-South | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **60** | Kodiak NWR-West | 1 | 1 | 3 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **64** | Afognak-West | 2 | 3 | 4 | 3 | 6 | 4 | 3 | 3 | 5 | 3 |
| **65** | Afognak-North | - | - | - | - | - | - | - | - | 1 | - |
| **66** | Afognak-East | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **67** | Shuyak | 3 | 3 | 5 | 4 | 7 | 5 | 3 | 3 | 7 | 4 |
| **68** | Kenai Fjords-West | 4 | 4 | 6 | 6 | 6 | 10 | 4 | 4 | 6 | 7 |
| **70** | Forelands-Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 33 | 42 | 1 | 8 | 1 | 3 | 30 | 22 | 1 | 7 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **72** | West Cook Inlet-Beluga CH | 55 | 52 | 54 | 45 | 41 | 35 | 58 | 47 | 42 | 42 |
| **73** | NPRW Feeding Area | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **75** | Kachemak-Humpback Whale | 15 | 16 | 25 | 19 | 26 | 27 | 17 | 16 | 27 | 22 |
| **76** | Shelikof-Humpback Whale | 3 | 3 | 6 | 4 | 7 | 5 | 4 | 3 | 7 | 4 |
| **77** | N Kodiak-Humpback Whale | 6 | 6 | 11 | 8 | 13 | 9 | 7 | 6 | 13 | 8 |
| **78** | E Kodiak-Humpback Whale | 1 | 1 | 3 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| **80** | Shelikof MM 1 | 15 | 17 | 28 | 21 | 35 | 23 | 18 | 18 | 35 | 21 |
| **81** | Shelikof MM 1a | 9 | 10 | 16 | 11 | 20 | 11 | 11 | 10 | 20 | 10 |
| **82** | Shelikof MM 2a | 5 | 6 | 9 | 6 | 11 | 6 | 6 | 6 | 11 | 6 |
| **83** | Shelikof MM 3a | 3 | 3 | 5 | 3 | 6 | 3 | 3 | 3 | 6 | 3 |
| **84** | Shelikof MM 4a | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **85** | Shelikof MM 5a | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **86** | Shelikof MM 6a | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **87** | Shelikof MM 9 | 1 | - | 1 | - | 1 | - | 1 | - | 1 | - |
| **89** | Shelikof MM 11 | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **90** | Barren Islands-Fin Whale | 16 | 16 | 28 | 20 | 32 | 26 | 18 | 17 | 32 | 22 |
| **91** | NE Kodiak-Fin Whale | 2 | 2 | 4 | 3 | 4 | 3 | 2 | 2 | 4 | 3 |
| **92** | Kodiak-Gray Whale Feeding | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **94** | Lower E Kenai-Gray Whale | 4 | 4 | 7 | 6 | 7 | 9 | 4 | 5 | 7 | 7 |
| **95** | NE Kodiak-Gray Whale | 5 | 6 | 9 | 7 | 10 | 11 | 6 | 6 | 10 | 9 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **98** | Shelikof-Gray Whale | 6 | 7 | 11 | 8 | 15 | 10 | 8 | 7 | 14 | 8 |
| **99** | N Shumagin-Gray Whale | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **101** | Cook Inlet 1-Harbor Porpoise | 11 | 2 | - | - | - | - | 1 | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 22 | 27 | 1 | 6 | 1 | 3 | 19 | 15 | 1 | 5 |
| **103** | Cook Inlet 3-Harbor Porpoise | 42 | 47 | 11 | 34 | 3 | 13 | 52 | 44 | 4 | 27 |
| **104** | Cook Inlet 4-Harbor Porpoise | 39 | 43 | 54 | 47 | 11 | 39 | 47 | 44 | 31 | 42 |
| **105** | Cook Inlet 5-Harbor Porpoise | 25 | 29 | 46 | 33 | 46 | 31 | 30 | 30 | 50 | 31 |
| **108** | Shelikof-Killer Whale | 6 | 6 | 11 | 8 | 14 | 9 | 7 | 7 | 13 | 8 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **111** | NW Afognak Is IBA | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **112** | Uganik and Viekoda Bay IBAs | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **119** | Gulf of Alaska Shelf IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **122** | Semidi Islands Marine IBA | - | - | - | - | 1 | - | - | - | 1 | - |
| **130** | South Alinchak Bay Colony | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **132** | Amalik Bay Colonies IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **133** | Ninagiak Is Colonies | - | - | 1 | 1 | 1 | - | 1 | - | 1 | - |
| **134** | Kiukpalik Is Colony | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 2 | 3 | 2 |
| **135** | Shaw Is Colony | 3 | 3 | 6 | 4 | 7 | 5 | 4 | 4 | 7 | 4 |
| **136** | Kamishak Bay IBA | 12 | 14 | 23 | 19 | 34 | 20 | 15 | 17 | 30 | 18 |
| **137** | Kamishak Bay STEI Habitat | 1 | 1 | 2 | 2 | 5 | 3 | 1 | 1 | 4 | 2 |
| **138** | Tuxedni Is Colony IBA | 26 | 16 | 1 | 4 | - | 1 | 21 | 8 | - | 3 |
| **139** | Tuxedni Bay IBA | 16 | 11 | 1 | 3 | - | 1 | 14 | 6 | - | 2 |
| **140** | Redoubt Bay IBA | 14 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 3 | - | 3 | - | 1 | 4 | 6 | - | 2 |
| **145** | Outer Kachemak Bay/IBA | 19 | 39 | 24 | 84 | 16 | 79 | 30 | 60 | 19 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 4 | 4 | 10 | 8 | 11 | 12 | 4 | 5 | 12 | 8 |
| **147** | Barren Islands Marine IBA | 5 | 5 | 9 | 6 | 10 | 8 | 6 | 5 | 10 | 7 |
| **148** | Barren Islands Colonies IBA | 5 | 5 | 8 | 6 | 9 | 7 | 5 | 5 | 9 | 6 |
| **149** | SW Kenai Pen Marine IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **151** | Gulf of AK Shelf 151W58N IBA | 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 89 | 65 | 11 | 23 | 1 | 8 | 82 | 42 | 2 | 19 |
| **154** | Chinitna Bay | 18 | 16 | 19 | 14 | 1 | 6 | 19 | 16 | 5 | 12 |
| **155** | Barren Islands | 7 | 7 | 12 | 9 | 13 | 12 | 8 | 7 | 13 | 10 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-25. Conditional probability of a large oil spill contacting an ERA in 110 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 97 | 97 | 95 | 96 | 95 | 95 | 97 | 96 | 95 | 95 |
| **2** | SUA: Tyonek North | 2 | - | - | - | - | - | - | - | - | - |
| **3** | SUA: Tyonek South | 28 | 11 | - | 2 | - | 1 | 8 | 5 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 8 | 9 | 13 | 18 | 11 | 34 | 10 | 11 | 12 | 24 |
| **5** | SUA: Port Lions | 6 | 6 | 10 | 8 | 14 | 9 | 7 | 7 | 13 | 8 |
| **6** | SUA: Ouzinke | 4 | 4 | 6 | 5 | 8 | 6 | 4 | 4 | 8 | 5 |
| **7** | SUA: Larsen Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | - |
| **8** | SUA: Karluk | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **9** | SUA: Akhiok | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **11** | Augustine | 26 | 30 | 51 | 39 | 69 | 40 | 32 | 34 | 58 | 38 |
| **12** | South Cook HS 1a | 62 | 67 | 86 | 76 | 13 | 49 | 73 | 71 | 47 | 63 |
| **13** | South Cook HS 1b | 46 | 51 | 88 | 63 | 87 | 60 | 56 | 55 | 97 | 59 |
| **14** | South Cook HS 1c | 27 | 30 | 50 | 36 | 65 | 39 | 32 | 31 | 64 | 35 |
| **15** | South Cook HS 1d | 18 | 19 | 32 | 23 | 42 | 26 | 21 | 20 | 41 | 23 |
| **16** | Inner Kachemak Bay | 1 | 2 | 2 | 6 | 1 | 9 | 2 | 2 | 2 | 7 |
| **17** | Clam Gulch HS | 5 | 57 | 2 | 18 | 1 | 7 | 37 | 48 | 2 | 14 |
| **18** | Tuxedni HS | 44 | 33 | 1 | 7 | - | 2 | 42 | 17 | 1 | 6 |
| **19** | Kalgin Island HS | 24 | 23 | - | 3 | - | 1 | 12 | 8 | - | 2 |
| **20** | Redoubt Bay HS | 13 | 3 | - | - | - | - | 2 | 1 | - | - |
| **21** | Trading Bay HS | 1 | - | - | - | - | - | - | - | - | - |
| **23** | Barren Isl. Pinn | 8 | 8 | 13 | 10 | 14 | 13 | 8 | 8 | 14 | 11 |
| **24** | Shelikof MM 2 | 9 | 10 | 17 | 12 | 21 | 14 | 11 | 11 | 20 | 13 |
| **25** | Shelikof MM 3 | 5 | 5 | 9 | 6 | 11 | 7 | 6 | 5 | 11 | 7 |
| **26** | Shelikof MM 4 | 3 | 3 | 5 | 4 | 6 | 4 | 3 | 3 | 6 | 4 |
| **27** | Shelikof MM 5 | 2 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **28** | Shelikof MM 6 | 1 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **30** | Shelikof MM 8 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 2 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| **32** | Kodiak Pinniped 2 | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **37** | Port Chatham Pinniped | 2 | 2 | 4 | 3 | 4 | 5 | 3 | 2 | 5 | 3 |
| **38** | Port Dick Pinniped | - | - | 1 | 1 | 1 | 1 | - | - | 1 | - |
| **43** | AK Peninsula Pinniped 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **45** | Clam Gulch | 4 | 24 | 3 | 18 | 1 | 7 | 24 | 48 | 2 | 15 |
| **46** | Outer Kachemak Bay | 11 | 20 | 15 | 53 | 10 | 59 | 16 | 33 | 12 | 51 |
| **47** | SW Cook Inlet | 61 | 50 | 41 | 33 | 13 | 20 | 59 | 40 | 18 | 29 |
| **48** | Kamishak Bay | 19 | 23 | 38 | 31 | 56 | 33 | 24 | 26 | 49 | 31 |
| **49** | Katmai NP | 6 | 6 | 10 | 7 | 13 | 8 | 7 | 7 | 13 | 8 |
| **50** | Becharof NWR | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **51** | Alaska Peninsula NWR North | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **59** | Kodiak NWR-South | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **60** | Kodiak NWR-West | 1 | 1 | 3 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **64** | Afognak-West | 3 | 3 | 4 | 3 | 6 | 4 | 3 | 3 | 6 | 3 |
| **65** | Afognak-North | - | - | - | - | - | - | - | - | 1 | - |
| **66** | Afognak-East | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **67** | Shuyak | 3 | 3 | 5 | 4 | 7 | 5 | 3 | 3 | 7 | 4 |
| **68** | Kenai Fjords-West | 4 | 4 | 6 | 6 | 6 | 10 | 4 | 4 | 6 | 7 |
| **70** | Forelands-Beluga CH | 2 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 33 | 42 | 1 | 8 | 1 | 3 | 30 | 22 | 1 | 7 |
| **72** | West Cook Inlet-Beluga CH | 55 | 52 | 54 | 45 | 42 | 35 | 58 | 47 | 42 | 42 |
| **73** | NPRW Feeding Area | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **75** | Kachemak-Humpback Whale | 15 | 16 | 25 | 19 | 26 | 27 | 17 | 16 | 27 | 22 |
| **76** | Shelikof-Humpback Whale | 3 | 3 | 6 | 4 | 7 | 5 | 4 | 4 | 7 | 4 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **77** | N Kodiak-Humpback Whale | 6 | 6 | 11 | 8 | 13 | 9 | 7 | 7 | 13 | 8 |
| **78** | E Kodiak-Humpback Whale | 1 | 1 | 3 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **80** | Shelikof MM 1 | 15 | 17 | 28 | 21 | 35 | 23 | 18 | 18 | 35 | 21 |
| **81** | Shelikof MM 1a | 9 | 10 | 16 | 11 | 20 | 11 | 11 | 10 | 20 | 10 |
| **82** | Shelikof MM 2a | 5 | 6 | 9 | 6 | 11 | 6 | 6 | 6 | 11 | 6 |
| **83** | Shelikof MM 3a | 3 | 3 | 5 | 3 | 6 | 3 | 3 | 3 | 6 | 3 |
| **84** | Shelikof MM 4a | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **85** | Shelikof MM 5a | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **86** | Shelikof MM 6a | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **87** | Shelikof MM 9 | 1 | 1 | 1 | 1 | 1 | - | 1 | - | 1 | 1 |
| **89** | Shelikof MM 11 | 1 | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **90** | Barren Islands-Fin Whale | 16 | 16 | 28 | 20 | 32 | 26 | 18 | 17 | 32 | 22 |
| **91** | NE Kodiak-Fin Whale | 2 | 2 | 4 | 3 | 4 | 3 | 2 | 2 | 4 | 3 |
| **92** | Kodiak-Gray Whale Feeding | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **94** | Lower E Kenai-Gray Whale | 4 | 4 | 7 | 6 | 7 | 10 | 5 | 5 | 7 | 7 |
| **95** | NE Kodiak-Gray Whale | 5 | 6 | 9 | 7 | 10 | 11 | 6 | 6 | 10 | 9 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **98** | Shelikof-Gray Whale | 6 | 7 | 11 | 8 | 15 | 10 | 8 | 7 | 14 | 8 |
| **99** | N Shumagin-Gray Whale | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **101** | Cook Inlet 1-Harbor Porpoise | 11 | 2 | - | - | - | - | 1 | - | - | - |
| **102** | Cook Inlet 2-Harbor Porpoise | 22 | 27 | 1 | 6 | 1 | 3 | 19 | 15 | 1 | 5 |
| **103** | Cook Inlet 3-Harbor Porpoise | 42 | 47 | 11 | 34 | 3 | 13 | 52 | 44 | 4 | 27 |
| **104** | Cook Inlet 4-Harbor Porpoise | 39 | 43 | 54 | 47 | 11 | 40 | 47 | 44 | 31 | 42 |
| **105** | Cook Inlet 5-Harbor Porpoise | 25 | 29 | 46 | 33 | 46 | 31 | 30 | 30 | 50 | 31 |
| **108** | Shelikof-Killer Whale | 6 | 7 | 11 | 8 | 14 | 9 | 7 | 7 | 13 | 8 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 2 | 1 | 3 | 2 | 1 | 1 | 2 | 2 |
| **111** | NW Afognak Is IBA | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **112** | Uganik and Viekoda Bay IBAs | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **119** | Gulf of Alaska Shelf IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **122** | Semidi Islands Marine IBA | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **130** | South Alinchak Bay Colony | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **132** | Amalik Bay Colonies IBA | - | 1 | 1 | - | 1 | - | - | - | 1 | - |
| **133** | Ninagiak Is Colonies | - | - | 1 | 1 | 1 | - | 1 | - | 1 | - |
| **134** | Kiukpalik Is Colony | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **135** | Shaw Is Colony | 3 | 3 | 6 | 4 | 7 | 5 | 4 | 4 | 7 | 4 |
| **136** | Kamishak Bay IBA | 12 | 14 | 23 | 19 | 34 | 20 | 15 | 17 | 30 | 19 |
| **137** | Kamishak Bay STEI Habitat | 1 | 1 | 2 | 2 | 5 | 3 | 1 | 1 | 4 | 2 |
| **138** | Tuxedni Is Colony IBA | 26 | 16 | 1 | 4 | - | 1 | 21 | 8 | - | 3 |
| **139** | Tuxedni Bay IBA | 16 | 11 | 1 | 3 | - | 1 | 14 | 6 | - | 2 |
| **140** | Redoubt Bay IBA | 14 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 3 | - | 3 | - | 1 | 4 | 6 | - | 2 |
| **145** | Outer Kachemak Bay/IBA | 19 | 39 | 24 | 84 | 16 | 79 | 30 | 60 | 19 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 4 | 4 | 10 | 8 | 11 | 12 | 4 | 5 | 12 | 8 |
| **147** | Barren Islands Marine IBA | 5 | 5 | 9 | 6 | 10 | 8 | 6 | 5 | 10 | 7 |
| **148** | Barren Islands Colonies IBA | 5 | 5 | 8 | 6 | 9 | 7 | 5 | 5 | 9 | 6 |
| **149** | SW Kenai Pen Marine IBA | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **151** | Gulf of AK Shelf 151W58N IBA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 89 | 65 | 11 | 23 | 1 | 8 | 82 | 42 | 2 | 19 |
| **154** | Chinitna Bay | 18 | 16 | 19 | 14 | 1 | 6 | 19 | 16 | 5 | 12 |
| **155** | Barren Islands | 7 | 7 | 12 | 9 | 13 | 12 | 8 | 7 | 13 | 10 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

Tables A.2-26 through A.2-30 represent summer conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain LS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-26. Conditional probability of a large oil spill contacting an LS in 1 day (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **29** | Augustine Island | - | - | - | - | 2 | - | - | - | 2 | - |
| **30** | Rocky Cove, Tignagvik Point | - | - | - | - | 1 | - | - | - | - | - |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | - | - | - | - | 2 | - | - | - | 1 | - |
| **32** | Chinitna Point, Dry Bay | - | - | 3 | - | 2 | - | - | - | 2 | - |
| **33** | Chinitna Bay | 2 | - | 7 | - | - | - | 1 | - | 1 | - |
| **34** | Iliamna Point | 2 | - | - | - | - | - | 1 | - | - | - |
| **35** | Chisik Island, Tuxedni Bay | 5 | 1 | - | - | - | - | 4 | - | - | - |
| **36** | Redoubt Point | 8 | 1 | - | - | - | - | 1 | - | - | - |
| **37** | Drift River, Drift River Terminal | 1 | - | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 2 | 3 | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | - | - | - | - | - | 1 | - | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | - | - | - | - | - | 1 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 1 | - | 1 | - | - | - | 6 | - | - |
| **62** | Nanwalek, Port Graham | - | - | - | - | - | 1 | - | - | - | - |

**Table A.2-27. Conditional probability of a large oil spill contacting an LS in 3 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | Spotted Glacier, Sukoi Bay | - | - | - | - | 1 | - | - | - | - | - |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | - | - | - | - | 1 | - | - | - | 1 | - |
| **29** | Augustine Island | 1 | - | 3 | 1 | 8 | 1 | 1 | 1 | 7 | 1 |
| **30** | Rocky Cove, Tignagvik Point | - | - | 2 | - | 6 | 1 | - | - | 4 | - |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 1 | - | 4 | 1 | 9 | 1 | 1 | 1 | 6 | 1 |
| **32** | Chinitna Point, Dry Bay | 3 | 2 | 9 | 3 | 4 | 2 | 2 | 2 | 6 | 2 |
| **33** | Chinitna Bay | 9 | 5 | 12 | 6 | - | 1 | 8 | 5 | 3 | 4 |
| **34** | Iliamna Point | 3 | 2 | - | 1 | - | - | 4 | 2 | - | - |
| **35** | Chisik Island, Tuxedni Bay | 10 | 6 | - | - | - | - | 8 | 2 | - | - |
| **36** | Redoubt Point | 15 | 4 | - | - | - | - | 3 | 1 | - | - |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 4 | 3 | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 2 | - | - | - | - | 3 | 2 | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 2 | 2 | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 3 | - | 4 | - | 1 | 1 | 9 | - | 3 |
| **57** | Anchor Point, Anchor River | - | - | - | 2 | - | 1 | - | 1 | - | 1 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **60** | China Poot Bay, Gull Island | - | - | - | - | - | 1 | - | - | - | - |
| **61** | Barabara Point, Seldovia Bay | - | - | - | 2 | - | 3 | - | - | - | 2 |
| **62** | Nanwalek, Port Graham | - | - | - | 1 | - | 5 | - | - | - | 3 |

**Table A.2-28. Conditional probability of a large oil spill contacting an LS in 10 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **22** | Devils Cove, Hallo Bay | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **23** | Cape Chiniak, Swikshak Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 3 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | Spotted Glacier, Sukoi Bay | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 3 | 1 |
| **26** | Douglas River | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 1 | 1 | 3 | 2 | 5 | 2 | 1 | 1 | 4 | 2 |
| **29** | Augustine Island | 3 | 4 | 7 | 5 | 11 | 6 | 4 | 5 | 11 | 5 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 3 | 6 | 5 | 9 | 5 | 3 | 4 | 8 | 5 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 4 | 8 | 6 | 12 | 6 | 4 | 4 | 9 | 6 |
| **32** | Chinitna Point, Dry Bay | 5 | 6 | 11 | 7 | 6 | 6 | 6 | 6 | 7 | 6 |
| **33** | Chinitna Bay | 13 | 12 | 14 | 11 | 1 | 5 | 14 | 12 | 4 | 9 |
| **34** | Iliamna Point | 4 | 4 | - | 1 | - | - | 4 | 3 | - | 1 |
| **35** | Chisik Island, Tuxedni Bay | 11 | 9 | - | 2 | - | - | 10 | 5 | - | 1 |
| **36** | Redoubt Point | 17 | 6 | - | 1 | - | - | 4 | 2 | - | - |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 4 | 4 | - | - | - | - | 1 | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 4 | - | 2 | - | 1 | 5 | 4 | - | 2 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 2 | 3 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 4 | 1 | 6 | - | 2 | 2 | 10 | - | 5 |
| **57** | Anchor Point, Anchor River | - | 1 | 1 | 3 | - | 4 | 1 | 1 | - | 3 |
| **58** | Homer, Homer Spit | - | - | - | 2 | - | 2 | - | - | - | 2 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | 1 | 6 | 1 | 1 | 1 | 4 |
| **62** | Nanwalek, Port Graham | 1 | 2 | 3 | 3 | 3 | 8 | 2 | 2 | 3 | 6 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 1 | - | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **80** | Amatuli Cove, East & West Amatuli Island | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **81** | Shuyak Island | 1 | - | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 2 | 1 |
| **83** | Foul Bay, Paramanof Bay | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **85** | Kupreanof Strait, Viekoda Bay | - | - | - | - | 1 | - | - | - | - | - |

## Table A.2-29. Conditional probability of a large oil spill contacting an LS in 30 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **18** | Alinchak Bay, Cape Kekurnoi, Bear Bay | - | - | - | - | 1 | - | - | - | - | - |
| **19** | Cape Kubugakli, Kashvik Bay, Katmai Bay | - | - | - | - | 1 | - | - | - | 1 | - |
| **20** | Amalik, Dakavak & Kinak Bays, Cape Iiktugitak, Takli Island | - | - | - | - | 1 | - | - | - | 1 | - |
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **24** | Fourpeaked Glacier | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 2 | 4 | 2 |
| **26** | Douglas River | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **29** | Augustine Island | 4 | 5 | 8 | 6 | 12 | 7 | 5 | 6 | 11 | 6 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 6 | 6 | 10 | 6 | 4 | 5 | 8 | 6 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 4 | 5 | 8 | 7 | 12 | 7 | 5 | 5 | 10 | 7 |
| **32** | Chinitna Point, Dry Bay | 6 | 6 | 11 | 8 | 6 | 6 | 7 | 7 | 7 | 7 |
| **33** | Chinitna Bay | 13 | 13 | 14 | 12 | 1 | 6 | 15 | 13 | 5 | 10 |
| **34** | Iliamna Point | 4 | 4 | - | 2 | - | - | 4 | 3 | - | 1 |
| **35** | Chisik Island, Tuxedni Bay | 11 | 9 | - | 2 | - | 1 | 10 | 5 | - | 2 |
| **36** | Redoubt Point | 17 | 6 | - | 1 | - | - | 4 | 2 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 4 | 4 | - | - | - | - | 1 | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | 1 | 4 | - | 2 | - | 1 | 5 | 4 | - | 2 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 3 | 3 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 5 | 1 | 6 | 1 | 2 | 3 | 11 | 1 | 5 |
| **57** | Anchor Point, Anchor River | 1 | 1 | 1 | 3 | 1 | 4 | 1 | 2 | 1 | 3 |
| **58** | Homer, Homer Spit | - | - | 1 | 2 | - | 3 | - | 1 | - | 2 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 2 | 4 | 1 | 7 | 2 | 2 | 1 | 5 |
| **62** | Nanwalek, Port Graham | 2 | 2 | 3 | 4 | 3 | 8 | 3 | 3 | 3 | 6 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **79** | Barren Islands, Ushagat Island | 2 | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 3 | 1 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **83** | Foul Bay, Paramanof Bay | 1 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 3 | 2 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **85** | Kupreanof Strait, Viekoda Bay | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | - | - | - | 1 | - | - | - | 1 | - |

## Table A.2-30. Conditional probability of a large oil spill contacting an LS in 110 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | Capes Kanatak, Lgvak & Unalishagvak, Portage Bay | - | - | - | - | 1 | - | - | - | - | - |
| **18** | Alinchak Bay, Cape Kekurnoi, Bear Bay | - | - | - | - | 1 | - | - | - | - | - |
| **19** | Cape Kubugakli, Kashvik Bay, Katmai Bay | - | - | - | - | 1 | - | - | - | 1 | - |
| **20** | Amalik, Dakavak & Kinak Bays, Cape Iiktugitak, Takli Island | - | - | - | - | 1 | - | - | - | 1 | - |
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **24** | Fourpeaked Glacier | 2 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 2 | 4 | 2 |
| **26** | Douglas River | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 3 | 5 | 3 |
| **29** | Augustine Island | 4 | 5 | 8 | 6 | 12 | 7 | 5 | 6 | 11 | 6 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 6 | 6 | 10 | 6 | 4 | 5 | 8 | 6 |
| **31** | liamna Bay, Iniskin Bay, Ursus Cove | 4 | 5 | 8 | 7 | 12 | 7 | 5 | 5 | 10 | 7 |
| **32** | Chinitna Point, Dry Bay | 6 | 6 | 11 | 8 | 6 | 6 | 7 | 7 | 7 | 7 |
| **33** | Chinitna Bay | 13 | 13 | 14 | 12 | 1 | 6 | 15 | 13 | 5 | 10 |
| **34** | Iliamna Point | 4 | 4 | - | 2 | - | - | 4 | 3 | - | 1 |
| **35** | Chisik Island, Tuxedni Bay | 11 | 9 | - | 2 | - | 1 | 10 | 5 | - | 2 |
| **36** | Redoubt Point | 17 | 6 | - | 1 | - | - | 4 | 2 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 4 | 4 | - | - | - | - | 1 | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | 1 | 4 | - | 2 | - | 1 | 5 | 4 | - | 2 |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 2 | - | 1 | - | - | 3 | 3 | - | 1 |
| **56** | Cape Starichkof, Happy Valley | 1 | 5 | 1 | 6 | 1 | 2 | 3 | 11 | 1 | 5 |
| **57** | Anchor Point, Anchor River | 1 | 1 | 1 | 3 | 1 | 4 | 1 | 2 | 1 | 3 |
| **58** | Homer, Homer Spit | - | - | 1 | 2 | - | 3 | - | 1 | - | 2 |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 2 | 4 | 1 | 7 | 2 | 2 | 1 | 5 |
| **62** | Nanwalek, Port Graham | 2 | 3 | 3 | 4 | 3 | 8 | 3 | 3 | 3 | 6 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **79** | Barren Islands, Ushagat Island | 2 | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 3 | 1 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 |
| **83** | Foul Bay, Paramanof Bay | 1 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | 3 | 2 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **85** | Kupreanof Strait, Viekoda Bay | 1 | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | - | - | - | 1 | - | - | - | 1 | - |
| **111** | Seal Bay, Tonki Bay | - | - | - | - | - | - | - | - | 1 | - |

Tables A.2-31 through A.2-35 represent summer conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain GLS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-31. Conditional probability of a large oil spill contacting a GLS in 1 day (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **127** | AMNWR W Cook Inlet | 15 | 2 | 11 | - | 7 | - | 5 | - | 6 | - |
| **128** | Lake Clark National Park and Preserve | 17 | 2 | 7 | - | - | - | 7 | - | 1 | - |
| **129** | Redoubt Bay Brown Bears | 3 | 3 | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | - | 2 | - | 2 | - | 1 | 2 | 7 | - | 1 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 5 | - | - |
| **138** | Clam Gulch Critical Habitat | - | 2 | - | 1 | - | - | 2 | 7 | - | - |
| **140** | West Kenai Black Bears | - | - | - | - | - | 1 | - | - | - | - |
| **141** | Seldovia side Kachemak Bay | - | - | - | - | - | 2 | - | - | - | 1 |
| **142** | AMNWR E Cook Inlet | - | - | - | - | - | 2 | - | - | - | 1 |

**Table A.2-32. Conditional probability of a large oil spill contacting a GLS in 3 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | - | - | - | - | 1 | - | - | - | 1 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | - | - | - | - | 1 | - | - | - | 1 | - |
| **127** | AMNWR W Cook Inlet | 38 | 18 | 29 | 11 | 22 | 7 | 22 | 12 | 23 | 9 |
| **128** | Lake Clark National Park and Preserve | 37 | 18 | 13 | 7 | - | 1 | 22 | 10 | 3 | 5 |
| **129** | Redoubt Bay Brown Bears | 7 | 4 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 1 | 7 | 1 | 9 | - | 7 | 7 | 13 | - | 8 |
| **136** | West Kenai Brown Bears | - | 5 | - | 5 | - | 2 | 5 | 10 | - | 4 |
| **137** | West Kenai Moose | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **138** | Clam Gulch Critical Habitat | 1 | 6 | - | 5 | - | 1 | 6 | 12 | - | 3 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | - | - | 1 | - | - | - | - |
| **140** | West Kenai Black Bears | - | - | - | 3 | - | 6 | - | 1 | - | 4 |
| **141** | Seldovia side Kachemak Bay | - | - | 1 | 3 | 1 | 9 | - | 1 | - | 6 |
| **142** | AMNWR E Cook Inlet | - | - | 1 | 3 | 1 | 9 | - | 1 | - | 6 |
| **152** | Barren Islands | - | - | - | - | 1 | - | - | - | - | - |

**Table A.2-33. Conditional probability of a large oil spill contacting a GLS in 10 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | 4 | 3 | 9 | 4 | 13 | 6 | 4 | 4 | 12 | 4 |
| **124** | Kukak Bay | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **125** | Spring Bear Concentration-1 | - | - | - | - | 1 | 1 | - | - | 1 | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **126** | McNeil River State Game Sanctuary and Refuge | 1 | 1 | 3 | 2 | 5 | 3 | 1 | 1 | 4 | 2 |
| **127** | AMNWR W Cook Inlet | 53 | 41 | 43 | 33 | 35 | 25 | 43 | 35 | 36 | 30 |
| **128** | Lake Clark National Park and Preserve | 43 | 30 | 14 | 15 | 1 | 6 | 32 | 22 | 5 | 12 |
| **129** | Redoubt Bay Brown Bears | 8 | 5 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 4 | 13 | 4 | 18 | 2 | 17 | 12 | 21 | 3 | 18 |
| **136** | West Kenai Brown Bears | 2 | 9 | 2 | 10 | 1 | 8 | 8 | 15 | 1 | 10 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 2 | 10 | 1 | 9 | - | 3 | 9 | 17 | 1 | 7 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | 1 | 1 | - | 2 | - | - | 1 | 2 |
| **140** | West Kenai Black Bears | 2 | 2 | 3 | 6 | 3 | 12 | 2 | 3 | 3 | 8 |
| **141** | Seldovia side Kachemak Bay | 3 | 3 | 5 | 8 | 4 | 16 | 3 | 4 | 4 | 11 |
| **142** | AMNWR E Cook Inlet | 2 | 3 | 5 | 8 | 4 | 16 | 3 | 4 | 4 | 11 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **152** | Barren Islands | 1 | 1 | 3 | 1 | 3 | 2 | 1 | 1 | 3 | 2 |
| **153** | Shuyak Island State Park | 1 | 1 | 3 | 2 | 4 | 2 | 1 | 1 | 4 | 1 |
| **154** | AMNWR Afognak and Shuyak Islands | 2 | 2 | 5 | 3 | 8 | 3 | 2 | 2 | 7 | 2 |
| **156** | Kodiak National Wildlife Refuge | 3 | 2 | 6 | 3 | 9 | 3 | 3 | 2 | 8 | 3 |
| **158** | AMNWR W Kodiak/Shelikof | - | - | 1 | - | 1 | - | - | - | 1 | - |
| **159** | Kupreanof Strait | - | - | - | - | 1 | - | - | - | - | - |

## Table A.2-34. Conditional probability of a large oil spill contacting a GLS in 30 days (summer timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **113** | Alaska Peninsula National Wildlife Refuge | - | - | 1 | 1 | 1 | - | 1 | 1 | 1 | - |
| **114** | AMNWR SW Shelikof/GOA | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **116** | SUA: Chignik Chignik Lagoon | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | - |
| **122** | Becharof National Wildlife Refuge | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **123** | Katmai National Park | 7 | 8 | 13 | 9 | 16 | 11 | 8 | 8 | 16 | 9 |
| **124** | Kukak Bay | 1 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 3 | 5 | 3 |
| **127** | AMNWR W Cook Inlet | 56 | 47 | 47 | 39 | 38 | 31 | 48 | 41 | 39 | 36 |
| **128** | Lake Clark National Park and Preserve | 44 | 32 | 15 | 16 | 2 | 7 | 34 | 23 | 5 | 14 |
| **129** | Redoubt Bay Brown Bears | 8 | 5 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 5 | 15 | 5 | 20 | 3 | 19 | 14 | 22 | 4 | 20 |
| **136** | West Kenai Brown Bears | 2 | 10 | 2 | 12 | 2 | 9 | 9 | 16 | 2 | 11 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 2 | 11 | 1 | 9 | 1 | 4 | 10 | 18 | 1 | 8 |
| **139** | Kachemak Bay State Park and Wilderness Park | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 |
| **140** | West Kenai Black Bears | 3 | 3 | 4 | 7 | 4 | 13 | 4 | 4 | 4 | 9 |
| **141** | Seldovia side Kachemak Bay | 3 | 4 | 6 | 9 | 5 | 17 | 5 | 5 | 5 | 13 |
| **142** | AMNWR E Cook Inlet | 3 | 4 | 5 | 9 | 5 | 17 | 5 | 5 | 5 | 12 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | 1 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 2 |
| **152** | Barren Islands | 2 | 2 | 4 | 3 | 4 | 3 | 2 | 2 | 4 | 3 |
| **153** | Shuyak Island State Park | 2 | 3 | 4 | 3 | 6 | 4 | 3 | 3 | 6 | 3 |
| **154** | AMNWR Afognak and Shuyak Islands | 5 | 5 | 9 | 6 | 11 | 8 | 6 | 6 | 11 | 6 |
| **156** | Kodiak National Wildlife Refuge | 6 | 7 | 11 | 8 | 15 | 10 | 7 | 7 | 14 | 8 |
| **158** | AMNWR W Kodiak/Shelikof | 1 | 1 | 3 | 2 | 3 | 2 | 1 | 1 | 3 | 2 |
| **159** | Kupreanof Strait | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **164** | Afognak Island State Park | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-35. Conditional probability of a large oil spill contacting a GLS in 110 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **113** | Alaska Peninsula National Wildlife Refuge | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **114** | AMNWR SW Shelikof/GOA | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 | 1 |
| **116** | SUA: Chignik Chignik Lagoon | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **122** | Becharof National Wildlife Refuge | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **123** | Katmai National Park | 7 | 8 | 13 | 9 | 17 | 11 | 8 | 9 | 16 | 9 |
| **124** | Kukak Bay | 1 | 2 | 3 | 2 | 4 | 3 | 2 | 2 | 4 | 2 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 2 | 4 | 3 | 6 | 4 | 2 | 3 | 5 | 3 |
| **127** | AMNWR W Cook Inlet | 56 | 47 | 47 | 39 | 38 | 31 | 49 | 41 | 39 | 36 |
| **128** | Lake Clark National Park and Preserve | 44 | 32 | 15 | 17 | 2 | 7 | 34 | 23 | 5 | 14 |
| **129** | Redoubt Bay Brown Bears | 8 | 5 | - | - | - | - | 1 | 1 | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 5 | 15 | 5 | 20 | 3 | 19 | 14 | 22 | 4 | 20 |
| **136** | West Kenai Brown Bears | 2 | 10 | 2 | 12 | 2 | 9 | 9 | 16 | 2 | 11 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 2 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 2 | 11 | 1 | 9 | 1 | 4 | 10 | 18 | 1 | 8 |
| **139** | Kachemak Bay State Park and Wilderness Park | 1 | 1 | 1 | 2 | 1 | 3 | 1 | 1 | 1 | 2 |
| **140** | West Kenai Black Bears | 3 | 4 | 4 | 7 | 4 | 13 | 4 | 4 | 4 | 9 |
| **141** | Seldovia side Kachemak Bay | 3 | 4 | 6 | 9 | 5 | 17 | 5 | 5 | 5 | 13 |
| **142** | AMNWR E Cook Inlet | 3 | 4 | 6 | 9 | 5 | 17 | 5 | 5 | 5 | 13 |
| **143** | AMNWR W Outer Kenai/GOA | 1 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 2 |
| **152** | Barren Islands | 2 | 2 | 4 | 3 | 4 | 3 | 2 | 2 | 4 | 3 |
| **153** | Shuyak Island State Park | 3 | 3 | 4 | 3 | 6 | 4 | 3 | 3 | 6 | 3 |
| **154** | AMNWR Afognak and Shuyak Islands | 5 | 5 | 9 | 6 | 12 | 8 | 6 | 6 | 11 | 7 |
| **156** | Kodiak National Wildlife Refuge | 7 | 7 | 12 | 9 | 15 | 10 | 8 | 7 | 15 | 9 |
| **158** | AMNWR W Kodiak/Shelikof | 1 | 1 | 3 | 2 | 3 | 2 | 2 | 1 | 3 | 2 |
| **159** | Kupreanof Strait | 1 | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 |
| **161** | AMNWR E Kodiak/GOA | - | - | 1 | 1 | 1 | 1 | 1 | - | 1 | - |
| **164** | Afognak Island State Park | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |

Tables A.2-36 through A.2-40 represent summer conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain BS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-36. Conditional probability of a large oil spill contacting a BS in 1 day (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-37. Conditional probability of a large oil spill contacting a BS in 3 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-38. Conditional probability of a large oil spill contacting a BS in 10 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-39. Conditional probability of a large oil spill contacting a BS in 30 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Gulf of Alaska | - | - | - | - | 1 | - | - | - | 1 | - |

**Table A.2-40. Conditional probability of a large oil spill contacting a BS in 110 days (summer timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Gulf of Alaska | - | - | 1 | 1 | 1 | - | - | - | 1 | 1 |

Tables A.2-41 through A.2-45 represent winter conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain ERA within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-41. Conditional probability of a large oil spill contacting an ERA in 1 day (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Land | 29 | 9 | 17 | 1 | 14 | 2 | 10 | 5 | 13 | 1 |
| 3 | SUA: Tyonek South | 6 | 1 | - | - | - | - | - | - | - | - |
| 4 | SUA: Seldovia, Port Graham, Nanwalek | - | - | - | 2 | - | 10 | - | - | - | 5 |
| 11 | Augustine | 1 | - | 21 | - | 52 | 1 | - | - | 36 | - |
| 12 | South Cook HS 1a | 50 | 28 | 81 | 48 | 2 | 9 | 42 | 43 | 41 | 30 |
| 13 | South Cook HS 1b | 10 | 1 | 78 | 17 | 84 | 24 | 4 | 8 | 95 | 11 |
| 14 | South Cook HS 1c | - | - | 6 | - | 46 | 6 | - | - | 31 | 1 |
| 15 | South Cook HS 1d | - | - | - | - | 3 | - | - | - | 2 | - |
| 16 | Inner Kachemak Bay | - | - | - | 1 | - | - | - | - | - | - |
| 17 | Clam Gulch HS | - | 37 | - | 2 | - | - | 27 | 25 | - | 1 |
| 18 | Tuxedni HS | 25 | 13 | - | - | - | - | 18 | 1 | - | - |
| 19 | Kalgin Island HS | 9 | 5 | - | - | - | - | 1 | - | - | - |
| 20 | Redoubt Bay HS | 3 | - | - | - | - | - | - | - | - | - |
| 45 | Clam Gulch | - | 8 | - | 2 | - | - | 16 | 31 | - | 1 |
| 46 | Outer Kachemak Bay | - | 6 | 1 | 36 | - | 34 | 1 | 25 | - | 21 |
| 47 | SW Cook Inlet | 54 | 13 | 30 | 2 | 7 | - | 30 | 3 | 13 | 1 |
| 48 | Kamishak Bay | - | - | 4 | - | 27 | - | - | - | 16 | - |
| 68 | Kenai Fjords-West | - | - | - | - | - | 1 | - | - | - | 1 |
| 71 | Middle Cook Inlet-Beluga CH | 26 | 22 | - | - | - | - | 13 | 3 | - | - |
| 72 | West Cook Inlet-Beluga CH | 36 | 8 | 30 | 1 | 17 | 1 | 16 | 2 | 18 | - |
| 75 | Kachemak-Humpback Whale | - | - | - | - | 1 | 7 | - | - | - | 4 |
| 90 | Barren Islands-Fin Whale | - | - | - | - | - | 1 | - | - | - | - |
| 94 | Lower E Kenai-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| 95 | NE Kodiak-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| 137 | Kamishak Bay STEI Habitat | - | - | 1 | - | 6 | - | - | - | 3 | - |
| 139 | Tuxedni Bay IBA | 26 | 8 | - | - | - | - | 13 | - | - | - |
| 140 | Redoubt Bay IBA | 5 | 1 | - | - | - | - | - | - | - | - |
| 144 | Clam Gulch STEI Habitat | - | 4 | - | 3 | - | - | 13 | 19 | - | 1 |
| 145 | Outer Kachemak Bay/IBA | 3 | 22 | 5 | 76 | 1 | 66 | 7 | 59 | 3 | 97 |
| 146 | Lower Cook Inlet 153W59N IBA | 4 | 1 | 46 | 23 | 55 | 55 | 1 | 7 | 62 | 28 |
| 153 | Polly Creek Beach | 88 | 44 | 5 | 4 | - | - | 67 | 10 | - | 4 |
| 154 | Chinitna Bay | 5 | - | 15 | 1 | - | - | 2 | 1 | 4 | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-42. Conditional probability of a large oil spill contacting an ERA in 3 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 61 | 40 | 46 | 28 | 46 | 24 | 41 | 31 | 45 | 25 |
| **3** | SUA: Tyonek South | 8 | 3 | - | - | - | - | 2 | 1 | - | - |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 1 | 1 | 3 | 11 | 2 | 20 | 1 | 3 | 2 | 14 |
| **11** | Augustine | 12 | 9 | 41 | 17 | 68 | 21 | 11 | 12 | 55 | 16 |
| **12** | South Cook HS 1a | 59 | 58 | 81 | 62 | 3 | 21 | 66 | 66 | 41 | 45 |
| **13** | South Cook HS 1b | 33 | 30 | 84 | 45 | 85 | 43 | 35 | 38 | 96 | 39 |
| **14** | South Cook HS 1c | 8 | 6 | 31 | 16 | 59 | 31 | 7 | 9 | 50 | 20 |
| **15** | South Cook HS 1d | 2 | 1 | 10 | 4 | 28 | 12 | 1 | 2 | 21 | 6 |
| **16** | Inner Kachemak Bay | - | - | - | 3 | - | 2 | - | 1 | - | 2 |
| **17** | Clam Gulch HS | 1 | 39 | - | 4 | - | 1 | 30 | 27 | - | 3 |
| **18** | Tuxedni HS | 27 | 21 | - | 2 | - | - | 24 | 7 | - | 2 |
| **19** | Kalgin Island HS | 9 | 7 | - | - | - | - | 3 | 1 | - | - |
| **20** | Redoubt Bay HS | 4 | 1 | - | - | - | - | 1 | - | - | - |
| **23** | Barren Isl. Pinn | - | - | 1 | 1 | 3 | 6 | - | - | 2 | 3 |
| **24** | Shelikof MM 2 | - | - | - | - | 3 | 1 | - | - | 2 | 1 |
| **37** | Port Chatham Pinniped | - | - | - | - | - | 1 | - | - | - | - |
| **45** | Clam Gulch | 1 | 11 | - | 4 | - | 1 | 18 | 33 | - | 3 |
| **46** | Outer Kachemak Bay | 4 | 11 | 5 | 42 | 1 | 39 | 7 | 31 | 3 | 29 |
| **47** | SW Cook Inlet | 67 | 42 | 40 | 22 | 11 | 11 | 54 | 28 | 21 | 18 |
| **48** | Kamishak Bay | 5 | 3 | 24 | 9 | 52 | 13 | 4 | 6 | 40 | 9 |
| **49** | Katmai NP | - | - | - | - | 1 | - | - | - | - | - |
| **68** | Kenai Fjords-West | - | - | 1 | 2 | 1 | 6 | - | - | 1 | 4 |
| **70** | Forelands-Beluga CH | 1 | - | - | - | - | - | - | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 27 | 26 | - | 2 | - | - | 17 | 8 | - | 1 |
| **72** | West Cook Inlet-Beluga CH | 54 | 35 | 48 | 24 | 35 | 15 | 43 | 27 | 38 | 19 |
| **75** | Kachemak-Humpback Whale | 2 | 1 | 7 | 7 | 8 | 18 | 1 | 3 | 7 | 12 |
| **77** | N Kodiak-Humpback Whale | - | - | - | - | 1 | - | - | - | - | - |
| **80** | Shelikof MM 1 | - | - | 3 | 1 | 13 | 6 | - | - | 10 | 3 |
| **90** | Barren Islands-Fin Whale | 1 | 1 | 7 | 5 | 15 | 19 | 1 | 2 | 12 | 11 |
| **94** | Lower E Kenai-Gray Whale | - | - | 1 | 1 | 1 | 4 | - | - | 1 | 2 |
| **95** | NE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 4 | - | - | 1 | 3 |
| **137** | Kamishak Bay STEI Habitat | 1 | 1 | 9 | 3 | 22 | 5 | 1 | 2 | 16 | 3 |
| **139** | Tuxedni Bay IBA | 31 | 19 | - | 2 | - | - | 22 | 6 | - | 2 |
| **140** | Redoubt Bay IBA | 9 | 3 | - | - | - | - | 1 | - | - | - |
| **144** | Clam Gulch STEI Habitat | 1 | 7 | - | 5 | - | 1 | 15 | 22 | - | 4 |
| **145** | Outer Kachemak Bay/IBA | 11 | 30 | 13 | 81 | 4 | 72 | 19 | 63 | 8 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 19 | 20 | 53 | 47 | 56 | 64 | 21 | 31 | 64 | 49 |
| **153** | Polly Creek Beach | 88 | 61 | 5 | 12 | - | 2 | 81 | 28 | 1 | 10 |
| **154** | Chinitna Bay | 14 | 9 | 20 | 10 | 1 | 4 | 12 | 10 | 7 | 7 |
| **155** | Barren Islands | - | - | 1 | 1 | 2 | 5 | - | - | 2 | 3 |

**Table A.2-43. Conditional probability of a large oil spill contacting an ERA in 10 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 90 | 84 | 88 | 81 | 89 | 82 | 85 | 81 | 89 | 81 |
| **3** | SUA: Tyonek South | 8 | 4 | - | 1 | - | - | 3 | 2 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 5 | 6 | 6 | 18 | 3 | 25 | 6 | 10 | 4 | 21 |
| **5** | SUA: Port Lions | 5 | 5 | 10 | 8 | 13 | 13 | 6 | 7 | 12 | 10 |
| **6** | SUA: Ouzinke | 3 | 4 | 7 | 6 | 9 | 8 | 4 | 5 | 8 | 7 |
| **7** | SUA: Larsen Bay | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **8** | SUA: Karluk | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **11** | Augustine | 22 | 27 | 52 | 37 | 76 | 40 | 28 | 32 | 65 | 37 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **12** | South Cook HS 1a | 60 | 63 | 82 | 66 | 4 | 26 | 71 | 71 | 42 | 49 |
| **13** | South Cook HS 1b | 39 | 45 | 85 | 57 | 85 | 51 | 48 | 52 | 96 | 50 |
| **14** | South Cook HS 1c | 22 | 27 | 41 | 38 | 62 | 49 | 28 | 32 | 56 | 41 |
| **15** | South Cook HS 1d | 16 | 19 | 29 | 28 | 39 | 35 | 20 | 24 | 36 | 30 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 4 | - | 3 | 1 | 2 | - | 3 |
| **17** | Clam Gulch HS | 2 | 40 | - | 5 | - | 1 | 31 | 28 | - | 4 |
| **18** | Tuxedni HS | 28 | 22 | 1 | 4 | - | 1 | 26 | 9 | - | 3 |
| **19** | Kalgin Island HS | 10 | 8 | - | 1 | - | - | 4 | 2 | - | 1 |
| **20** | Redoubt Bay HS | 4 | 2 | - | - | - | - | 1 | 1 | - | - |
| **23** | Barren Isl. Pinn | 4 | 5 | 7 | 8 | 7 | 13 | 5 | 6 | 7 | 10 |
| **24** | Shelikof MM 2 | 7 | 8 | 14 | 13 | 17 | 17 | 8 | 11 | 16 | 15 |
| **25** | Shelikof MM 3 | 3 | 3 | 6 | 5 | 7 | 7 | 3 | 4 | 7 | 6 |
| **26** | Shelikof MM 4 | 1 | 1 | 2 | 2 | 3 | 3 | 1 | 1 | 3 | 2 |
| **27** | Shelikof MM 5 | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **28** | Shelikof MM 6 | - | - | - | - | 1 | - | - | - | 1 | - |
| **31** | Kodiak Pinniped 1 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **37** | Port Chatham Pinniped | 1 | 1 | 2 | 2 | 1 | 3 | 1 | 1 | 2 | 2 |
| **45** | Clam Gulch | 2 | 12 | - | 5 | - | 1 | 19 | 34 | - | 4 |
| **46** | Outer Kachemak Bay | 7 | 16 | 7 | 45 | 2 | 42 | 11 | 35 | 4 | 33 |
| **47** | SW Cook Inlet | 70 | 52 | 44 | 33 | 13 | 20 | 63 | 40 | 24 | 29 |
| **48** | Kamishak Bay | 18 | 22 | 39 | 31 | 64 | 35 | 23 | 26 | 54 | 31 |
| **49** | Katmai NP | 3 | 3 | 6 | 5 | 8 | 7 | 3 | 4 | 7 | 6 |
| **59** | Kodiak NWR-South | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **60** | Kodiak NWR-West | 1 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| **64** | Afognak-West | 2 | 3 | 5 | 4 | 7 | 7 | 3 | 3 | 7 | 5 |
| **67** | Shuyak | 2 | 2 | 3 | 3 | 5 | 5 | 2 | 2 | 4 | 4 |
| **68** | Kenai Fjords-West | 2 | 2 | 3 | 5 | 1 | 9 | 2 | 3 | 2 | 7 |
| **70** | Forelands-Beluga CH | 1 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 28 | 28 | - | 3 | - | 1 | 18 | 9 | - | 2 |
| **72** | West Cook Inlet-Beluga CH | 63 | 53 | 58 | 44 | 44 | 34 | 60 | 47 | 48 | 40 |
| **75** | Kachemak-Humpback Whale | 7 | 9 | 11 | 15 | 10 | 22 | 9 | 12 | 10 | 18 |
| **76** | Shelikof-Humpback Whale | 2 | 2 | 3 | 3 | 5 | 4 | 2 | 2 | 4 | 3 |
| **77** | N Kodiak-Humpback Whale | 3 | 3 | 6 | 5 | 7 | 7 | 3 | 4 | 6 | 5 |
| **78** | E Kodiak-Humpback Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **80** | Shelikof MM 1 | 13 | 16 | 24 | 24 | 30 | 31 | 16 | 19 | 29 | 27 |
| **90** | Barren Islands-Fin Whale | 11 | 15 | 21 | 25 | 23 | 35 | 15 | 19 | 22 | 29 |
| **91** | NE Kodiak-Fin Whale | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 1 | 2 | 2 |
| **94** | Lower E Kenai-Gray Whale | 1 | 2 | 2 | 3 | 1 | 5 | 2 | 2 | 2 | 4 |
| **95** | NE Kodiak-Gray Whale | 2 | 2 | 3 | 4 | 2 | 7 | 2 | 3 | 3 | 5 |
| **98** | Shelikof-Gray Whale | 4 | 4 | 7 | 6 | 9 | 8 | 4 | 5 | 9 | 7 |
| **108** | Shelikof-Killer Whale | 5 | 5 | 9 | 9 | 11 | 11 | 6 | 7 | 11 | 9 |
| **109** | E Kodiak-Killer Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **137** | Kamishak Bay STEI Habitat | 8 | 10 | 18 | 15 | 29 | 17 | 10 | 12 | 24 | 15 |
| **139** | Tuxedni Bay IBA | 32 | 21 | 1 | 4 | - | 1 | 24 | 9 | - | 3 |
| **140** | Redoubt Bay IBA | 9 | 4 | - | - | - | - | 2 | 1 | - | - |
| **144** | Clam Gulch STEI Habitat | 2 | 9 | 1 | 7 | - | 3 | 16 | 23 | - | 5 |
| **145** | Outer Kachemak Bay/IBA | 14 | 35 | 15 | 82 | 5 | 73 | 24 | 66 | 9 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 24 | 31 | 54 | 54 | 57 | 67 | 31 | 42 | 64 | 56 |
| **151** | Gulf of AK Shelf 151W58N IBA | - | - | - | - | 1 | 1 | - | - | - | - |
| **153** | Polly Creek Beach | 88 | 64 | 6 | 15 | - | 4 | 83 | 32 | 1 | 13 |
| **154** | Chinitna Bay | 16 | 13 | 21 | 14 | 1 | 7 | 16 | 15 | 7 | 12 |
| **155** | Barren Islands | 3 | 4 | 7 | 8 | 7 | 13 | 5 | 5 | 7 | 10 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-44. Conditional probability of a large oil spill contacting an ERA in 30 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 98 | 97 | 97 | 96 | 96 | 96 | 97 | 96 | 97 | 96 |
| **3** | SUA: Tyonek South | 8 | 4 | - | 1 | - | - | 3 | 2 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 5 | 7 | 7 | 18 | 3 | 25 | 6 | 11 | 5 | 21 |
| **5** | SUA: Port Lions | 7 | 9 | 12 | 12 | 14 | 16 | 9 | 11 | 13 | 14 |
| **6** | SUA: Ouzinke | 5 | 6 | 8 | 9 | 10 | 11 | 6 | 8 | 9 | 10 |
| **7** | SUA: Larsen Bay | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 |
| **8** | SUA: Karluk | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **9** | SUA: Akhiok | - | - | - | - | 1 | 1 | - | - | 1 | 1 |
| **11** | Augustine | 23 | 28 | 53 | 39 | 76 | 42 | 30 | 34 | 65 | 39 |
| **12** | South Cook HS 1a | 60 | 63 | 82 | 66 | 4 | 26 | 71 | 71 | 42 | 49 |
| **13** | South Cook HS 1b | 39 | 46 | 86 | 57 | 85 | 51 | 48 | 53 | 96 | 51 |
| **14** | South Cook HS 1c | 22 | 28 | 42 | 39 | 62 | 50 | 29 | 33 | 56 | 42 |
| **15** | South Cook HS 1d | 17 | 22 | 30 | 30 | 40 | 37 | 22 | 26 | 37 | 32 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 4 | - | 3 | 1 | 2 | - | 3 |
| **17** | Clam Gulch HS | 2 | 40 | - | 5 | - | 1 | 31 | 28 | - | 4 |
| **18** | Tuxedni HS | 28 | 22 | 1 | 4 | - | 1 | 26 | 9 | - | 3 |
| **19** | Kalgin Island HS | 10 | 8 | - | 1 | - | - | 4 | 2 | - | 1 |
| **20** | Redoubt Bay HS | 4 | 2 | - | - | - | - | 1 | 1 | - | - |
| **23** | Barren Isl. Pinn | 4 | 5 | 7 | 9 | 7 | 14 | 5 | 7 | 7 | 11 |
| **24** | Shelikof MM 2 | 8 | 11 | 15 | 16 | 18 | 20 | 11 | 14 | 18 | 18 |
| **25** | Shelikof MM 3 | 4 | 6 | 7 | 8 | 8 | 9 | 6 | 7 | 8 | 8 |
| **26** | Shelikof MM 4 | 2 | 2 | 3 | 4 | 4 | 4 | 2 | 3 | 4 | 4 |
| **27** | Shelikof MM 5 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **28** | Shelikof MM 6 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **30** | Shelikof MM 8 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **37** | Port Chatham Pinniped | 1 | 1 | 2 | 2 | 2 | 4 | 1 | 2 | 2 | 3 |
| **43** | AK Peninsula Pinniped 1 | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **45** | Clam Gulch | 2 | 12 | - | 5 | - | 1 | 19 | 34 | - | 4 |
| **46** | Outer Kachemak Bay | 7 | 16 | 7 | 45 | 2 | 42 | 12 | 35 | 4 | 33 |
| **47** | SW Cook Inlet | 70 | 53 | 44 | 33 | 13 | 20 | 63 | 40 | 24 | 29 |
| **48** | Kamishak Bay | 20 | 24 | 40 | 33 | 64 | 36 | 25 | 29 | 55 | 33 |
| **49** | Katmai NP | 4 | 5 | 8 | 7 | 9 | 10 | 5 | 6 | 9 | 8 |
| **50** | Becharof NWR | - | - | - | - | - | 1 | - | - | - | - |
| **57** | Trinity Islands | - | - | - | - | - | - | - | - | 1 | - |
| **59** | Kodiak NWR-South | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **60** | Kodiak NWR-West | 2 | 3 | 4 | 4 | 4 | 5 | 3 | 4 | 4 | 4 |
| **64** | Afognak-West | 3 | 5 | 6 | 6 | 8 | 8 | 4 | 6 | 8 | 7 |
| **65** | Afognak-North | - | - | - | - | - | 1 | - | - | - | 1 |
| **67** | Shuyak | 2 | 3 | 4 | 5 | 5 | 6 | 3 | 4 | 5 | 5 |
| **68** | Kenai Fjords-West | 2 | 2 | 3 | 5 | 2 | 9 | 2 | 4 | 2 | 7 |
| **70** | Forelands-Beluga CH | 1 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 28 | 28 | - | 3 | - | 1 | 18 | 9 | - | 2 |
| **72** | West Cook Inlet-Beluga CH | 64 | 55 | 59 | 46 | 45 | 35 | 61 | 49 | 48 | 41 |
| **75** | Kachemak-Humpback Whale | 7 | 9 | 11 | 15 | 10 | 23 | 9 | 12 | 10 | 19 |
| **76** | Shelikof-Humpback Whale | 3 | 4 | 4 | 5 | 5 | 5 | 4 | 4 | 5 | 5 |
| **77** | N Kodiak-Humpback Whale | 3 | 4 | 6 | 6 | 7 | 8 | 4 | 5 | 7 | 6 |
| **78** | E Kodiak-Humpback Whale | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **80** | Shelikof MM 1 | 14 | 19 | 26 | 27 | 31 | 34 | 19 | 22 | 30 | 30 |
| **89** | Shelikof MM 11 | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **90** | Barren Islands-Fin Whale | 12 | 17 | 22 | 26 | 23 | 36 | 17 | 21 | 22 | 31 |
| **91** | NE Kodiak-Fin Whale | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 2 | 3 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **94** | Lower E Kenai-Gray Whale | 1 | 2 | 2 | 4 | 1 | 5 | 2 | 2 | 2 | 4 |
| **95** | NE Kodiak-Gray Whale | 2 | 2 | 3 | 5 | 2 | 7 | 2 | 3 | 3 | 6 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **98** | Shelikof-Gray Whale | 5 | 7 | 8 | 9 | 10 | 10 | 7 | 8 | 10 | 9 |
| **99** | N Shumagin-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **108** | Shelikof-Killer Whale | 6 | 8 | 11 | 12 | 13 | 14 | 8 | 10 | 12 | 12 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **137** | Kamishak Bay STEI Habitat | 9 | 11 | 19 | 16 | 29 | 18 | 11 | 14 | 25 | 16 |
| **139** | Tuxedni Bay IBA | 32 | 21 | 1 | 4 | - | 1 | 24 | 9 | - | 4 |
| **140** | Redoubt Bay IBA | 9 | 4 | - | - | - | - | 2 | 2 | - | - |
| **144** | Clam Gulch STEI Habitat | 2 | 9 | 1 | 7 | - | 3 | 16 | 23 | 1 | 5 |
| **145** | Outer Kachemak Bay/IBA | 14 | 35 | 15 | 82 | 5 | 73 | 24 | 66 | 9 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 24 | 32 | 54 | 55 | 57 | 68 | 31 | 43 | 64 | 56 |
| **151** | Gulf of AK Shelf 151W58N IBA | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 88 | 64 | 6 | 15 | - | 4 | 83 | 32 | 1 | 13 |
| **154** | Chinitna Bay | 16 | 14 | 21 | 14 | 1 | 7 | 16 | 15 | 7 | 12 |
| **155** | Barren Islands | 4 | 5 | 7 | 9 | 7 | 13 | 5 | 6 | 7 | 10 |

## Table A.2-45. Conditional probability of a large oil spill contacting an ERA in 110 days (winter timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | Land | 98 | 97 | 97 | 96 | 97 | 96 | 98 | 96 | 97 | 96 |
| **3** | SUA: Tyonek South | 8 | 4 | - | 1 | - | - | 3 | 2 | - | 1 |
| **4** | SUA: Seldovia, Port Graham, Nanwalek | 5 | 7 | 7 | 18 | 3 | 25 | 6 | 11 | 5 | 21 |
| **5** | SUA: Port Lions | 7 | 9 | 12 | 12 | 14 | 16 | 9 | 11 | 13 | 14 |
| **6** | SUA: Ouzinke | 5 | 6 | 8 | 9 | 10 | 11 | 6 | 8 | 9 | 10 |
| **7** | SUA: Larsen Bay | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 1 |
| **8** | SUA: Karluk | 1 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **9** | SUA: Akhiok | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **11** | Augustine | 23 | 28 | 53 | 39 | 76 | 42 | 30 | 34 | 65 | 39 |
| **12** | South Cook HS 1a | 60 | 63 | 82 | 66 | 4 | 26 | 71 | 71 | 42 | 49 |
| **13** | South Cook HS 1b | 39 | 46 | 86 | 57 | 85 | 51 | 48 | 53 | 96 | 51 |
| **14** | South Cook HS 1c | 22 | 28 | 42 | 39 | 62 | 50 | 29 | 33 | 56 | 42 |
| **15** | South Cook HS 1d | 17 | 22 | 30 | 30 | 40 | 37 | 22 | 26 | 37 | 32 |
| **16** | Inner Kachemak Bay | 1 | 1 | 1 | 4 | - | 3 | 1 | 2 | - | 3 |
| **17** | Clam Gulch HS | 2 | 40 | - | 5 | - | 1 | 31 | 28 | - | 4 |
| **18** | Tuxedni HS | 28 | 22 | 1 | 4 | - | 1 | 26 | 9 | - | 3 |
| **19** | Kalgin Island HS | 10 | 8 | - | 1 | - | - | 4 | 2 | - | 1 |
| **20** | Redoubt Bay HS | 4 | 2 | - | - | - | - | 1 | 1 | - | - |
| **23** | Barren Isl. Pinn | 4 | 5 | 7 | 9 | 7 | 14 | 5 | 7 | 7 | 11 |
| **24** | Shelikof MM 2 | 8 | 12 | 15 | 16 | 19 | 20 | 11 | 14 | 18 | 18 |
| **25** | Shelikof MM 3 | 4 | 6 | 7 | 8 | 8 | 9 | 6 | 7 | 8 | 8 |
| **26** | Shelikof MM 4 | 2 | 2 | 3 | 4 | 4 | 4 | 2 | 3 | 4 | 4 |
| **27** | Shelikof MM 5 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **28** | Shelikof MM 6 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 | 2 |
| **29** | Shelikof MM 7 | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **30** | Shelikof MM 8 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **31** | Kodiak Pinniped 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **37** | Port Chatham Pinniped | 1 | 1 | 2 | 2 | 2 | 4 | 1 | 2 | 2 | 3 |
| **43** | AK Peninsula Pinniped 1 | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **45** | Clam Gulch | 2 | 12 | - | 5 | - | 1 | 19 | 34 | - | 4 |
| **46** | Outer Kachemak Bay | 7 | 16 | 7 | 45 | 2 | 42 | 12 | 35 | 4 | 33 |
| **47** | SW Cook Inlet | 70 | 53 | 44 | 33 | 13 | 20 | 63 | 40 | 24 | 29 |
| **48** | Kamishak Bay | 20 | 24 | 40 | 33 | 64 | 37 | 25 | 29 | 55 | 33 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **49** | Katmai NP | 4 | 5 | 8 | 7 | 9 | 10 | 5 | 6 | 9 | 8 |
| **50** | Becharof NWR | - | - | - | - | - | 1 | - | - | - | - |
| **57** | Trinity Islands | - | - | - | - | 1 | 1 | - | - | 1 | 1 |
| **59** | Kodiak NWR-South | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **60** | Kodiak NWR-West | 2 | 3 | 4 | 4 | 4 | 5 | 3 | 4 | 4 | 4 |
| **64** | Afognak-West | 3 | 5 | 6 | 6 | 8 | 8 | 4 | 6 | 8 | 7 |
| **65** | Afognak-North | - | - | - | - | - | 1 | - | - | - | 1 |
| **67** | Shuyak | 2 | 3 | 4 | 5 | 5 | 6 | 3 | 4 | 5 | 5 |
| **68** | Kenai Fjords-West | 2 | 2 | 3 | 5 | 2 | 9 | 2 | 4 | 2 | 7 |
| **70** | Forelands-Beluga CH | 1 | 1 | - | - | - | - | 1 | - | - | - |
| **71** | Middle Cook Inlet-Beluga CH | 28 | 28 | - | 3 | - | 1 | 18 | 9 | - | 2 |
| **72** | West Cook Inlet-Beluga CH | 64 | 55 | 59 | 46 | 45 | 35 | 61 | 49 | 48 | 41 |
| **75** | Kachemak-Humpback Whale | 7 | 9 | 11 | 15 | 10 | 23 | 9 | 12 | 10 | 19 |
| **76** | Shelikof-Humpback Whale | 3 | 4 | 4 | 5 | 5 | 5 | 4 | 4 | 5 | 5 |
| **77** | N Kodiak-Humpback Whale | 3 | 4 | 6 | 6 | 7 | 8 | 4 | 5 | 7 | 6 |
| **78** | E Kodiak-Humpback Whale | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **80** | Shelikof MM 1 | 14 | 19 | 26 | 27 | 31 | 34 | 19 | 22 | 30 | 30 |
| **89** | Shelikof MM 11 | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **90** | Barren Islands-Fin Whale | 12 | 17 | 22 | 26 | 23 | 36 | 17 | 21 | 22 | 31 |
| **91** | NE Kodiak-Fin Whale | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 2 | 3 |
| **94** | Lower E Kenai-Gray Whale | 1 | 2 | 2 | 4 | 1 | 5 | 2 | 2 | 2 | 4 |
| **95** | NE Kodiak-Gray Whale | 2 | 2 | 3 | 5 | 2 | 7 | 2 | 3 | 3 | 6 |
| **97** | SE Kodiak-Gray Whale | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **98** | Shelikof-Gray Whale | 5 | 7 | 8 | 9 | 10 | 10 | 7 | 8 | 10 | 9 |
| **99** | N Shumagin-Gray Whale | - | - | - | - | - | 1 | - | - | - | - |
| **108** | Shelikof-Killer Whale | 6 | 8 | 11 | 12 | 13 | 14 | 8 | 10 | 12 | 13 |
| **109** | E Kodiak-Killer Whale | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| **137** | Kamishak Bay STEI Habitat | 9 | 11 | 19 | 16 | 29 | 18 | 11 | 14 | 25 | 16 |
| **139** | Tuxedni Bay IBA | 32 | 21 | 1 | 4 | - | 1 | 24 | 9 | - | 4 |
| **140** | Redoubt Bay IBA | 9 | 4 | - | - | - | - | 2 | 2 | - | - |
| **144** | Clam Gulch STEI Habitat | 2 | 9 | 1 | 7 | - | 3 | 16 | 23 | 1 | 5 |
| **145** | Outer Kachemak Bay/IBA | 14 | 35 | 15 | 82 | 5 | 73 | 24 | 66 | 9 | 97 |
| **146** | Lower Cook Inlet 153W59N IBA | 24 | 32 | 54 | 55 | 57 | 68 | 31 | 43 | 64 | 56 |
| **151** | Gulf of AK Shelf 151W58N IBA | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **153** | Polly Creek Beach | 88 | 64 | 6 | 15 | - | 4 | 83 | 32 | 1 | 13 |
| **154** | Chinitna Bay | 16 | 14 | 21 | 14 | 1 | 7 | 16 | 15 | 7 | 12 |
| **155** | Barren Islands | 4 | 5 | 7 | 9 | 7 | 13 | 5 | 6 | 7 | 10 |

Tables A.2-46 through A.2-50 represent winter conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain LS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-46. Conditional probability of a large oil spill contacting an LS in 1 day (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **29** | Augustine Island | - | - | - | - | 6 | - | - | - | 5 | - |
| **30** | Rocky Cove, Tignagvik Point | - | - | - | - | 2 | - | - | - | - | - |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | - | - | - | - | 3 | - | - | - | 1 | - |
| **32** | Chinitna Point, Dry Bay | - | - | 5 | - | 3 | - | - | - | 4 | - |
| **33** | Chinitna Bay | 2 | - | 10 | - | - | - | 1 | - | 3 | - |
| **34** | Iliamna Point | 4 | 1 | 1 | - | - | - | 3 | - | - | - |
| **35** | Chisik Island, Tuxedni Bay | 12 | 3 | - | - | - | - | 5 | - | - | - |
| **36** | Redoubt Point | 8 | 1 | - | - | - | - | 1 | - | - | - |
| **37** | Drift River, Drift River Terminal | 1 | - | - | - | - | - | - | - | - | - |
| **38** | Kalgin Island | 1 | 2 | - | - | - | - | - | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | - | - | - | - | - | 1 | - | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 1 | - | 1 | - | - | - | 4 | - | - |
| **61** | Barabara Point, Seldovia Bay | - | - | - | - | - | 1 | - | - | - | - |
| **62** | Nanwalek, Port Graham | - | - | - | - | - | 1 | - | - | - | 1 |

## Table A.2-47. Conditional probability of a large oil spill contacting an LS in 3 days (winter timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **25** | Spotted Glacier, Sukoi Bay | - | - | - | - | 1 | 1 | - | - | 1 | - |
| **26** | Douglas River | - | - | - | - | 2 | - | - | - | 1 | - |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | - | - | - | - | 2 | - | - | - | 1 | - |
| **29** | Augustine Island | 1 | - | 6 | 2 | 14 | 3 | 1 | 1 | 12 | 2 |
| **30** | Rocky Cove, Tignagvik Point | 1 | - | 4 | 1 | 8 | 1 | - | 1 | 6 | 1 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 1 | - | 5 | 1 | 10 | 2 | 1 | 1 | 8 | 1 |
| **32** | Chinitna Point, Dry Bay | 2 | 2 | 10 | 4 | 7 | 4 | 2 | 3 | 8 | 3 |
| **33** | Chinitna Bay | 11 | 7 | 18 | 8 | 1 | 3 | 9 | 8 | 6 | 6 |
| **34** | Iliamna Point | 7 | 5 | 1 | 2 | - | - | 7 | 3 | - | 1 |
| **35** | Chisik Island, Tuxedni Bay | 19 | 11 | - | 1 | - | - | 12 | 3 | - | 1 |
| **36** | Redoubt Point | 13 | 5 | - | - | - | - | 3 | 1 | - | - |
| **37** | Drift River, Drift River Terminal | 3 | 1 | - | - | - | - | 1 | - | - | - |
| **38** | Kalgin Island | 1 | 2 | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 1 | - | - | - | - | 1 | - | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 1 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | - | 3 | - | 2 | - | - | 1 | 6 | - | 1 |
| **57** | Anchor Point, Anchor River | - | - | - | 1 | - | - | - | 1 | - | 1 |
| **61** | Barabara Point, Seldovia Bay | - | - | - | 3 | - | 2 | - | 1 | - | 2 |
| **62** | Nanwalek, Port Graham | - | - | 1 | 2 | - | 5 | - | - | - | 3 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | - | - | - | 1 | - | - | - | - |
| **79** | Barren Islands, Ushagat Island | - | - | - | - | - | 1 | - | - | - | - |

## Table A.2-48. Conditional probability of a large oil spill contacting an LS in 10 days (winter timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | - | - | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **23** | Cape Chiniak, Swikshak Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 1 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 2 | 4 | 3 | 5 | 5 | 3 | 3 | 5 | 4 |
| **26** | Douglas River | 2 | 2 | 4 | 3 | 5 | 4 | 2 | 2 | 5 | 3 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 1 | 1 | 3 | 3 | 5 | 3 | 1 | 2 | 4 | 3 |
| **29** | Augustine Island | 4 | 5 | 9 | 7 | 16 | 7 | 5 | 6 | 14 | 7 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 3 | 6 | 4 | 11 | 5 | 3 | 4 | 9 | 4 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 3 | 7 | 5 | 12 | 5 | 3 | 4 | 10 | 5 |
| **32** | Chinitna Point, Dry Bay | 4 | 5 | 12 | 7 | 8 | 7 | 5 | 6 | 10 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 20 | 13 | 2 | 7 | 14 | 14 | 7 | 11 |
| **34** | Iliamna Point | 8 | 6 | 1 | 3 | - | 1 | 9 | 4 | 1 | 2 |
| **35** | Chisik Island, Tuxedni Bay | 20 | 13 | - | 2 | - | 1 | 14 | 5 | - | 2 |
| **36** | Redoubt Point | 13 | 7 | - | 1 | - | - | 5 | 3 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 2 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 1 | 3 | - | - | - | - | 1 | - | - | - |
| **39** | Seal River, Big River | 1 | - | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 1 | - | - | - | - | 1 | 1 | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | 1 | 3 | - | 2 | - | 1 | 2 | 6 | - | 2 |
| **57** | Anchor Point, Anchor River | - | 1 | - | 1 | - | - | - | 1 | - | 1 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | - | - | - | - | - |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | - | 3 | 1 | 2 | - | 4 |
| **62** | Nanwalek, Port Graham | 1 | 1 | 2 | 4 | 1 | 7 | 1 | 2 | 1 | 5 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | 1 | 1 | - | 2 | - | 1 | - | 1 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 1 | 2 | 2 | 3 | 3 | 1 | 1 | 3 | 2 |
| **83** | Foul Bay, Paramanof Bay | 1 | 1 | 3 | 2 | 4 | 3 | 1 | 1 | 3 | 3 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **85** | Kupreanof Strait, Viekoda Bay | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | - | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | - | - | - | 1 | 1 | - | - | 1 | - |

## Table A.2-49. Conditional probability of a large oil spill contacting an LS in 30 days (winter timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **23** | Cape Chiniak, Swikshak Bay | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 3 | 4 | 4 | 5 | 5 | 3 | 3 | 5 | 4 |
| **26** | Douglas River | 2 | 3 | 4 | 3 | 5 | 4 | 3 | 3 | 5 | 4 |
| **27** | Akumwarvik Bay, McNeil Cove, Nordyke Island | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 3 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **29** | Augustine Island | 5 | 6 | 9 | 7 | 17 | 8 | 6 | 6 | 15 | 7 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 7 | 5 | 11 | 5 | 4 | 4 | 9 | 4 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 4 | 7 | 5 | 12 | 6 | 4 | 5 | 10 | 5 |
| **32** | Chinitna Point, Dry Bay | 4 | 5 | 12 | 8 | 8 | 7 | 5 | 7 | 10 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 20 | 13 | 2 | 7 | 14 | 14 | 7 | 11 |
| **34** | Iliamna Point | 8 | 6 | 1 | 3 | - | 1 | 9 | 5 | 1 | 2 |
| **35** | Chisik Island, Tuxedni Bay | 20 | 13 | - | 3 | - | 1 | 14 | 5 | - | 2 |
| **36** | Redoubt Point | 13 | 7 | - | 1 | - | - | 5 | 3 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 2 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 1 | 3 | - | - | - | - | 1 | - | - | - |
| **39** | Seal River, Big River | 1 | - | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 1 | - | - | - | - | 1 | 1 | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | 1 | 3 | - | 2 | - | 1 | 2 | 6 | - | 2 |
| **57** | Anchor Point, Anchor River | - | 1 | - | 1 | - | - | - | 1 | - | 1 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | - | - | - | - | - |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | - | 4 | 1 | 2 | - | 4 |
| **62** | Nanwalek, Port Graham | 1 | 1 | 2 | 4 | 1 | 7 | 1 | 2 | 1 | 5 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | 1 | 1 | 1 | 2 | - | 1 | 1 | 2 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 1 | 1 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 2 | 2 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| **83** | Foul Bay, Paramanof Bay | 2 | 3 | 3 | 3 | 4 | 4 | 2 | 3 | 4 | 4 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **85** | Kupreanof Strait, Viekoda Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **88** | Karluk Lagoon, Northeast Harbor, Karluk | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

## Table A.2-50. Conditional probability of a large oil spill contacting an LS in 110 days (winter timeframe)

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **21** | Kaflia, Kukak, Kuliak & Missak Bays | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **22** | Devils Cove, Hallo Bay | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **23** | Cape Chiniak, Swikshak Bay | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **24** | Fourpeaked Glacier | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 |
| **25** | Spotted Glacier, Sukoi Bay | 2 | 3 | 4 | 4 | 5 | 5 | 3 | 3 | 5 | 4 |
| **26** | Douglas River | 2 | 3 | 4 | 3 | 5 | 4 | 3 | 3 | 5 | 4 |
| **27** | Akumwarvik Bay , McNeil Cove, Nordyke Island | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| **28** | Amakdedulia Cove, Bruin Bay, Chenik Head | 2 | 2 | 3 | 3 | 6 | 4 | 2 | 2 | 5 | 3 |
| **29** | Augustine Island | 5 | 6 | 9 | 7 | 17 | 8 | 6 | 6 | 15 | 7 |
| **30** | Rocky Cove, Tignagvik Point | 3 | 4 | 7 | 5 | 11 | 5 | 4 | 4 | 9 | 4 |
| **31** | Iiamna Bay, Iniskin Bay, Ursus Cove | 3 | 4 | 7 | 5 | 12 | 6 | 4 | 5 | 10 | 5 |
| **32** | Chinitna Point, Dry Bay | 4 | 5 | 12 | 8 | 8 | 7 | 5 | 7 | 10 | 7 |
| **33** | Chinitna Bay | 13 | 12 | 20 | 13 | 2 | 7 | 14 | 14 | 7 | 11 |
| **34** | Iliamna Point | 8 | 6 | 1 | 3 | - | 1 | 9 | 5 | 1 | 2 |
| **35** | Chisik Island, Tuxedni Bay | 20 | 13 | - | 3 | - | 1 | 14 | 5 | - | 2 |
| **36** | Redoubt Point | 13 | 7 | - | 1 | - | - | 5 | 3 | - | 1 |
| **37** | Drift River, Drift River Terminal | 3 | 2 | - | - | - | - | 1 | 1 | - | - |
| **38** | Kalgin Island | 1 | 3 | - | - | - | - | 1 | - | - | - |
| **39** | Seal River, Big River | 1 | - | - | - | - | - | - | - | - | - |
| **40** | Kustatan River,West Foreland | 1 | - | - | - | - | - | - | - | - | - |
| **54** | Clam Gulch, Kasilof | - | 1 | - | - | - | - | 1 | 1 | - | - |
| **55** | Deep Creek, Ninilchik, Ninilchik River | - | 1 | - | - | - | - | 2 | 1 | - | - |
| **56** | Cape Starichkof, Happy Valley | 1 | 3 | - | 2 | - | 1 | 2 | 6 | - | 2 |
| **57** | Anchor Point, Anchor River | - | 1 | - | 1 | - | - | - | 1 | - | 1 |
| **58** | Homer, Homer Spit | - | - | - | 1 | - | - | - | - | - | - |
| **60** | China Poot Bay, Gull Island | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **61** | Barabara Point, Seldovia Bay | 1 | 1 | 1 | 4 | - | 4 | 1 | 2 | - | 4 |
| **62** | Nanwalek, Port Graham | 1 | 1 | 2 | 4 | 1 | 7 | 1 | 2 | 1 | 5 |
| **63** | Elizabeth Island, Port Chatham, Koyuktolik Bay | - | - | 1 | 1 | 1 | 2 | - | 1 | 1 | 2 |
| **79** | Barren Islands, Ushagat Island | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 1 | 1 | 2 |
| **80** | Amatuli Cove, East & West Amatuli Island | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **81** | Shuyak Island | 1 | 1 | 2 | 2 | 2 | 3 | 1 | 2 | 2 | 2 |
| **82** | Bluefox Bay, Shuyak Island, Shuyak Strait | 1 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 3 |
| **83** | Foul Bay, Paramanof Bay | 2 | 3 | 3 | 3 | 4 | 4 | 2 | 3 | 4 | 4 |
| **84** | Malina Bay, Raspberry Island, Raspberry Strait | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **85** | Kupreanof Strait, Viekoda Bay | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **86** | Uganik Bay Uganik Strait, Cape Ugat | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 |
| **87** | Cape Kuliuk, Spiridon Bay, Uyak Bay | - | 1 | 1 | 1 | 1 | 1 | - | 1 | 1 | 1 |
| **88** | Karluk Lagoon, Northeast Harbor, Karluk | - | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

Tables A.2-51 through A.2-55 represent winter conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain group of LSs within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-51. Conditional probability of a large oil spill contacting a GLS in 1 day (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **127** | AMNWR W Cook Inlet | 23 | 4 | 16 | - | 13 | - | 6 | - | 12 | - |
| **128** | Lake Clark National Park and Preserve | 27 | 5 | 11 | - | - | - | 9 | - | 3 | - |
| **135** | Kenai AK State Rec Mgmt Areas | - | 2 | - | 1 | - | 1 | 2 | 4 | - | 1 |
| **136** | West Kenai Brown Bears | - | - | - | - | - | - | - | 1 | - | - |
| **137** | West Kenai Moose | - | - | - | - | - | - | 1 | - | - | - |
| **138** | Clam Gulch Critical Habitat | - | 1 | - | 1 | - | - | 2 | 4 | - | - |
| **141** | Seldovia side Kachemak Bay | - | - | - | - | - | 2 | - | - | - | 1 |
| **142** | AMNWR E Cook Inlet | - | - | - | - | - | 2 | - | - | - | 1 |

**Table A.2-52. Conditional probability of a large oil spill contacting a GLS in 3 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | - | - | 1 | - | 3 | 1 | - | - | 3 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | - | - | - | - | 2 | - | - | - | 1 | - |
| **127** | AMNWR W Cook Inlet | 46 | 26 | 39 | 17 | 34 | 12 | 28 | 18 | 35 | 14 |
| **128** | Lake Clark National Park and Preserve | 49 | 28 | 19 | 11 | 1 | 3 | 32 | 16 | 7 | 9 |
| **129** | Redoubt Bay Brown Bears | 1 | 1 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 1 | 5 | - | 6 | - | 4 | 4 | 9 | - | 5 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 2 | - | 1 |
| **137** | West Kenai Moose | - | 2 | - | - | - | - | 2 | 1 | - | - |
| **138** | Clam Gulch Critical Habitat | - | 4 | - | 2 | - | - | 4 | 7 | - | 1 |
| **140** | West Kenai Black Bears | - | - | - | 1 | - | 2 | - | - | - | 1 |
| **141** | Seldovia side Kachemak Bay | - | - | 1 | 5 | - | 8 | - | 1 | 1 | 6 |
| **142** | AMNWR E Cook Inlet | - | - | 1 | 5 | - | 8 | - | 1 | 1 | 6 |
| **143** | AMNWR W Outer Kenai/GOA | - | - | - | - | - | 1 | - | - | - | - |
| **152** | Barren Islands | - | - | - | - | - | 1 | - | - | - | 1 |

**Table A.2-53. Conditional probability of a large oil spill contacting a GLS in 10 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **123** | Katmai National Park | 6 | 7 | 13 | 11 | 18 | 14 | 7 | 8 | 16 | 11 |
| **124** | Kukak Bay | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 |
| **125** | Spring Bear Concentration-1 | - | - | - | - | 1 | - | - | - | 1 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 2 | 4 | 3 | 7 | 4 | 2 | 3 | 5 | 4 |
| **127** | AMNWR W Cook Inlet | 59 | 47 | 52 | 39 | 44 | 31 | 48 | 41 | 47 | 36 |
| **128** | Lake Clark National Park and Preserve | 54 | 38 | 21 | 19 | 2 | 8 | 41 | 26 | 8 | 16 |
| **129** | Redoubt Bay Brown Bears | 1 | 1 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **131** | Trading Bay Moose | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 2 | 8 | 1 | 9 | - | 6 | 7 | 12 | 1 | 8 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 2 | - | 1 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | - |
| **138** | Clam Gulch Critical Habitat | 1 | 5 | - | 3 | - | 1 | 5 | 8 | - | 2 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **140** | West Kenai Black Bears | - | - | 1 | 2 | - | 3 | - | 1 | - | 2 |
| **141** | Seldovia side Kachemak Bay | 2 | 3 | 3 | 9 | 1 | 11 | 2 | 4 | 2 | 10 |
| **142** | AMNWR E Cook Inlet | 2 | 3 | 3 | 9 | 1 | 11 | 2 | 4 | 2 | 10 |
| **143** | AMNWR W Outer Kenai/GOA | - | - | 1 | 1 | - | 2 | - | 1 | 1 | 1 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **152** | Barren Islands | 1 | 1 | 2 | 2 | 2 | 4 | 1 | 1 | 2 | 3 |
| **153** | Shuyak Island State Park | 2 | 2 | 4 | 3 | 5 | 5 | 2 | 2 | 4 | 4 |
| **154** | AMNWR Afognak and Shuyak Islands | 4 | 4 | 8 | 7 | 11 | 11 | 4 | 5 | 10 | 8 |
| **155** | Afognak & Raspberry Winter Elk | 2 | 2 | 5 | 5 | 7 | 7 | 3 | 3 | 6 | 6 |
| **156** | Kodiak National Wildlife Refuge | 5 | 5 | 10 | 9 | 14 | 13 | 5 | 6 | 13 | 11 |
| **157** | Afognak Blacktail Deer | 2 | 2 | 4 | 4 | 6 | 6 | 2 | 2 | 5 | 4 |
| **158** | AMNWR W Kodiak/Shelikof | 1 | 1 | 2 | 2 | 3 | 3 | 1 | 2 | 3 | 2 |
| **159** | Kupreanof Strait | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |

**Table A.2-54. Conditional probability of a large oil spill contacting a GLS in 30 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **114** | AMNWR SW Shelikof/GOA | - | - | - | - | - | 1 | - | - | - | 1 |
| **122** | Becharof National Wildlife Refuge | - | - | - | - | - | 1 | - | - | - | - |
| **123** | Katmai National Park | 8 | 10 | 15 | 14 | 20 | 18 | 11 | 12 | 18 | 15 |
| **124** | Kukak Bay | 1 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 3 | 4 | 4 | 7 | 5 | 3 | 3 | 6 | 4 |
| **127** | AMNWR W Cook Inlet | 60 | 49 | 53 | 41 | 45 | 33 | 50 | 43 | 48 | 38 |
| **128** | Lake Clark National Park and Preserve | 54 | 38 | 22 | 19 | 2 | 9 | 42 | 27 | 8 | 16 |
| **129** | Redoubt Bay Brown Bears | 1 | 1 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **131** | Trading Bay Moose | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 2 | 8 | 2 | 10 | 1 | 6 | 7 | 12 | 1 | 8 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 2 | - | 1 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 1 | 6 | - | 3 | - | 1 | 5 | 8 | - | 2 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **140** | West Kenai Black Bears | - | - | 1 | 2 | - | 3 | - | 1 | - | 2 |
| **141** | Seldovia side Kachemak Bay | 2 | 3 | 3 | 9 | 1 | 11 | 3 | 5 | 2 | 10 |
| **142** | AMNWR E Cook Inlet | 2 | 3 | 3 | 9 | 1 | 11 | 3 | 5 | 2 | 10 |
| **143** | AMNWR W Outer Kenai/GOA | - | - | 1 | 1 | 1 | 2 | - | 1 | 1 | 2 |
| **152** | Barren Islands | 1 | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 2 | 3 |
| **153** | Shuyak Island State Park | 3 | 3 | 4 | 5 | 6 | 6 | 3 | 4 | 5 | 5 |
| **154** | AMNWR Afognak and Shuyak Islands | 6 | 7 | 10 | 11 | 12 | 14 | 8 | 9 | 12 | 12 |
| **155** | Afognak & Raspberry Winter Elk | 4 | 5 | 6 | 7 | 8 | 10 | 5 | 6 | 8 | 8 |
| **156** | Kodiak National Wildlife Refuge | 9 | 11 | 15 | 15 | 17 | 19 | 11 | 13 | 17 | 17 |
| **157** | Afognak Blacktail Deer | 3 | 4 | 5 | 6 | 6 | 8 | 4 | 5 | 6 | 6 |
| **158** | AMNWR W Kodiak/Shelikof | 2 | 3 | 4 | 5 | 4 | 5 | 3 | 4 | 4 | 5 |
| **159** | Kupreanof Strait | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **160** | Kodiak Blacktail Deer | - | - | - | - | 1 | - | - | - | 1 | - |
| **161** | AMNWR E Kodiak/GOA | - | - | 1 | - | 1 | 1 | - | - | 1 | 1 |
| **164** | Afognak Island State Park | - | - | - | 1 | - | 1 | - | - | - | 1 |

**Table A.2-55. Conditional probability of a large oil spill contacting a GLS in 110 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **114** | AMNWR SW Shelikof/GOA | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **122** | Becharof National Wildlife Refuge | - | - | - | - | - | 1 | - | - | - | - |
| **123** | Katmai National Park | 8 | 10 | 15 | 14 | 20 | 18 | 11 | 12 | 18 | 15 |
| **124** | Kukak Bay | 1 | 1 | 2 | 2 | 3 | 3 | 2 | 2 | 3 | 3 |
| **125** | Spring Bear Concentration-1 | - | - | 1 | - | 1 | 1 | - | - | 1 | - |
| **126** | McNeil River State Game Sanctuary and Refuge | 2 | 3 | 4 | 4 | 7 | 5 | 3 | 3 | 6 | 4 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **127** | AMNWR W Cook Inlet | 60 | 49 | 53 | 41 | 45 | 33 | 50 | 43 | 48 | 38 |
| **128** | Lake Clark National Park and Preserve | 54 | 38 | 22 | 19 | 2 | 9 | 42 | 27 | 8 | 16 |
| **129** | Redoubt Bay Brown Bears | 1 | 1 | - | - | - | - | - | - | - | - |
| **130** | Redoubt Bay Critical Habitat Area | 1 | 1 | - | - | - | - | - | - | - | - |
| **131** | Trading Bay Moose | 1 | - | - | - | - | - | - | - | - | - |
| **135** | Kenai AK State Rec Mgmt Areas | 2 | 8 | 2 | 10 | 1 | 6 | 7 | 12 | 1 | 8 |
| **136** | West Kenai Brown Bears | - | 1 | - | 1 | - | - | 1 | 2 | - | 1 |
| **137** | West Kenai Moose | - | 2 | - | 1 | - | - | 3 | 2 | - | 1 |
| **138** | Clam Gulch Critical Habitat | 1 | 6 | - | 3 | - | 1 | 5 | 8 | - | 2 |
| **139** | Kachemak Bay State Park and Wilderness Park | - | - | - | 1 | - | 1 | - | - | - | 1 |
| **140** | West Kenai Black Bears | - | - | 1 | 2 | - | 3 | - | 1 | - | 2 |
| **141** | Seldovia side Kachemak Bay | 2 | 3 | 3 | 9 | 1 | 11 | 3 | 5 | 2 | 10 |
| **142** | AMNWR E Cook Inlet | 2 | 3 | 3 | 9 | 1 | 11 | 3 | 5 | 2 | 10 |
| **143** | AMNWR W Outer Kenai/GOA | - | - | 1 | 1 | 1 | 2 | - | 1 | 1 | 2 |
| **152** | Barren Islands | 1 | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 2 | 3 |
| **153** | Shuyak Island State Park | 3 | 3 | 4 | 5 | 6 | 6 | 3 | 4 | 5 | 5 |
| **154** | AMNWR Afognak and Shuyak Islands | 6 | 7 | 10 | 11 | 12 | 14 | 8 | 9 | 12 | 12 |
| **155** | Afognak & Raspberry Winter Elk | 4 | 5 | 6 | 7 | 8 | 10 | 5 | 6 | 8 | 8 |
| **156** | Kodiak National Wildlife Refuge | 9 | 11 | 15 | 16 | 17 | 20 | 11 | 14 | 17 | 17 |
| **157** | Afognak Blacktail Deer | 3 | 4 | 5 | 6 | 6 | 8 | 4 | 5 | 6 | 6 |
| **158** | AMNWR W Kodiak/Shelikof | 2 | 3 | 4 | 5 | 4 | 5 | 3 | 4 | 4 | 5 |
| **159** | Kupreanof Strait | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **160** | Kodiak Blacktail Deer | - | - | - | - | 1 | - | - | - | 1 | - |
| **161** | AMNWR E Kodiak/GOA | - | - | 1 | 1 | 1 | 1 | - | - | 1 | 1 |
| **164** | Afognak Island State Park | - | - | - | 1 | - | 1 | - | - | - | 1 |

Tables A.2-56 through A.2-60 represent winter conditional probabilities (expressed as percent chance) that a large oil spill starting at a particular location will contact a certain BS within 1, 3, 10, 30, and 110 day(s), respectively.

**Table A.2-56. Conditional probability of a large oil spill contacting a BS in 1 day (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-57. Conditional probability of a large oil spill contacting a BS in 3 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-58. Conditional probability of a large oil spill contacting a BS in 10 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-59. Conditional probability of a large oil spill contacting a BS in 30 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Note: All rows have all values less than 0.5% and are not shown.

**Table A.2-60. Conditional probability of a large oil spill contacting a BS in 110 days (winter timeframe)**

| ID | Name | LA 1 | LA 2 | LA 3 | LA 4 | LA 5 | LA 6 | PL 1 | PL 2 | PL 3 | PL 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **4** | Gulf of Alaska | - | - | 1 | - | - | 1 | - | - | - | - |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

Tables A.2-61 through A.2-64 represent combined probabilities (expressed as percent chance), over the assumed life of the Sale 258 Action Area under Alternatives 1, 3a, 3b, 3c, 4a, 4b, or 5 of one or more spills ≥ 1,000 bbl, and the estimated number of spills (mean), occurring and contacting a resource.

**Table A.2-61. Combined probability over the assumed life of the Sale 258 Action Area under Alternatives 1, 3a, 3b, 3c, 4a, 4b, or 5 of one or more large oil spills occurring and contacting specific ERAs**

| ID | Name | 1 day | | 3 days | | 10 days | | 30 days | |
|---|---|---|---|---|---|---|---|---|---|
| | | % | mean | % | mean | % | mean | % | mean |
| 0 | Land | 2 | 0.02 | 8 | 0.08 | 16 | 0.17 | 19 | 0.21 |
| 3 | SUA: Tyonek South | 1 | 0.01 | 1 | 0.01 | 2 | 0.02 | 2 | 0.02 |
| 4 | SUA: Seldovia, Port Graham, Nanwalek | - | - | 1 | 0.01 | 2 | 0.02 | 2 | 0.02 |
| 5 | SUA: Port Lions | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 6 | SUA: Ouzinke | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 11 | Augustine | 1 | 0.01 | 3 | 0.03 | 6 | 0.07 | 7 | 0.07 |
| 12 | South Cook HS 1a | 8 | 0.08 | 12 | 0.13 | 13 | 0.14 | 13 | 0.14 |
| 13 | South Cook HS 1b | 3 | 0.03 | 8 | 0.09 | 11 | 0.11 | 11 | 0.12 |
| 14 | South Cook HS 1c | - | - | 3 | 0.03 | 6 | 0.07 | 7 | 0.07 |
| 15 | South Cook HS 1d | - | - | 1 | 0.01 | 4 | 0.04 | 5 | 0.05 |
| 16 | Inner Kachemak Bay | 5 | 0.05 | 5 | 0.05 | 6 | 0.06 | 6 | 0.06 |
| 17 | Clam Gulch HS | 3 | 0.03 | 4 | 0.04 | 4 | 0.05 | 4 | 0.05 |
| 18 | Tuxedni HS | 2 | 0.02 | 2 | 0.02 | 2 | 0.02 | 2 | 0.02 |
| 19 | Kalgin Island HS | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 20 | Redoubt Bay HS | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 23 | Barren Isl. Pinniped | - | - | - | - | 2 | 0.02 | 3 | 0.03 |
| 24 | Shelikof MM 2 | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 25 | Shelikof MM 3 | - | - | - | - | - | - | 1 | 0.01 |
| 26 | Shelikof MM 4 | 1 | 0.01 | 2 | 0.02 | 3 | 0.03 | 3 | 0.03 |
| 45 | Clam Gulch | 3 | 0.03 | 4 | 0.04 | 5 | 0.05 | 5 | 0.05 |
| 46 | Outer Kachemak Bay | 4 | 0.04 | 8 | 0.08 | 10 | 0.10 | 10 | 0.10 |
| 47 | SW Cook Inlet | - | - | 1 | 0.01 | 5 | 0.05 | 6 | 0.06 |
| 48 | Kamishak Bay | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 49 | Katmai NP | - | - | - | - | - | - | 1 | 0.01 |
| 64 | Afognak-West | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 67 | Shuyak | - | - | - | - | - | - | 1 | 0.01 |
| 68 | Kenai Fjords-West | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 71 | Middle Cook Inlet-Beluga CH | 4 | 0.04 | 5 | 0.05 | 5 | 0.05 | 5 | 0.05 |
| 72 | West Cook Inlet-Beluga CH | 2 | 0.02 | 7 | 0.07 | 10 | 0.11 | 11 | 0.11 |
| 75 | Kachemak-Humpback Whale | - | - | 1 | 0.01 | 3 | 0.03 | 3 | 0.03 |
| 76 | Shelikof-Humpback Whale | - | - | - | - | - | - | 1 | 0.01 |
| 77 | N Kodiak-Humpback Whale | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 80 | Shelikof MM 1 | - | - | - | - | 3 | 0.03 | 4 | 0.04 |
| 81 | Shelikof MM 1a | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 82 | Shelikof MM 2a | - | - | - | - | - | - | 1 | 0.01 |
| 90 | Barren Islands-Fin Whale | - | - | 1 | 0.01 | 4 | 0.04 | 4 | 0.04 |
| 94 | Lower E Kenai-Gray Whale | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 95 | NE Kodiak-Gray Whale | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 98 | Shelikof-Gray Whale | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 102 | Cook Inlet 2-Harbor Porpoise | 1 | 0.01 | 2 | 0.02 | 2 | 0.02 | 2 | 0.02 |
| 103 | Cook Inlet 3-Harbor Porpoise | 2 | 0.03 | 4 | 0.04 | 4 | 0.04 | 4 | 0.04 |
| 104 | Cook Inlet 4-Harbor Porpoise | 1 | 0.01 | 3 | 0.03 | 4 | 0.05 | 5 | 0.05 |
| 105 | Cook Inlet 5-Harbor Porpoise | - | - | 2 | 0.02 | 3 | 0.03 | 3 | 0.03 |
| 108 | Shelikof-Killer Whale | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 136 | Kamishak Bay IBA | - | - | 1 | 0.01 | 1 | 0.01 | 2 | 0.02 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

| ID | Name | 1 day | | 3 days | | 10 days | | 30 days | |
|---|---|---|---|---|---|---|---|---|---|
| | | % | mean | % | mean | % | mean | % | mean |
| 137 | Kamishak Bay STEI Habitat | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 138 | Tuxedni Is Colony IBA | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 139 | Tuxedni Bay IBA | 1 | 0.01 | 2 | 0.02 | 3 | 0.03 | 3 | 0.03 |
| 140 | Redoubt Bay IBA | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 144 | Clam Gulch STEI Habitat | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 145 | Outer Kachemak Bay/IBA | 6 | 0.07 | 8 | 0.08 | 9 | 0.09 | 9 | 0.09 |
| 146 | Lower Cook Inlet 153W59N IBA | 1 | 0.01 | 4 | 0.04 | 5 | 0.05 | 5 | 0.05 |
| 147 | Barren Islands Marine IBA | - | - | - | - | - | - | 1 | 0.01 |
| 148 | Barren Islands Colonies IBA | - | - | - | - | - | - | 1 | 0.01 |
| 153 | Polly Creek Beach | 8 | 0.08 | 10 | 0.10 | 11 | 0.11 | 11 | 0.11 |
| 154 | Chinitna Bay | - | - | 2 | 0.02 | 3 | 0.03 | 3 | 0.03 |
| 155 | Barren Islands | - | - | - | - | 1 | 0.01 | 2 | 0.02 |

**Table A.2-62. Combined probability over the assumed life of the Sale 258 Action Area under Alternatives 1, 3a, 3b, 3c, 4a, 4b, or 5 of one or more large oil spills occurring and contacting specific LSs**

| ID | Name | 1 day | | 3 days | | 10 days | | 30 days | |
|---|---|---|---|---|---|---|---|---|---|
| | | % | mean | % | mean | % | mean | % | mean |
| 25 | Cape Douglas, Sukoi Bay | - | - | - | - | - | - | 1 | 0.01 |
| 28 | Amakdedulia Cove, Bruin Bay, Chenik Head | - | - | - | - | - | - | 1 | 0.01 |
| 29 | Augustine Island | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 30 | Rocky Cove, Tignagvik Point | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 31 | liamna Bay, Iniskin Bay, Ursus Cove | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 32 | Chinitna Point, Dry Bay | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 33 | Chinitna Bay | - | - | 2 | 0.02 | 3 | 0.03 | 3 | 0.03 |
| 34 | Iliamna Point | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 35 | Chisik Island, Tuxedni Bay | 1 | 0.01 | 1 | 0.01 | 2 | 0.02 | 2 | 0.02 |
| 36 | Redoubt Point | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 56 | Cape Starichkof, Happy Valley | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 62 | Nanwalek, Port Graham | - | - | - | - | - | - | 1 | 0.01 |

**Table A.2-63. Combined probability over the assumed life of the Sale 258 Action Area under Alternatives 1, 3a, 3b, 3c, 4a, 4b, or 5 of one or more large oil spills occurring and contacting specific GLSs**

| ID | Name | 1 day | | 3 days | | 10 days | | 30 days | |
|---|---|---|---|---|---|---|---|---|---|
| | | % | mean | % | mean | % | mean | % | mean |
| 123 | Katmai National Park | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 126 | McNeil River State Game Sanctuary and Refuge | - | - | - | - | - | - | 1 | 0.01 |
| 127 | AMNWR W Cook Inlet | 1 | 0.01 | 5 | 0.05 | 9 | 0.10 | 10 | 0.10 |
| 128 | Lake Clark National Park and Preserve | 1 | 0.01 | 5 | 0.05 | 6 | 0.07 | 7 | 0.07 |
| 129 | Redoubt Bay Brown Bears | - | - | - | - | - | - | 1 | 0.01 |
| 135 | Kenai AK State Rec Mgmt Areas | - | - | 1 | 0.01 | 2 | 0.02 | 2 | 0.02 |
| 136 | West Kenai Brown Bears | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 138 | Clam Gulch Critical Habitat | - | - | 1 | 0.01 | 1 | 0.01 | 1 | 0.01 |
| 140 | West Kenai Black Bears | - | - | - | - | - | - | 1 | 0.01 |
| 141 | Seldovia side Kachemak Bay | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 142 | AMNWR E Cook Inlet | - | - | - | - | 1 | 0.01 | 1 | 0.01 |
| 153 | Shuyak Island State Park | - | - | - | - | - | - | 1 | 0.01 |
| 154 | AMNWR Afognak and Shuyak Islands | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 155 | Afognak & Raspberry Winter Elk | - | - | - | - | - | - | 1 | 0.01 |
| 156 | Kodiak National Wildlife Refuge | - | - | - | - | 1 | 0.01 | 2 | 0.02 |
| 158 | AMNWR W Kodiak/Shelikof | - | - | - | - | - | - | 1 | 0.01 |

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

**Table A.2-64. Combined probability over the assumed life of the Sale 258 Action Area under Alternatives 1, 3a, 3b, 3c, 4a, 4b, or 5 of one or more large oil spills occurring and contacting specific BSs**

| ID | Name | 1 day | | 3 days | | 10 days | | 30 days | |
|---|---|---|---|---|---|---|---|---|---|
| | | % | mean | % | mean | % | mean | % | mean |

Note: All rows have all values less than 0.5% and are not shown.

Notes: **= > 99.5%; - = < 0.5%; LA = launch area PL = pipeline. Rows with all values < 0.5% are not shown.

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# Appendix B. OSRA Figures

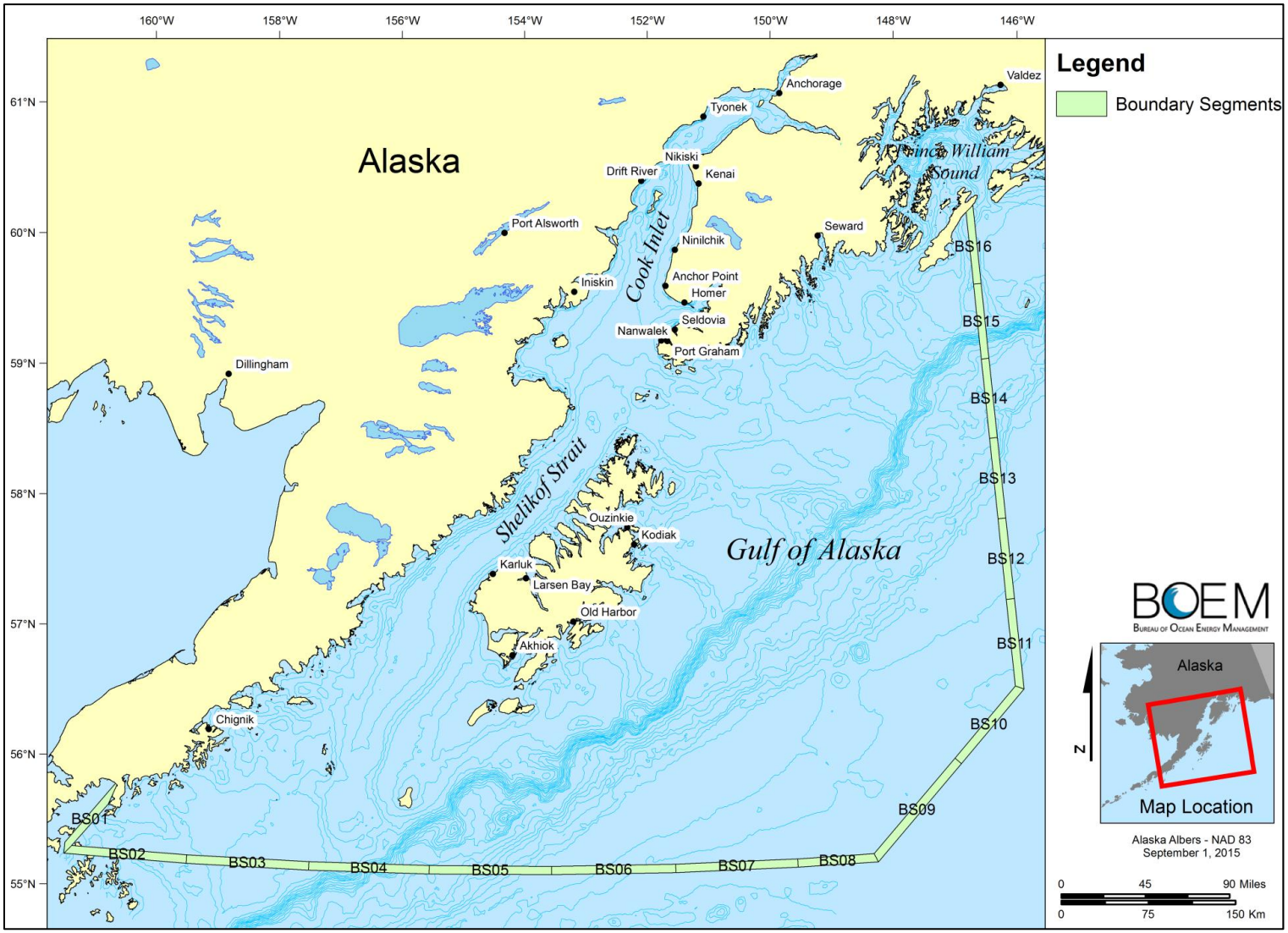


**Figure B-1a. Model domain used in the oil spill trajectory analysis**

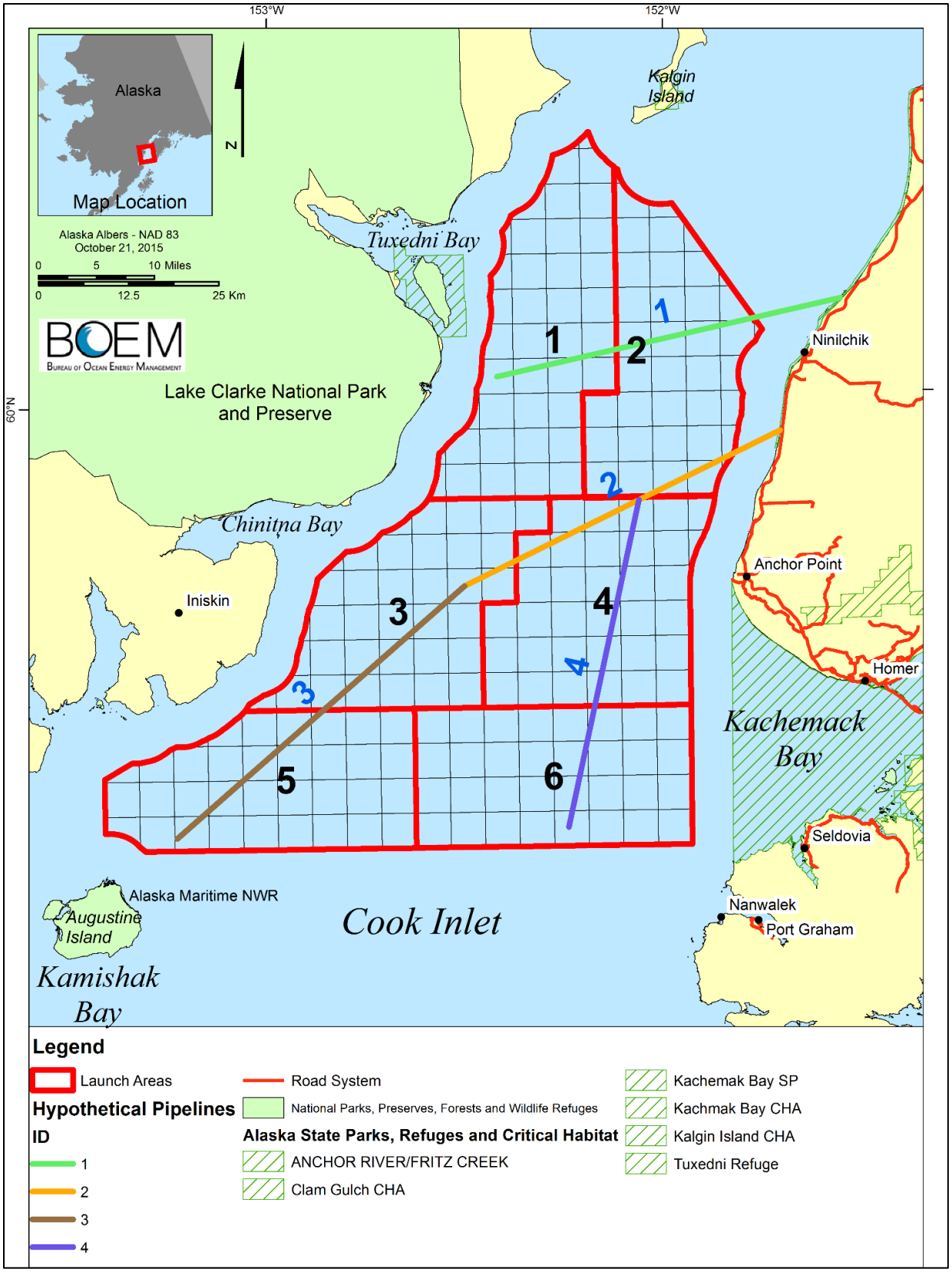


**Figure B-1b. Proposed Lease Sale 258 area with hypothetical launch areas and pipelines**
Launch areas and pipelines are used in the oil spill trajectory analysis.

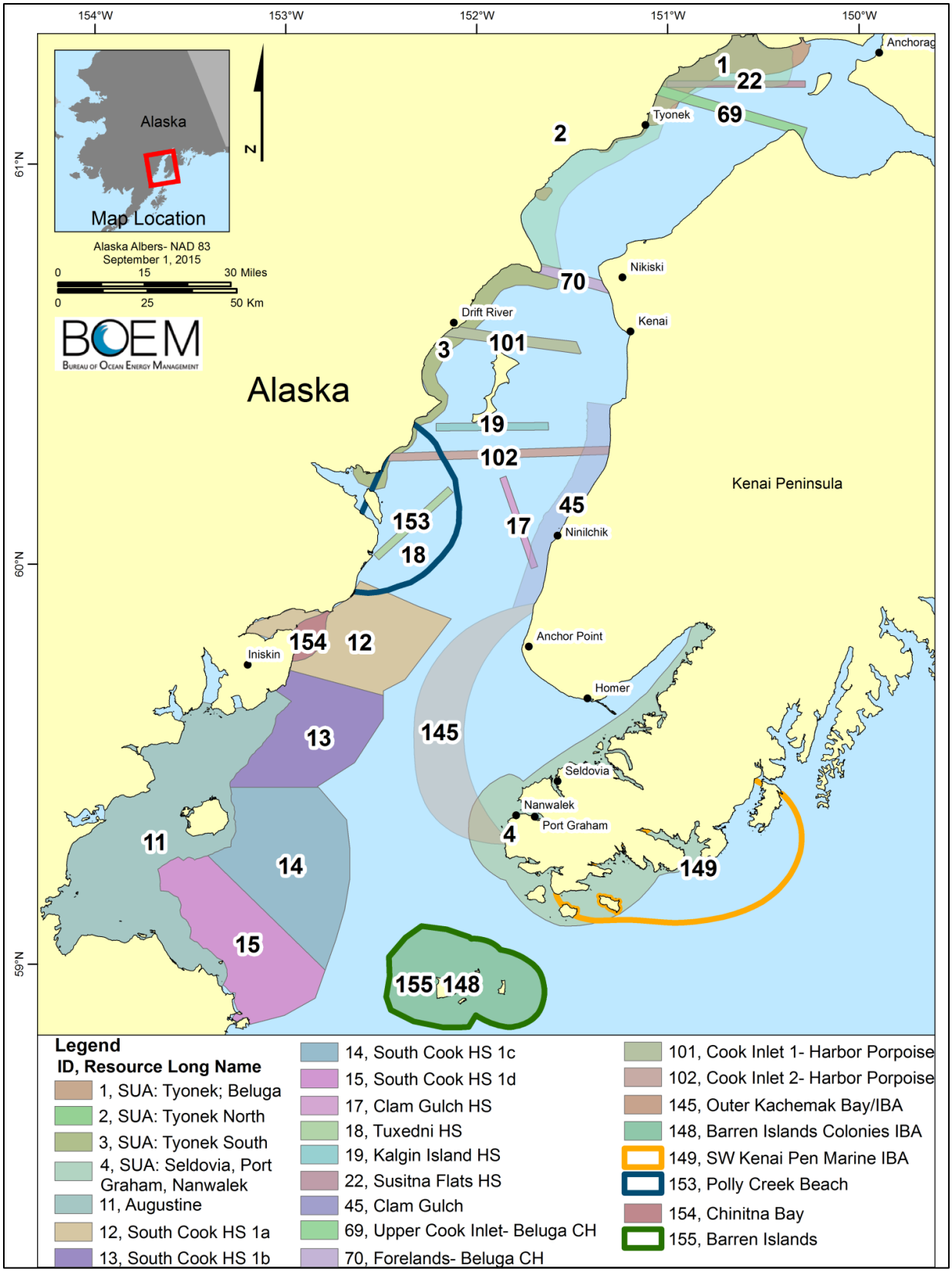


**Figure B-2a. ERAs used in the oil spill trajectory analysis (Set 1 of 8)**
See Table A.1-1 for details.

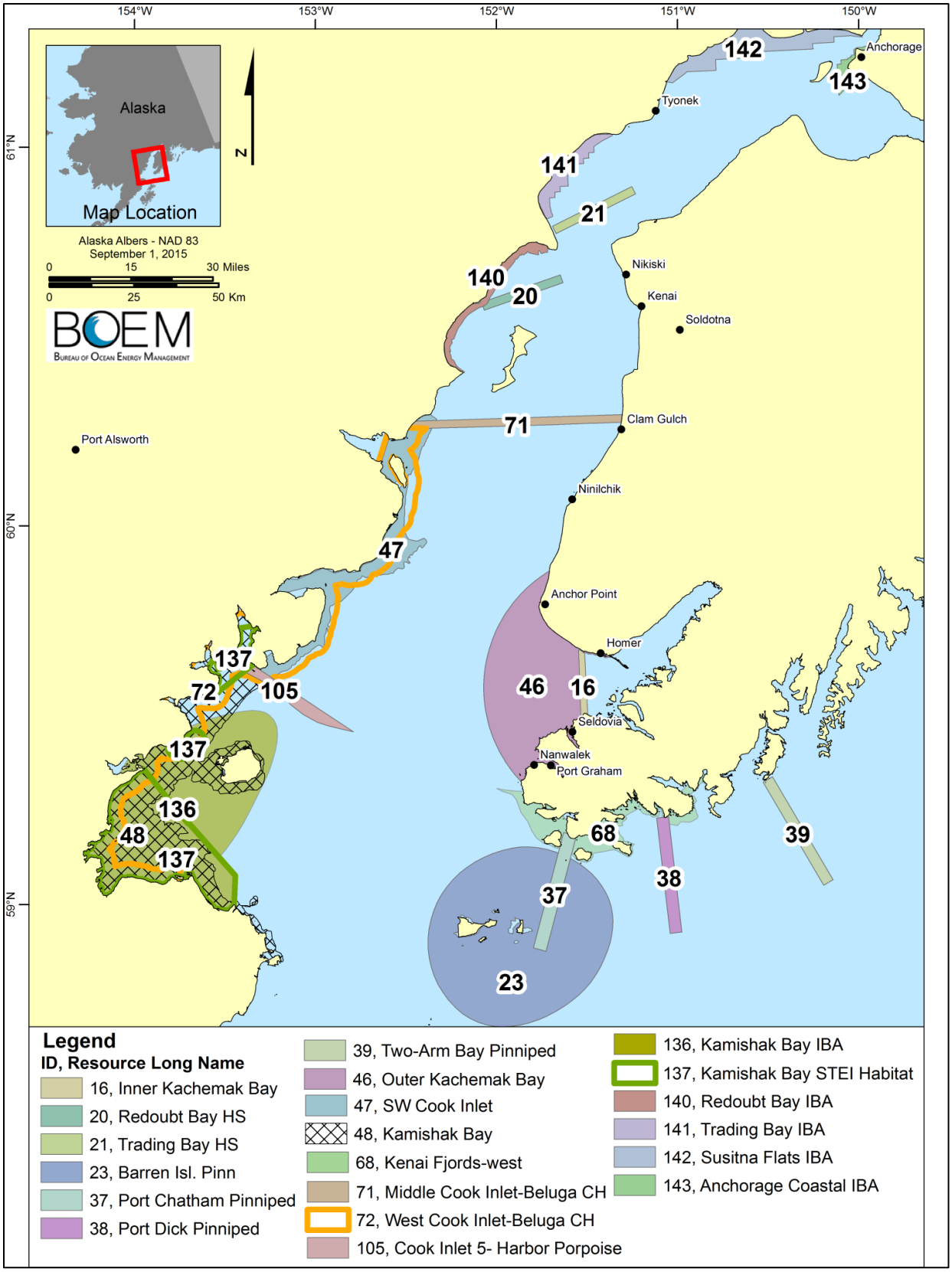


**Figure B-2b. ERAs used in the oil spill trajectory analysis (Set 2 of 8)**
See Table A.1-1 for details.

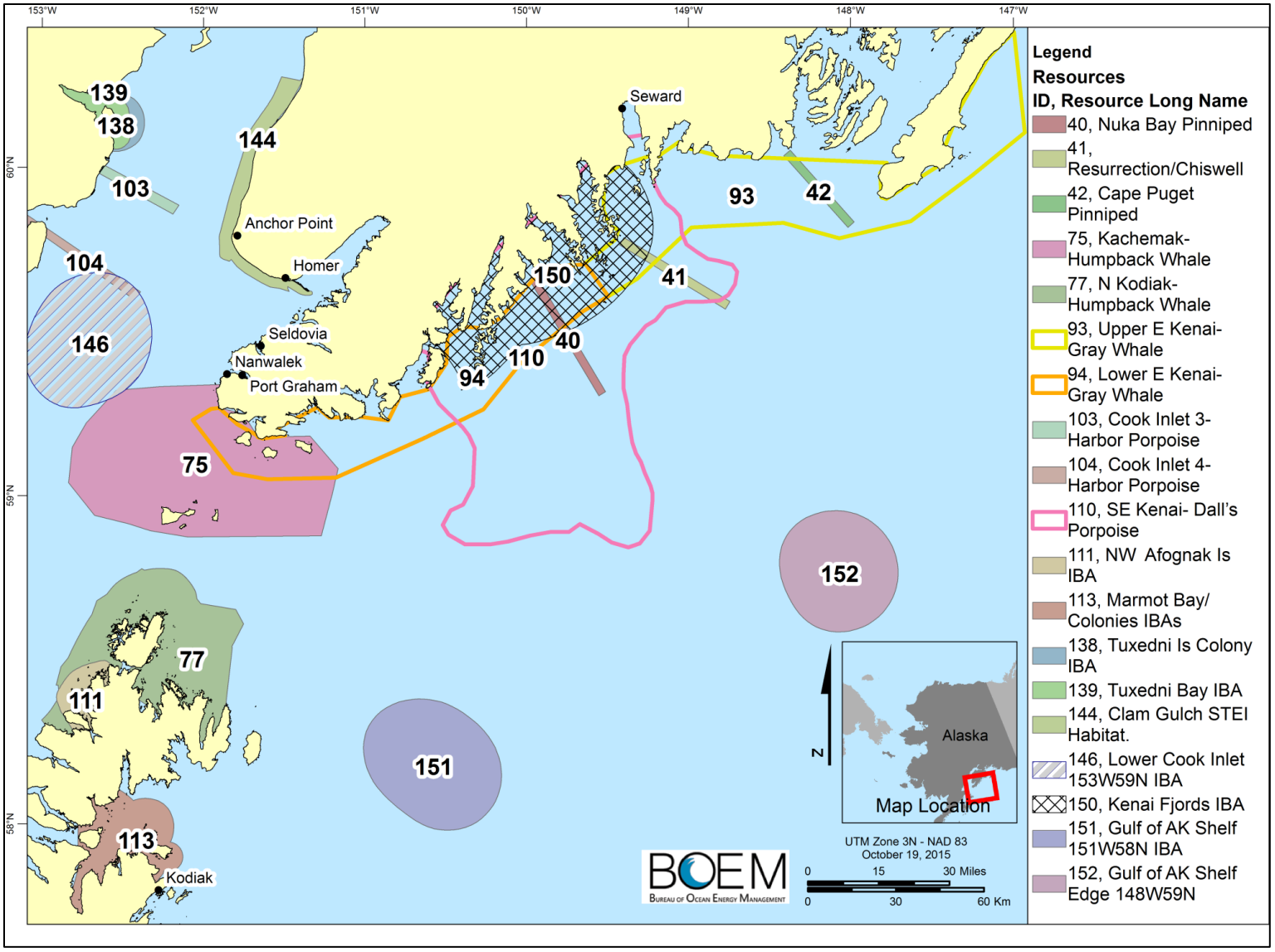


**Figure B-2c. ERAs used in the oil spill trajectory analysis (Set 3 of 8)**
See Table A.1-1 for details.

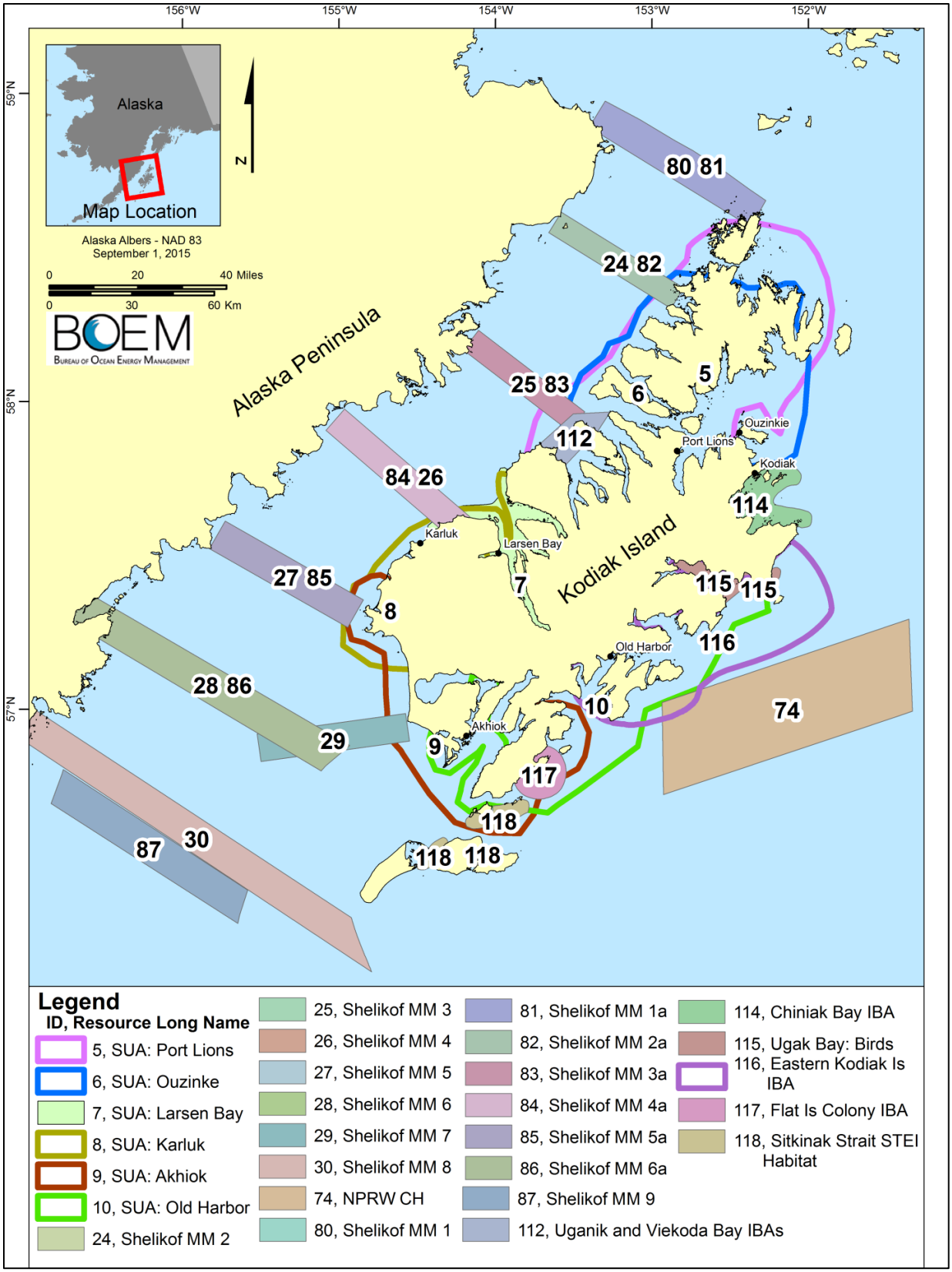


**Figure B-2d. ERAs used in the oil spill trajectory analysis (Set 4 of 8)**
See Table A.1-1 for details.

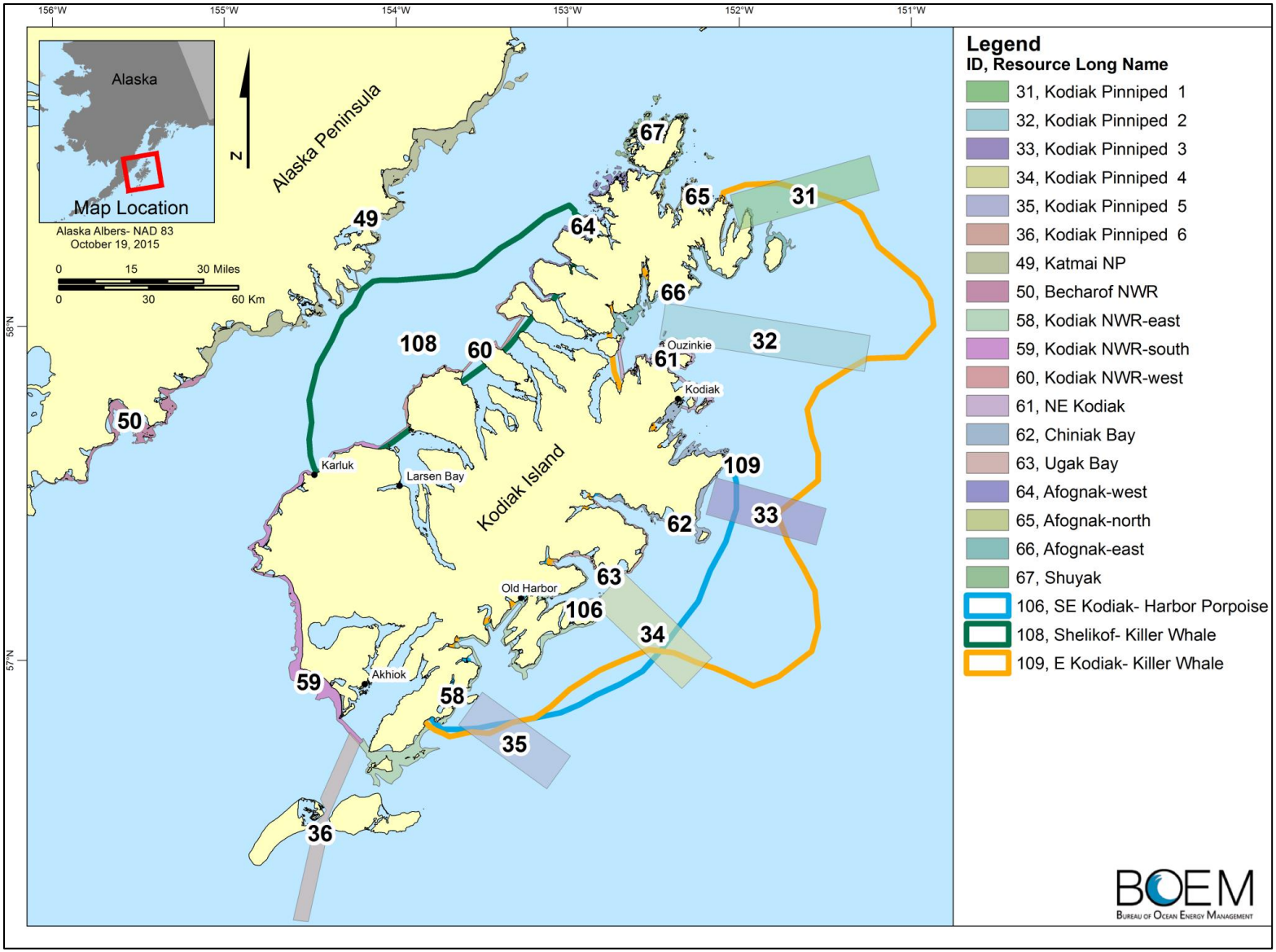


**Figure B-2e. ERAs used in the oil spill trajectory analysis (Set 5 of 8)**
See Table A.1-1 for details.

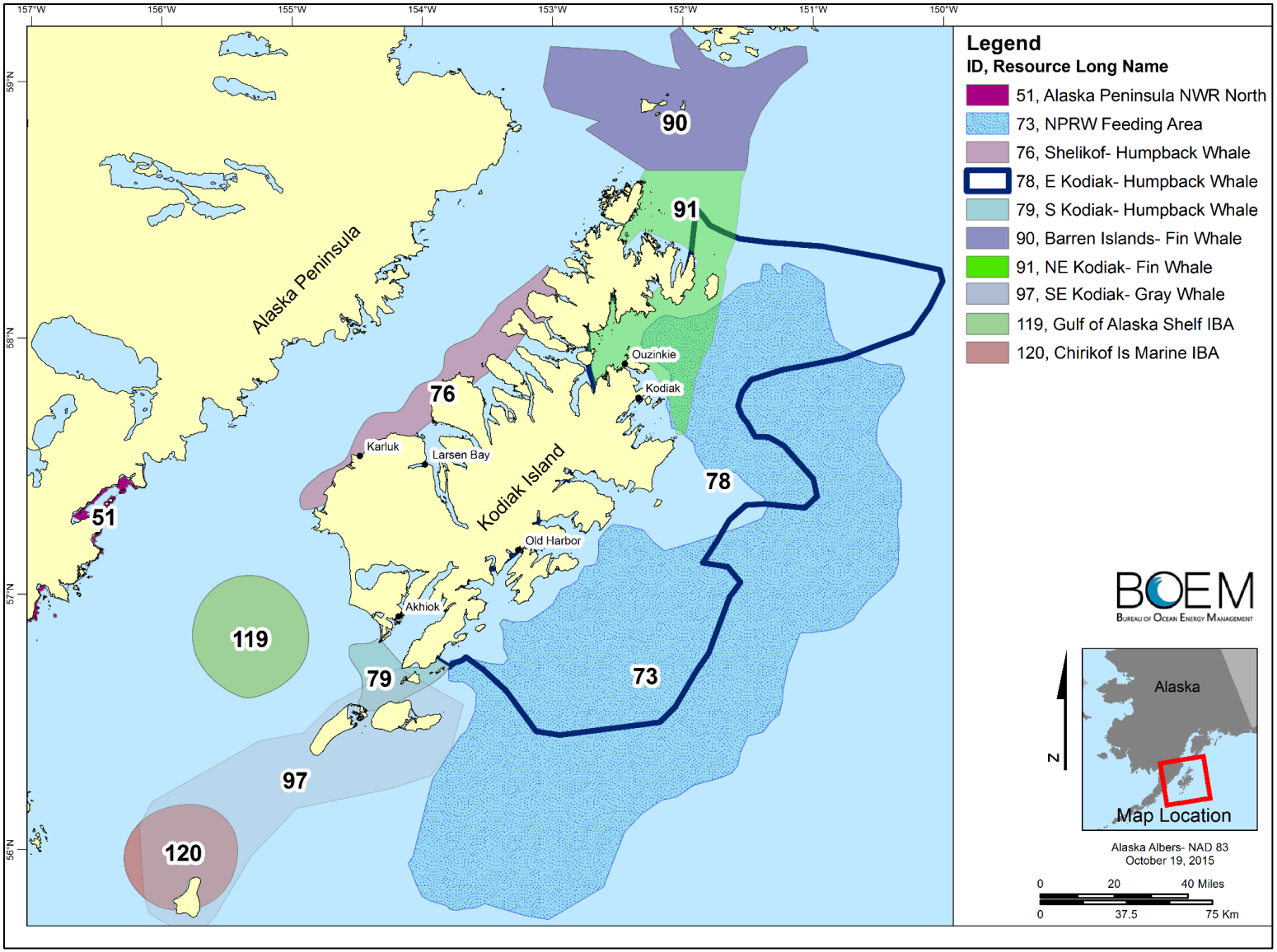


**Figure B-2f. ERAs used in the oil spill trajectory analysis (Set 6 of 8)**
See Table A.1-1 for details.

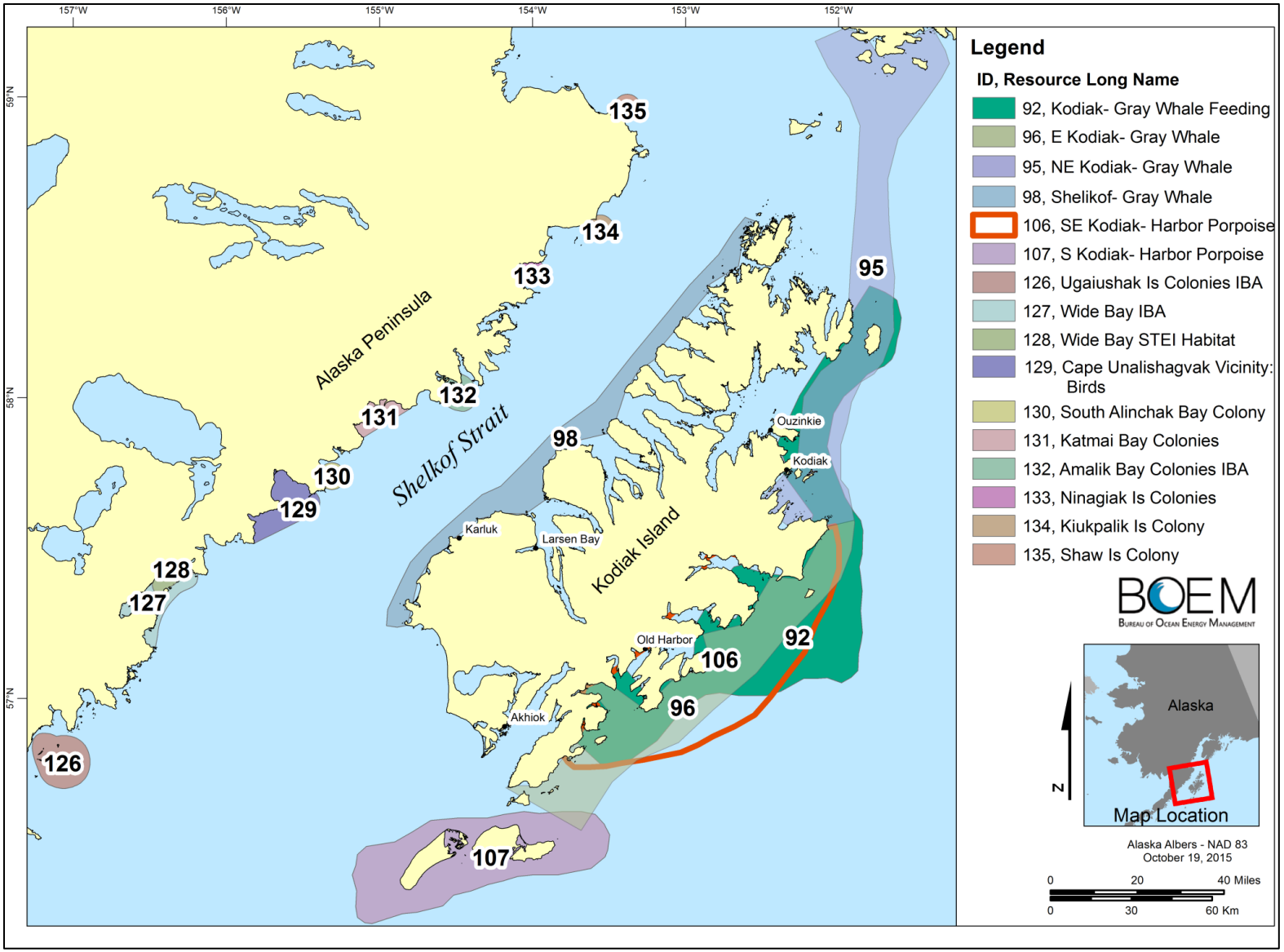


**Figure B-2g. ERAs used in the oil spill trajectory analysis (Set 7 of 8)**
See Table A.1-1 for details.

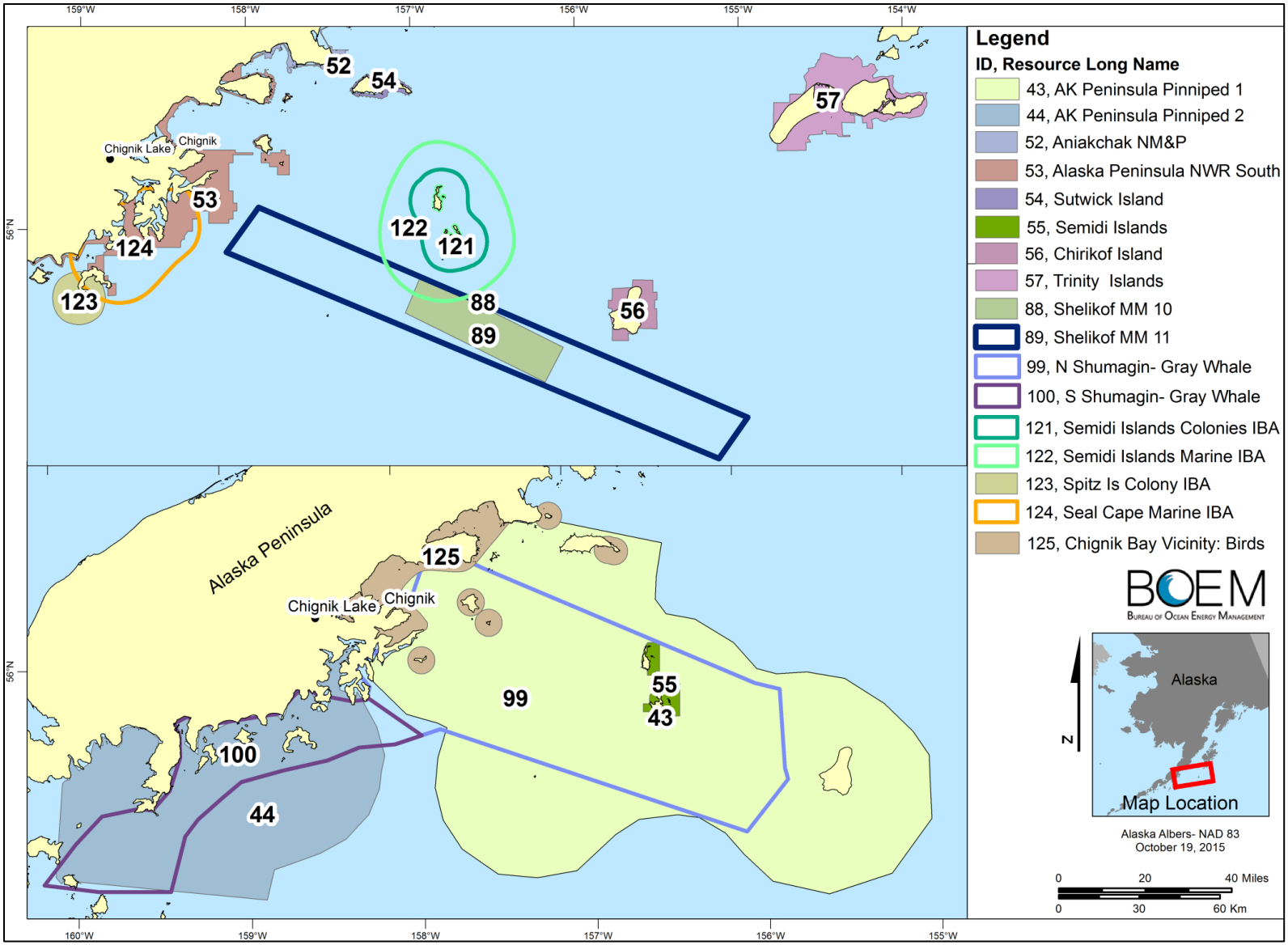


**Figure B-2h. ERAs used in the oil spill trajectory analysis (Set 8 of 8)**
See Table A.1-1 for details.

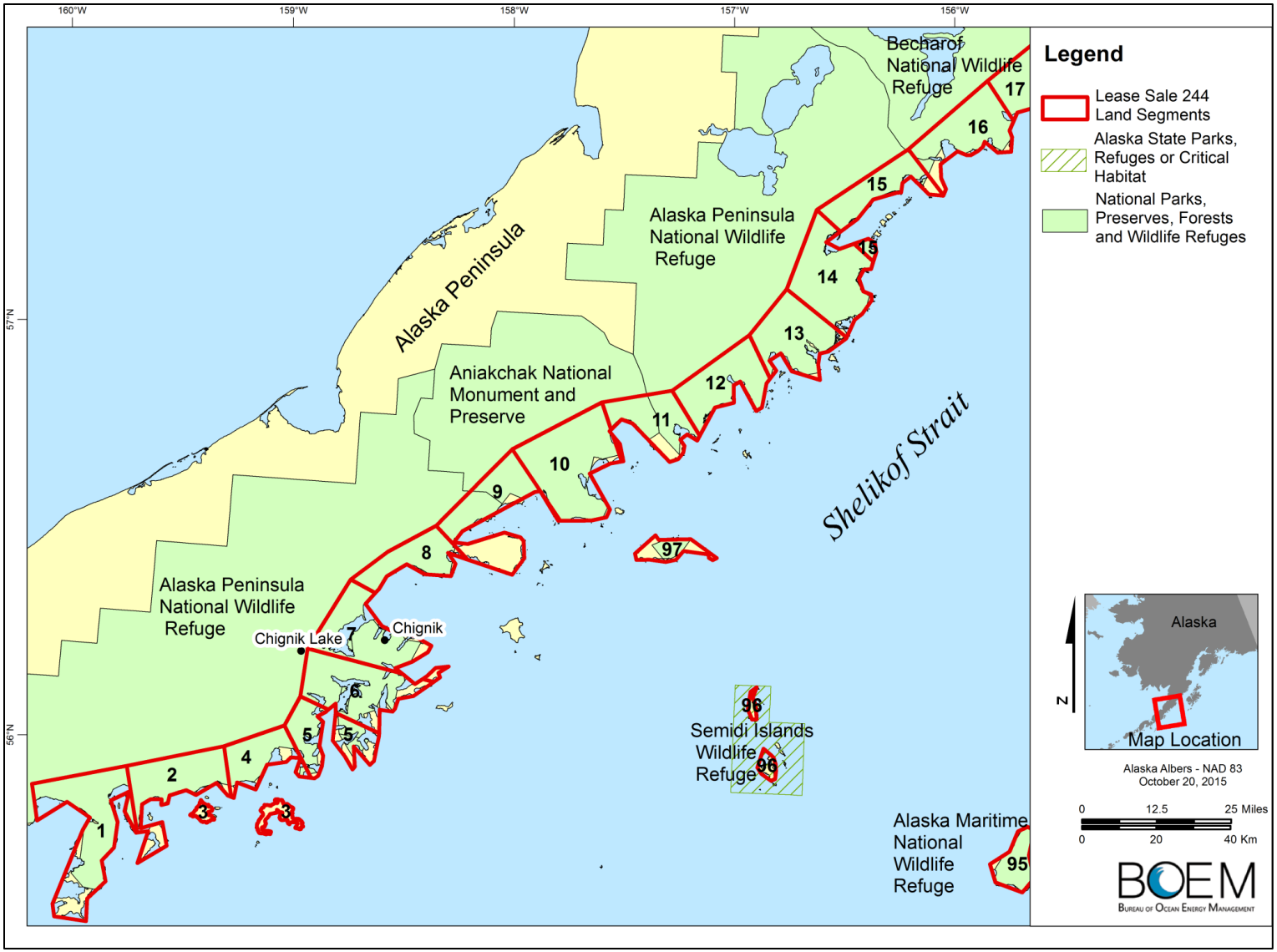


**Figure B-3a. LSs used in the oil spill trajectory analysis (Set 1 of 4)**
See Table A.1-2 for details.


**Figure B-3b. LSs used in the oil spill trajectory analysis (Set 2 of 4)**
See Table A.1-2 for details.


**Figure B-3c. LSs used in the oil spill trajectory analysis (Set 3 of 4)**
See Table A.1-2 for details.

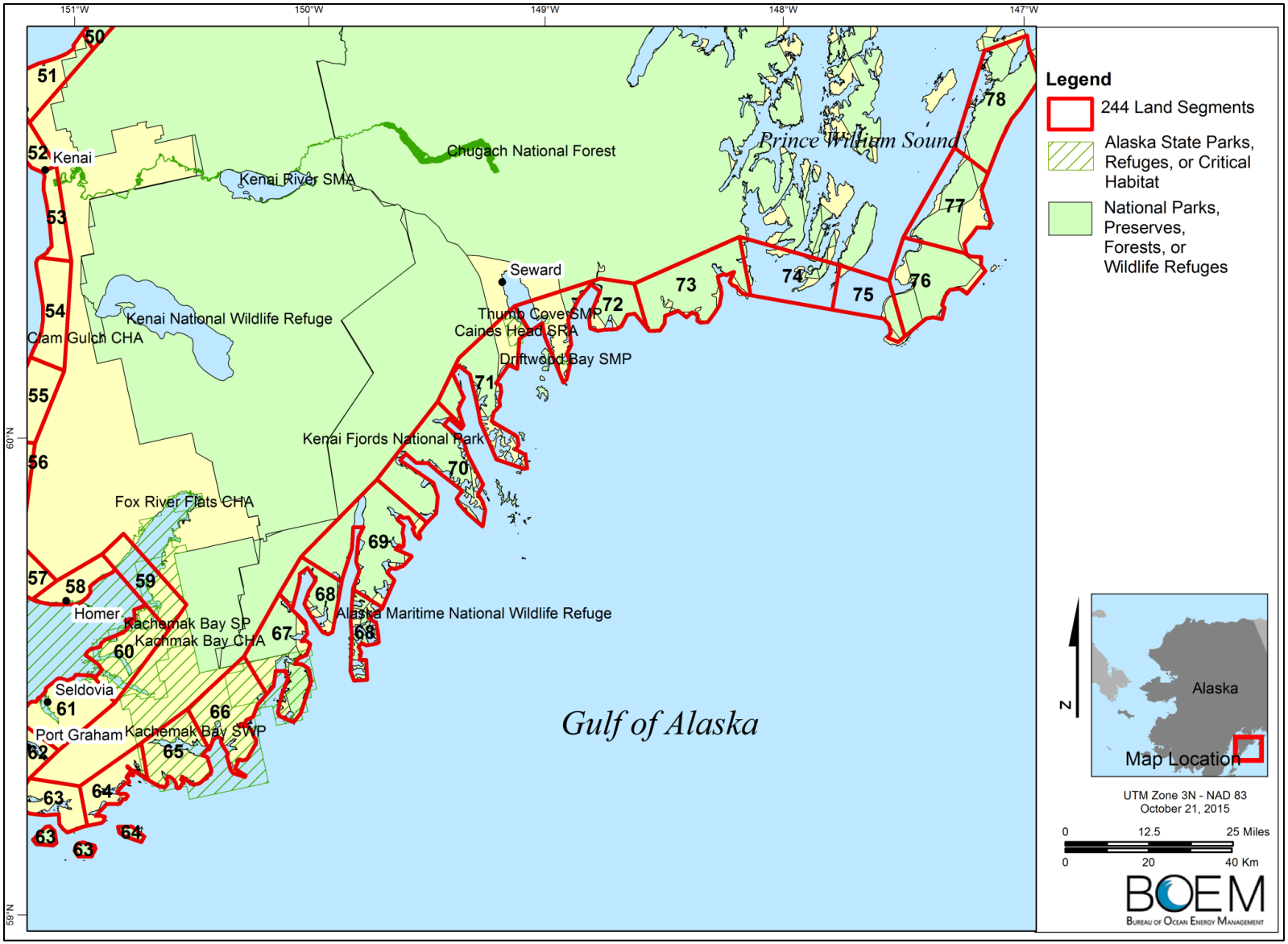


**Figure B-3d. LSs used in the oil spill trajectory analysis (Set 4 of 4)**
See Table A.1-2 for details.

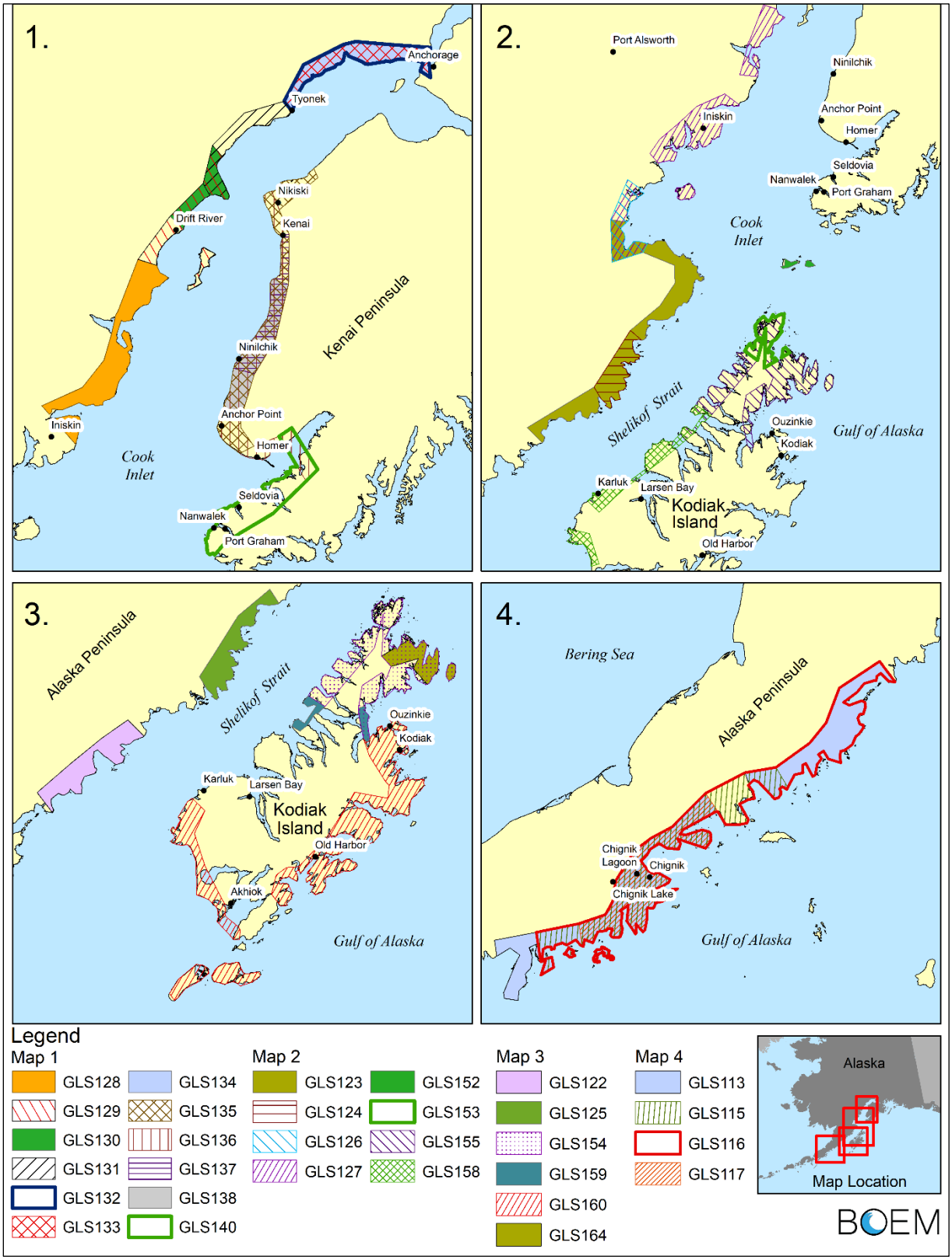


**Figure B-4a. GLSs used in the oil spill trajectory analysis (Set 1 of 2)**
See Table A.1-3 for details.

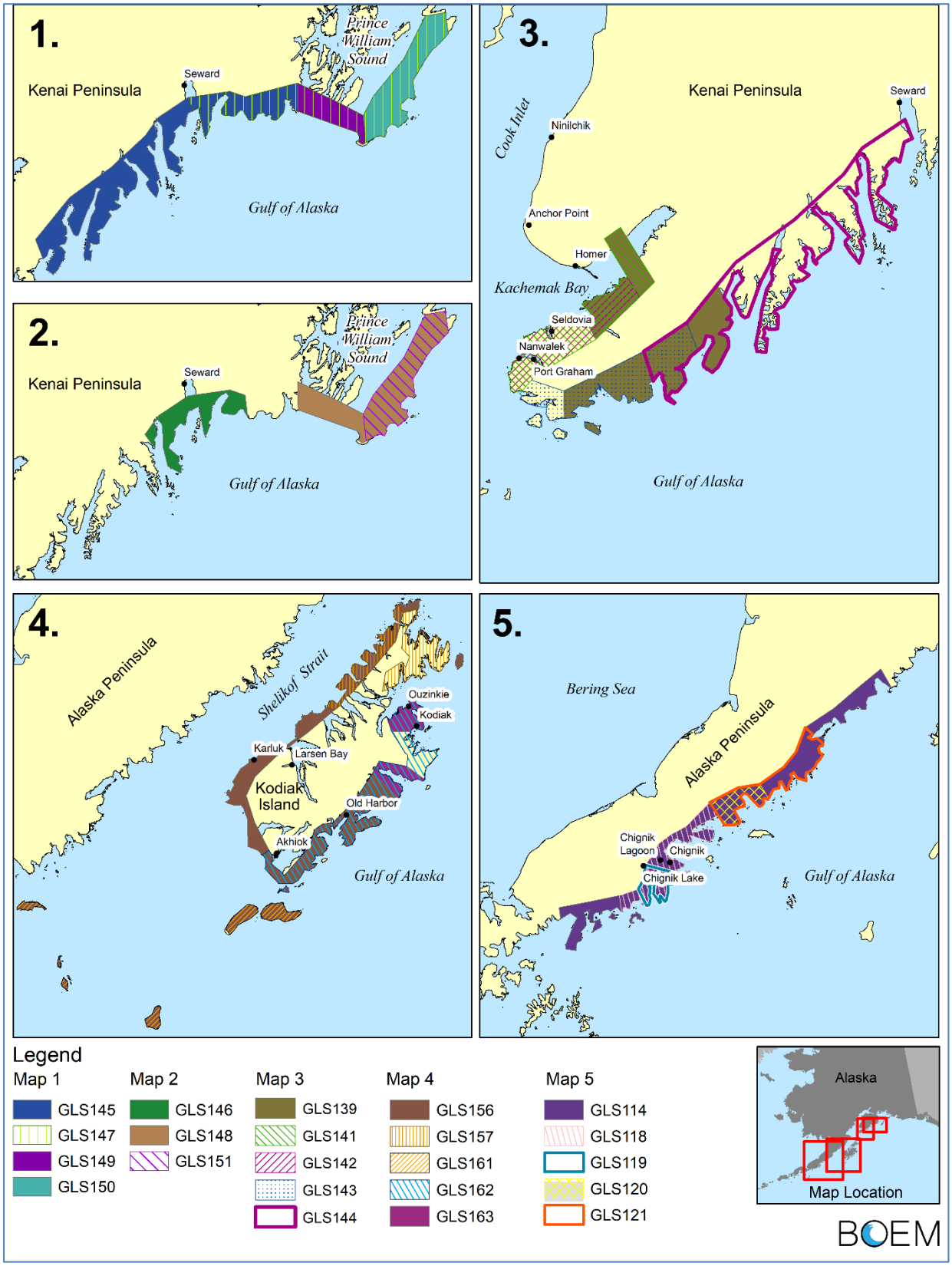


**Figure B-4b. GLSs used in the oil spill trajectory analysis (Set 2 of 2)**
See Table A.1-3 for details.

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The mission of the Bureau of Ocean Energy Management is to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.

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The mission of the Environmental Studies Program is to provide the information needed to predict, assess, and manage impacts from offshore energy and marine mineral exploration, development, and production activities on human, marine, and coastal environments. The proposal, selection, research, review, collaboration, production, and dissemination of each of BOEM’s Environmental Studies follows the DOI Code of Scientific and Scholarly Conduct, in support of a culture of scientific and professional integrity, as set out in the DOI Departmental Manual (305 DM 3).