AN OILSPILL RISK ANALYSIS FOR THE ST. GEORGE BASIN, ALASKA, (PROPOSED SALE 70) OUTER CONTINENTAL SHELF LEASE AREA

By William B. Samuels and Dorothy Hopkins

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Abstract

An oilspill risk analysis was conducted to determine the relative environmental hazards of developing oil in different regions of the St. George Basin, Alaska, (Proposed Sale 70) Outer Continental Shelf (OCS) lease area. The probability of spill occurrences, likely movement of oil slicks, and locations of resources vulnerable to spilled oil were analyzed. The times between spill occurrence and contact with various resources were also estimated. The combined results yielded estimates of the overall risks associated with development of the proposed lease area. Assuming that oil exists in the lease area (a 28-percent chance) and depending upon the routes chosen to transport oil from OCS platforms to the shore, the leasing of the tracts proposed for OCS Sale 70 will result in an expected 6.5 oilspills of 1,000 barrels or larger. The estimated probability that land will be contacted by one or more oilspills of 1,000 barrels or larger that have been at sea less than 30 days is 0.58 to 0.85, depending on the proposed transportation method chosen.

Introduction

The Federal Government has proposed to offer Outer Continental Shelf (OCS) lands in the St. George Basin, off the coast of Alaska, for oil and gas leasing. The conditional mean estimate of oil resources for the proposed 479 tracts is 1.12 billion barrels of crude oil, this estimate is based on the assumption that oil occurs in commerical quantities. The probability that oil will be found in the sale area is 28 percent. This report examines what could happen if oil is found. Contingent upon actual discovery of oil, production is expected to span a period of 25 years.

Oilspills are a major problem associated with offshore oil production. An important fact that stands out when one attempts to evaluate the significance of accidental oilspills is that the problem is fundamentally probabilistic. Uncertainty exists about the amount of oil that will be produced from the leases and the number and size of spills that might occur during the life of production, as well as the wind and current conditions that would exist at the time of a spill occurrence and give direction to the oil slick. Although some of the uncertainty reflects incomplete and imperfect data, considerable uncertainty is simply inherent in the problem of describing future events over which complete control cannot be exercised. Since it can not be predicted with certainty that a probabilistic event such as an oilspill will occur, only the likelihood of occurrence can be quantified. The range of possible effects that may accompany a decision on oil and gas production must be considered. In attempting to maintain perspective on the problem, each potential effect must be associated with a quantitative estimate of its probability of occurrence.

This report summarizes results of an oilspill risk analysis conducted for the proposed St. George Basin OCS Lease Sale 70. The study had the objective of determining relative risks associated with oil and gas production in different regions of the proposed lease area. The study was undertaken for consideration in the draft environmental impact statement (EIS), which is prepared for the area by the Bureau of Land Management (BLM), and to aid in the final selection of tracts to be offered for sale. A description of the oilspill trajectory analysis model used in this analysis can be found in previous papers (Lanfear and others, 1979; Smith and others, 1980; Lanfear and Samuels, 1981). The analysis was conducted in three parts corresponding to different aspects of the overall problem. The first part dealt with the probability of oilspill occurrence, and the second with the trajectories of oilspills from potential launch points to various targets. Results of the first two parts of the analysis were then combined to give estimates of the overall oilspill risk associated with oil and gas production in the lease area.

Decisionmaking Under Risk and Uncertainty

Oilspill impacts result primarily from two events that are probabilistic in nature: oilspill occurrence caused by accidents, and oilspill movement directed by random winds and currents. Although a probabilistic event (such as an oilspill) cannot be predicted with certainty, the likelihood of occurrence can be quantified. The likelihood that oilspills will result from an OCS leasing decision can be estimated, but whether they will actually occur can only be known after the area is explored and the oil, if any, is produced. This situation is in contrast to a deterministic situation where a particular action can be depended upon to produce a specific result.

In making decisions under risk and uncertainty, investigators must understand that a choice can have a range of possible outcomes. Generally, a desire to maximize the likelihood of the most favorable outcomes must be tempered by the need to minimize the probability of highly unfavorable outcomes. The U.S. Geological Survey (USGS) Oilspill Trajectory Analysis (OSTA) Model was designed to reflect the range of possible outcomes of leasing decisions by estimating the probability of occurrence for each discrete outcome; specifically, it estimates the likelihood that a particular target will be contacted by 0, 1, 2, ..., N oilspills during the production life of an OCS lease area.

The probability that, if an oilspill occurs at a given launch point, it will contact a particular target is termed a conditional probability. Such conditional probabilities can be very useful in identifying those launch points at which an oilspill, if it occurs, will pose the highest risks to various targets. Tables of conditional probabilities can help the analyst to select alternatives that will reduce overall risk. However, conditional probabilities do not include the probability of oilspill occurrence. It is assumed that a tract that contains little or no oil is a small risk because, no matter how high the conditional probability of contacting a target may be, the small amount of oil makes it unlikely that an oilspill will occur. Also, conditional probabilities for spills originating at the production platforms do not necessarily reflect the risks of spills during transportation. For these reasons, analysts are cautioned against basing judgments solely upon conditional probabilities.

Summary of the Proposed Action and the Major Alternatives

The proposed action is to lease 479 tracts on the Outer Continental Shelf in the St. George Basin off the coast of Alaska. The study area for this analysis includes all of these tracts and extends from latitude 53° 20' N to 63° 30' N, and from longitude 156° 10 ' W to 174° W.

The study area and the proposed tracts are shown on a Mercator projection in figure 1. The subdivisions of the proposed tracts are shown in figure 2. The launch points, which represent platform locations and locations along pipeline and tanker routes are shown in figure 3. Four oil transportation scenarios (a through d) were analyzed for the proposed action. In transportation scenario a all the oil would be piped to a terminal located at Ikatan Bay on the south side of Unimak Island. From there the oil would be transported south by tankers. In transportation scenario b all the oil would be piped to a terminal on St. Paul Island. From there the oil would be transported south by tankers through Unimak Pass. In transportation scenario c all the oil would be piped to a terminal located at Makushin Bay on Unalaska Island. From there the oil would be transported south by tankers through Akutan Pass. In transportation scenario d all the oil would be piped to a central location near launch site P12. From there the oil would be transported south by tankers through Unimak Pass. Although only a fraction of the entire tanker route lies within the study area, oilspills could occur on that part of the route which lies outside of the study area. We therefore made the asssumption that only one-half the total oilspill risk from tankers occurs within the study area. In addition, tanker transportation of oil was only considered as far as the Aleutian Islands because boundaries of the RAND model for oilspill trajectories excluded the area of the North Pacific Ocean lying to the south of those islands. The RAND model will be discussed in more detail in the section on "Oilspill Trajectory Simulations". Thus, transportation scenario a does not include any tanker transportation of oil within the boundaries of the RAND model.

In addition to the proposed action, three tract deletion alternatives were considered:

1. delete subarea A
2. delete subareas G and H
3. delete subareas A, G, and H

For deletion alternatiive 1, transportation scenario a was used. For deletion alternative 2, transportation scenarios b and c were used separately. For deletion alternative 3, transportation scenario d was used. These tract deletion alternatives and transportation scenarios were designated by BLM. In addition to oil production from the proposed lease tracts, oil produced in the Norton Sound OCS Lease Sale 57 area would be transported by tankers through the St. George Basin area. Thus, a cumulative analysis was performed which considered oil production and transportation (scenario a) from the proposed lease tracts along with the tankering of oil (produced in Norton Sound leases) through the St. George Basin study area.

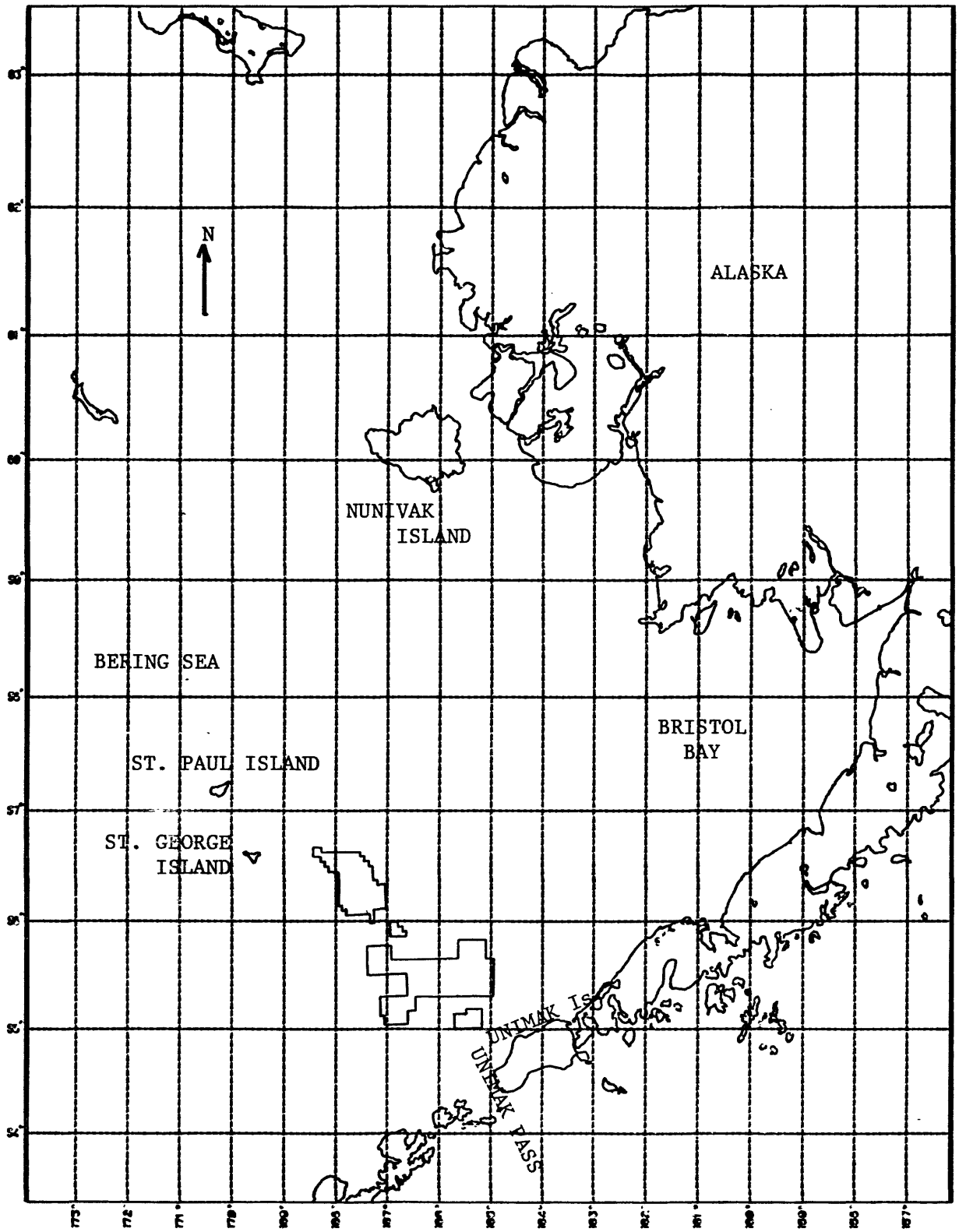

Figure 1.-- Map showing the St. George Basin OCS Lease Sale 70 study area and the proposed lease tracts.

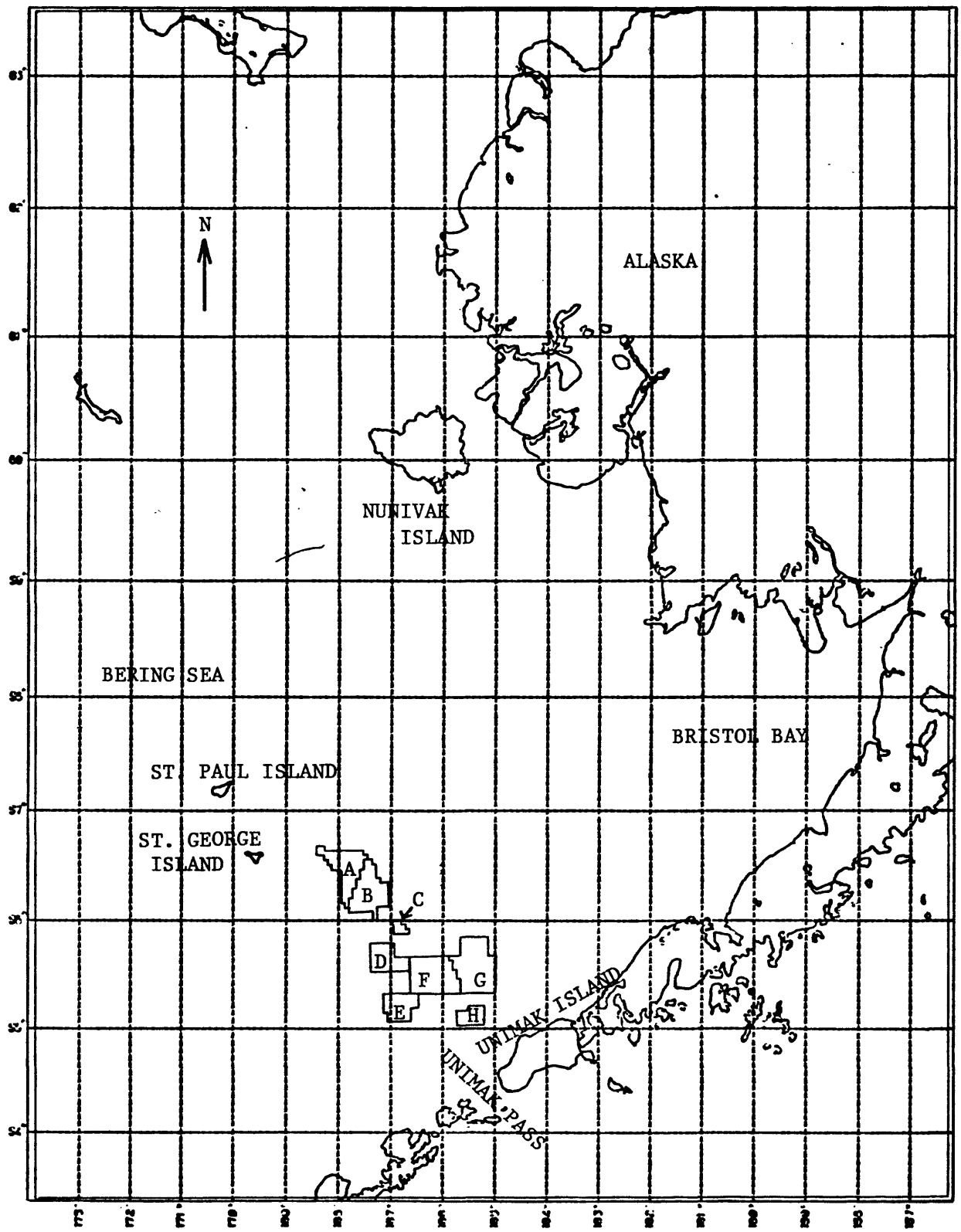

Figure 2.-- Map showing the subdivisions of the proposed lease tracts for St. George Basin OCS lease Sale 70.

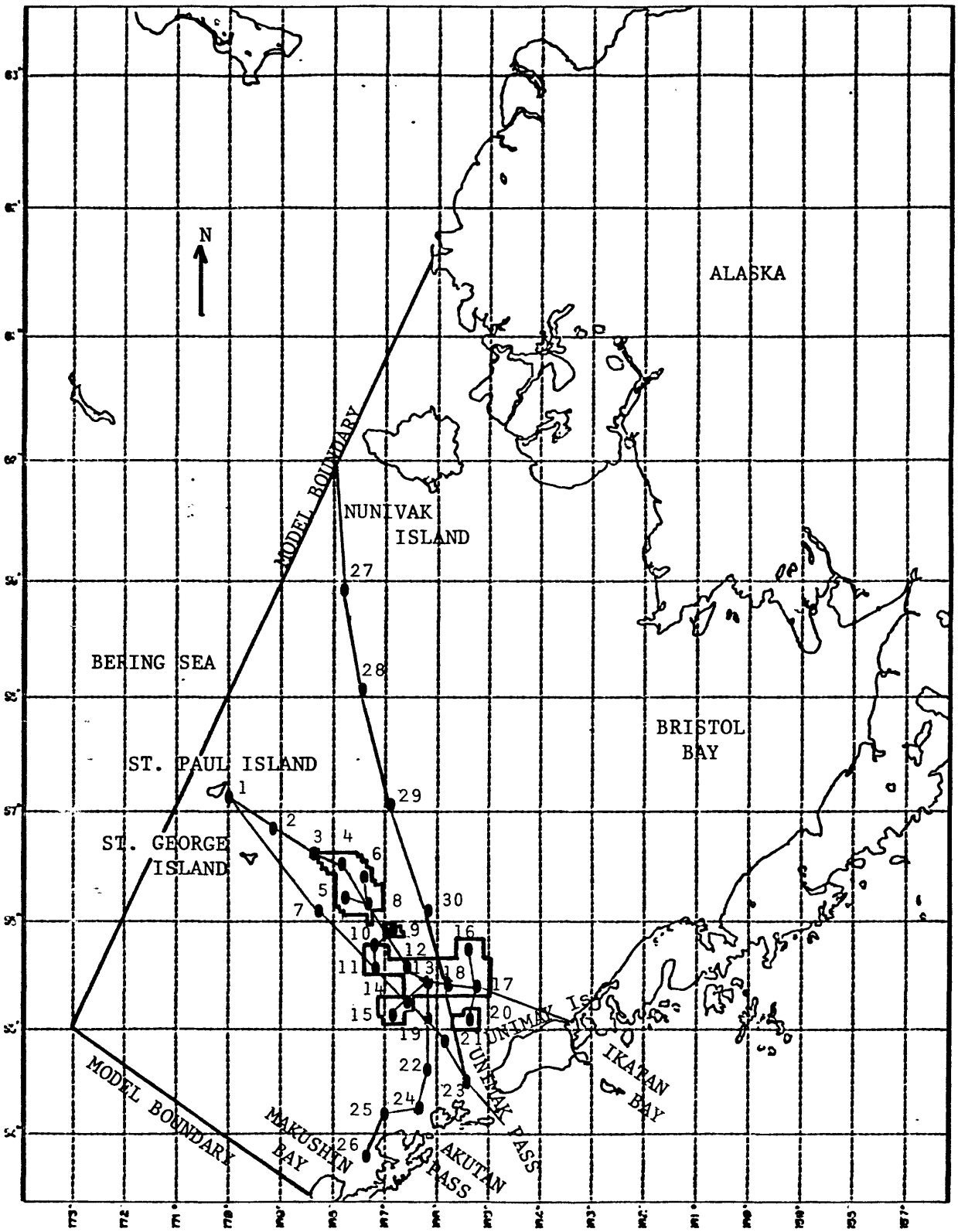

Figure 3.--Map showing the launch points (P1-P30) which represent platform locations, pipelines, and tanker routes.

Environmental Resources

The locations of 10 categories of biological resources (or targets, as they are designated in this paper) were digitized in the same coordinate system, or base map, as that used in trajectory simulations. Targets were selected by BLM analysts. Maps showing the digitized targets are shown in appendix A, figures A-1 to A-5. The monthly sensitivity of these targets was also recorded so that, for example, a target such as King crab could be contacted by simulated oilspills only when the crabs would be in the area. The targets are listed below:

Halibut fishing area 1 (vulnerable all year)
Halibut fishing area 2 (vulnerable all year)
Halibut fishing area 3 (vulnerable all year)
Halibut fishing area 4 (vulnerable all year)
Halibut fishing area 5 (vulnerable all year)
Polleck eggs area (vulnerable March through June)
King crab area 1 (vulnerable April through May)
King crab area 2 (vulnerable April through May)
Yellowfin sole eggs area (vulnerable August to October)
Yellowfin sole eggs (high concentration) area vulnerable (August to October)

Because the trajectory model simulates an oilspill as a point, most targets have been given an areal extent slightly greater than they actually occupy. For example, some shoreline targets extend a short distance offshore; this allows the model to simulate a spill that approaches land, makes partial contact, withdraws, and continues on its way. Forty-one areas which represent hypothetical impact zones for seabirds and marine mammals were also included in the analysis. These areas were selected by BLM analysts. The locations of these areas are shown in figure 4.

To provide a more detailed analysis for land or land-based targets, the model includes a feature that allows subdividing the coastline into land segments. Figure 5 shows the coastline divided into 39 segments of approximately equal length. The open sea boundaries were also divided into 18 segments of approximately equal length.

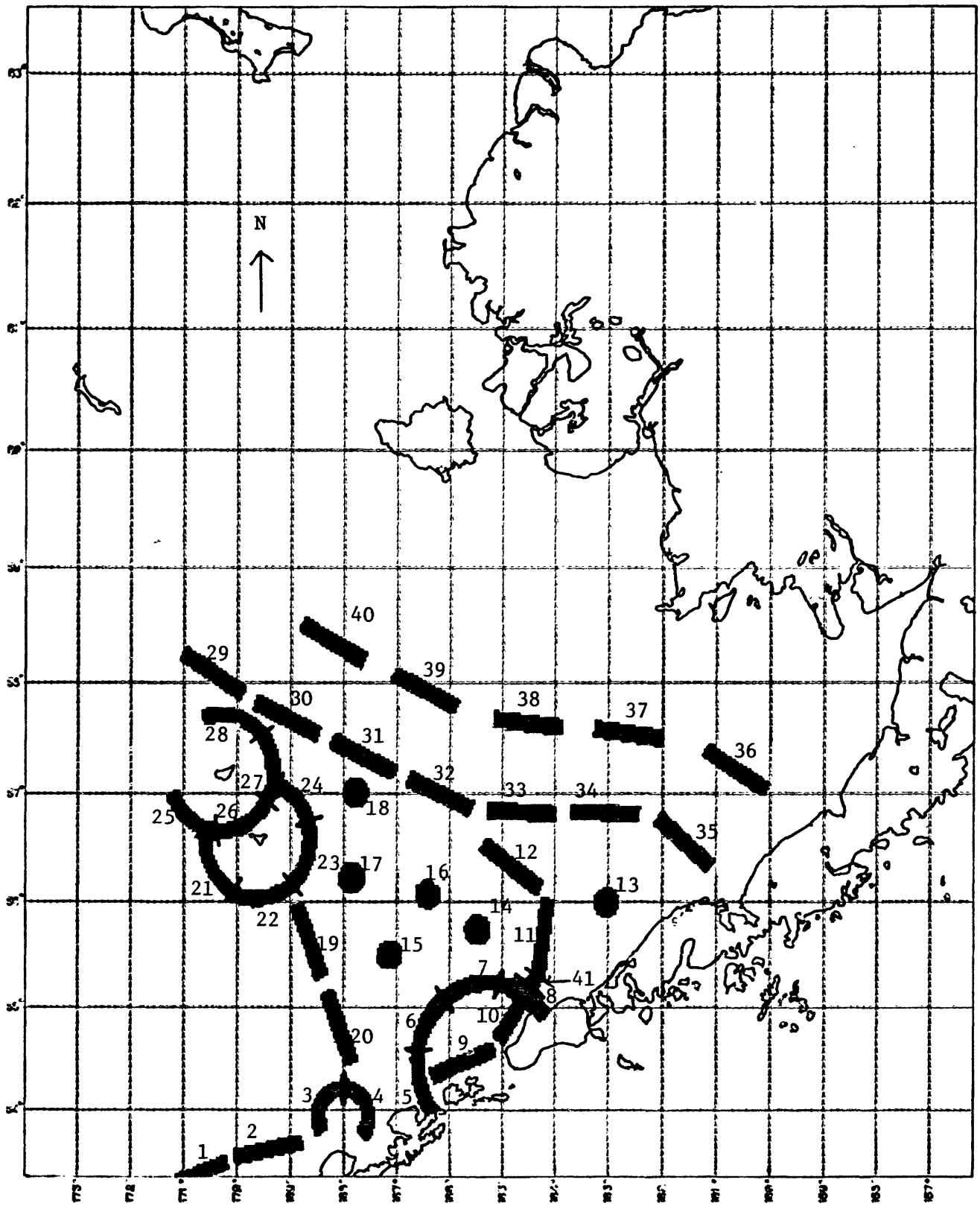

Figure 4.--Map showing the location of 41 areas which represent hypothetical impact zones for seabirds and marine mammals.

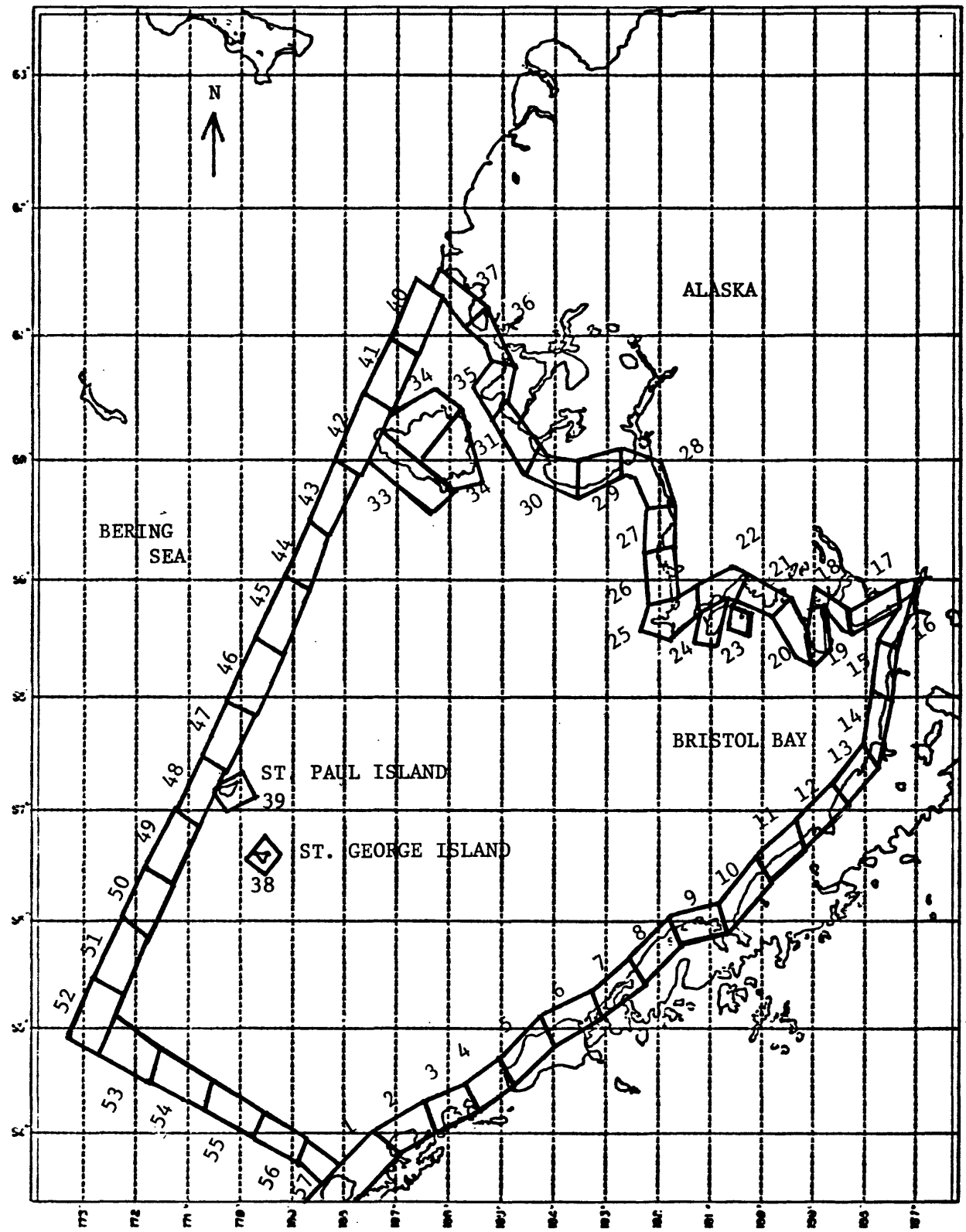

Figure 5.-- Map showing the division of the St. George basin open sea boundary and coastline into 57 segments of approximately equal length.

Estimated Quantity of Oil Resources

Considerable uncertainty exists in estimating the volume of oil that will be discovered and produced as a result of an OCS Lease Sale. A question exists as to whether oilspill risk calculations should be based upon a single estimate of volume, or should consider volume as a random variable and include some probability distribution for volume in computing oilspill occurrence probabilities. The choice may depend upon how the results are to be incorporated into the benefit/risk analysis.

Benefits and risks (as well as many environmental impacts), are functions of the volume of oil, and are not independent of each other. Greater risks are associated with greater volumes of oil and greater economic benefits. If benefits are evaluated by assuming production of a specific amount of oil, then the corresponding risks should be stated in a conditional form such as, "the risks are ..., given that the volume is ..." If benefits are evaluated for a number of discrete volumes, then risks should likewise be calculated for the same volumes. Any statements about the likelihood of the presence of a particular volume of oil apply equally well to the likelihood of the corresponding benefits and risks.

The estimated oil resources used for oilspill risk calculations in this report correspond to those used by BLM in preparing the draft EIS for the lease sale. These estimates are based on those derived by the USGS, Conservation Division in October 1980 for the draft EIS. A 28-percent chance exists that oil is present in the sale area. If oil is present, then an estimated conditional mean value of 1.12 billion barrels, distributed among the various subareas, may occur. For the deletion alternatives, the probability of commercial quantities of oil being present was assumed to remain the same (28 percent), but the quantities remaining were 1.0, 0.59, and 0.47 billion barrels for tract deletion alternatives 1, 2, and 3, respectively. These conditional mean estimates are also based on those derived by the USGS, Conservation Division in October 1980 for the draft EIS. In addition to oil from the proposed lease tracts, the tankering of oil produced in Norton Sound leases (OCS Lease Sale 57) through the St. George Basin study area was also considered in a cumulative analysis of oilspill risks. The estimated conditional mean value of oil produced in Norton Sound and tankered through the St. George basin study area is 480 million barrels (Samuels and Lanfear, 1980). We cannot overemphasize that these estimates are based on the assumption that oil is present; if it is not present (a 72-percent probability), then, obviously, no oilspill risks exist. The remainder of this analysis is designed to answer the question, "What are the risks if oil is found?"

Probability of Oilspills Occurring

The probability of oilspill occurrence (given that oil is present) is based on the fundamental assumption that realistic estimates of future spill frequencies can be based on past OCS experience. This analysis is based on the assumption that spills occur independently of each other as a Poisson process and that the spill rate is dependent upon the volume of oil produced or transported. This last assumption--that spill rate is a function of the volume of oil handled--might be modified on the basis of size, extent, frequency, or duration of the handling. In the case of tanker transport, for example, the number of port calls and the number of tanker-years have been contemplated (Stewart, 1976; and Stewart and Kennedy, 1978). This analysis is based on volume of oil handled, since all other estimates must ultimately be derived from this quantity.

This analysis includes all types of spills resulting from OCS leasing. It considers not only well blowouts, but also other accidents on platforms, transportation of the oil to shore, and, in some cases, further transportation from an intermediate terminus to refineries. Including all of these risks allows the risks of the proposed OCS leasing to be compared to those of other alternatives, such as importing oil. Previous USGS data on OCS accidents, (Danenberger, 1976; 1980) are included in the data base, but comprise only a part of the data.

In some past model runs, only spills larger than 1,000 barrels (bbl) were considered. This report examines, when the data permit, spills in two size ranges: 10,000 barrels or greater, and 1,000 barrels or greater (which includes the first category). To place these sizes in a rough perspective, spills in the largest category are usually associated with catastrophies such as large blowouts or shipwrecks. Accidents in the 1,000 to 10,000 barrels size category typically include those and other serious events, such as structural failures and tanker collisions. The choice of size range to be used depends upon the analysis being performed. If, for example, a particular impact could occur only from a massive oil slick, then only large spills would be examined.

Accident rates for platforms on the U.S. OCS were derived from USGS accident files (USGS, 1979a and b, unpublished report), and from USGS production records (USGS, 1980, unpublished report). For spills of 1,000 barrels or larger, the period from 1964 to 1979 was used. Between 1964 and 1979, four spills of 10,000 barrels or larger occurred, and nine spills (including the four) of 1,000

barrels or larger occurred. During this period, U.S. OCS oil production was 4,386 million barrels.

USGS accident files are also a major source of data for pipeline accidents. As with platforms, the period from 1964 to 1979 was used for spills of 1,000 barrels or larger. USGS files (1979a and b, unpublished report) include two spills of over 10,000 barrels and seven spills (including the two) of over 1,000 barrels. Devanney and Stewart (1976) report six additional pipeline spills, but all except one (1,020 barrels) occurred in coastal channels. Adding this one spill to the USGS data gives a total of eight spills of 1,000 barrels or larger. Since nearly all U.S. OCS production has been transported to shore by pipelines, the same production statistics used for platforms can be applied to the pipeline accident data.

Accident data and oil transportation data for tankers are not maintained by the USGS, so tanker accident rates must be derived from published literature. The worldwide tanker accident rate for spills of 1,000 barrels or larger, used in recent OSTA models, is from Stewart (1976): 178 spills in 45,941 million barrels of oil transported. No detailed listing of these spills exists in the published literature. However, Devanney and Stewart (1974) examined tanker spills on major trade routes and reported 99 spills greater than 42,000 gallons (1,000 barrels), 87 spills greater than 100,000 gallons, and 32 spills greater than 1,000,000 gallons. Interpolation of these data gives about 53 spills greater than 10,000 barrels, or about 54 percent of the 1,000-barrel spill rate. This estimate can be partially confirmed by listings of spills in Oilspill Intelligence Report (1979 and 1980) where, out of 22 spills of crude oil from bulk carriers reported for 1978 and 1979, and known or estimated to be larger than 1,000 barrels, 15, or 68 percent, were larger than 10,000 barrels. Therefore, a ratio of 60 percent of the 1,000-barrel rate appears reasonable, giving an estimated spill rate for 10,000 barrel and larger spills of 107 per 45,941 million barrels.

In summary, the spill rates used in this report are:

	Spills per billion barrels	
	>1,000 bbl	>10,000 bbl
Platforms	2.05	0.91
Pipelines	1.82	0.46
Tankers	3.87	2.32

Are these rates applicable to Alaska, since most of the existing data is from more temperate climates? About 530 million barrels of petroleum have been produced from platforms in Cook Inlet; no spills of 1,000 barrels or greater have occurred. Applying the spill rate used for platforms in this analysis, we find a 34-percent chance of no spills in producing 530 million barrels in this manner. Thus, the data base for Alaska (530 million barrels) is still too small to say, with a high degree of confidence, that the Alaskan spill rate differs from the rate for the rest of the U.S. OCS. This conclusion, however, will need to be reviewed if the commendable safety record of Alaskan operations continues for a longer period.

Spill frequency estimates were calculated for production and transportation of oil from the St. George Basin OCS lease area. Table 1 shows the expected number of spills and the most likely number of spills that will occur during the expected production life of the lease area. Figure 6 shows the probability that 0, 1, 2, ..., N spills will occur. As mentioned previously, transportation scenario a includes only pipeline transportation of oil within the boundaries of the RAND model. Thus, the expected number of oilspills for this scenario is less than the expected number of oilspills for transportation scenarios b through d (which include both pipelines and tankers). However, if tanker transportation of oil on the southern side of the Aleutians is included along with transportation scenario a, then the expected number of oilspills for this scenario (proposed action) is identical to those for transportation scenarios b through d. This same idea can be applied to deletion alternative 1 and the cumulative analysis (proposed action plus tanker transportation of Norton Sound oil) both of which use transportation scenario a. Table 1 shows only the oilspill risks for the RAND model study area. If tanker transportation of oil on the southern side of the Aleutians is included in the analysis the oilspill risks change as follows:

	Expected number of spills (mean).		Most likely number of spills (mode).		Probability of one or more spills.	
	>1,000	>10,000	>1,000	>10,000	>1,000	>10,000
Deletion Alternative 1 (scenario a)	5.8	2.5	5	2	0.99+	0.92
Proposed action (scenario a) plus tankering of existing oil from Norton Sound	7.4	3.4	7	3	0.99+	0.97

Table 1. -- Oilspill probability estimates for spills greater than 1,000 and 10,000 barrels resulting from OCS Lease Sale 70.

	Expected number of spills (mean).		Most likely number of spills (mode).		Probability of one or more spills	
	>1,000	>10,000	>1,000	>10,000	>1,000	>10,000
Proposed action (scenario a)	4.3	1.5	4	1	0.99	0.79
Proposed action (scenarios b through d)	6.5	2.8	6	2	0.99+	0.94
Deletion alt. 1 (scenario a)	3.9	1.4	3	1	0.98	0.75
Deletion alt. 2 (scenarios b and c)	3.4	1.5	3	1	0.97	0.77
Deletion alt. 3 (scenario d)	2.7	1.2	2	1	0.93	0.70
Proposed action (scenario a) plus tankering of existing oil from Norton Sound	5.3	2.1	5	2	0.99+	0.88

Note: Transportation scenario a does not include tanker transportation of oil within the boundaries of the RAND model study area.

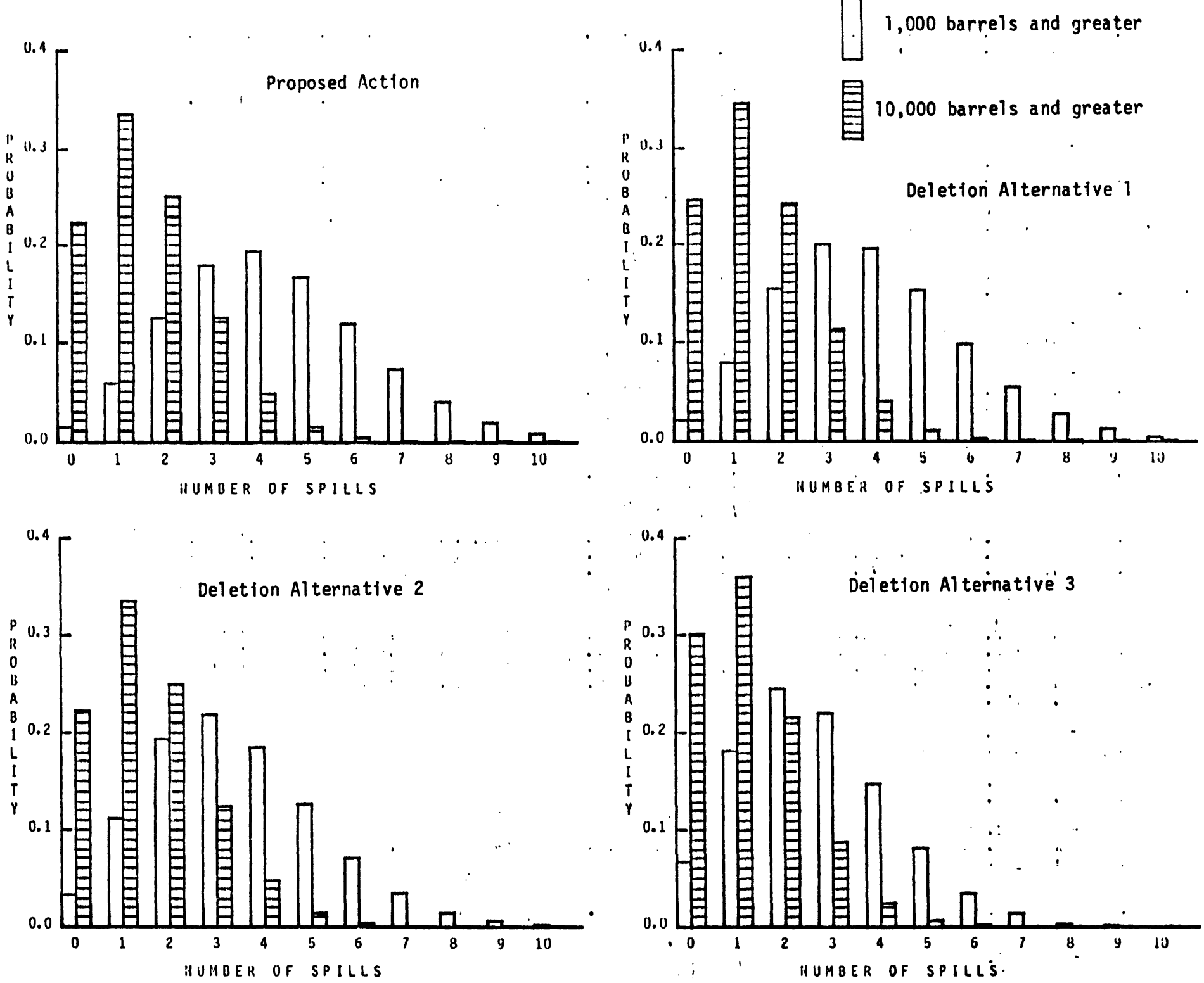

Figure 6.--Frequency distribution for oilspills greater than 1,000 and 10,000 barrels occurring during the expected production life of the proposed lease tracts for St. George Basin OCS Lease Sale 70.

STOP

Oilspill Trajectory Simulations

Oilspill trajectories were simulated by the RAND Corporation, Santa Monica, Calif., using their three-dimensional model for estuaries and coastal seas (Liu and Nelson, 1977). The application of this model was developed as part of the BLM environmental studies program in the Bering Sea. Thirty launch points were selected representing platform locations, pipelines, and tanker routes in the study area. In this analysis, the location of the center of mass of each hypothetical oilspill was reported every 12 hours. Oilspill trajectories were simulated under three sets of environmental conditions. The first set, which included the months December through May, was termed the ice-cover condition. During this period, St. George Basin is occasionally covered by ice floes. For each launch point, 10 oilspills were simulated under different weather scenarios. The second set was an ice-free condition which included the months June through August. Because of the variability of the weather during this period, 20 hypothetical oilspills were launched from each site. The third set was also an ice-free condition including the months September through November. For this period, 10 hypothetical oilspills were launched from each site. The trajectories calculated by RAND were transmitted to the U.S. Geological Survey, Reston, Va., on computer-compatible tapes. The x,y coordinates of the trajectories in the RAND grid system were converted to the USGS grid system by a linear transformation. As the simulated oilspill was moved, any contacts with targets were recorded. Spill movement continued until the spill hit land, moved off the map, or aged more than 30 days.

The trajectories simulated by the model represent only hypothetical pathways of oil slicks and do not involve any direct consideration of cleanup, dispersion, or weathering processes which could determine the quantity or quality of oil that might eventually come in contact with targets. An implicit analysis of weathering and decay can be considered by noting the age of simulated oilspills when they contact targets. For this analysis, three time periods were selected: 3 days, to represent diminished toxicity of the spill; 10 days, to allow for deployment of cleanup equipment; and 30 days, to represent the difficulty of tracking or locating spills after this time.

When calculating probabilities from Monte Carlo trials it is desirable to estimate the error associated with this technique. The calculation of the standard deviation s for a particular probability p is calculated as follows:

$$s = \mathrm{SQRT}(p(1-p)/N)$$

where N = number of trials. The shape of this distribution

Table 2.--Monte Carlo error as a function of the number of trials and the estimated probability.

	NUMBER OF TRIALS									
PROB	10	20	40	46	50	100	200	500	1000	2000
0.02	0.07	0.05	0.04	0.03	0.03	0.02	0.02	0.01	0.01	0.01
0.04	0.10	0.07	0.05	0.05	0.05	0.03	0.02	0.01	0.01	0.01
0.06	0.12	0.09	0.06	0.06	0.06	0.04	0.03	0.02	0.01	0.01
0.08	0.14	0.10	0.07	0.07	0.06	0.04	0.03	0.02	0.01	0.01
0.10	0.16	0.11	0.08	0.07	0.07	0.05	0.04	0.02	0.02	0.01
0.12	0.17	0.12	0.08	0.08	0.08	0.05	0.04	0.02	0.02	0.01
0.14	0.18	0.13	0.09	0.08	0.08	0.06	0.04	0.03	0.02	0.01
0.16	0.19	0.14	0.10	0.09	0.09	0.06	0.04	0.03	0.02	0.01
0.18	0.20	0.14	0.10	0.09	0.09	0.06	0.04	0.03	0.02	0.01
0.20	0.21	0.15	0.10	0.10	0.09	0.07	0.05	0.03	0.02	0.01
0.22	0.22	0.15	0.11	0.10	0.10	0.07	0.05	0.03	0.02	0.02
0.24	0.22	0.16	0.11	0.10	0.10	0.07	0.05	0.03	0.02	0.02
0.26	0.23	0.16	0.11	0.11	0.10	0.07	0.05	0.03	0.02	0.02
0.28	0.23	0.17	0.12	0.11	0.10	0.07	0.05	0.03	0.02	0.02
0.30	0.24	0.17	0.12	0.11	0.11	0.08	0.05	0.03	0.02	0.02
0.32	0.24	0.17	0.12	0.11	0.11	0.08	0.05	0.03	0.02	0.02
0.34	0.25	0.17	0.12	0.12	0.11	0.08	0.06	0.03	0.02	0.02
0.36	0.25	0.18	0.13	0.12	0.11	0.08	0.06	0.04	0.03	0.02
0.38	0.25	0.18	0.13	0.12	0.11	0.08	0.06	0.04	0.03	0.02
0.40	0.26	0.18	0.13	0.12	0.11	0.08	0.06	0.04	0.03	0.02
0.42	0.26	0.18	0.13	0.12	0.12	0.08	0.06	0.04	0.03	0.02
0.44	0.26	0.18	0.13	0.12	0.12	0.08	0.06	0.04	0.03	0.02
0.46	0.26	0.18	0.13	0.12	0.12	0.08	0.06	0.04	0.03	0.02
0.48	0.26	0.18	0.13	0.12	0.12	0.08	0.06	0.04	0.03	0.02
0.50	0.26	0.18	0.13	0.12	0.12	0.08	0.06	0.04	0.03	0.02

Level of significance = 90 percent

approximates the normal curve, thus, table 2 shows, for the 90-percent confidence level of this distribution, values of s as a function of p and N. When comparing two probabilities, the investigator should also test whether the two values are significantly different from each other. Figure 7 shows the results of this significance test, based on the formula above (N = 46, 90-percent confidence level). Points lying within the shaded portion of the graph are not significantly different from each other.

Each entry in tables 3, 4, and 5 represents the probability (expressed as percent chance) that, if a spill starts from a certain launch point, it will contact a particular target within 3, 10, or 30 days, respectively. Tables 6, 7, and 8 present similar probabilities for impact zones. Tables 9, 10, and 11 present similar probabilities for land and sea boundary segments. These conditional probabilities allow for the possibility that the targets may not be vulnerable to oilspills for the entire year: a target that is vulnerable for only 1 month, for example, could have a conditional probability no higher than about 1/12.

Combined Analysis of Oilspill Occurrence and Oilspill Trajectory Simulations

Data in figure 6 indicate the probabilities of different numbers of oilspills occurring. Tables 3 to 11 indicate the probabilities that targets, impact zones or land and sea boundary segments will be contacted, given that an oilspill occurs. Combining these two sets of probabilities yields estimates of the chances that oilspills will occur and contact targets or land segments.

A critical difference exists between the conditional probabilities calculated in the previous section and the overall probabilities calculated in this section. Conditional probabilities depend only on the winds and currents in the study area -- elements over which the decisionmaker has no control. Overall probabilities, on the other hand, will depend not only on the physical condition but also on the course of action chosen by the decisionmaker, that is, choosing to sell or not to sell the lease tracts.

Two oilspill sizes are considered in this analysis--those greater than 1,000 barrels and those greater than 10,000 barrels. Tables 12 to 15 show the probabilities (expressed as percent chance) of one or more oilspills (greater than 1,000 barrels and greater than 10,000 barrels), the most likely number of oilspills, and the expected number of oilspills occurring and contacting targets within periods of 3, 10, and 30 days, over the expected production life of the proposed lease tracts, for transportation scenarios a through d. Tables 16 to 19 show similar probabilities for tract

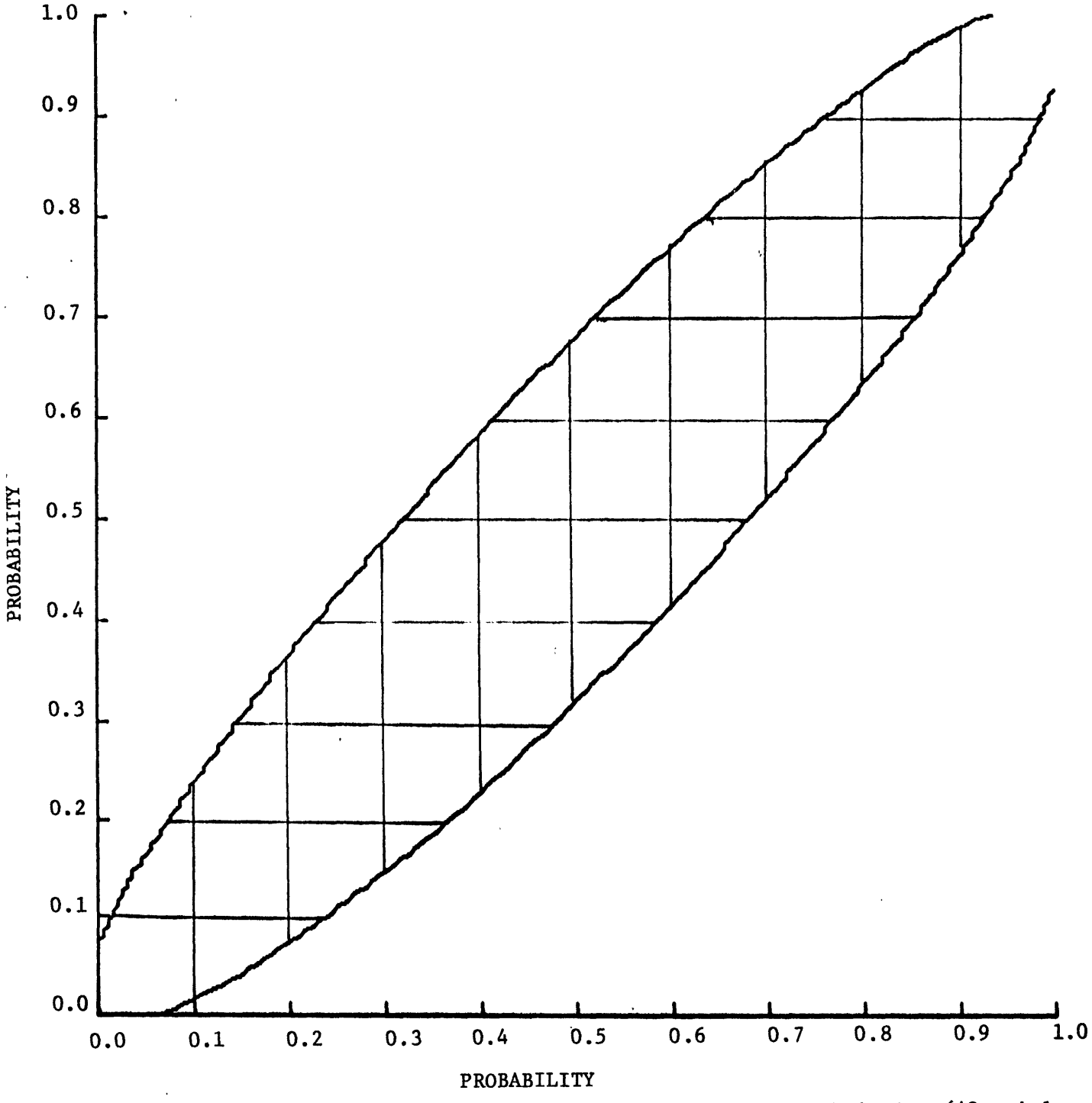

Figure 7.-- Results of a significance test for any two probabilities (40 trials, 90 percent confidence level). Points lying within the shaded portion of the graph are not significantly different from each other.

Table 3. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 3 days.

Target	Hypothetical Spill Location																													
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
Land	15	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	12	1	n	n	n
Halibut fishing 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Halibut fishing 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	**	71	n	n	n	n
Halibut fishing 3	n	n	n	n	n	n	n	n	n	n	n	n	n	10	42	n	n	n	n	n	20	**	30	11	5	n	n	n	n	n
Halibut fishing 4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Halibut fishing 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Polleck eggs area	n	n	n	n	n	n	n	1	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	20	2	n	n	n	n	75
King crab area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
King crab area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Yellowfin sole area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Yellowfin sole (high)	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

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

Table 4. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 10 days.

Target	Hypothetical Spill Location																														
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
Land	15	10	10	n	5	5	n	5	n	n	n	n	n	n	n	n	n	n	n	5	n	11	15	21	21	27	19	n	n	5
Halibut fishing 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	9	2	n	10	5	1	4	n	n	n	n	n	n	n
Halibut fishing 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	5	20	**	75	n	n	n	n
Halibut fishing 3	n	n	n	n	10	5	n	15	30	35	40	40	45	50	55	n	20	40	50	50	50	**	30	12	14	4	n	n	n	15
Halibut fishing 4	n	n	15	15	20	15	30	10	5	15	10	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Halibut fishing 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Polleck eggs area	n	n	n	1	1	1	2	4	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	25	17	6	n	n	n	75
King crab area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
King crab area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Yellowfin sole area	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	5	n	n
Yellowfin sole (high)	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n

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

Table 5. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain target within 30 days.

Target	Hypothetical Spill Location																														
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
Land	52	10	10	n	6	5	5	7	10	7	7	11	15	19	21	24	29	24	29	30	30	31	45	47	39	40	52	22	10	15
Halibut fishing 1	n	n	n	n	n	n	2	n	n	n	7	2	5	10	11	7	14	6	9	12	10	9	16	15	6	4	n	n	n	n
Halibut fishing 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	10	20	**	75	n	n	n	n
Halibut fishing 3	n	n	n	n	10	5	n	15	35	35	40	40	45	52	55	30	50	50	50	50	50	**	30	12	16	6	n	n	n	25
Halibut fishing 4	n	n	15	15	20	15	30	15	15	20	10	10	n	n	n	10	10	5	n	5	n	n	n	n	n	n	n	n	10	15
Halibut fishing 5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Polleck eggs area	n	n	1	1	1	1	2	4	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	25	19	10	n	n	n	75
King crab area 1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
King crab area 2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Yellowfin sole area	2	1	2	2	1	2	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	7	21	4	n
Yellowfin sole (high)	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	10	2	n

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

Table 6. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain impact zone within 3 days.

Impact Zone	Hypothetical Spill Location																													
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	31	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	n	51	45	1	n	n	n	n
6	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	37	15	40	31	15	6	n	n	n	n	n	n
7	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	4	2	**	55	29	n	n	n	n	n	n	n	n	n
8	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	n	6	n	n	n	n	n	n	n	n	n	n
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	21	**	39	1	n	n	n	n	n
10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	1	n	n	n	n	n	n	n
14	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	**	11	17	1	n	n	n	n	n	n	n	n	n	n	n
15	n	n	n	n	n	n	n	n	n	n	26	30	25	25	11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
16	n	n	n	n	n	n	n	n	15	9	1	5	n	n	n	10	n	n	n	n	n	n	n	n	n	n	n	n	n	**
17	n	n	2	4	**	25	19	44	5	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
18	n	n	4	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	n
23	n	16	47	30	30	15	36	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
24	n	31	15	15	10	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	2	34	10	5	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
27	9	n	10	5	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
31	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	19	n
32	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	32	n
39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	11	n	n
40	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	16	n	n

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

Table 7. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain impact zone within 10 days.

Impact Zone	Hypothetical Spill Location																												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	10	n	n	n	n	
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	5	30	20	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	5	25	40	31	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	10	20	30	51	46	22	n	n	n	n
6	n	n	n	n	n	n	n	n	n	n	2	n	n	5	16	n	5	n	37	30	50	32	20	6	4	2	n	n	n	n
7	n	n	n	n	n	n	n	n	2	2	5	11	14	17	10	n	4	11	**	56	32	10	4	4	2	n	n	n	n	2
8	n	n	n	n	n	n	n	n	n	n	n	n	2	2	n	2	15	11	11	22	17	9	15	1	n	n	n	n	n	n
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	n	n	n	n	2	26	**	45	21	9	n	n	n	n
10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	7	7	17	20	19	26	9	n	n	n	n	n	n
11	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	24	27	7	n	9	4	n	1	n	n	n	n	n	n	n
12	n	n	n	n	n	n	n	n	n	n	n	1	1	n	n	20	6	4	n	n	n	n	n	n	n	n	n	n	2	9
14	n	n	n	n	n	n	n	n	6	6	1	11	20	9	5	**	12	24	14	1	4	2	1	n	n	n	n	n	n	12
15	n	n	n	n	n	n	n	n	n	n	26	30	25	25	11	15	10	25	5	5	10	n	n	n	n	n	n	n	n	n
16	n	n	n	5	2	9	2	10	17	20	17	13	2	2	2	15	5	6	1	n	n	n	n	n	n	n	n	n	n	**
17	n	9	12	6	**	27	25	44	15	10	5	10	5	n	n	10	5	5	n	n	n	n	n	n	n	n	n	n	n	15
18	n	7	16	2	2	2	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	n	
19	n	n	n	n	10	10	10	20	20	30	30	20	20	15	15	n	n	n	15	n	5	n	n	n	n	n	n	n	n	n
20	n	n	n	n	n	n	n	n	n	5	10	10	15	25	30	n	n	n	10	n	10	25	15	10	10	5	n	n	n	n
21	n	25	15	15	15	5	15	5	10	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	5
22	n	n	10	n	15	15	25	10	5	10	10	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
23	5	21	47	30	40	30	36	20	5	10	5	5	n	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	5	5
24	14	32	15	15	10	5	n	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	10	
25	n	15	10	5	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
26	5	34	15	15	10	10	10	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	n
27	45	2	10	10	5	5	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	15	5
28	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n
30	10	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	15	n	n
31	n	6	5	4	4	4	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	19	n
32	n	n	n	2	1	6	n	1	2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	40	4
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	2	1
39	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	21	4	n
40	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	16	n	n
41	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	6	5	n	9	4	n	5	n	n	n	n	n	n	n

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

Table 8. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain impact zone within 30 days.

Impact Zone	Hypothetical Spill Location																													
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n	n	n	n	n
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	5	5	15	10	15	10	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	10	10	20	15	15	30	20	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	10	25	20	25	40	31	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	10	20	30	51	46	24	n	n	n	n
6	n	2	2	n	n	n	2	n	n	n	5	n	n	5	16	n	5	n	37	30	50	32	20	6	5	4	n	n	n	n
7	n	2	2	2	2	2	n	2	7	11	11	14	14	17	11	n	4	11	**	56	32	12	5	4	4	2	n	n	n	5
8	n	n	n	n	2	2	2	2	5	5	5	5	14	14	16	2	15	14	15	22	21	27	24	17	15	10	n	n	n	5
9	n	n	n	n	n	n	n	n	n	n	2	n	n	2	9	n	n	n	2	n	2	26	**	45	24	16	n	n	n	n
10	n	n	n	n	n	n	2	2	2	n	n	7	10	10	13	2	2	14	16	17	21	25	26	19	19	7	n	n	n	2
11	n	n	2	2	7	9	2	12	15	16	17	15	22	19	19	29	31	29	24	20	22	19	7	5	5	2	n	n	2	13
12	n	1	2	6	10	9	5	11	24	22	24	24	19	16	15	22	9	14	7	4	4	2	1	2	2	1	n	n	9	27
13	n	n	n	n	n	n	n	n	4	6	5	5	4	2	4	14	15	11	5	7	9	10	4	2	1	n	n	n	2	6
14	n	2	2	2	5	5	9	5	12	14	14	14	22	20	21	**	12	24	16	1	6	2	1	1	1	n	n	n	n	12
15	n	5	n	n	2	n	2	n	n	n	26	30	25	25	11	15	10	25	5	5	10	n	n	n	n	n	n	n	n	n
16	2	10	5	9	9	11	10	10	17	20	20	13	2	4	4	15	5	6	1	n	n	n	n	n	n	n	n	n	n	**
17	2	14	12	6	**	27	25	44	15	10	5	10	5	n	n	10	5	5	n	n	n	n	n	n	n	n	n	n	n	15
18	7	14	17	4	4	2	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	n
19	n	n	n	n	10	10	10	20	30	30	30	20	20	15	15	15	25	25	15	10	5	n	n	n	n	n	n	n	n	20
20	n	n	n	n	n	n	n	n	n	5	10	10	25	25	30	20	25	25	30	25	30	25	20	10	10	5	n	n	n	n
21	n	25	15	30	15	20	15	15	15	10	5	n	n	n	n	5	n	5	n	5	n	n	n	n	n	n	n	5	20	15
22	n	n	10	5	20	20	25	15	15	10	10	5	n	n	n	5	5	5	n	5	n	n	n	n	n	n	n	n	10	10
23	9	21	47	30	40	30	36	20	5	10	5	5	n	n	n	10	n	n	n	n	n	n	n	n	n	n	n	n	5	10
24	16	32	15	15	10	5	n	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	10
25	n	15	10	5	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n
26	5	34	15	15	10	10	10	5	n	n	n	n	n	n	n	5	5	n	n	n	n	n	n	n	n	n	n	5	20	n
27	45	2	10	10	5	5	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	15	5
28	4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n
30	20	4	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	15	n	n
31	19	22	12	5	4	5	2	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	19	n
32	9	15	20	26	20	22	15	14	5	5	5	1	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	40	4
33	n	9	11	12	2	12	4	11	11	14	14	10	7	7	2	4	1	4	2	1	1	2	n	1	1	n	n	n	11	14
34	n	n	n	5	n	6	n	n	2	4	2	4	5	5	1	14	7	7	2	1	1	n	1	n	n	n	n	5	4	4
35	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	4	4	n	n	2	1	n	1	n	n	n	n	n	n	n
37	n	n	n	n	n	1	n	n	1	1	1	n	n	n	n	1	1	n	n	n	n	n	n	n	n	n	n	4	4	1
38	n	n	5	11	6	10	2	6	2	1	1	2	2	2	1	1	n	n	1	n	n	n	n	n	n	n	2	11	20	4
39	12	15	7	4	4	2	1	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	22	4	n
40	9	1	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	16	n	n
41	n	n	n	n	2	n	n	2	2	2	7	5	7	5	2	n	6	7	9	10	7	15	11	5	5	2	n	n	n	n

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

Table 9. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land or sea boundary segment within 3 days.

Segment	Hypothetical Spill Location																														
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	12	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n
39	15	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	n	n	n
46	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n

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

Table 10. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land or sea boundary segment within 10 days.

Segment	Hypothetical Spill Location																												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	22	n	n	n	n
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	14	1	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	16	7	4	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	9	11	5	n	n	n	n	n	n
5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n	n	4	n	n	n	n	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	19	n	n	n
39	15	10	10	n	5	5	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	n	n	n
46	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	5	n
47	n	n	n	5	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n
48	n	n	10	5	n	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
49	n	15	5	5	n	n	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
57	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	n	n	n	n

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

Table 11. -- Probabilities (expressed as percent chance) that an oilspill starting at a particular location will contact a certain land or sea boundary segment within 30 days.

Segment	Hypothetical Spill Location																												
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30
1	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	10	5	22	n	n	n	n
2	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	14	2	n	n	n	n
3	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	2	n	16	9	5	n	n	n	n
4	n	n	n	n	n	n	n	n	n	n	2	n	n	2	2	n	n	n	5	n	2	14	11	6	1	7	n	n	n	n
5	n	n	n	n	n	n	n	n	n	2	n	2	2	n	n	n	2	5	2	9	6	2	12	5	6	n	n	n	n	2
6	n	n	n	n	1	n	n	n	2	n	2	5	7	7	10	2	7	2	5	10	7	5	4	5	2	1	n	n	n	n
7	n	n	n	n	n	n	n	2	4	2	n	1	5	5	2	7	5	10	9	7	10	4	4	4	n	1	n	n	n	2
8	2	n	n	n	n	n	n	n	4	2	2	2	n	4	5	10	6	2	5	1	4	4	4	1	1	n	n	n	n	2
9	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	2	7	4	2	2	n	n	n	n	n	n	n	n	n	2
10	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n	n	n	n	n	n	n	n	n	n	n	n
30	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n
31	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	1	n	n	n
33	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	30	17	n	n
39	50	10	10	n	5	5	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	20	5	10	5
44	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	n	n	n
46	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	25	5	n
47	n	n	n	5	n	5	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	n
48	n	n	10	5	n	n	5	n	n	n	n	n	n	n	n	5	5	n	n	n	n	n	n	n	n	n	n	n	n	n
49	n	15	5	10	10	10	5	10	5	5	n	n	n	n	n	n	n	5	n	5	5	n	n	n	n	n	5	10	5	
50	n	5	n	5	5	5	10	n	5	n	5	5	5	5	5	n	n	n	5	n	n	5	n	n	n	n	n	n	n	5
51	n	15	5	5	5	5	n	5	5	5	5	n	n	n	n	10	n	n	n	n	n	n	5	n	5	n	n	n	10	5
52	n	n	5	10	n	5	5	5	5	5	n	5	n	n	n	n	n	n	n	n	n	n	n	5	n	n	n	n	5	n
53	n	5	15	5	20	10	20	15	5	10	10	10	10	10	5	5	10	10	10	5	5	n	n	n	n	n	n	n	n	n
54	n	n	n	n	n	n	n	5	5	5	15	10	5	10	10	n	n	5	n	5	n	10	5	5	n	n	n	n	n	5
55	n	n	n	n	n	n	n	n	n	5	5	5	10	15	20	5	5	10	20	n	10	10	10	10	15	10	n	n	n	n
56	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	5	20	20	15	15	5	10	5	n	n	n	n
57	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n	10	n	15	15	25	n	n	n	n

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

Table 12. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the proposed lease tracts using transportation scenario a.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0	58	0	0.9	26	0	0.3
Halibut fishing 1	n	0	0.0	n	0	0.0	17	0	0.2	6	0	0.1	27	0	0.3	10	0	0.1
Halibut fishing 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Halibut fishing 3	n	0	0.0	n	0	0.0	63	1	1.0	29	0	0.3	79	1	1.6	41	0	0.5
Halibut fishing 4	n	0	0.0	n	0	0.0	16	0	0.2	6	0	0.1	37	0	0.5	15	0	0.2
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	93	2	2.6	59	0	0.9	93	2	2.6	59	0	0.9	93	2	2.6	59	0	0.9
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 13. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the proposed lease tracts using transportation scenario b.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	11	0	0.1	5	0	0.0	25	0	0.3	11	0	0.1	73	1	1.3	45	0	0.6
Halibut fishing 1	n	0	0.0	n	0	0.0	13	0	0.1	6	0	0.1	28	0	0.3	15	0	0.2
Halibut fishing 2	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	3	0	0.0	2	0	0.0
Halibut fishing 3	15	0	0.2	9	0	0.1	74	1	1.3	47	0	0.6	80	1	1.6	53	0	0.8
Halibut fishing 4	n	0	0.0	n	0	0.0	31	0	0.4	14	0	0.2	43	0	0.6	20	0	0.2
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	93	2	2.7	72	1	1.3	93	2	2.7	72	1	1.3	94	2	2.7	72	1	1.3
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	2	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 14. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the proposed lease tracts using transportation scenario c.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	16	0	0.2	9	0	0.1	55	0	0.8	33	0	0.4	85	1	1.9	57	0	0.9
Halibut fishing 1	n	0	0.0	n	0	0.0	11	0	0.1	5	0	0.0	33	0	0.4	15	0	0.2
Halibut fishing 2	90	2	2.3	70	1	1.2	91	2	2.4	72	1	1.3	91	2	2.4	72	1	1.3
Halibut fishing 3	32	0	0.4	11	0	0.1	75	1	1.4	40	0	0.5	82	1	1.7	48	0	0.7
Halibut fishing 4	n	0	0.0	n	0	0.0	14	0	0.2	6	0	0.1	28	0	0.3	12	0	0.1
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	88	2	2.2	54	0	0.8	92	2	2.5	61	0	0.9	92	2	2.5	62	0	1.0
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 15. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the proposed lease tracts using transportation scenario d.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	14	0	0.2	7	0	0.1	74	1	1.4	46	0	0.6
Halibut fishing 1	n	0	0.0	n	0	0.0	18	0	0.2	8	0	0.1	36	0	0.4	18	0	0.2
Halibut fishing 2	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	4	0	0.0	3	0	0.0
Halibut fishing 3	19	0	0.2	12	0	0.1	86	1	2.0	60	0	0.9	91	2	2.4	66	1	1.1
Halibut fishing 4	n	0	0.0	n	0	0.0	19	0	0.2	8	0	0.1	40	0	0.5	18	0	0.2
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	98	4	4.1	84	1	1.8	98	4	4.1	84	1	1.8	98	4	4.1	84	1	1.8
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 16. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of tract deletion alternative 1, using transportation scenario a.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0	57	0	0.9	26	0	0.3
Halibut fishing 1	n	0	0.0	n	0	0.0	18	0	0.2	7	0	0.1	27	0	0.3	10	0	0.1
Halibut fishing 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Halibut fishing 3	n	0	0.0	n	0	0.0	62	0	1.0	29	0	0.3	78	1	1.5	41	0	0.5
Halibut fishing 4	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0	32	0	0.4	13	0	0.1
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	92	2	2.6	59	0	0.9	92	2	2.6	59	0	0.9	92	2	2.6	59	0	0.9
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 17. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of tract deletion alternative 2, using transportation scenario b.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	7	0	0.1	3	0	0.0	17	0	0.2	7	0	0.1	42	0	0.5	22	0	0.3
Halibut fishing 1	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	8	0	0.1	5	0	0.0
Halibut fishing 2	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
Halibut fishing 3	8	0	0.1	5	0	0.1	41	0	0.5	24	0	0.3	43	0	0.6	25	0	0.3
Halibut fishing 4	n	0	0.0	n	0	0.0	25	0	0.3	11	0	0.1	29	0	0.3	13	0	0.1
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	59	0	0.9	37	0	0.5	60	0	0.9	38	0	0.5	60	0	0.9	38	0	0.5
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 18. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of tract deletion alternative 2, using transportation scenario c.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	9	0	0.1	5	0	0.0	34	0	0.4	19	0	0.2	55	0	0.8	31	0	0.4
Halibut fishing 1	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	11	0	0.1	5	0	0.0
Halibut fishing 2	69	1	1.2	47	0	0.6	70	1	1.2	48	0	0.7	70	1	1.2	48	0	0.7
Halibut fishing 3	16	0	0.2	5	0	0.1	48	0	0.7	21	0	0.2	51	0	0.7	23	0	0.3
Halibut fishing 4	n	0	0.0	n	0	0.0	16	0	0.2	7	0	0.1	21	0	0.2	9	0	0.1
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	56	0	0.8	23	0	0.3	62	0	1.0	29	0	0.3	64	1	1.0	31	0	0.4
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table 19. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of tract deletion alternative 3, using transportation scenario d.

Target	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0	33	0	0.4	18	0	0.2
Halibut fishing 1	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	8	0	0.1	5	0	0.0
Halibut fishing 2	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
Halibut fishing 3	9	0	0.1	5	0	0.1	57	0	0.8	32	0	0.4	59	0	0.9	33	0	0.4
Halibut fishing 4	n	0	0.0	n	0	0.0	14	0	0.1	6	0	0.1	24	0	0.3	10	0	0.1
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	79	1	1.6	50	0	0.7	79	1	1.6	50	0	0.7	79	1	1.6	50	0	0.7
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

deletion alternatives 1 through 3. Note that two transportation scenarios (b and c) were analyzed separately for tract deletion alternative 2. Tables 20 through 27 show similar probabilities to impact zones for the proposed action and the tract deletion alternatives. Tables 28 through 35 show similar probabilities for land and sea boundary segments. Tables in Appendix B show the oilspill risks from a cumulative analysis of the proposed action along with the tankering of oil from the Norton Sound OCS lease sale 57 area.

The overall probabilities are also shown graphically in appendices C and D. Figures C-1 through C-10 are histograms which show probabilities of 1, 2, ... N spills occurring and contacting specific targets within periods of 3, 10, and 30 days. Figures D-1 through D-6 indicate, through circles superimposed on maps of the coastline, the probabilities of one or more spills occurring and contacting land segments within 3, 10, and 30 days, for all scenarios.

Discussion of Results

Assuming that oil is spilled in the lease area, the probability of a spill contacting land within 3 days is minimal for each launch point. These probabilities increase as spills are tracked up to 30 days; however, the chances of oil contacting land are still no higher than 52 percent (see launch point P1, table 5). A large portion of the spills head in a westerly direction, contacting the segments along the open sea boundary. Even launch point P25, located very close to shore near Unalaska Island, is associated with only a 39-percent chance of a spill contacting land within 30 days. Any spills that would come ashore would probably be highly weathered. The King crab and Yellowfin sole areas have little chance of being hit by an oilspill .

If all the tracts are leased and oil is discovered somewhere in the lease area, the probability that one or more spills (of 1,000 barrels and larger) will occur and contact land (within a 30-day travel time) is 58 percent for transportation scenario a, 73 percent for scenario b, 85 percent for scenario c, and 74 percent for scenario d. These probabilities are reduced by about one-half if spills of 10,000 barrels and larger are considered. Land segments 1 through 9, which include portions of the Aleutian Islands, are the most likely areas to be hit by spills. The northern and eastern shores of Bristol Bay have little chance of being contacted by an oilspill; probabilities of one or more contacts (spills of 1,000 barrels or larger) to these segments are all less than 0.5 percent. Probabilities of spills traveling out of the St. George Basin study area are relatively high (in the range of 10 to 40 percent for spills contacting boundary segments

Table 20. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the proposed lease tracts using transportation scenario a.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
4	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
5	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0	7	0	0.1	3	0	0.0
6	11	0	0.1	4	0	0.0	25	0	0.3	10	0	0.1	25	0	0.3	10	0	0.1
7	37	0	0.5	16	0	0.2	41	0	0.5	18	0	0.2	45	0	0.6	20	0	0.2
8	14	0	0.2	5	0	0.1	31	0	0.4	12	0	0.1	35	0	0.4	14	0	0.2
10	2	0	0.0	1	0	0.0	16	0	0.2	6	0	0.1	21	0	0.2	8	0	0.1
11	n	0	0.0	n	0	0.0	41	0	0.5	16	0	0.2	60	0	0.9	27	0	0.3
12	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1	42	0	0.6	17	0	0.2
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	30	0	0.4	11	0	0.1
14	56	0	0.8	25	0	0.3	60	0	0.9	27	0	0.3	63	1	1.0	29	0	0.3
15	8	0	0.1	2	0	0.0	30	0	0.4	11	0	0.1	31	0	0.4	11	0	0.1
16	13	0	0.1	5	0	0.1	29	0	0.3	11	0	0.1	30	0	0.4	12	0	0.1
17	28	0	0.3	13	0	0.1	42	0	0.5	19	0	0.2	42	0	0.5	19	0	0.2
18	1	0	0.0	n	0	0.0	3	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
19	n	0	0.0	n	0	0.0	23	0	0.3	9	0	0.1	54	0	0.8	23	0	0.3
20	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	50	0	0.7	20	0	0.2
21	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.1	27	0	0.3	12	0	0.1
22	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.0	28	0	0.3	12	0	0.1
23	17	0	0.2	8	0	0.1	29	0	0.3	13	0	0.1	31	0	0.4	14	0	0.2
24	7	0	0.1	3	0	0.0	9	0	0.1	4	0	0.0	9	0	0.1	4	0	0.0
25	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
26	4	0	0.0	2	0	0.0	8	0	0.1	4	0	0.0	16	0	0.2	6	0	0.1
27	4	0	0.0	2	0	0.0	6	0	0.1	2	0	0.0	6	0	0.1	2	0	0.0
31	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	4	0	0.0	2	0	0.0
32	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	18	0	0.2	8	0	0.1
33	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	21	0	0.2	8	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	8	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0
41	n	0	0.0	n	0	0.0	13	0	0.1	5	0	0.0	18	0	0.2	6	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 21. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the proposed lease tracts using transportation scenario b.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	4	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	7	0	0.1
4	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	13	0	0.1	7	0	0.1
5	n	0	0.0	n	0	0.0	15	0	0.2	9	0	0.1	15	0	0.2	9	0	0.1
6	29	0	0.3	17	0	0.2	40	0	0.5	24	0	0.3	42	0	0.5	25	0	0.3
7	50	0	0.7	30	0	0.4	56	0	0.8	34	0	0.4	60	0	0.9	37	0	0.5
8	8	0	0.1	3	0	0.0	29	0	0.3	15	0	0.2	40	0	0.5	22	0	0.2
9	24	0	0.3	15	0	0.2	24	0	0.3	15	0	0.2	26	0	0.3	16	0	0.2
10	2	0	0.0	1	0	0.0	23	0	0.3	13	0	0.1	32	0	0.4	17	0	0.2
11	n	0	0.0	n	0	0.0	26	0	0.3	12	0	0.1	58	0	0.9	32	0	0.4
12	n	0	0.0	n	0	0.0	11	0	0.1	5	0	0.0	45	0	0.6	23	0	0.3
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	24	0	0.3	12	0	0.1
14	38	0	0.5	18	0	0.2	47	0	0.6	24	0	0.3	57	0	0.9	31	0	0.4
15	18	0	0.2	9	0	0.1	33	0	0.4	17	0	0.2	35	0	0.4	18	0	0.2
16	11	0	0.1	5	0	0.0	29	0	0.3	13	0	0.1	39	0	0.5	19	0	0.2
17	36	0	0.5	17	0	0.2	50	0	0.7	25	0	0.3	53	0	0.7	26	0	0.3
18	2	0	0.0	1	0	0.0	13	0	0.1	5	0	0.1	20	0	0.2	8	0	0.1
19	n	0	0.0	n	0	0.0	37	0	0.5	19	0	0.2	53	0	0.8	28	0	0.3
20	n	0	0.0	n	0	0.0	20	0	0.2	11	0	0.1	51	0	0.7	29	0	0.3
21	n	0	0.0	n	0	0.0	33	0	0.4	15	0	0.2	46	0	0.6	21	0	0.2
22	n	0	0.0	n	0	0.0	23	0	0.3	11	0	0.1	35	0	0.4	17	0	0.2
23	45	0	0.6	21	0	0.2	56	0	0.8	27	0	0.3	58	0	0.9	29	0	0.3
24	28	0	0.3	12	0	0.1	36	0	0.4	16	0	0.2	37	0	0.5	16	0	0.2
25	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1	15	0	0.2	6	0	0.1
26	24	0	0.3	11	0	0.1	34	0	0.4	15	0	0.2	37	0	0.5	17	0	0.2
27	12	0	0.1	5	0	0.0	32	0	0.4	14	0	0.2	32	0	0.4	14	0	0.2
28	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
30	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0	13	0	0.1	6	0	0.1
31	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0	28	0	0.3	12	0	0.1
32	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	41	0	0.5	19	0	0.2
33	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	33	0	0.4	15	0	0.2
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	18	0	0.2	8	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	2	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	20	0	0.2	8	0	0.1
40	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
41	n	0	0.0	n	0	0.0	10	0	0.1	5	0	0.0	21	0	0.2	11	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 22. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the proposed lease tracts using transportation scenario c.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
2	n	0	0.0	n	0	0.0	18	0	0.2	10	0	0.1	34	0	0.4	18	0	0.2
3	n	0	0.0	n	0	0.0	50	0	0.7	31	0	0.4	57	0	0.8	34	0	0.4
4	42	0	0.5	25	0	0.3	65	1	1.1	41	0	0.5	69	1	1.2	43	0	0.6
5	55	0	0.8	31	0	0.4	69	1	1.2	43	0	0.6	70	1	1.2	44	0	0.6
6	29	0	0.3	10	0	0.1	43	0	0.6	18	0	0.2	45	0	0.6	20	0	0.2
7	45	0	0.6	19	0	0.2	51	0	0.7	22	0	0.3	56	0	0.8	26	0	0.3
8	7	0	0.1	3	0	0.0	26	0	0.3	10	0	0.1	54	0	0.8	28	0	0.3
9	15	0	0.2	5	0	0.0	44	0	0.6	23	0	0.3	51	0	0.7	28	0	0.3
10	2	0	0.0	1	0	0.0	22	0	0.3	8	0	0.1	51	0	0.7	26	0	0.3
11	n	0	0.0	n	0	0.0	24	0	0.3	11	0	0.1	55	0	0.8	27	0	0.3
12	n	0	0.0	n	0	0.0	11	0	0.1	5	0	0.0	37	0	0.5	17	0	0.2
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	24	0	0.3	10	0	0.1
14	39	0	0.5	18	0	0.2	45	0	0.6	21	0	0.2	50	0	0.7	24	0	0.3
15	5	0	0.0	1	0	0.0	21	0	0.2	8	0	0.1	21	0	0.2	8	0	0.1
16	10	0	0.1	4	0	0.0	21	0	0.2	9	0	0.1	23	0	0.3	10	0	0.1
17	26	0	0.3	12	0	0.1	36	0	0.4	17	0	0.2	36	0	0.4	17	0	0.2
18	1	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	4	0	0.0	2	0	0.0
19	n	0	0.0	n	0	0.0	22	0	0.3	8	0	0.1	41	0	0.5	18	0	0.2
20	n	0	0.0	n	0	0.0	30	0	0.4	14	0	0.1	55	0	0.8	27	0	0.3
21	n	0	0.0	n	0	0.0	11	0	0.1	5	0	0.1	24	0	0.3	11	0	0.1
22	n	0	0.0	n	0	0.0	11	0	0.1	5	0	0.0	23	0	0.3	10	0	0.1
23	16	0	0.2	7	0	0.1	27	0	0.3	12	0	0.1	28	0	0.3	13	0	0.1
24	6	0	0.1	3	0	0.0	9	0	0.1	4	0	0.0	9	0	0.1	4	0	0.0
25	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
26	3	0	0.0	2	0	0.0	8	0	0.1	4	0	0.0	12	0	0.1	5	0	0.1
27	3	0	0.0	2	0	0.0	5	0	0.1	2	0	0.0	5	0	0.1	2	0	0.0
31	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	4	0	0.0	2	0	0.0
32	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	17	0	0.2	8	0	0.1
33	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	20	0	0.2	8	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	14	0	0.1	6	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.0	2	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0
41	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0	26	0	0.3	12	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 23. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the proposed lease tracts using transportation scenario d.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	6	0	0.1
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	18	0	0.2	10	0	0.1
4	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	18	0	0.2	10	0	0.1
5	n	0	0.0	n	0	0.0	21	0	0.2	12	0	0.1	21	0	0.2	12	0	0.1
6	40	0	0.5	25	0	0.3	51	0	0.7	31	0	0.4	51	0	0.7	31	0	0.4
7	62	0	1.0	39	0	0.5	70	1	1.2	46	0	0.6	72	1	1.3	47	0	0.6
8	11	0	0.1	4	0	0.0	40	0	0.5	21	0	0.2	52	0	0.7	29	0	0.3
9	35	0	0.4	23	0	0.3	36	0	0.4	23	0	0.3	37	0	0.5	24	0	0.3
10	2	0	0.0	1	0	0.0	33	0	0.4	18	0	0.2	45	0	0.6	26	0	0.3
11	n	0	0.0	n	0	0.0	36	0	0.4	15	0	0.2	71	1	1.2	41	0	0.5
12	n	0	0.0	n	0	0.0	17	0	0.2	7	0	0.1	56	0	0.8	29	0	0.3
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	35	0	0.4	16	0	0.2
14	51	0	0.7	23	0	0.3	65	1	1.0	34	0	0.4	69	1	1.2	38	0	0.5
15	28	0	0.3	15	0	0.2	49	0	0.7	26	0	0.3	50	0	0.7	26	0	0.3
16	17	0	0.2	7	0	0.1	35	0	0.4	15	0	0.2	37	0	0.5	16	0	0.2
17	31	0	0.4	14	0	0.1	49	0	0.7	23	0	0.3	49	0	0.7	23	0	0.3
18	1	0	0.0	n	0	0.0	5	0	0.0	2	0	0.0	5	0	0.1	2	0	0.0
19	n	0	0.0	n	0	0.0	42	0	0.6	23	0	0.3	65	1	1.0	34	0	0.4
20	n	0	0.0	n	0	0.0	25	0	0.3	15	0	0.2	66	1	1.1	40	0	0.5
21	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1	31	0	0.4	13	0	0.1
22	n	0	0.0	n	0	0.0	16	0	0.2	7	0	0.1	33	0	0.4	14	0	0.1
23	20	0	0.2	9	0	0.1	34	0	0.4	15	0	0.2	36	0	0.4	16	0	0.2
24	8	0	0.1	3	0	0.0	12	0	0.1	5	0	0.0	12	0	0.1	5	0	0.0
25	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0
26	4	0	0.0	2	0	0.0	10	0	0.1	4	0	0.0	16	0	0.2	6	0	0.1
27	4	0	0.0	2	0	0.0	7	0	0.1	3	0	0.0	7	0	0.1	3	0	0.0
31	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	5	0	0.1	2	0	0.0
32	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	22	0	0.2	9	0	0.1
33	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	30	0	0.4	14	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	24	0	0.3	11	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	6	0	0.1
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
41	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1	30	0	0.4	15	0	0.2

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 24. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of tract deletion alternative 1, using transportation scenario a.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
4	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
5	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0	8	0	0.1	3	0	0.0
6	11	0	0.1	5	0	0.0	26	0	0.3	11	0	0.1	26	0	0.3	11	0	0.1
7	39	0	0.5	17	0	0.2	42	0	0.5	18	0	0.2	45	0	0.6	20	0	0.2
8	15	0	0.2	5	0	0.1	31	0	0.4	12	0	0.1	35	0	0.4	14	0	0.2
10	2	0	0.0	1	0	0.0	16	0	0.2	6	0	0.1	21	0	0.2	8	0	0.1
11	n	0	0.0	n	0	0.0	42	0	0.5	17	0	0.2	59	0	0.9	27	0	0.3
12	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1	40	0	0.5	16	0	0.2
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	30	0	0.4	12	0	0.1
14	57	0	0.9	26	0	0.3	61	0	0.9	28	0	0.3	64	1	1.0	30	0	0.3
15	6	0	0.1	1	0	0.0	29	0	0.3	10	0	0.1	29	0	0.3	10	0	0.1
16	14	0	0.1	5	0	0.1	27	0	0.3	11	0	0.1	27	0	0.3	11	0	0.1
17	17	0	0.2	7	0	0.1	32	0	0.4	13	0	0.1	32	0	0.4	13	0	0.1
18	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
19	n	0	0.0	n	0	0.0	20	0	0.2	8	0	0.1	53	0	0.7	23	0	0.3
20	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	50	0	0.7	21	0	0.2
21	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0	20	0	0.2	9	0	0.1
22	n	0	0.0	n	0	0.0	9	0	0.1	3	0	0.0	25	0	0.3	10	0	0.1
23	4	0	0.0	2	0	0.0	17	0	0.2	7	0	0.1	19	0	0.2	8	0	0.1
24	1	0	0.0	1	0	0.0	4	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
26	1	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	11	0	0.1	4	0	0.0
27	1	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
31	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
32	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	10	0	0.1	4	0	0.0
33	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	17	0	0.2	7	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	8	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
41	n	0	0.0	n	0	0.0	13	0	0.1	5	0	0.1	17	0	0.2	6	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 25. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of tract deletion alternative 2, using transportation scenario b.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	2	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	3	0	0.0
4	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	4	0	0.0	3	0	0.0
5	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0	6	0	0.1	3	0	0.0
6	12	0	0.1	8	0	0.1	15	0	0.2	9	0	0.1	17	0	0.2	10	0	0.1
7	17	0	0.2	11	0	0.1	21	0	0.2	13	0	0.1	27	0	0.3	16	0	0.2
8	n	0	0.0	n	0	0.0	6	0	0.1	4	0	0.0	14	0	0.2	8	0	0.1
9	13	0	0.1	8	0	0.1	14	0	0.1	8	0	0.1	15	0	0.2	9	0	0.1
10	n	0	0.0	n	0	0.0	7	0	0.1	4	0	0.0	12	0	0.1	7	0	0.1
11	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	25	0	0.3	13	0	0.1
12	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	26	0	0.3	13	0	0.1
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	3	0	0.0
14	n	0	0.0	n	0	0.0	7	0	0.1	4	0	0.0	19	0	0.2	10	0	0.1
15	7	0	0.1	4	0	0.0	9	0	0.1	6	0	0.1	11	0	0.1	7	0	0.1
16	7	0	0.1	3	0	0.0	17	0	0.2	8	0	0.1	26	0	0.3	12	0	0.1
17	34	0	0.4	16	0	0.2	42	0	0.6	20	0	0.2	44	0	0.6	21	0	0.2
18	2	0	0.0	1	0	0.0	10	0	0.1	4	0	0.0	16	0	0.2	6	0	0.1
19	n	0	0.0	n	0	0.0	26	0	0.3	13	0	0.1	29	0	0.3	15	0	0.2
20	n	0	0.0	n	0	0.0	10	0	0.1	6	0	0.1	15	0	0.2	9	0	0.1
21	n	0	0.0	n	0	0.0	27	0	0.3	12	0	0.1	37	0	0.5	16	0	0.2
22	n	0	0.0	n	0	0.0	18	0	0.2	8	0	0.1	25	0	0.3	12	0	0.1
23	38	0	0.5	17	0	0.2	47	0	0.6	22	0	0.2	48	0	0.7	23	0	0.3
24	22	0	0.2	9	0	0.1	28	0	0.3	12	0	0.1	29	0	0.3	12	0	0.1
25	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0	11	0	0.1	4	0	0.0
26	18	0	0.2	7	0	0.1	27	0	0.3	11	0	0.1	27	0	0.3	11	0	0.1
27	10	0	0.1	4	0	0.0	24	0	0.3	10	0	0.1	24	0	0.3	10	0	0.1
28	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0
30	n	0	0.0	n	0	0.0	5	0	0.0	2	0	0.0	9	0	0.1	3	0	0.0
31	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0	21	0	0.2	8	0	0.1
32	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	35	0	0.4	15	0	0.2
33	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	24	0	0.3	11	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.1
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1
40	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
41	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	8	0	0.1	4	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 26. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of tract deletion alternative 2, using transportation scenario c.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
2	n	0	0.0	n	0	0.0	10	0	0.1	5	0	0.1	17	0	0.2	9	0	0.1
3	n	0	0.0	n	0	0.0	30	0	0.4	17	0	0.2	32	0	0.4	18	0	0.2
4	24	0	0.3	14	0	0.2	41	0	0.5	24	0	0.3	42	0	0.5	24	0	0.3
5	32	0	0.4	17	0	0.2	42	0	0.5	24	0	0.3	43	0	0.6	24	0	0.3
6	11	0	0.1	3	0	0.0	16	0	0.2	5	0	0.1	18	0	0.2	6	0	0.1
7	13	0	0.1	3	0	0.0	19	0	0.2	6	0	0.1	25	0	0.3	9	0	0.1
8	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	27	0	0.3	13	0	0.1
9	7	0	0.1	2	0	0.0	24	0	0.3	12	0	0.1	29	0	0.3	15	0	0.2
10	n	0	0.0	n	0	0.0	6	0	0.1	1	0	0.0	26	0	0.3	12	0	0.1
11	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	27	0	0.3	11	0	0.1
12	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	25	0	0.3	10	0	0.1
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
14	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0	16	0	0.2	6	0	0.1
15	6	0	0.1	1	0	0.0	7	0	0.1	2	0	0.0	7	0	0.1	2	0	0.0
16	7	0	0.1	3	0	0.0	15	0	0.2	6	0	0.1	18	0	0.2	7	0	0.1
17	30	0	0.4	14	0	0.1	35	0	0.4	17	0	0.2	35	0	0.4	17	0	0.2
18	1	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
19	n	0	0.0	n	0	0.0	23	0	0.3	9	0	0.1	26	0	0.3	11	0	0.1
20	n	0	0.0	n	0	0.0	17	0	0.2	7	0	0.1	21	0	0.2	9	0	0.1
21	n	0	0.0	n	0	0.0	13	0	0.1	6	0	0.1	22	0	0.2	10	0	0.1
22	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.1	19	0	0.2	8	0	0.1
23	19	0	0.2	9	0	0.1	28	0	0.3	13	0	0.1	28	0	0.3	13	0	0.1
24	7	0	0.1	3	0	0.0	10	0	0.1	4	0	0.0	10	0	0.1	4	0	0.0
25	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
26	4	0	0.0	2	0	0.0	9	0	0.1	4	0	0.0	9	0	0.1	4	0	0.0
27	4	0	0.0	2	0	0.0	6	0	0.1	3	0	0.0	6	0	0.1	3	0	0.0
31	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	4	0	0.0	2	0	0.0
32	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	19	0	0.2	9	0	0.1
33	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	18	0	0.2	7	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.0	2	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
41	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 27. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of tract deletion alternative 3, using transportation scenario d.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	3	0	0.0
4	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	5	0	0.1	3	0	0.0
5	n	0	0.0	n	0	0.0	7	0	0.1	4	0	0.0	7	0	0.1	4	0	0.0
6	15	0	0.2	10	0	0.1	18	0	0.2	11	0	0.1	18	0	0.2	11	0	0.1
7	21	0	0.2	13	0	0.1	30	0	0.4	18	0	0.2	35	0	0.4	20	0	0.2
8	n	0	0.0	n	0	0.0	8	0	0.1	5	0	0.1	20	0	0.2	11	0	0.1
9	17	0	0.2	10	0	0.1	17	0	0.2	11	0	0.1	17	0	0.2	11	0	0.1
10	n	0	0.0	n	0	0.0	9	0	0.1	6	0	0.1	18	0	0.2	10	0	0.1
11	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	34	0	0.4	17	0	0.2
12	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	36	0	0.4	16	0	0.2
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
14	n	0	0.0	n	0	0.0	17	0	0.2	8	0	0.1	25	0	0.3	12	0	0.1
15	19	0	0.2	8	0	0.1	21	0	0.2	10	0	0.1	21	0	0.2	10	0	0.1
16	14	0	0.1	5	0	0.1	24	0	0.3	10	0	0.1	25	0	0.3	10	0	0.1
17	25	0	0.3	10	0	0.1	35	0	0.4	15	0	0.2	35	0	0.4	15	0	0.2
18	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
19	n	0	0.0	n	0	0.0	36	0	0.4	17	0	0.2	41	0	0.5	19	0	0.2
20	n	0	0.0	n	0	0.0	13	0	0.1	7	0	0.1	22	0	0.2	13	0	0.1
21	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0	21	0	0.2	9	0	0.1
22	n	0	0.0	n	0	0.0	14	0	0.1	6	0	0.1	23	0	0.3	9	0	0.1
23	6	0	0.1	2	0	0.0	20	0	0.2	9	0	0.1	20	0	0.2	9	0	0.1
24	2	0	0.0	1	0	0.0	7	0	0.1	3	0	0.0	7	0	0.1	3	0	0.0
26	1	0	0.0	1	0	0.0	5	0	0.0	2	0	0.0	5	0	0.0	2	0	0.0
27	1	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0
31	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
32	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	15	0	0.2	6	0	0.1
33	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	9	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
39	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
41	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	11	0	0.1	6	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 28. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the proposed lease tracts using transportation scenario a.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
5	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	11	0	0.1	4	0	0.0
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
39	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
47	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	10	0	0.1	4	0	0.0
49	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	14	0	0.2	6	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	5	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	31	0	0.4	12	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	4	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	4	0	0.0
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	14	0	0.2	6	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 29. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the proposed lease tracts using transportation scenario b.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	2	0	0.0
4	n	0	0.0	n	0	0.0	3	0	0.0	2	0	0.0	6	0	0.1	4	0	0.0
5	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	12	0	0.1	6	0	0.1
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	18	0	0.2	9	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	9	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	7	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
39	11	0	0.1	5	0	0.0	19	0	0.2	8	0	0.1	35	0	0.4	16	0	0.2
47	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0	11	0	0.1	4	0	0.0
49	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1	26	0	0.3	11	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	7	0	0.1
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	22	0	0.3	10	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	5	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	40	0	0.5	20	0	0.2
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	16	0	0.2	8	0	0.1
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	12	0	0.1
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	20	0	0.2	11	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 30. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the proposed lease tracts using transportation scenario c.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	15	0	0.2	9	0	0.1	26	0	0.3	15	0	0.2	32	0	0.4	18	0	0.2
2	n	0	0.0	n	0	0.0	18	0	0.2	10	0	0.1	19	0	0.2	11	0	0.1
3	1	0	0.0	n	0	0.0	18	0	0.2	9	0	0.1	21	0	0.2	10	0	0.1
4	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	17	0	0.2	8	0	0.1
5	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	18	0	0.2	8	0	0.1
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	20	0	0.2	9	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	5	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
39	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
47	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	6	0	0.1	2	0	0.0
49	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	14	0	0.1	6	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	2	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	16	0	0.2	8	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	24	0	0.3	10	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	40	0	0.5	20	0	0.2
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	35	0	0.4	17	0	0.2
57	n	0	0.0	n	0	0.0	23	0	0.3	13	0	0.1	45	0	0.6	26	0	0.3

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 31. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the proposed lease tracts using transportation scenario d.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	3	0	0.0
4	n	0	0.0	n	0	0.0	5	0	0.0	3	0	0.0	8	0	0.1	5	0	0.0
5	n	0	0.0	n	0	0.0	5	0	0.1	2	0	0.0	20	0	0.2	10	0	0.1
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	26	0	0.3	13	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	28	0	0.3	14	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	9	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	4	0	0.0
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
39	n	0	0.0	n	0	0.0	5	0	0.1	2	0	0.0	5	0	0.1	2	0	0.0
47	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	9	0	0.1	3	0	0.0
49	n	0	0.0	n	0	0.0	4	0	0.0	1	0	0.0	18	0	0.2	8	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	6	0	0.1
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	41	0	0.5	20	0	0.2
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	20	0	0.2	9	0	0.1
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	30	0	0.4	16	0	0.2
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	27	0	0.3	15	0	0.2

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 32. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of tract deletion alternative 1, using transportation scenario a.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
5	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	11	0	0.1	4	0	0.0
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	7	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	16	0	0.2	6	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	4	0	0.0
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
39	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
47	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0
48	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	3	0	0.0
49	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	11	0	0.1	4	0	0.0
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	2	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	26	0	0.3	10	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	4	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 33. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of tract deletion alternative 2, using transportation scenario b.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
4	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	3	0	0.0	2	0	0.0
5	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	3	0	0.0	2	0	0.0
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.0	3	0	0.0
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	3	0	0.0
39	7	0	0.1	3	0	0.0	15	0	0.2	6	0	0.1	25	0	0.3	11	0	0.1
47	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0	6	0	0.1	2	0	0.0
49	n	0	0.0	n	0	0.0	11	0	0.1	4	0	0.0	19	0	0.2	8	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	5	0	0.1
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	6	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	4	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	25	0	0.3	12	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	4	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	5	0	0.1
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 34. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of tract deletion alternative 2, using transportation scenario c.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	8	0	0.1	5	0	0.0	14	0	0.2	8	0	0.1	18	0	0.2	10	0	0.1
2	n	0	0.0	n	0	0.0	10	0	0.1	5	0	0.1	10	0	0.1	6	0	0.1
3	1	0	0.0	n	0	0.0	9	0	0.1	5	0	0.0	11	0	0.1	5	0	0.1
4	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	8	0	0.1	4	0	0.0
5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	3	0	0.0
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0
39	n	0	0.0	n	0	0.0	4	0	0.0	2	0	0.0	4	0	0.0	2	0	0.0
47	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	2	0	0.0	1	0	0.0
49	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	11	0	0.1	5	0	0.0
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	2	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	5	0	0.0
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	17	0	0.2	7	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	2	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	10	0	0.1
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	14	0	0.1	6	0	0.1
57	n	0	0.0	n	0	0.0	13	0	0.1	7	0	0.1	26	0	0.3	14	0	0.2

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table 35. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of tract deletion alternative 3, using transportation scenario d.

Segment	Within 3 days						Within 10 days						Within 30 days					
	> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls			> 1,000 bbls			> 10,000 bbls		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0
4	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	3	0	0.0	2	0	0.0
5	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	5	0	0.1	3	0	0.0
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	5	0	0.0
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	3	0	0.0
39	n	0	0.0	n	0	0.0	3	0	0.0	1	0	0.0	3	0	0.0	1	0	0.0
47	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0
49	n	0	0.0	n	0	0.0	2	0	0.0	1	0	0.0	11	0	0.1	5	0	0.0
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	4	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	3	0	0.0
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	4	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	20	0	0.2	9	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	5	0	0.1
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	6	0	0.1
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	4	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

located along the western and southern edge of the study area). Segment 53, which is located at the southwestern edge of the study area, has a 40-percent chance of being contacted by one or more oilspills of 1,000 barrels or larger within 30 days travel time, for transportation scenario a.

The targets most likely to be contacted by one or more oilspills of 1,000 barrels or larger within 30 days are: Halibut fishing area 3 (79-percent chance); Halibut fishing area 4 (37-percent chance); and Polleck eggs area (93-percent chance). (To see the "full" risks to these targets, these values should be multiplied by the 28-percent chance that oil will be found.)

The risks to land associated with the proposed action (scenario a) are reduced only slightly by deletion alternative 1. The risks to land associated with the proposed action (scenarios b and c), are reduced by approximately 40-percent by deletion alternative 2 (scenarios b and c). The risk to land associated with the proposed action (scenario d), are reduced by approximately 60-percent by deletion alternative 3, which has the lowest estimate of oil resources.

Conclusions

This analysis indicates that if oil is found in commercial quantities in the OCS Lease Sale 70 area (a 28-percent chance), 6.5 oilspills of 1,000 barrels or larger are expected to occur in the St. George Basin lease area. The probability that one or more oilspills of 1,000 barrels or larger will occur is greater than 99 percent; the probability of one or more spills occurring and contacting land within 30 days is 58 to 85 percent, depending upon the transportation method chosen. For spills 10,000 barrels or larger, these probabilities are reduced to 26 to 57 percent, respectively.

The deletion alternatives reduce the risks to the targets, impact zones, and land and sea boundary segments in direct proportion to the amount of oil estimated for each alternative. A comparison of the four transportation scenarios for the proposed action shows that scenario a poses the lowest risks to land while scenario c poses the highest risks to land.

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Appendix A

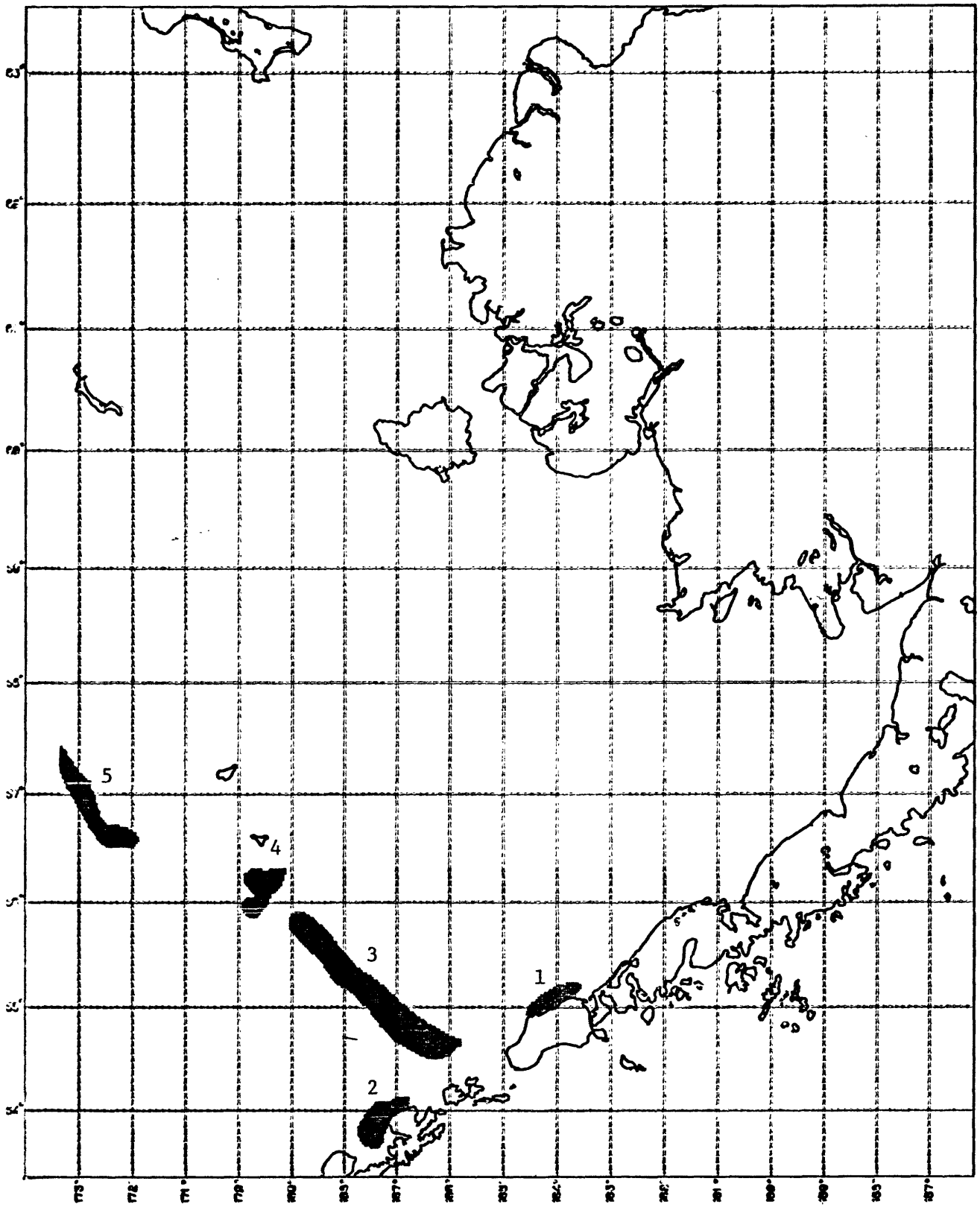

Figure A-1.--Map showing the location of Halibut fishing areas 1-5, St. George Basin OCS Lease Sale 70: cross hatching indicates areal extent.

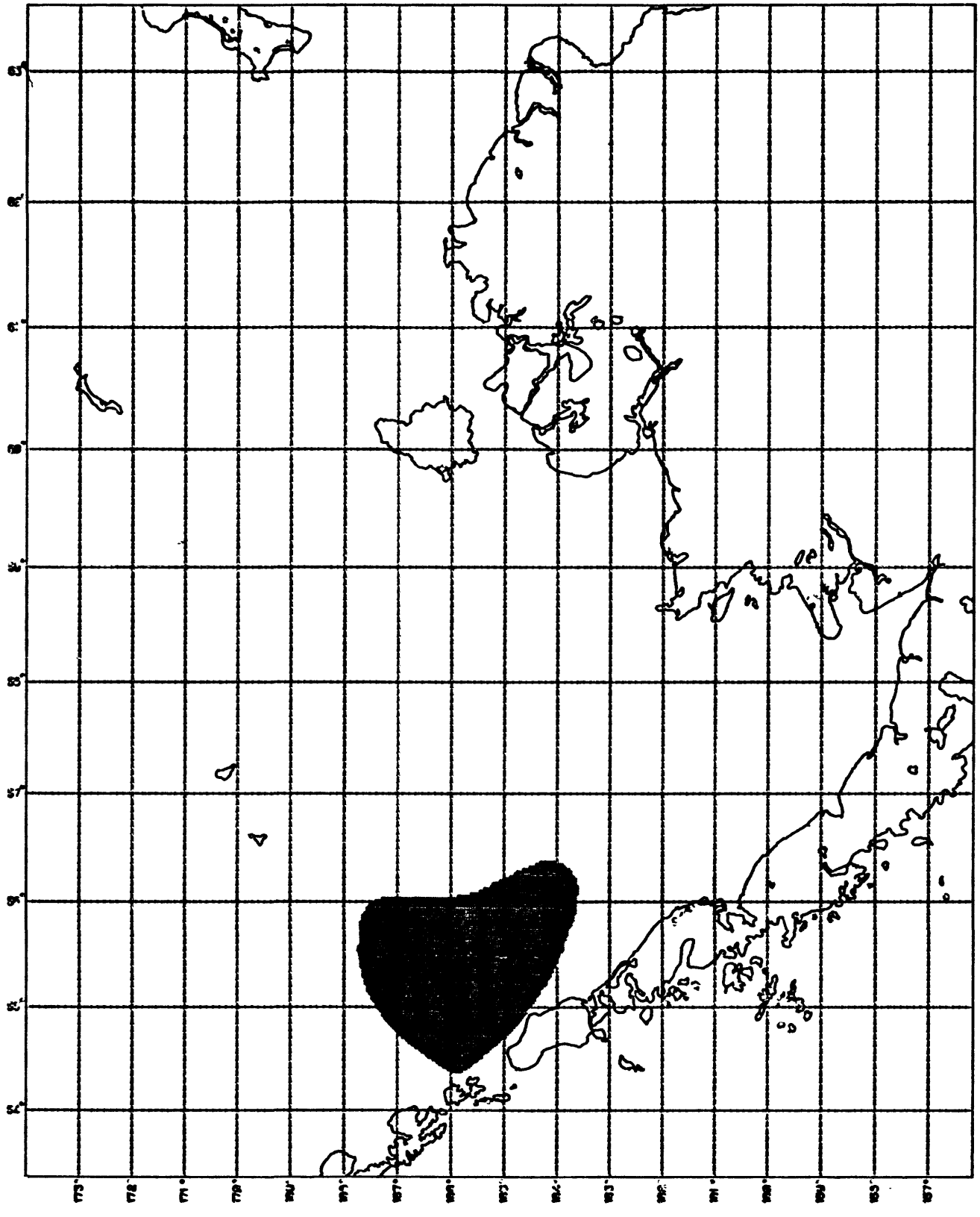

Figure A-2.--Map showing the location of the Polleck eggs area, St. George Basin OCS Lease Sale 70; cross hatching indicates areal extent.

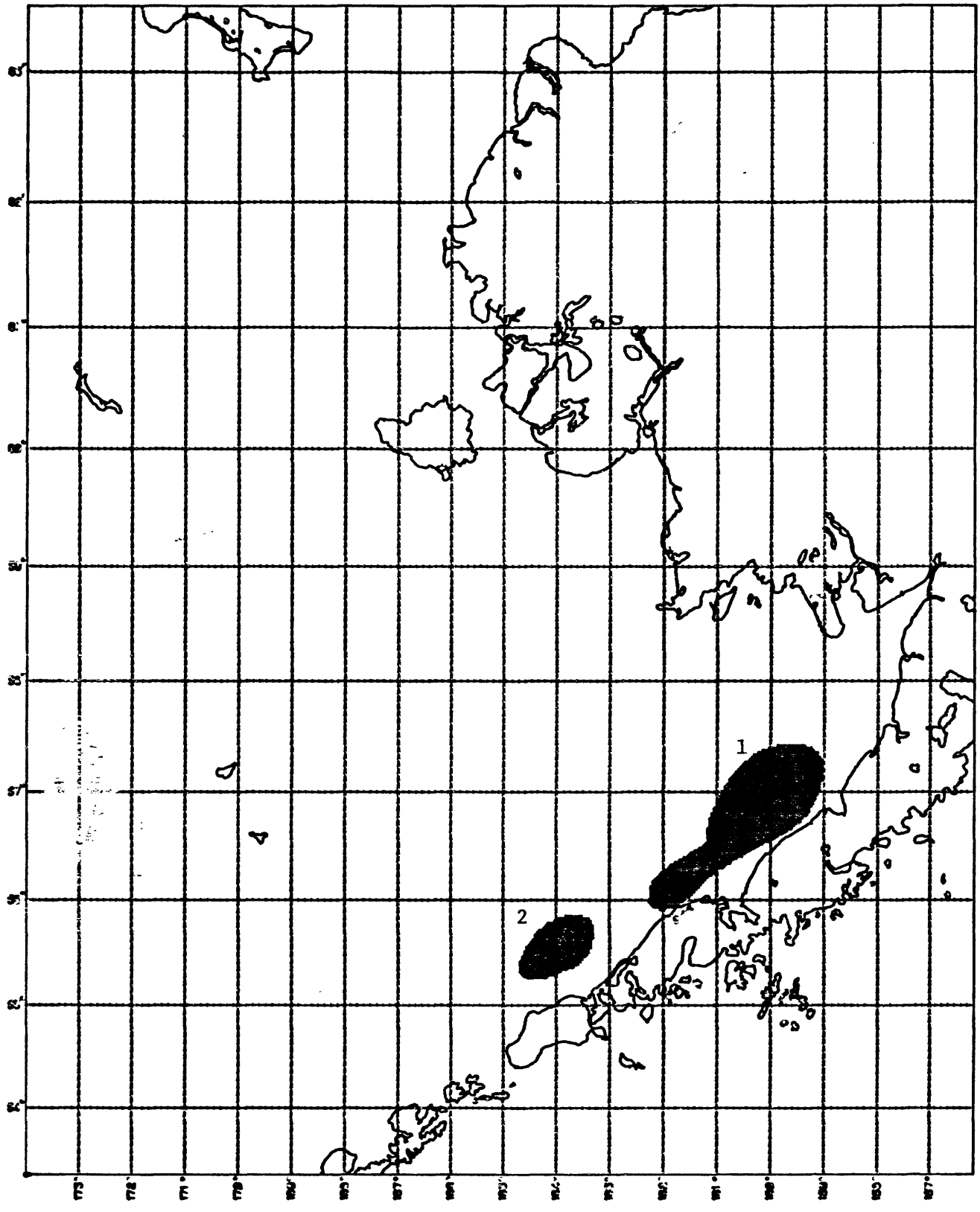

Figure A-3.--Map showing the location of King Crab areas 1 and 2, St. George Basin OCS Lease Sale 70: cross hatching indicates areal extent.

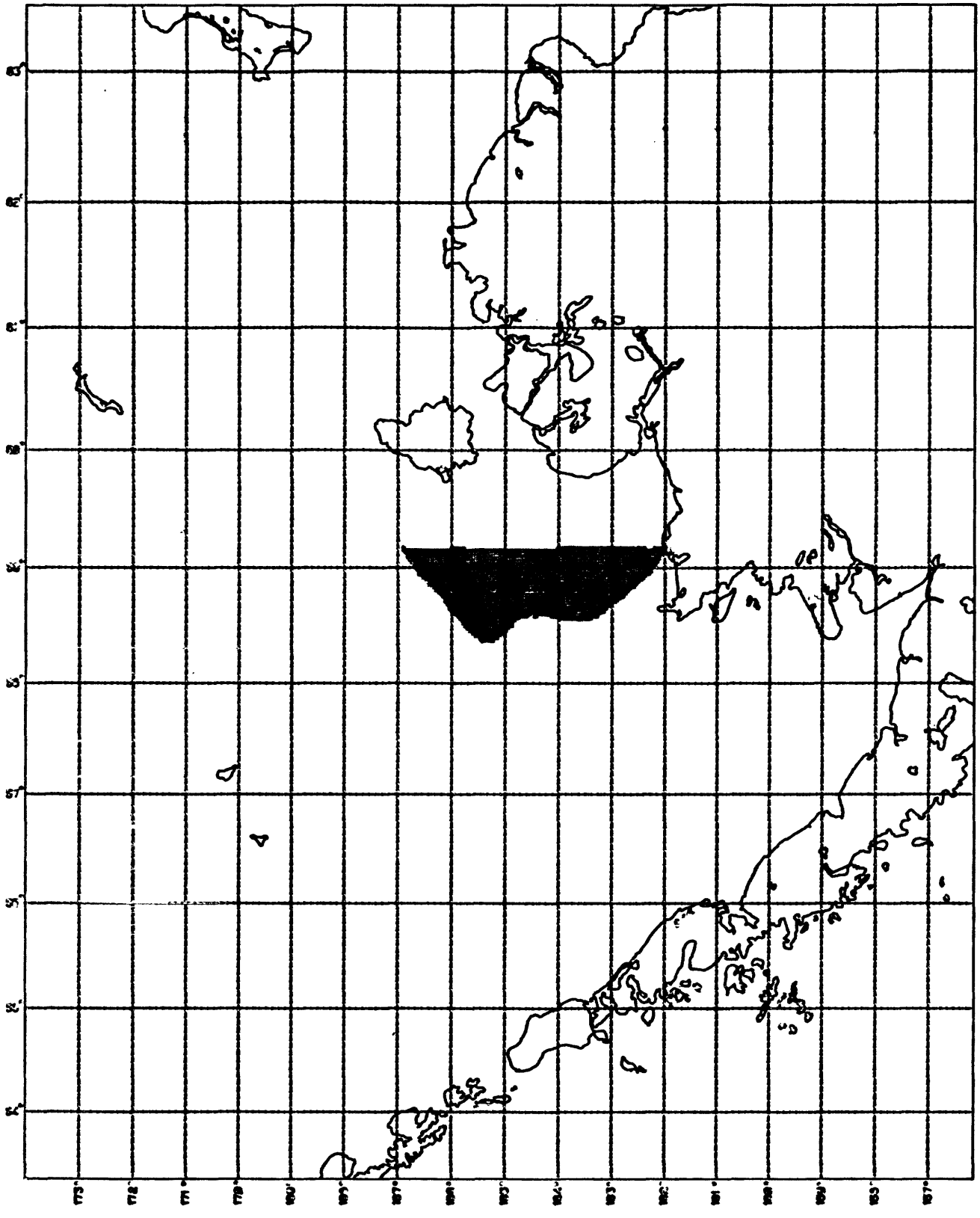

Figure A-4.—Map showing the location of Yellowfin sole eggs, St. George Basin OCS Lease Sale 70: cross hatching indicates areal extent.

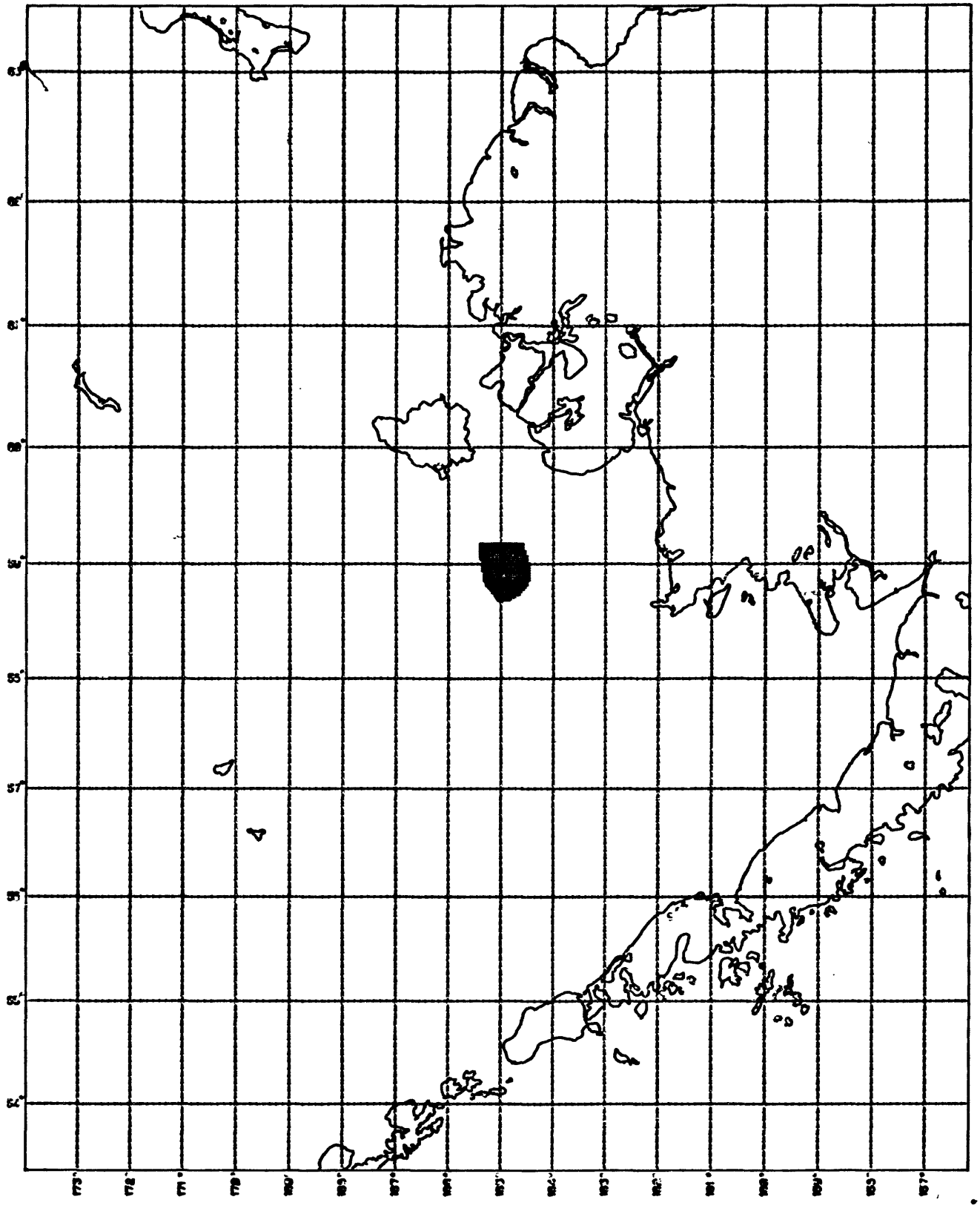

Figure A-5.--Map showing the location of Yellowfin sole eggs (high concentration), St. George Basin OCS Lease Sale 70: cross hatching indicates areal extent.

Appendix B

Table B-1. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, for spills 1,000 barrels and greater.

Target	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	8	0	0.1	12	0	0.1	58	0	0.9	68	1	1.1
Halibut fishing 1	n	0	0.0	n	0	0.0	17	0	0.2	18	0	0.2	27	0	0.3	30	0	0.4
Halibut fishing 2	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
Halibut fishing 3	n	0	0.0	6	0	0.1	63	1	1.0	69	1	1.2	79	1	1.6	83	1	1.8
Halibut fishing 4	n	0	0.0	n	0	0.0	16	0	0.2	16	0	0.2	37	0	0.5	39	0	0.5
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	93	2	2.6	95	2	3.0	93	2	2.6	95	3	3.0	93	2	2.6	95	3	3.0
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	2	0	0.0	6	0	0.1
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table B-2. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting targets over the expected production life of the lease area, for spills 10,000 barrels and greater.

Target	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
Land	n	0	0.0	n	0	0.0	3	0	0.0	6	0	0.1	26	0	0.3	37	0	0.5
Halibut fishing 1	n	0	0.0	n	0	0.0	6	0	0.1	7	0	0.1	10	0	0.1	12	0	0.1
Halibut fishing 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0
Halibut fishing 3	n	0	0.0	4	0	0.0	29	0	0.3	36	0	0.5	41	0	0.5	48	0	0.7
Halibut fishing 4	n	0	0.0	n	0	0.0	6	0	0.1	6	0	0.1	15	0	0.2	17	0	0.2
Halibut fishing 5	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Polleck eggs area	59	0	0.9	67	1	1.1	59	0	0.9	67	1	1.1	59	0	0.9	68	1	1.1
King crab area 1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
King crab area 2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0
Yellowfin sole area	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	3	0	0.0
Yellowfin sole (high)	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0

Note: n = less than 0.5 percent; ** = greater than 99.5 percent.

Table B-3. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the lease area, for spills 1,000 barrels and greater.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	6	0	0.1
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	10	0	0.1
4	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	7	0	0.1	11	0	0.1
5	n	0	0.0	n	0	0.0	7	0	0.1	12	0	0.1	7	0	0.1	12	0	0.1
6	11	0	0.1	17	0	0.2	25	0	0.3	31	0	0.4	25	0	0.3	31	0	0.4
7	37	0	0.5	40	0	0.5	41	0	0.5	45	0	0.6	45	0	0.6	49	0	0.7
8	14	0	0.2	14	0	0.2	31	0	0.4	35	0	0.4	35	0	0.4	41	0	0.5
9	n	0	0.0	12	0	0.1	n	0	0.0	13	0	0.1	n	0	0.0	13	0	0.1
10	2	0	0.0	2	0	0.0	16	0	0.2	22	0	0.2	21	0	0.2	28	0	0.3
11	n	0	0.0	n	0	0.0	41	0	0.5	42	0	0.5	60	0	0.9	64	1	1.0
12	n	0	0.0	n	0	0.0	19	0	0.2	20	0	0.2	42	0	0.6	46	0	0.6
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	30	0	0.4	33	0	0.4
14	56	0	0.8	57	0	0.8	60	0	0.9	63	0	1.0	63	1	1.0	65	1	1.1
15	8	0	0.1	8	0	0.1	30	0	0.4	34	0	0.4	31	0	0.4	34	0	0.4
16	13	0	0.1	24	0	0.3	29	0	0.3	38	0	0.5	30	0	0.4	39	0	0.5
17	28	0	0.3	28	0	0.3	42	0	0.5	43	0	0.6	42	0	0.5	43	0	0.6
18	1	0	0.0	4	0	0.0	3	0	0.0	7	0	0.1	4	0	0.0	7	0	0.1
19	n	0	0.0	n	0	0.0	23	0	0.3	24	0	0.3	54	0	0.8	57	0	0.8
20	n	0	0.0	n	0	0.0	4	0	0.0	7	0	0.1	50	0	0.7	54	0	0.8
21	n	0	0.0	n	0	0.0	12	0	0.1	13	0	0.1	27	0	0.3	31	0	0.4
22	n	0	0.0	n	0	0.0	12	0	0.1	12	0	0.1	28	0	0.3	31	0	0.4
23	17	0	0.2	17	0	0.2	29	0	0.3	30	0	0.4	31	0	0.4	33	0	0.4
24	7	0	0.1	7	0	0.1	9	0	0.1	13	0	0.1	9	0	0.1	13	0	0.1
25	n	0	0.0	n	0	0.0	2	0	0.0	2	0	0.0	2	0	0.0	3	0	0.0
26	4	0	0.0	4	0	0.0	8	0	0.1	11	0	0.1	16	0	0.2	19	0	0.2
27	4	0	0.0	4	0	0.0	6	0	0.1	9	0	0.1	6	0	0.1	9	0	0.1
28	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
30	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0
31	n	0	0.0	2	0	0.0	3	0	0.0	5	0	0.1	4	0	0.0	6	0	0.1
32	n	0	0.0	4	0	0.0	3	0	0.0	8	0	0.1	18	0	0.2	23	0	0.3
33	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	21	0	0.2	24	0	0.3
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	21	0	0.2	24	0	0.3
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	8	0	0.1
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	4	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	14	0	0.1
39	n	0	0.0	1	0	0.0	n	0	0.0	3	0	0.0	3	0	0.0	7	0	0.1
40	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0
41	n	0	0.0	n	0	0.0	13	0	0.1	15	0	0.2	18	0	0.2	21	0	0.2

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table B-4. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting impact zones over the expected production life of the lease area, for spills 10,000 barrels and greater.

Impact Zone	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
2	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0
3	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.0
4	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1
5	n	0	0.0	n	0	0.0	1	0	0.0	6	0	0.1	4	0	0.0	6	0	0.1
6	n	0	0.0	8	0	0.1	n	0	0.0	15	0	0.2	7	0	0.1	15	0	0.2
7	n	0	0.0	18	0	0.2	n	0	0.0	21	0	0.2	7	0	0.1	23	0	0.3
8	n	0	0.0	5	0	0.1	n	0	0.0	15	0	0.2	6	0	0.1	18	0	0.2
9	n	0	0.0	8	0	0.1	n	0	0.0	8	0	0.1	4	0	0.0	8	0	0.1
10	n	0	0.0	1	0	0.0	n	0	0.0	10	0	0.1	n	0	0.0	13	0	0.1
11	n	0	0.0	n	0	0.0	n	0	0.0	17	0	0.2	n	0	0.0	31	0	0.4
12	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	n	0	0.0	21	0	0.2
13	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	14	0	0.1
14	n	0	0.0	26	0	0.3	n	0	0.0	29	0	0.3	n	0	0.0	32	0	0.4
15	n	0	0.0	2	0	0.0	n	0	0.0	13	0	0.1	n	0	0.0	13	0	0.1
16	n	0	0.0	12	0	0.1	n	0	0.0	18	0	0.2	n	0	0.0	19	0	0.2
17	n	0	0.0	13	0	0.1	n	0	0.0	20	0	0.2	n	0	0.0	20	0	0.2
18	n	0	0.0	2	0	0.0	n	0	0.0	3	0	0.0	n	0	0.0	4	0	0.0
19	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1	n	0	0.0	26	0	0.3
20	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	n	0	0.0	25	0	0.3
21	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	n	0	0.0	15	0	0.2
22	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.0	n	0	0.0	14	0	0.1
23	n	0	0.0	8	0	0.1	n	0	0.0	14	0	0.1	n	0	0.0	15	0	0.2
24	n	0	0.0	3	0	0.0	n	0	0.0	6	0	0.1	n	0	0.0	6	0	0.1
25	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
26	n	0	0.0	2	0	0.0	n	0	0.0	5	0	0.1	n	0	0.0	8	0	0.1
27	n	0	0.0	2	0	0.0	n	0	0.0	5	0	0.0	n	0	0.0	5	0	0.0
30	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
31	n	0	0.0	1	0	0.0	n	0	0.0	3	0	0.0	n	0	0.0	3	0	0.0
32	n	0	0.0	3	0	0.0	n	0	0.0	5	0	0.0	n	0	0.0	11	0	0.1
33	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	10	0	0.1
34	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	9	0	0.1
35	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0
37	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0
38	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1
39	n	0	0.0	1	0	0.0	2	0	0.0	2	0	0.0	2	0	0.0	3	0	0.0
40	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
41	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	n	0	0.0	8	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Zones with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table B-5. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the lease area, for spills 1,000 barrels and greater.

Segment	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0
4	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	2	0	0.0
5	n	0	0.0	n	0	0.0	4	0	0.0	4	0	0.0	11	0	0.1	14	0	0.1
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	20	0	0.2
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	19	0	0.2	22	0	0.2
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	15	0	0.2	17	0	0.2
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	11	0	0.1	12	0	0.1
10	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0
33	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	n	0	0.0	6	0	0.1
39	n	0	0.0	n	0	0.0	4	0	0.0	5	0	0.0	4	0	0.0	9	0	0.1
44	n	0	0.0	3	0	0.0	n	0	0.0	3	0	0.0	n	0	0.0	3	0	0.0
46	n	0	0.0	1	0	0.0	n	0	0.0	4	0	0.0	n	0	0.0	4	0	0.0
47	n	0	0.0	n	0	0.0	2	0	0.0	2	0	0.0	2	0	0.0	2	0	0.0
48	n	0	0.0	n	0	0.0	2	0	0.0	2	0	0.0	10	0	0.1	10	0	0.1
49	n	0	0.0	n	0	0.0	3	0	0.0	3	0	0.0	14	0	0.2	18	0	0.2
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	6	0	0.1
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	13	0	0.1	15	0	0.2
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	8	0	0.1	8	0	0.1
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	31	0	0.4	32	0	0.4
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	10	0	0.1	12	0	0.1
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	16	0	0.2
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	14	0	0.2	18	0	0.2

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Table B-6. -- Probabilities (expressed as percent chance) of one or more spills, the most likely number of spills (mode), and the expected number of spills (mean) occurring and contacting land or sea boundary segments over the expected production life of the lease area, for spills 10,000 barrels and greater.

Segment	Within 3 days						Within 10 days						Within 30 days					
	Proposed			Tankering and Proposed			Proposed			Tankering and Proposed			Proposed			Tankering and Proposed		
	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean	Prob	Mode	Mean
1	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0
4	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	1	0	0.0
5	n	0	0.0	n	0	0.0	1	0	0.0	2	0	0.0	4	0	0.0	6	0	0.1
6	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	8	0	0.1
7	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	7	0	0.1	9	0	0.1
8	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	6	0	0.1
9	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	4	0	0.0
33	n	0	0.0	n	0	0.0	n	0	0.0	1	0	0.0	n	0	0.0	4	0	0.0
39	n	0	0.0	n	0	0.0	2	0	0.0	2	0	0.0	2	0	0.0	5	0	0.0
44	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0
46	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	n	0	0.0	2	0	0.0
47	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0	1	0	0.0
48	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	4	0	0.0	4	0	0.0
49	n	0	0.0	n	0	0.0	1	0	0.0	1	0	0.0	6	0	0.1	8	0	0.1
50	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	2	0	0.0	3	0	0.0
51	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	5	0	0.1	7	0	0.1
52	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	3	0	0.0	3	0	0.0
53	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	12	0	0.1	13	0	0.1
54	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	5	0	0.0
55	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	4	0	0.0	6	0	0.1
56	n	0	0.0	n	0	0.0	n	0	0.0	n	0	0.0	6	0	0.1	8	0	0.1

Note: n = less than 0.5 percent; ** = greater than 99.5 percent. Segments with less than a 0.5 percent probability of one or more contacts within 30 days are not shown

Appendix C

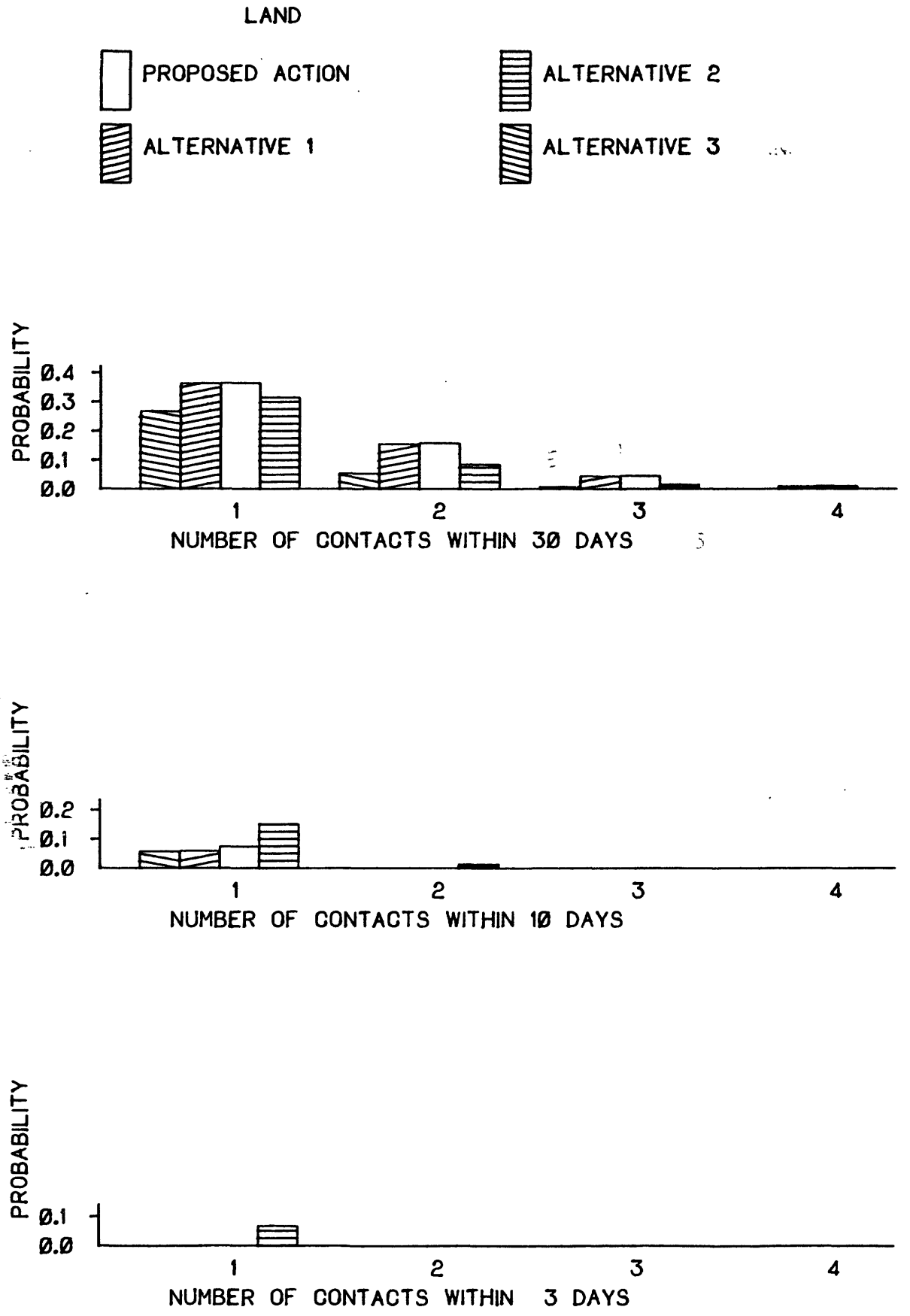

Figure C-1.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting land as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

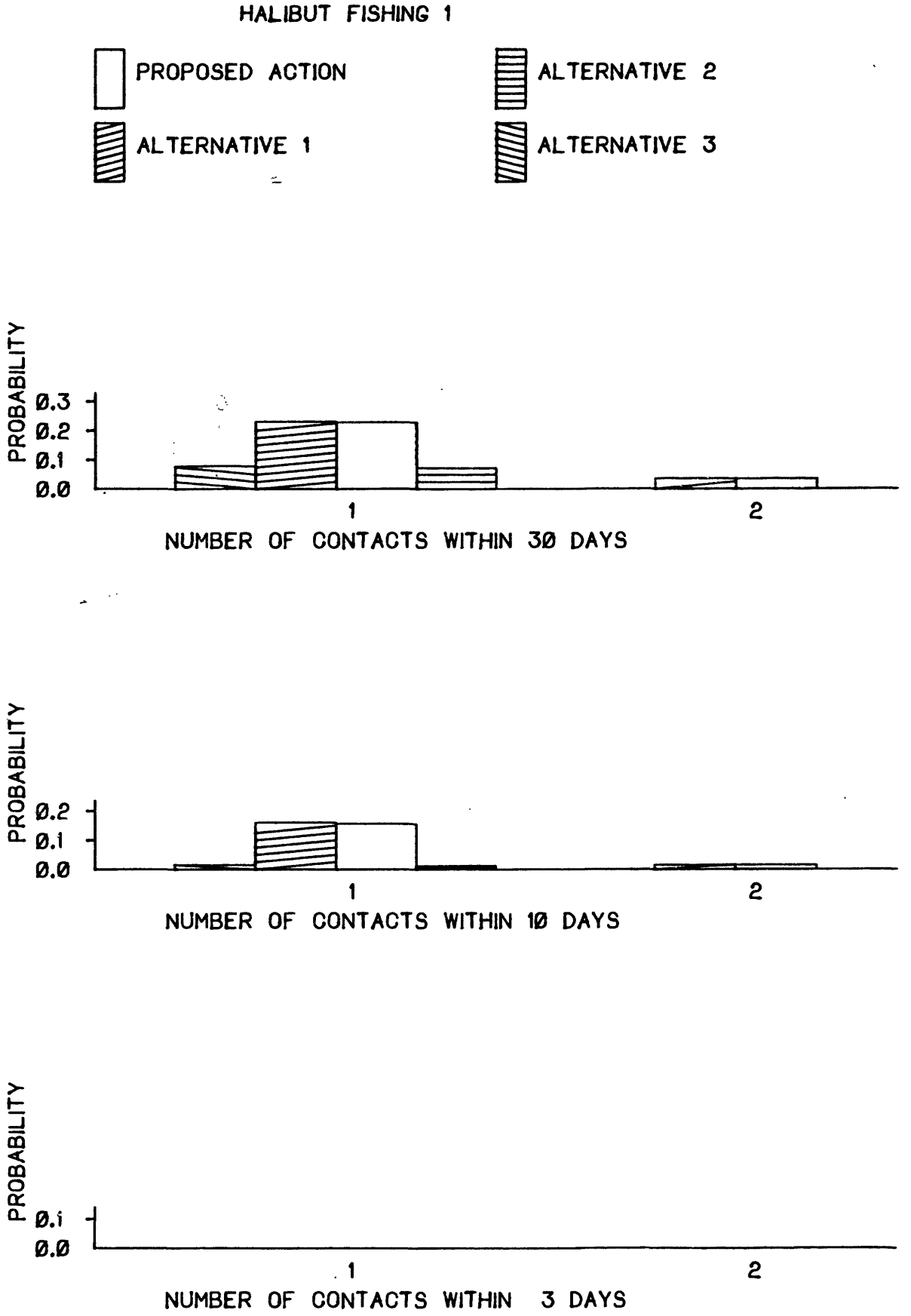

Figure C-2.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Halibut fishing area 1 as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

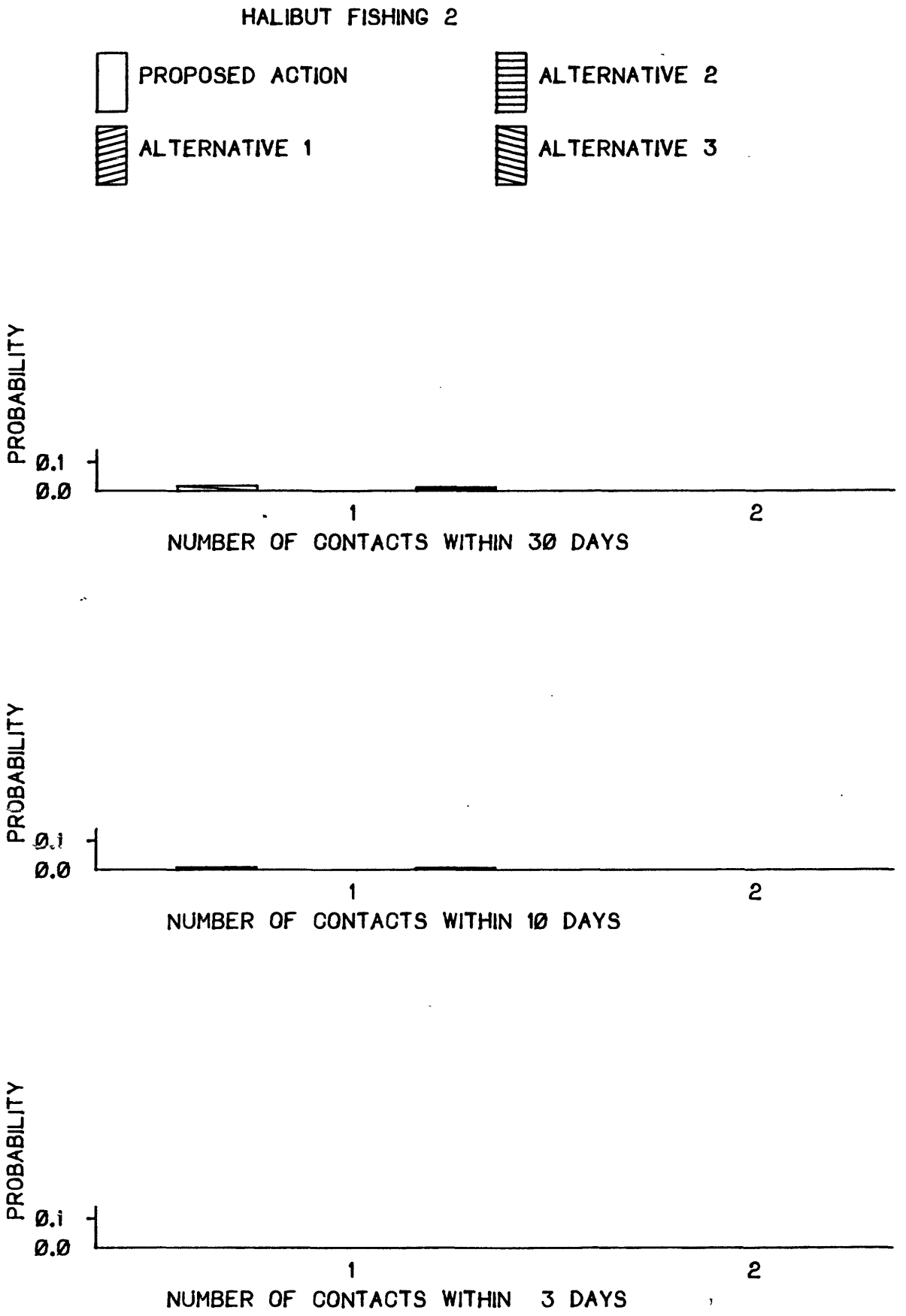

Figure C-3.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Halibut fishing area 2 as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

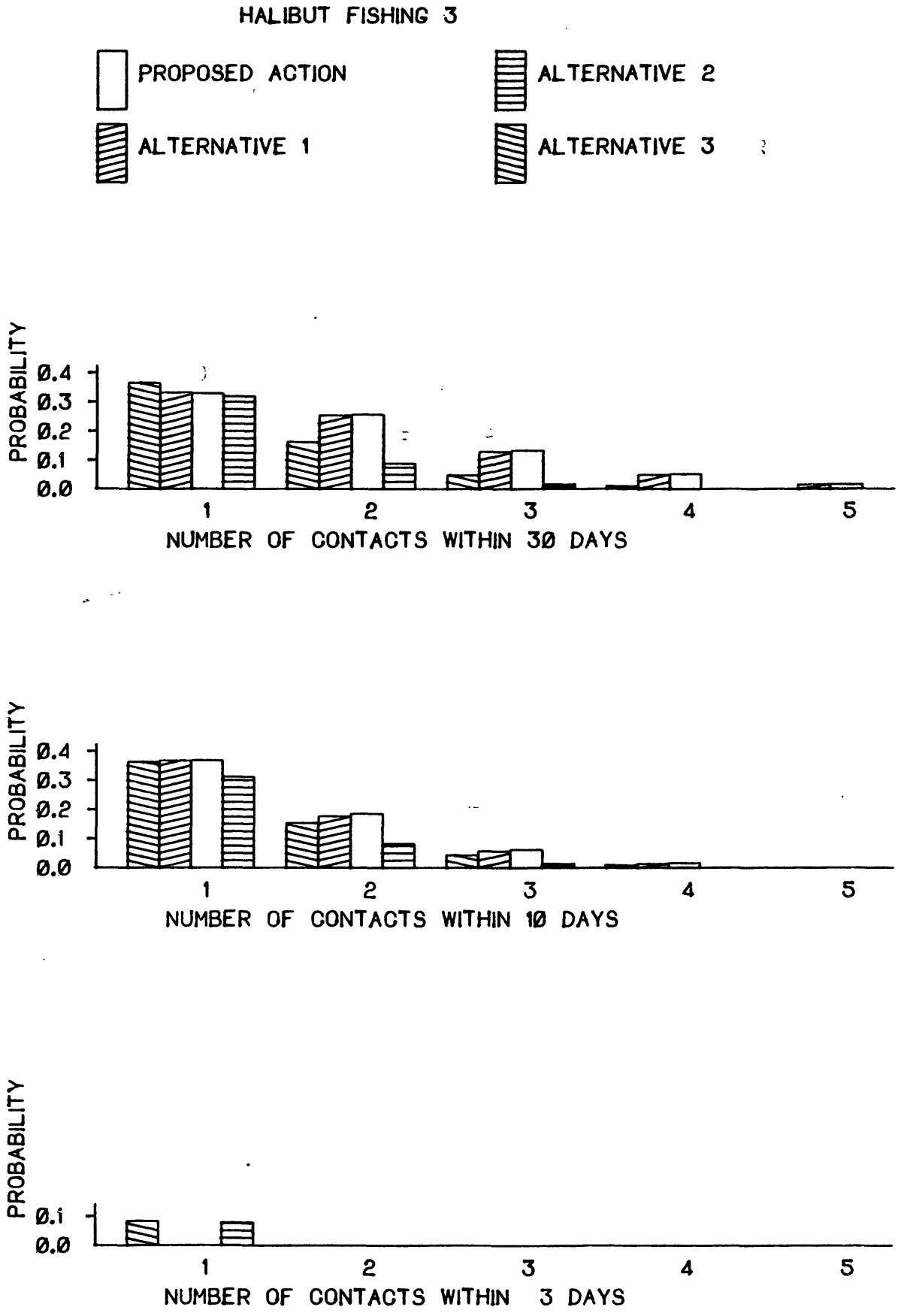

Figure C-4.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Halibut fishing area 3 as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

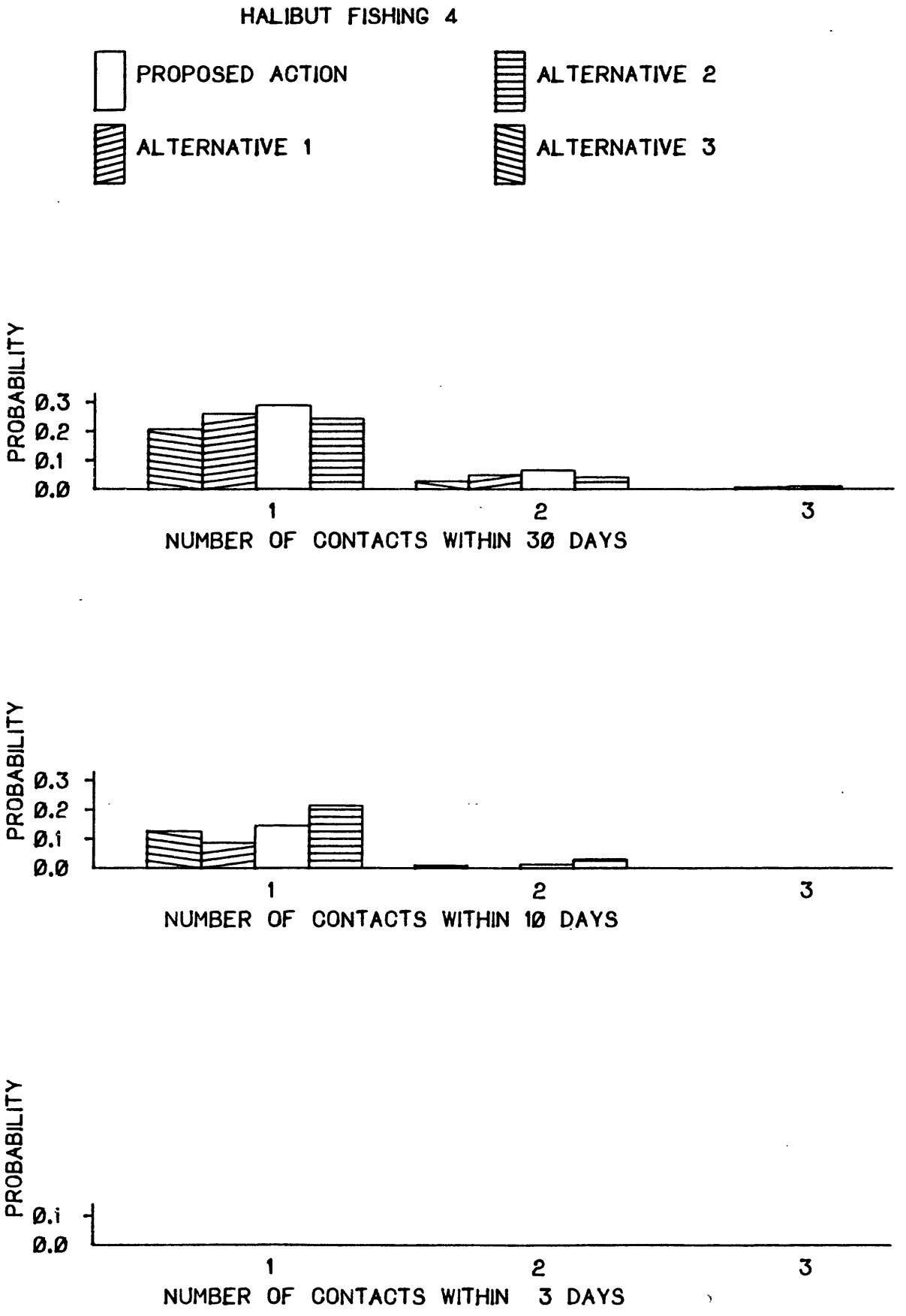

Figure C-5.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Halibut fishing area 4 as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

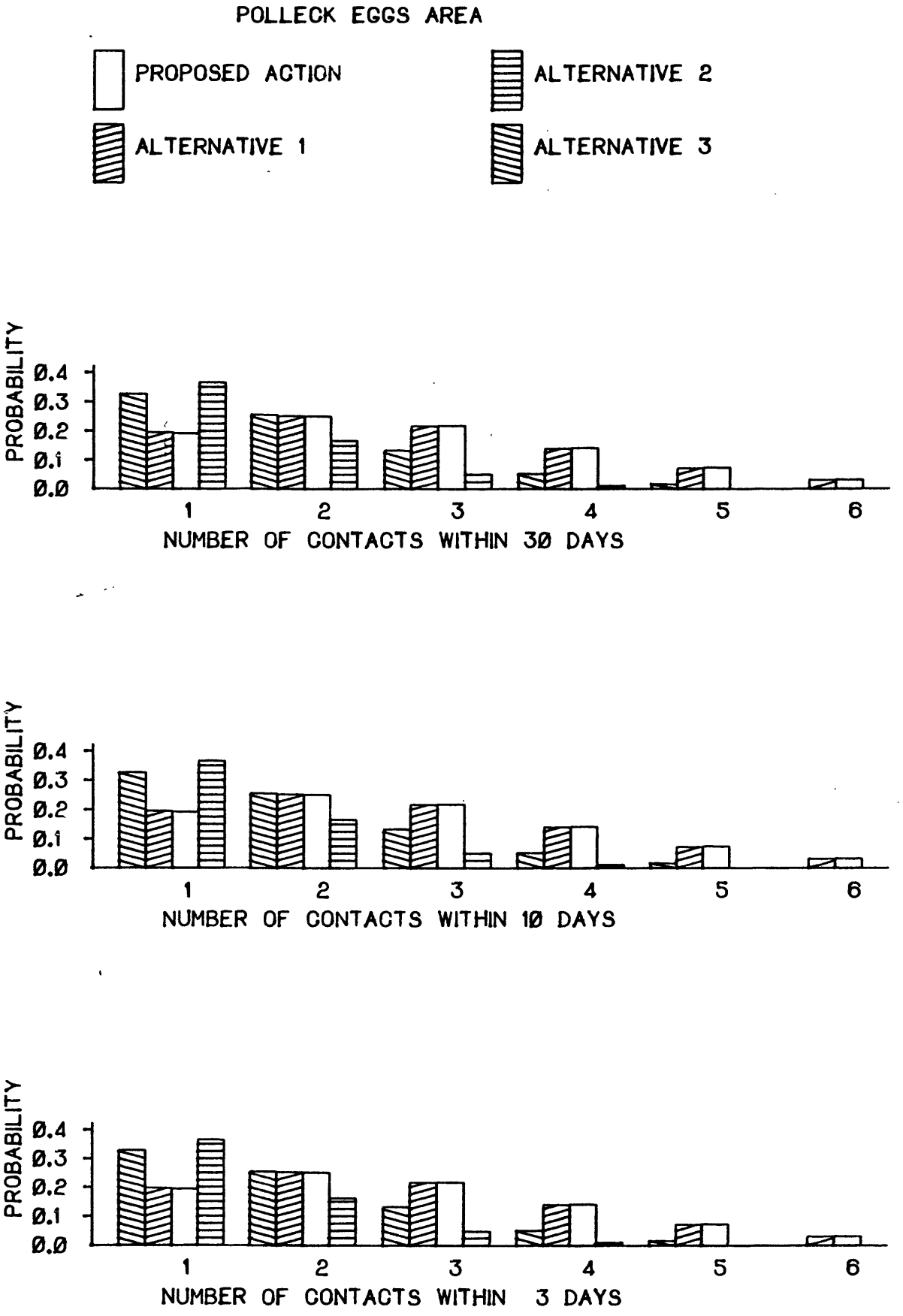

Figure C-6.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Polleck eggs area as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

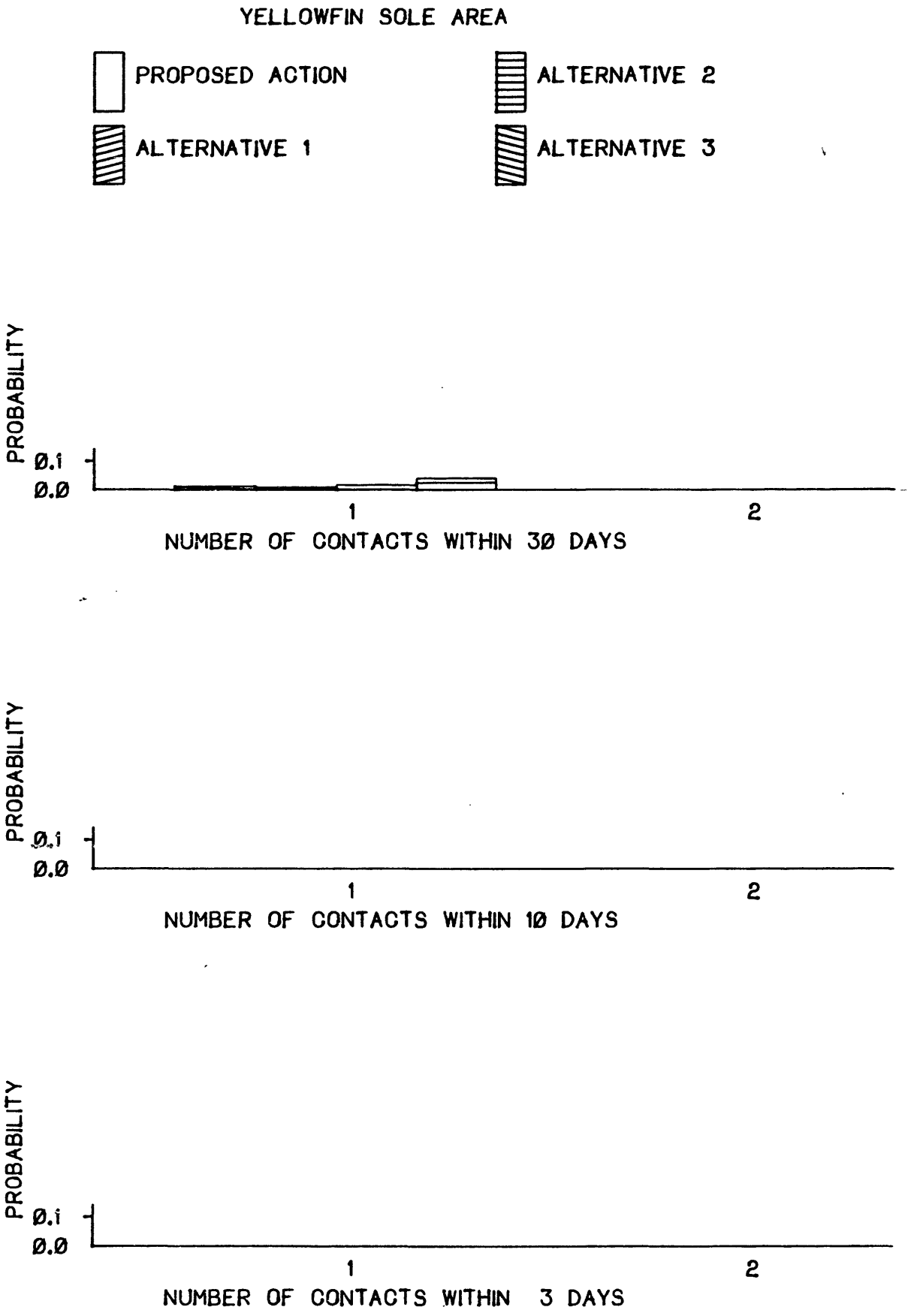

Figure C-7.-- Histograms showing the probabilities of specific numbers of oilspills (1,000 barrels and greater) occurring and contacting Yellowfin Sole area as a result of the proposed action, deletion alternative 1, deletion alternative 2, and deletion alternative 3.

Appendix D

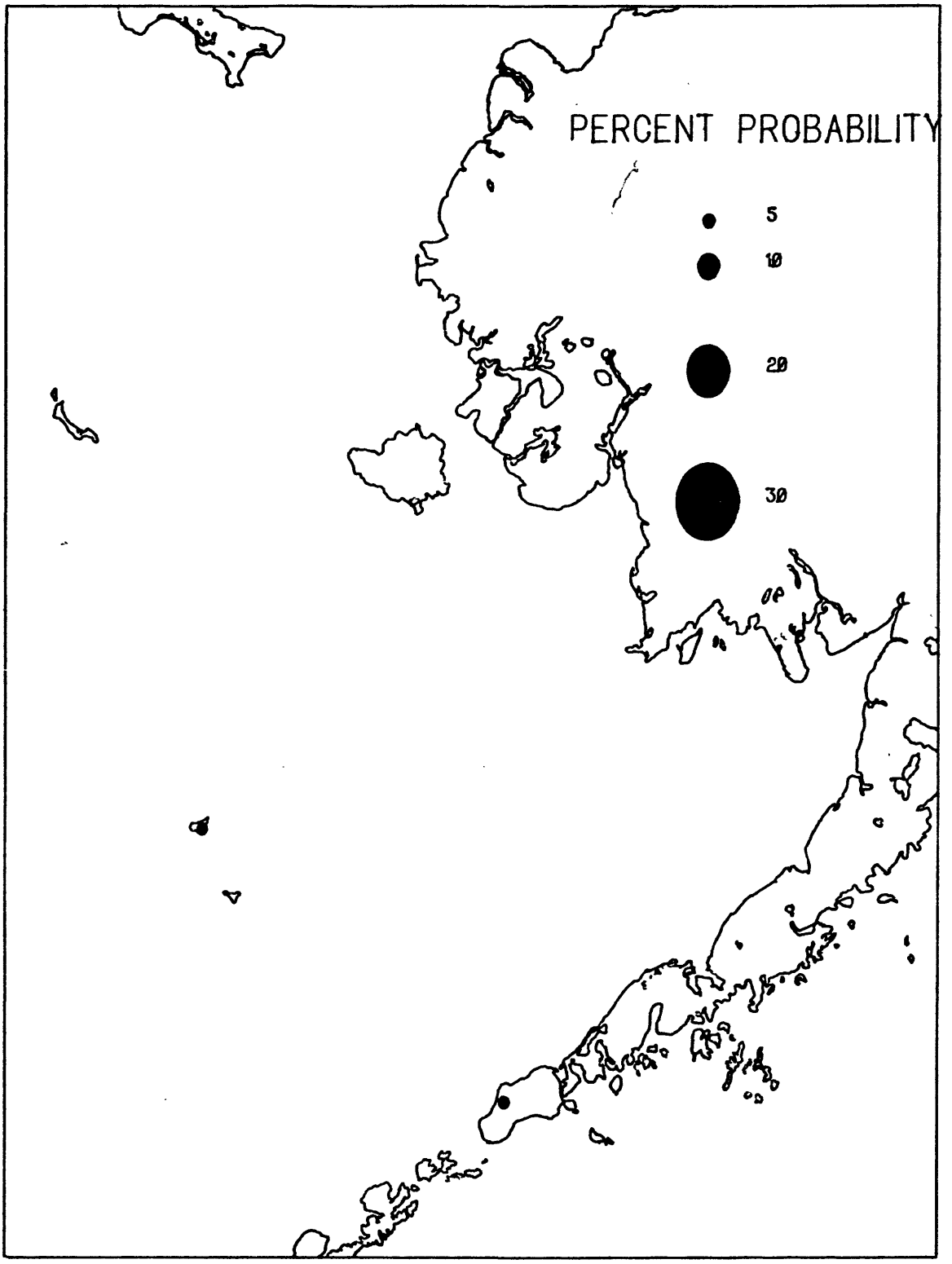

Figure D-1.-- Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 10 days travel time, proposed action, transportation scenario a.

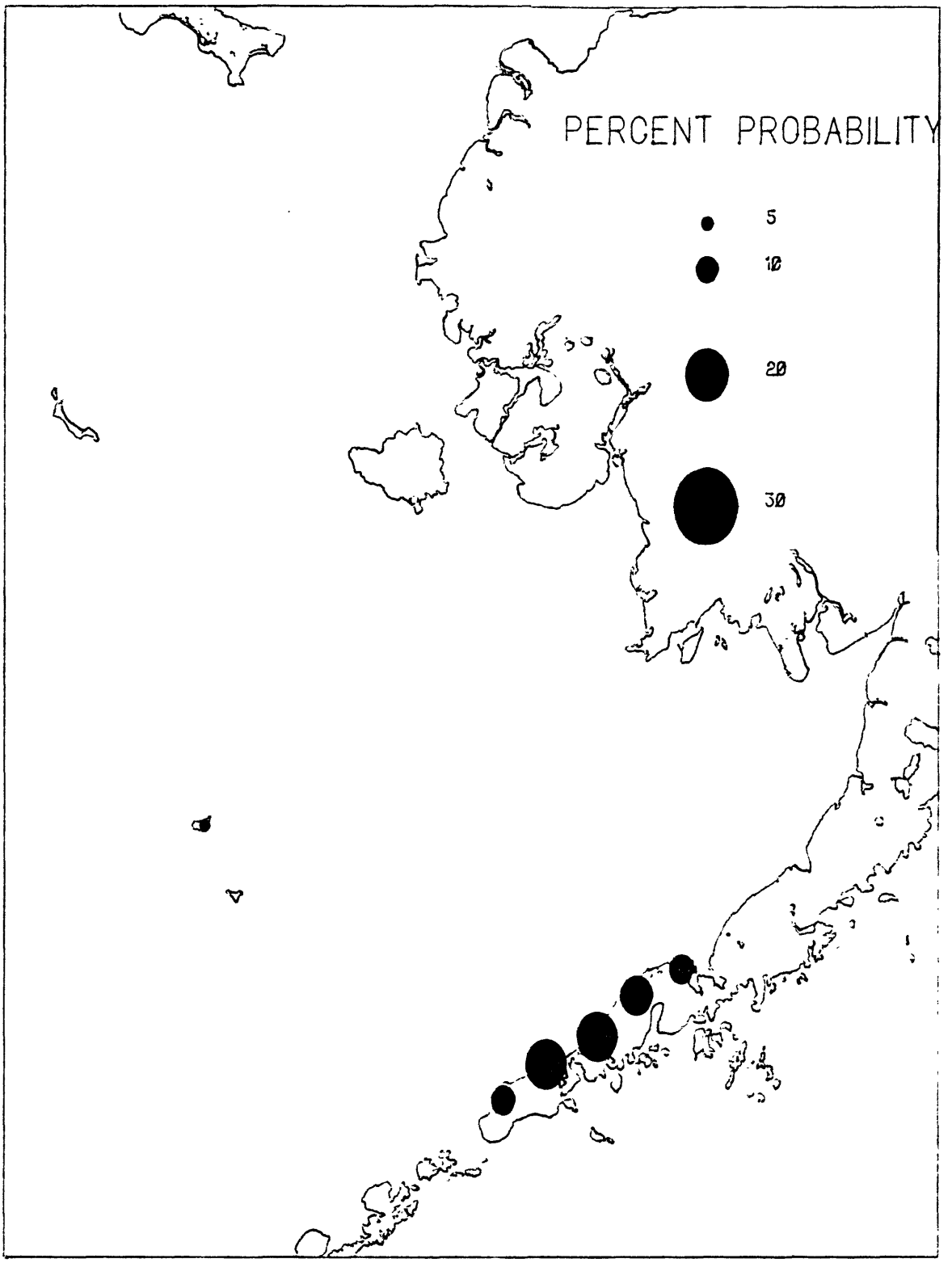

Figure D-2.-- Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 30 days travel time, proposed action, transportation scenario a.

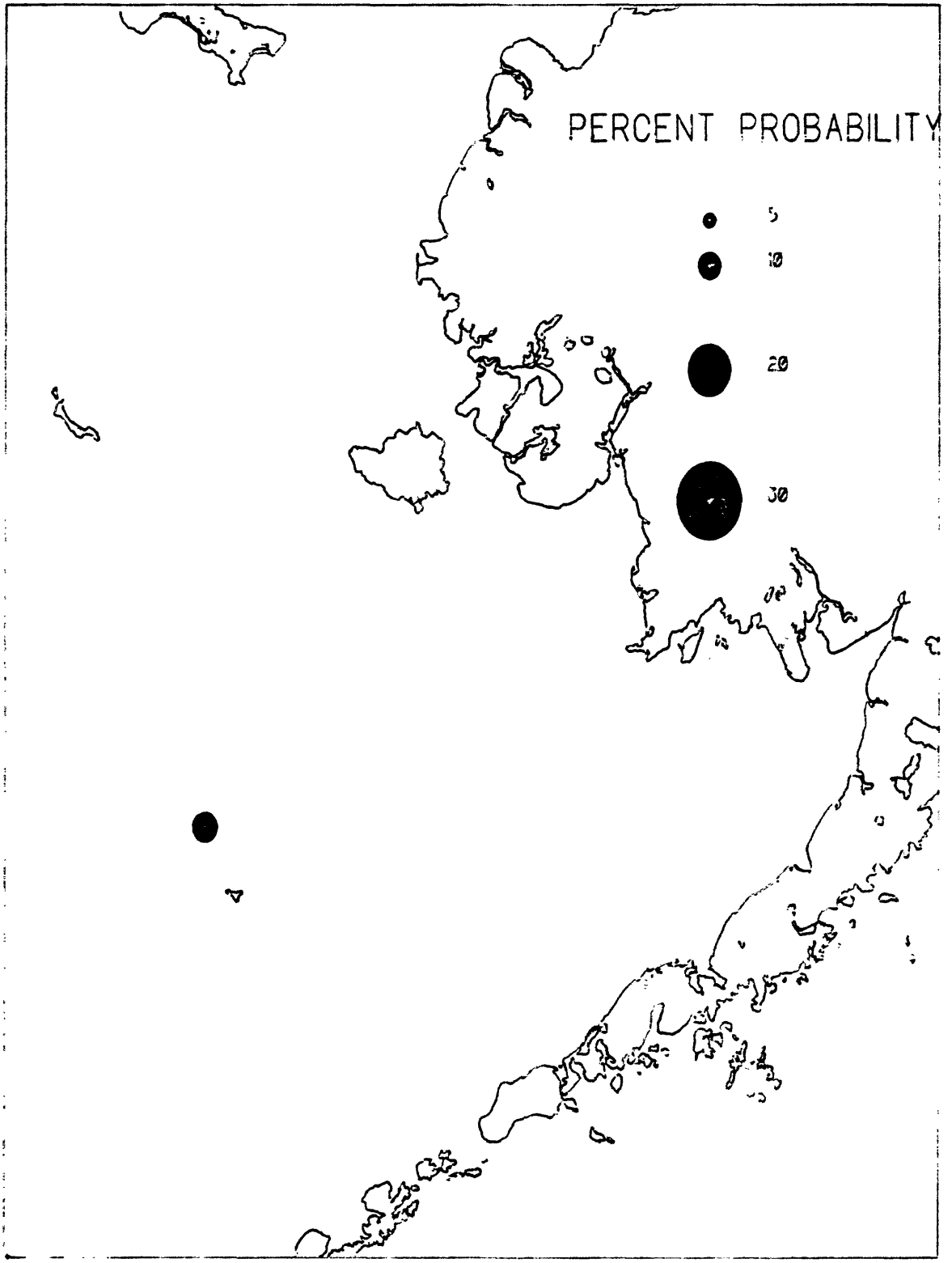

Figure D-3.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 3 days travel time, proposed action, transportation scenario b.

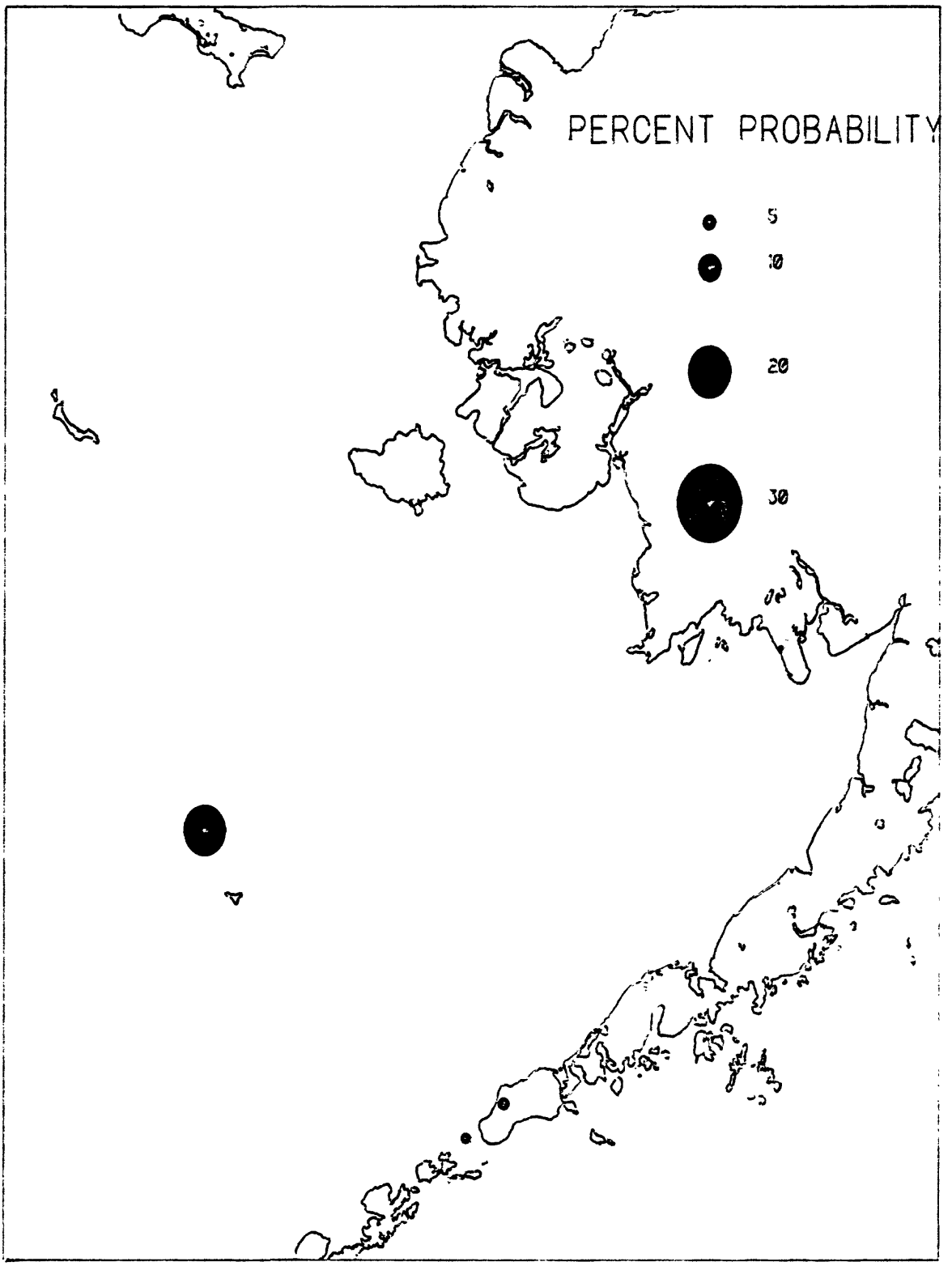

Figure D-4.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 10 days travel time, proposed action, transportation scenario b.

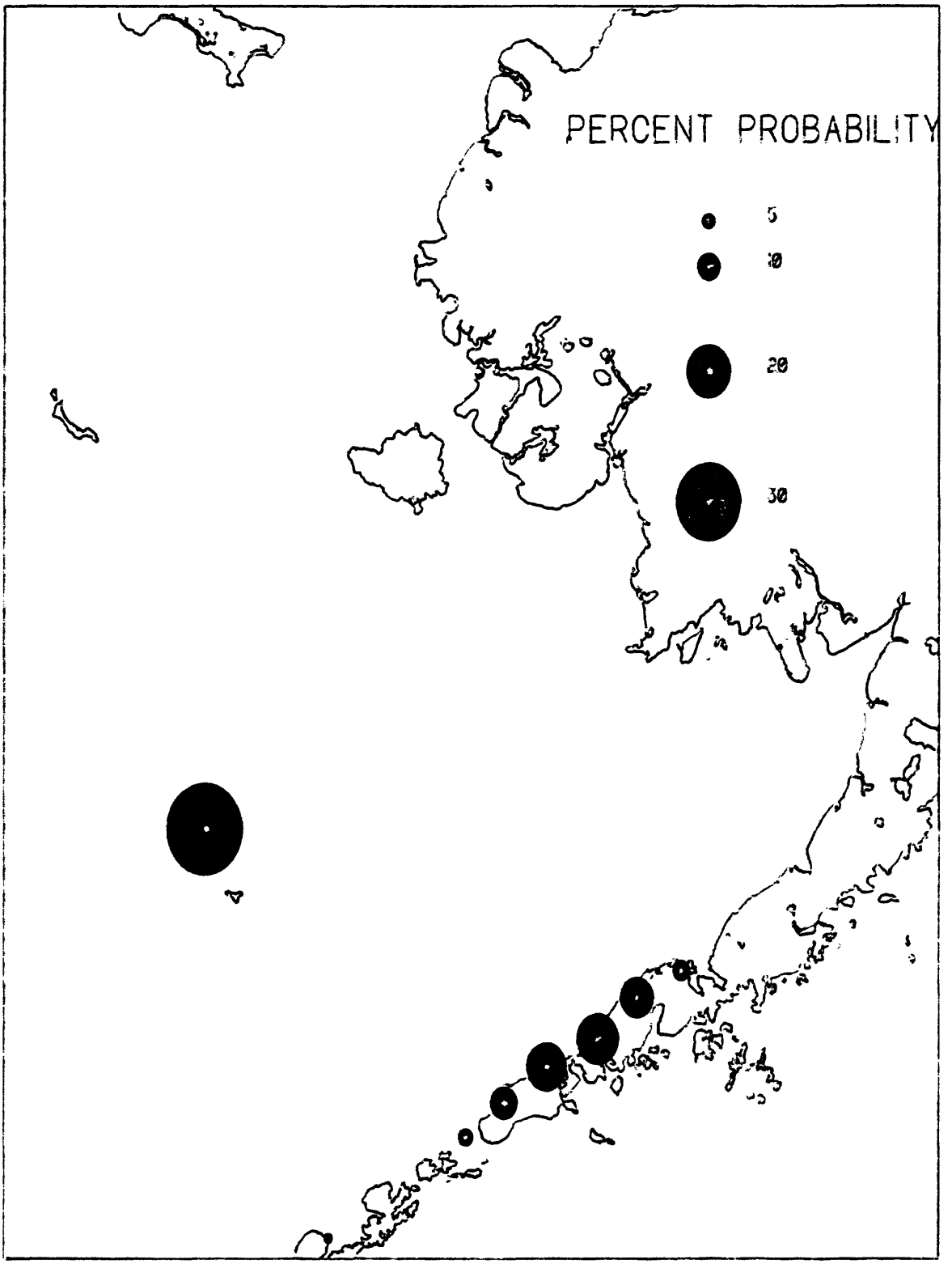

Figure D-5.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 30 days travel time, proposed action, transportation scenario b.

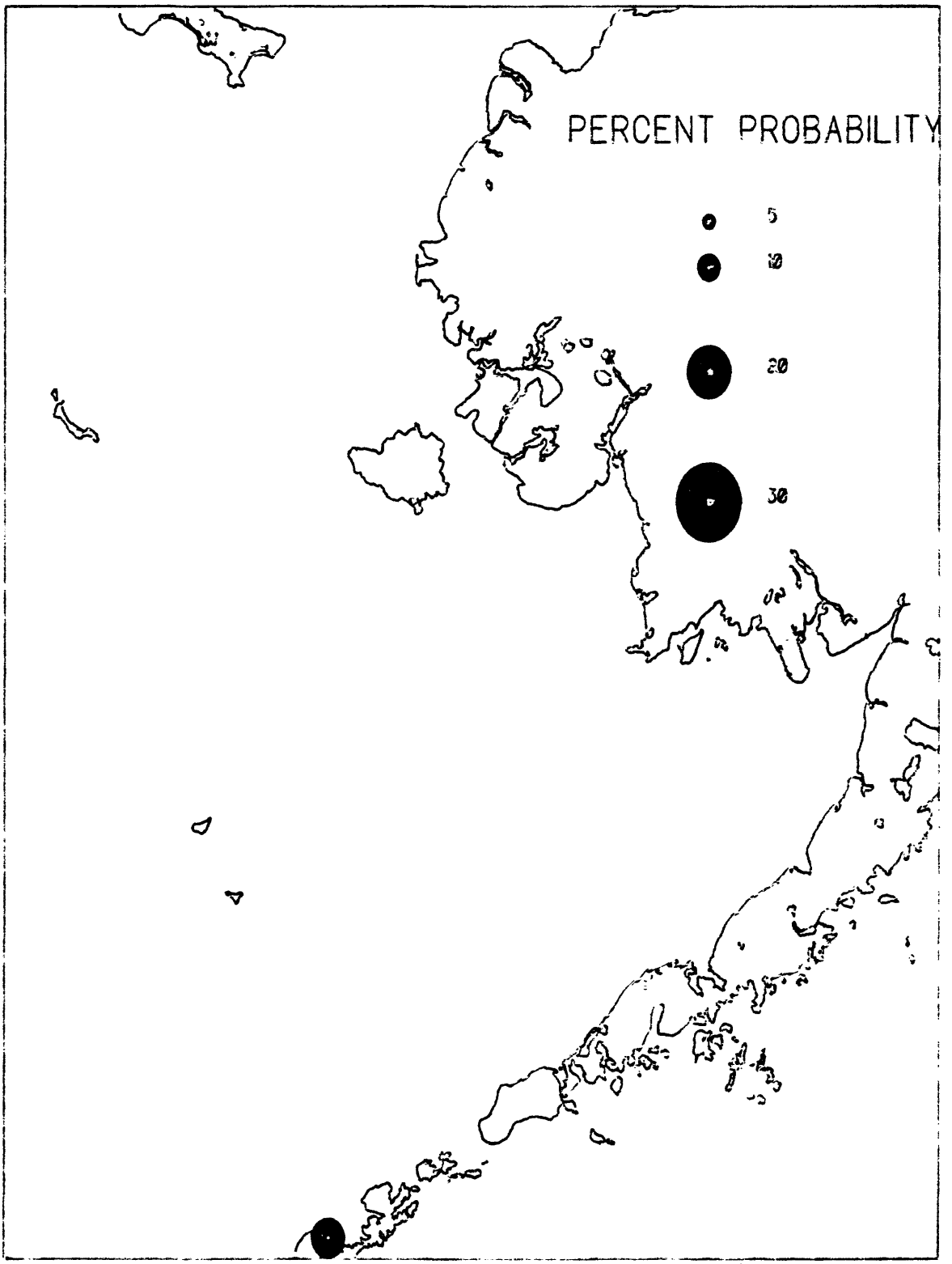

Figure D-6.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 3 days travel time, proposed action, transportation scenario c.

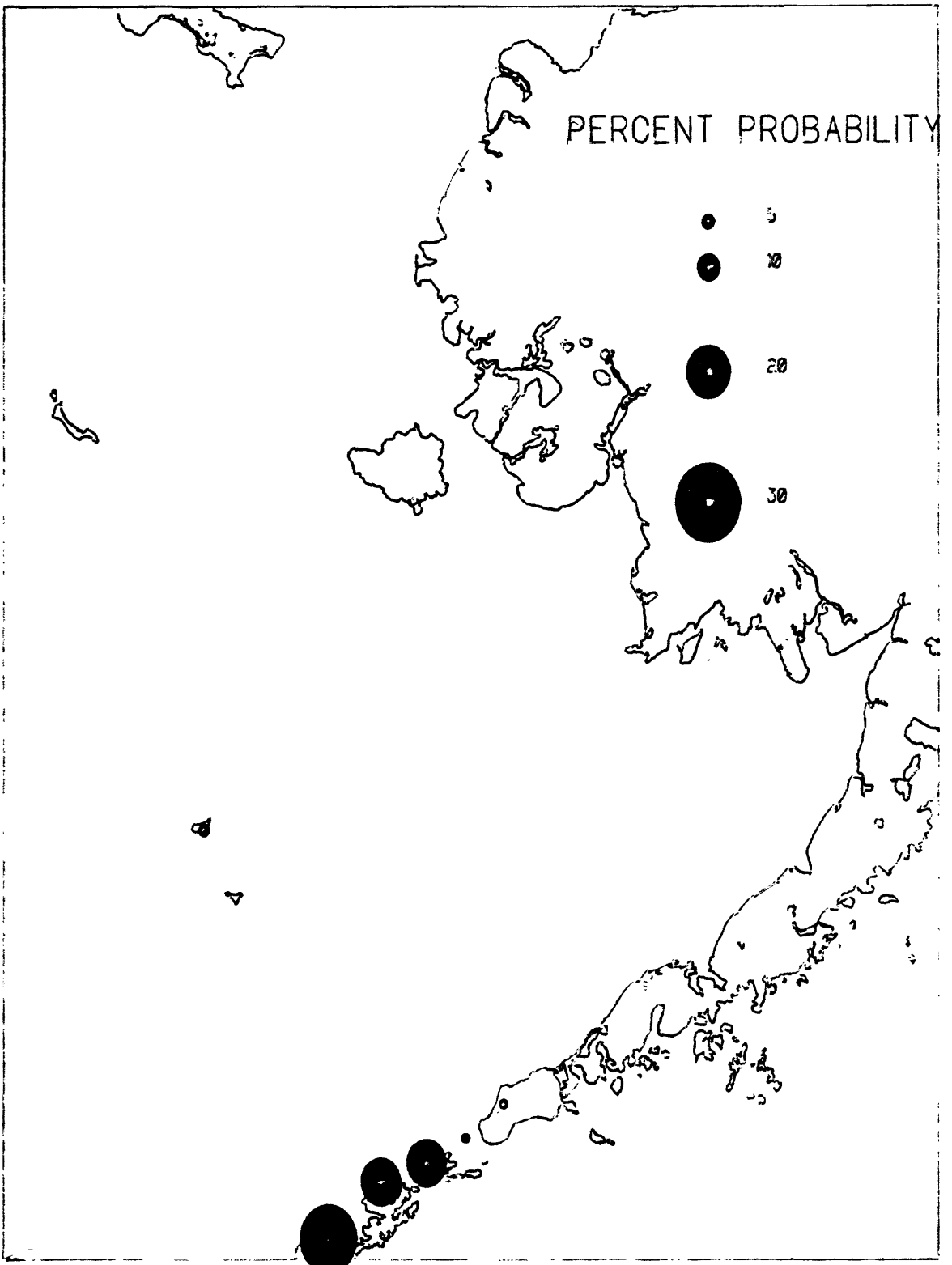

Figure D-7.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 10 days travel time, proposed action, transportation scenario c.

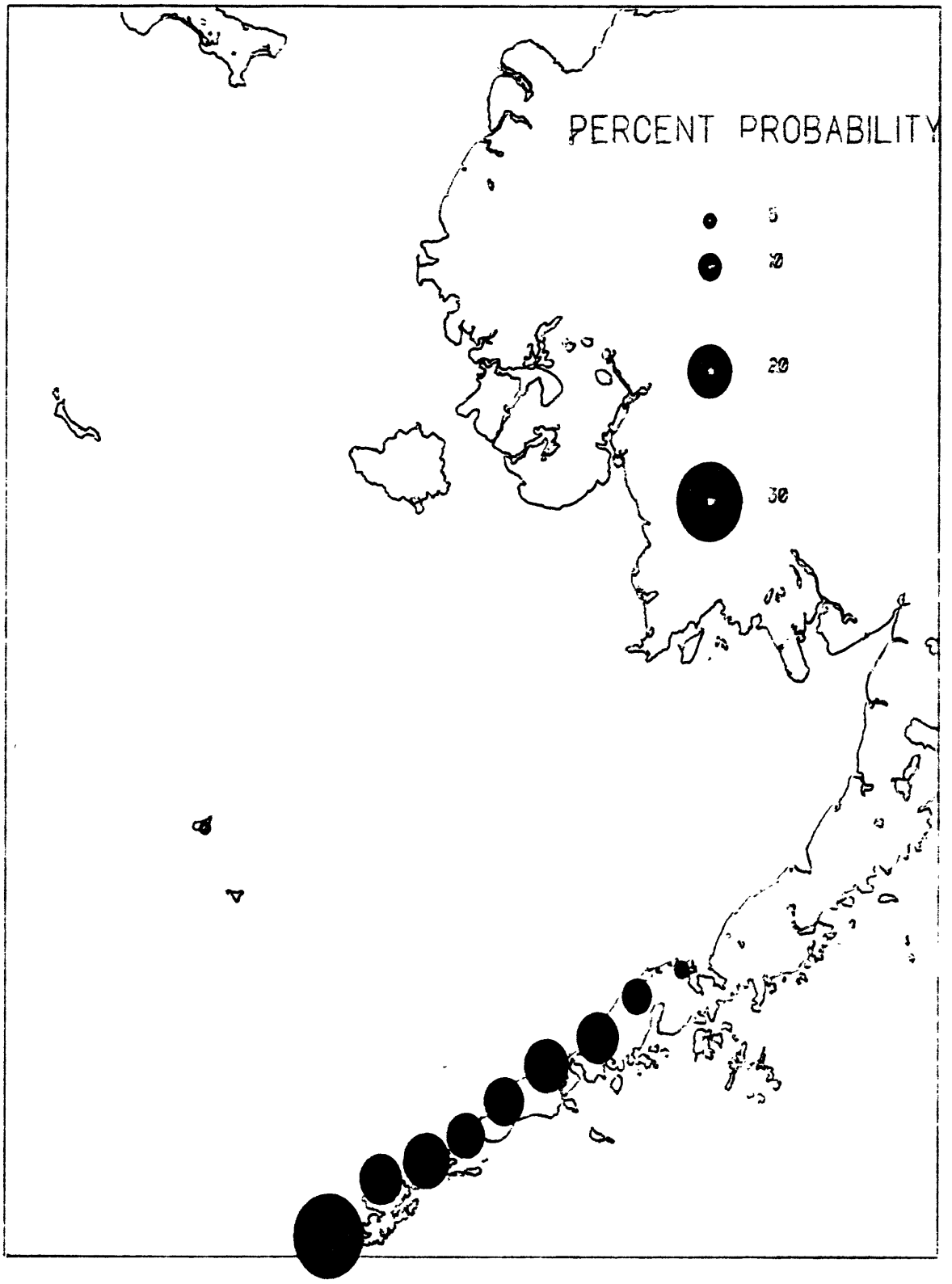

Figure D-8.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 30 days travel time, proposed action, transportation scenario c.

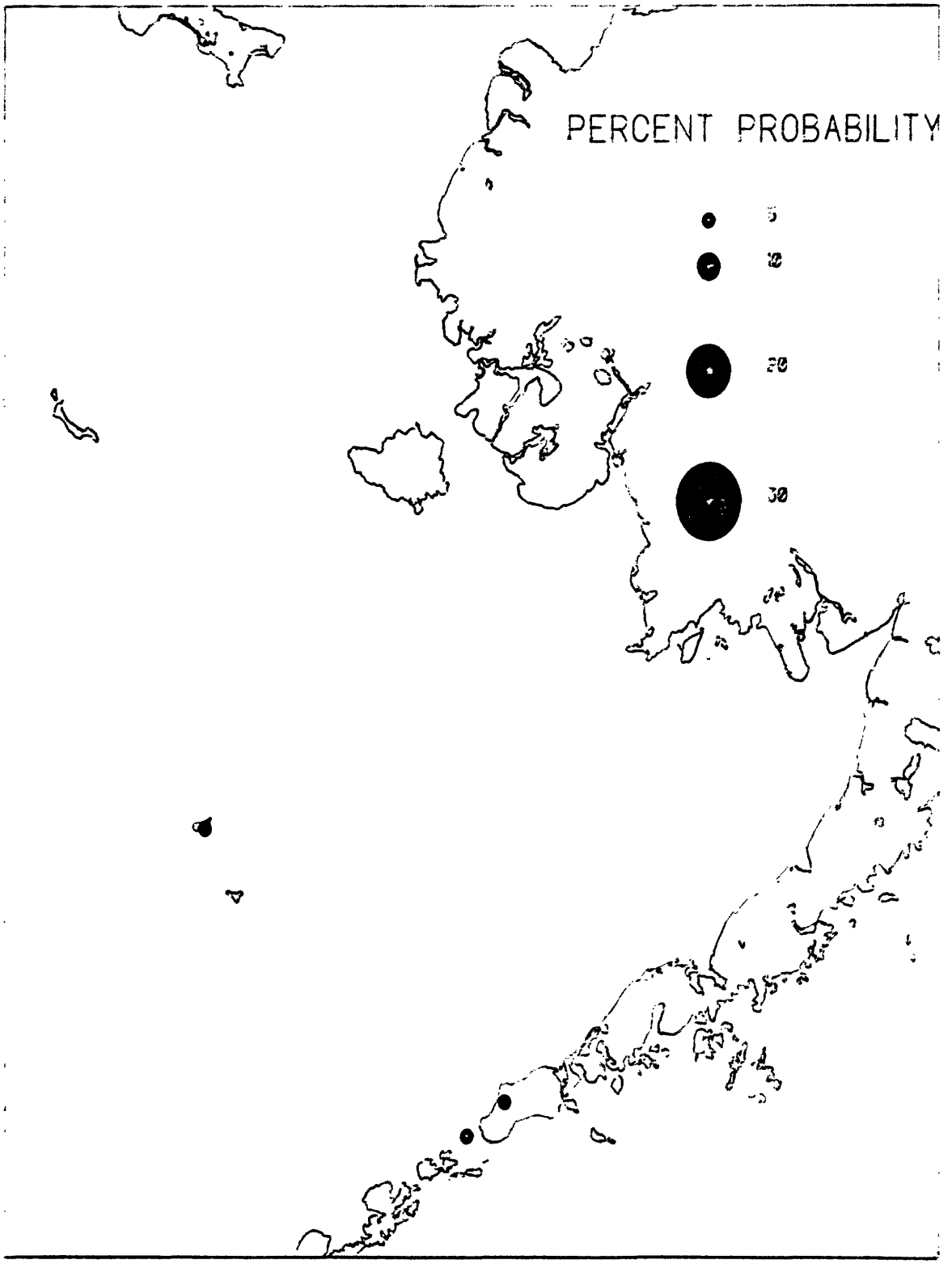

FIGURE D-9.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 10 days travel time, proposed action, transportation scenario d.

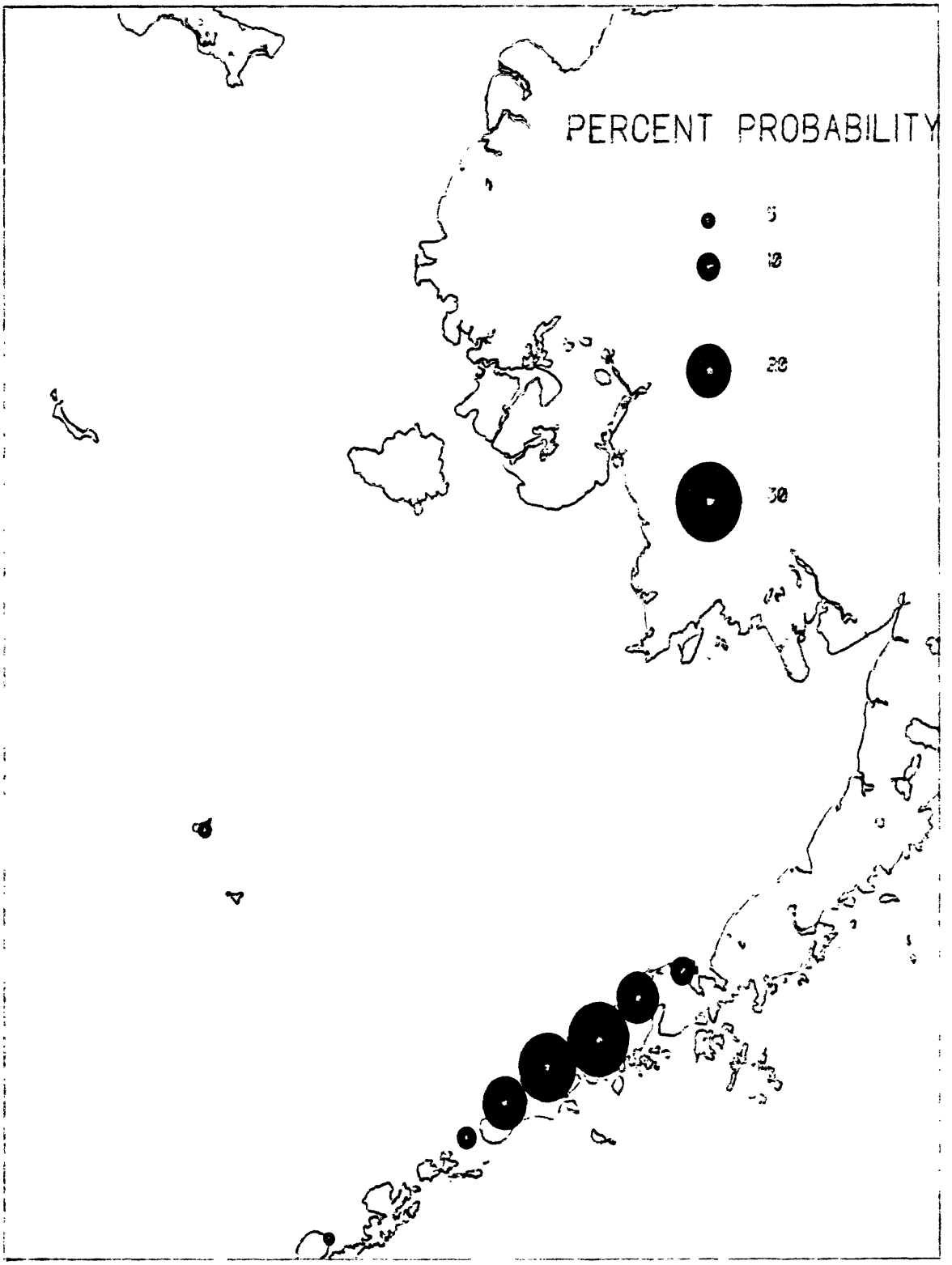

Figure D-10.--Map showing the probability (percent chance) of one or more spills (1,000 barrels and greater) occurring and contacting sections of the coastline for 30 days travel time, proposed action, transportation scenario d.