WESTERN ALASKA
SUBAREA CONTINGENCY PLAN

BACKGROUND
SECTION

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BACKGROUND: PART ONE - SUPPORT INFORMATION

A. SUBAREA PLAN

This Subarea Contingency Plan (SCP) supplements the Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases (the Unified Plan). The SCP in conjunction with the Unified Plan describes the strategy for a coordinated federal, state and local response to a discharge or substantial threat of discharge of oil or a release of a hazardous substance from a vessel, aircraft, vehicle, onshore facility operating within the boundaries of the Western Alaska subarea. For its planning process, the federal government has designated the entire state of Alaska as a planning "region" and the western half of the state as a planning "area." The State of Alaska has divided the state into ten planning regions of which one is the Western Alaska Region. As part of the Unified Plan, this SCP addresses the Western Alaska region or, to avoid confusion with federal terms, Subarea.

This plan shall be used as a framework for response mechanisms and as a pre-incident guide to identify weaknesses and to evaluate shortfalls in the response structure before an incident. The plan also offers parameters for vessel and facility response plans under OPA 90. Any review for consistency between government and industry plans should address the recognition of economically and environmentally sensitive areas and the related protection strategies, as well as a look at the response personnel and equipment (quantity and type) available within the area (including federal, state, and local government and industry) in comparison to probable need during a response.

B. SUBAREA DESCRIPTION

As defined by Alaska regulations, the Western Alaska Region is that area of the State north of the Bristol Bay subarea, encompassed by the boundaries of the southernmost boundaries of the Bering Straits Regional Corporation, and Regional Educational Attendance Areas 11 and 5, including adjacent shorelines and state waters, and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured. Figure 1 depicts this area.

1. **Physical Features:** The Western Alaska subarea is characterized by the two major river systems (Yukon and Kuskokwim) that traverse through the subarea. Residents along the river depend on these waterways for commercial and subsistence fishing, as well as a means of transportation. The coastal communities likewise rely on the Bering Sea for commercial and subsistence fishing. The area is predominantly wetland tundra in the Yukon-Kuskokwim delta region, transitioning to rolling hills and several mountain ranges further inland.

   The Western Alaska subarea includes the Kuskokwim and Kaiyuh mountain ranges, and the Kilbuck mountains. The topography of the Western Alaska subarea is dominated by the Yukon and Kuskokwim Rivers and the marshy alluvial plain known as the Yukon-Kuskokwim Delta. Smaller drainage systems also exist including the Kwethluk, Stony, Aniak, and Goodnews River drainage systems. Permafrost is discontinuous throughout the region. Marine waters associated with the region are comprised of the Kuskokwim, Hazen, Hooper, Kokechik, Scammon, and Pastol Bays and Baird Inlet, and the Bering Sea to the west of the Yukon-Kuskokwim Delta, including Nelson, Nunivak, and St Mathew Islands. The entire marine area lies within the continental shelf.

The Yukon-Kuskokwim Delta is in the transitional climatic zone, with a relatively narrow range of seasonal and diurnal temperatures. Fog, precipitation, and winds frequently occur along the coastline. The weather in the region is the result of storms that move northeast across the Bering Sea and the North Pacific Ocean. Sea ice formation in the Bering Sea begins in October. The ice pack persists through May, although the ice begins to melt, break up, and move northward in April.

2. **Socio-Economic:** See the community profiles in the Resources Section for specifics regarding socio-economic activities within each community.

   Many human activities in the Western Alaska subarea revolve around the subsistence, recreational, and commercial uses of fish and wildlife. Commercial fishing, trapping, reindeer herding, guided hunting and fishing trips, fur tanning and sewing, and seafood processing are important segments of the local economy. Service-related businesses and government provide the primary sources of wage employment in the region.

   Bethel and McGrath are the principal employment centers of the subarea. Infrastructural development is minimal and the existing road network is minor and local. Most travel within the region is by plane (scheduled and charter), private boat or snow machine (during the winter). There is no connecting road network and the Alaska Marine Highway System does not service the Western Alaska subarea. The population centers of the region are thus physically isolated from one another. This factor has limited the diversification of the local economies so that they remain closely tied to the regional fish and wildlife resources.

3. **Oil Activities:** Deliveries of noncrude oils are made to the villages in this area primarily by barges operating from Dutch Harbor or the Cook Inlet subarea. Deliveries are ice dependent and do not occur as ice forms. Small 300,000 gallon barges operate during the ice-free season to supply interior villages and some villages along the outer coast.

4. **General:** There are a total of 64 communities in the region, with the majority also identified as federally-recognized Native tribes.

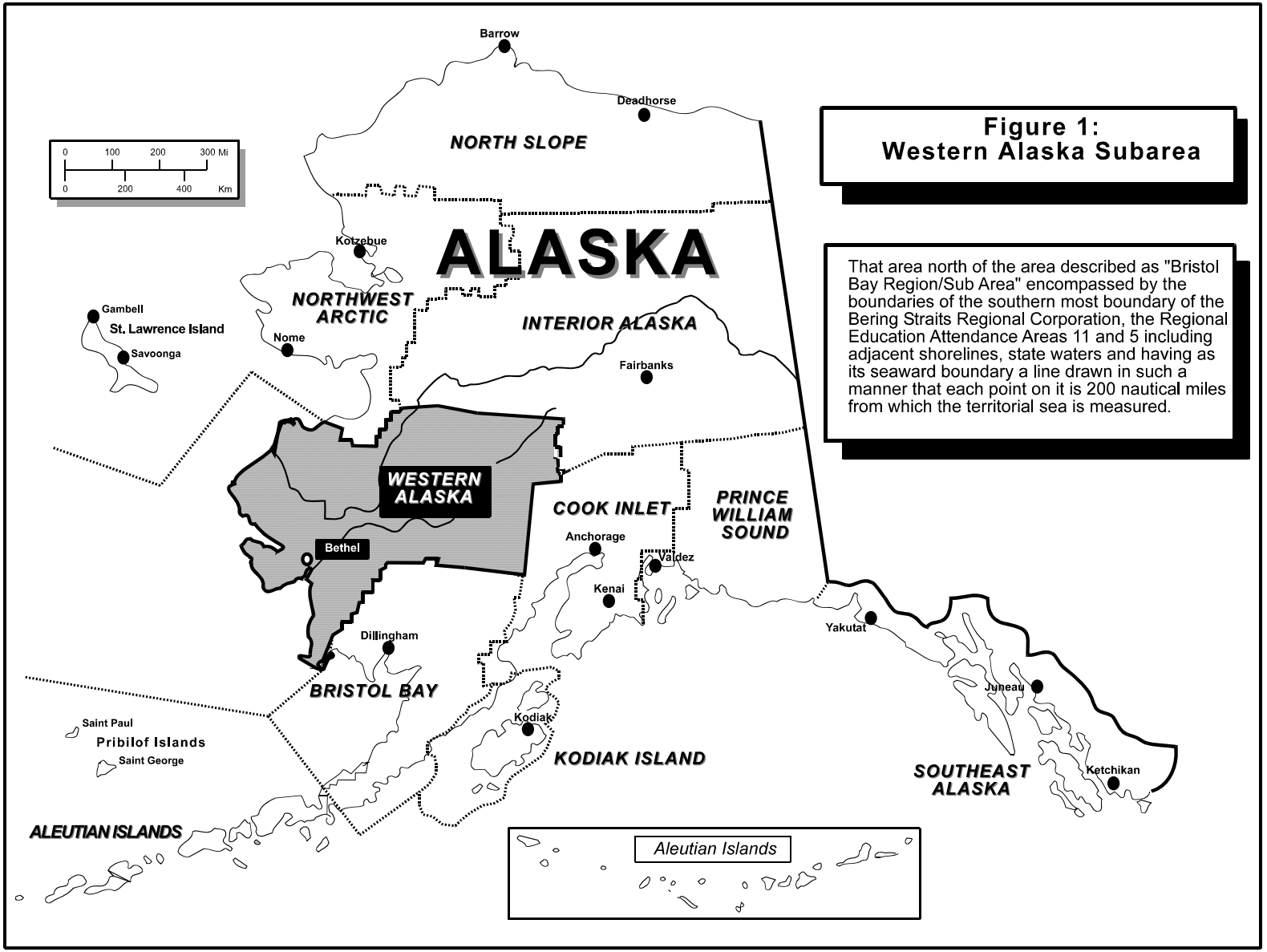


Figure 1:
Western Alaska Subarea

That area north of the area described as "Bristol Bay Region/Sub Area" encompassed by the boundaries of the southern most boundary of the Bering Straits Regional Corporation, the Regional Education Attendance Areas 11 and 5 including adjacent shorelines, state waters and having as its seaward boundary a line drawn in such a manner that each point on it is 200 nautical miles from which the territorial sea is measured.

Figure 2: Western Alaska Detailed Subarea Map - to view the map from the ARRT website, please go to the DNR ***Prevention and Emergency Response Subarea Plan Maps*** website located at:

http://www.asgdc.state.ak.us/maps/cplans/subareas.html#western

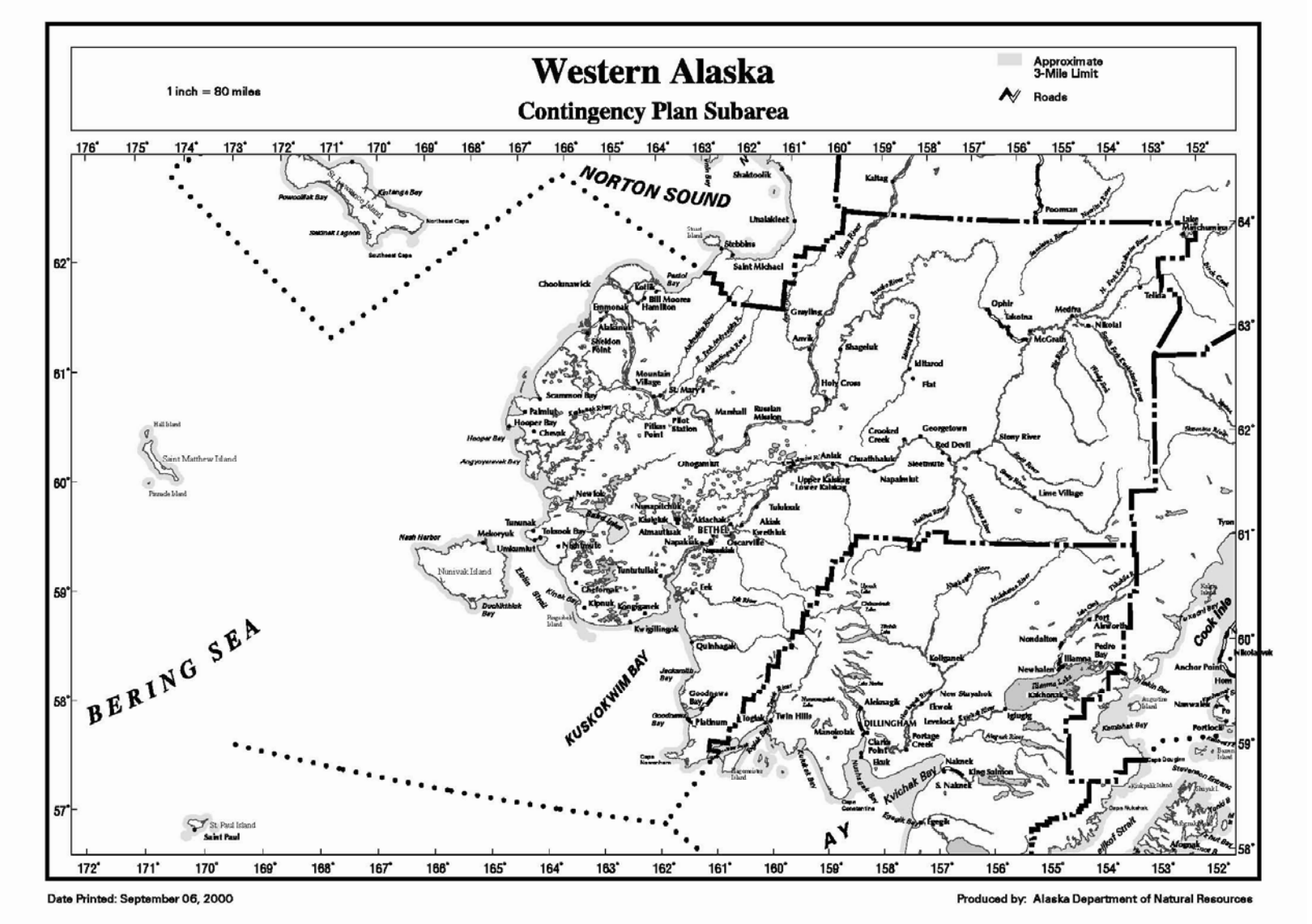


Figure 3: Western Alaska USGS Topo Map Index - to view the map from the ARRT website, please go to the DNR ***Prevention and Emergency Response Subarea Plan Maps*** website located at:

http://www.asgdc.state.ak.us/maps/cplans/subareas.html#western

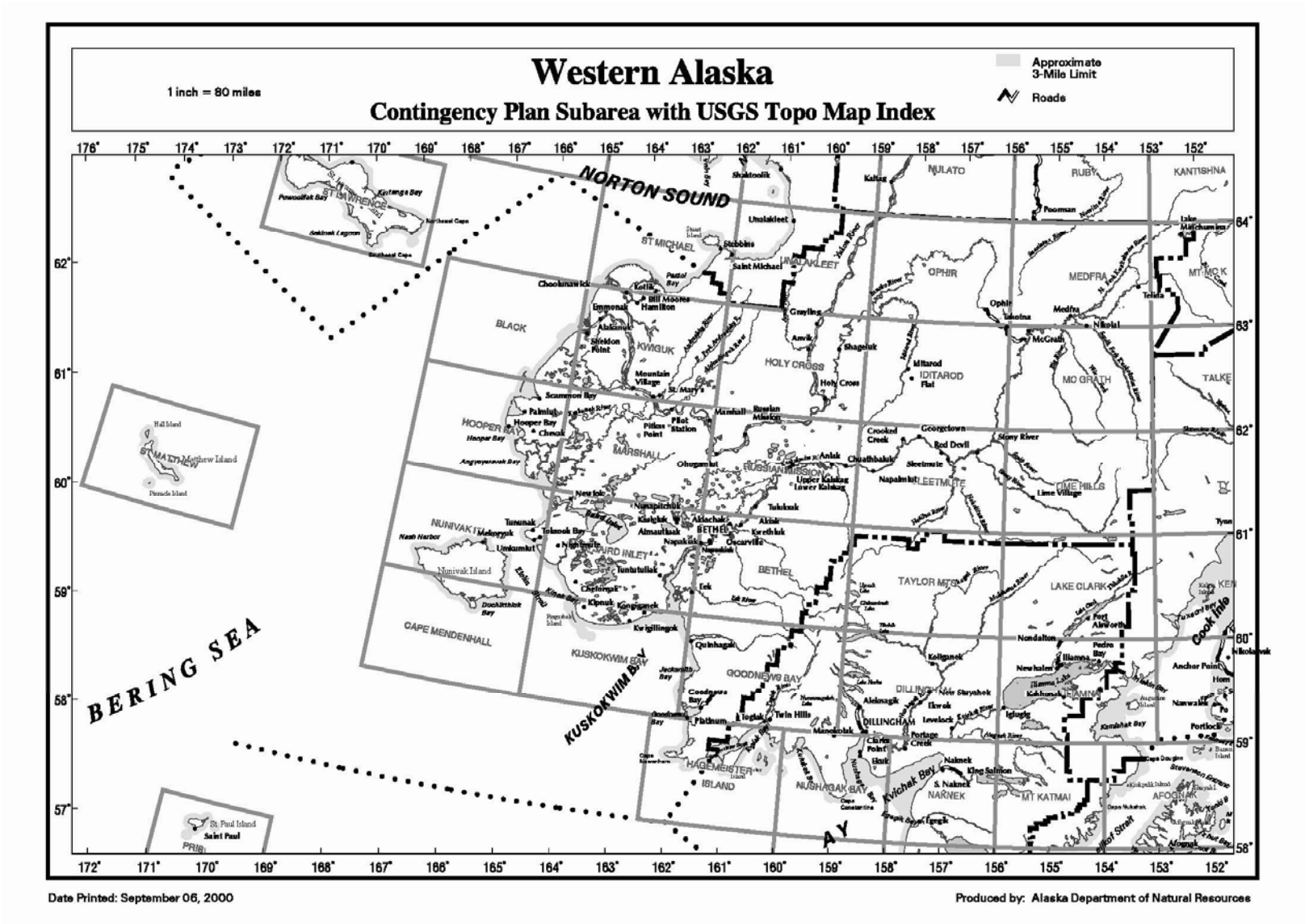
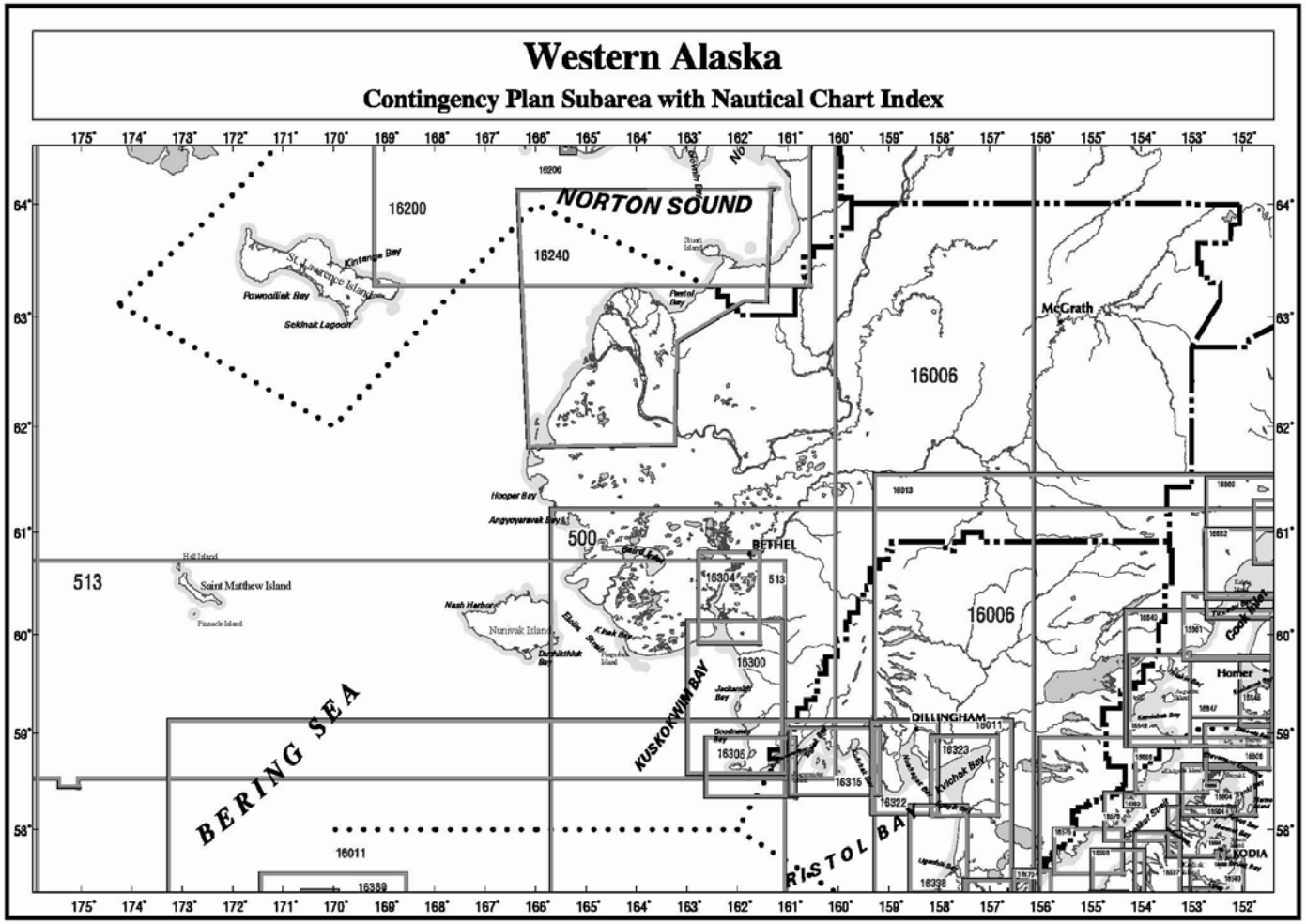


Figure 4: Western Alaska Nautical Chart Map Index - to view the map from the ARRT website, please go to the DNR ***Prevention and Emergency Response Subarea Plan Maps*** website located at:

http://www.asgdc.state.ak.us/maps/cplans/subareas.html#western



C. AREA OF RESPONSIBILITY

This Subarea Contingency Plan covers the region described earlier. The USCG Captain of the Port (COTP) is the predesignated FOSC for navigable waters within the subarea (as agreed to and stipulated in a memorandum of understanding between the EPA and the U.S. Coast Guard). The Environmental Protection Agency is the predesignated FOSC for the Inland Zone which encompasses all lands, rivers, streams, and drainages inland of the 1000-yard wide band which parallels the Alaskan coastline. These zones are clearly defined in the Unified Plan. It is possible that incidents may occur in locations that do not fall under federal jurisdiction and there will be no FOSC in these instances.

The State of Alaska places jurisdiction of spill response for the Western Alaska subarea under the Central Alaska Response Team (CART) of the Alaska Department of Environmental Conservation. The SOSC for the CART is the predesignated SOSC for the entire Western Alaska subarea.

Memoranda of Understanding/Agreement (MOU/MOA) exist between the USCG and EPA, the USCG and the Alaska Department of Environmental Conservation (ADEC), and EPA and ADEC, which further delineate agency and OSC responsibilities. **Annex K of the Unified Plan** includes copies of these MOUs/MOAs.

D. REGIONAL STAKEHOLDER COMMITTEE

A Regional Stakeholder Committee (RSC) will normally be activated for significant incidents. The RSC was previously referred to as the Multi-Agency Coordination Committee (MAC). Unlike the MAC defined in the ICS of the National Incident Management System (NIMS), the RSC for a spill response does not play a direct role in setting incident priorities or allocating resources. The RSC can advise the Unified Command (under the guidance of the Community Liaison Officer) and provide comments and recommendations on incident priorities, objectives, and action plans.

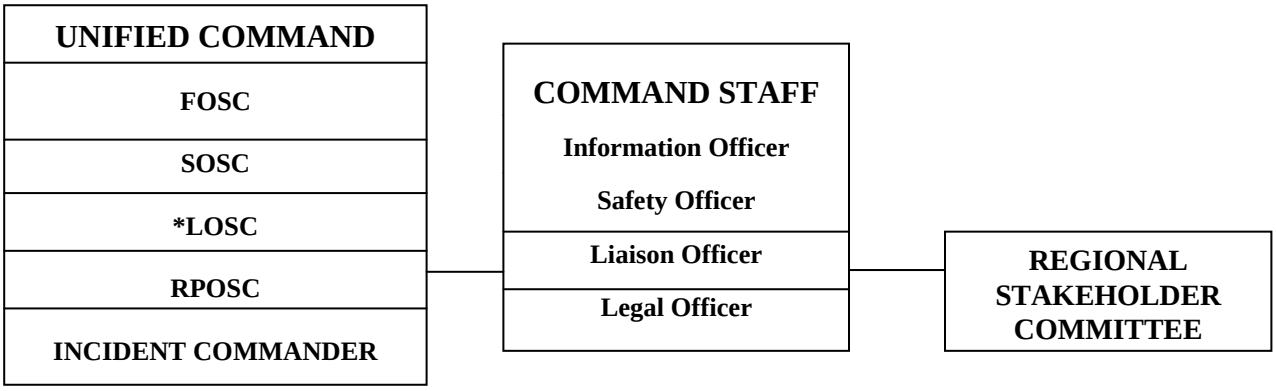
Figure 5 provides the general location of the RSC in relation to the Unified Command organizational structure. Additionally, the suggested/potential membership of the RSC is also provided in Figure 5. Membership on the RSC is dependent upon the location of the incident and the interests or jurisdiction of the affected communities, landowners, and special interest groups. Government agencies will not normally use the RSC to provide input to the Unified Command. Federal agency personnel will participate within the ICS structure under the leadership of the FOSC; state personnel will do so under the guidance of the SOSC. During an incident in which no FOSC is taking part, federal agencies with jurisdictional responsibilities for resources at risk could participate as a member of the RSC, thus retaining a channel for input on containment, oversight, and cleanup. The preferred approach is to include these agencies as part of the overall ICS structure.

As indicated above, the RSC is not directly involved in tactical operations, though some of its members may be. The RSC's role is to convey to the Unified Command information relating to the authority, concerns, and expertise of its members. RSC members recommend to the Unified Command overall objectives and priorities and reviews the Incident Action Plans developed by the Unified Command.

RSC activities will be coordinated by the Community Liaison Officer. RSC discussions will be documented, and recommendations and dissenting opinions expressed outside of the RSC meetings with the Unified Command will be communicated to the Unified Command through the Liaison Officer. The RSC will be chaired initially by the Community Liaison Officer. After convening, the RSC will then elect its own chair.

Figure 5

Western Alaska
Regional Stakeholder Committee



Suggested Membership of the Regional Stakeholder Committee:

- Representatives or Community Emergency Coordinators from affected communities. These may include:

Communities			
Akiachak	Grayling	Mountain Village	Saint Mary's
Akiak	Hamilton	Napakiak	Scammon Bay
Alakanuk	Holy Cross	Napamiute	Shageluk
Aniak	Hooper Bay	Napaskiak	Sheldon Point
Anvik	Kasigluk	Newtok	Sleetmute
Atmautluak	Kipnuk	Nightmute	Stony River
Bethel	Konginanak	Nikolai	Takotna
Bill Moore's	Kotlik	Nunapitchuk	Telida
Chefornak	Kwethluk	Ohogamiute	Toksook Bay
Chevak	Kwigillingok	Oscarville	Tuluksak
Chuathbaluk	Lake Minchumina	Paimiut	Tuntutuliak
Chuloonawick	Lime Village	Pilot Station	Tununak
Crooked Creek	Lower Kalskag	Pitkas Point	Umkumiute
Eek	McGrath	Platinum	Upper Kalskag
Emmonak	Marshall	Quinhagak	
Georgetown	Medfra	Red Devil	
Goodnews Bay	Mekoryuk	Russian Mission	

- Private landowners and leaseholders
- Native corporations, organizations and communities
- Representatives from federally-recognized tribes
- Special interest groups affected by the incident

* *As long as there is an immediate threat to public safety, the Local On-Scene Coordinator will serve as theultimate command authority if the FOSC or SOSC does not assume the lead role for response, or the LOSC requests a higher authority to assume that responsibility.*

E. SUBAREA COMMITTEE

The primary role of the Subarea Committee is to act as a preparedness and planning body for the subarea. The pre-designated Federal On-Scene Coordinators (FOSC from EPA and the Coast Guard) for the subarea and the pre-designated State On-Scene Coordinator (SOSC) from the Department of Environmental Conservation compose the primary membership of the Subarea Committee. Each member is empowered by their own agency to make decisions on behalf of the agency and to commit the agency to carrying out roles and responsibilities as described in this plan and the Unified Plan.

The predesignated FOSCs for the area (EPA & USCG), and the SOSC will serve as chairpersons of the committee. They will select work group members and provide general direction and guidance for the work groups and the Subarea Committee.

The Subarea Committee is encouraged to solicit advice, guidance or expertise from all appropriate sources and establish work groups as necessary to accomplish the preparedness and planning tasks. The FOSC should solicit the advice of the Alaska Regional Response Team to determine appropriate work group representatives from federal, state and local agencies. Work group participants may include facility owners/operators, shipping company representatives, cleanup contractors, emergency response officials, marine pilot associations, academia, environmental groups, consultants, response organizations and federal, state and local agency representatives.

Subarea Committee Members
The Western Alaska Subarea Committee is comprised of representatives from the following federal, state and local agencies:

U.S. Coast Guard, COTP Western Alaska
U.S. Environmental Protection Agency
Alaska Department of Environmental Conservation
Local Community representatives, as necessary

The Western Alaska Subarea Committee also seeks advice and expertise concerning environmental and economic issues from Federal, State, local, and international agencies and private industries such as:

U.S. Department of the Interior-Office of Environmental Policy and Compliance
U.S. Department of the Interior-U.S. Fish and Wildlife Service
U.S. Department of the Interior-National Park Service
U.S. Department of the Interior-Bureau of Land Management
Alaska Department of Fish and Game
Alaska Department of Natural Resources
Alaska Department of Military and Veterans Affairs
Local Community Representatives
Alaska Chadux Corporation
Local Emergency Planning Committees
Federally-recognized tribes

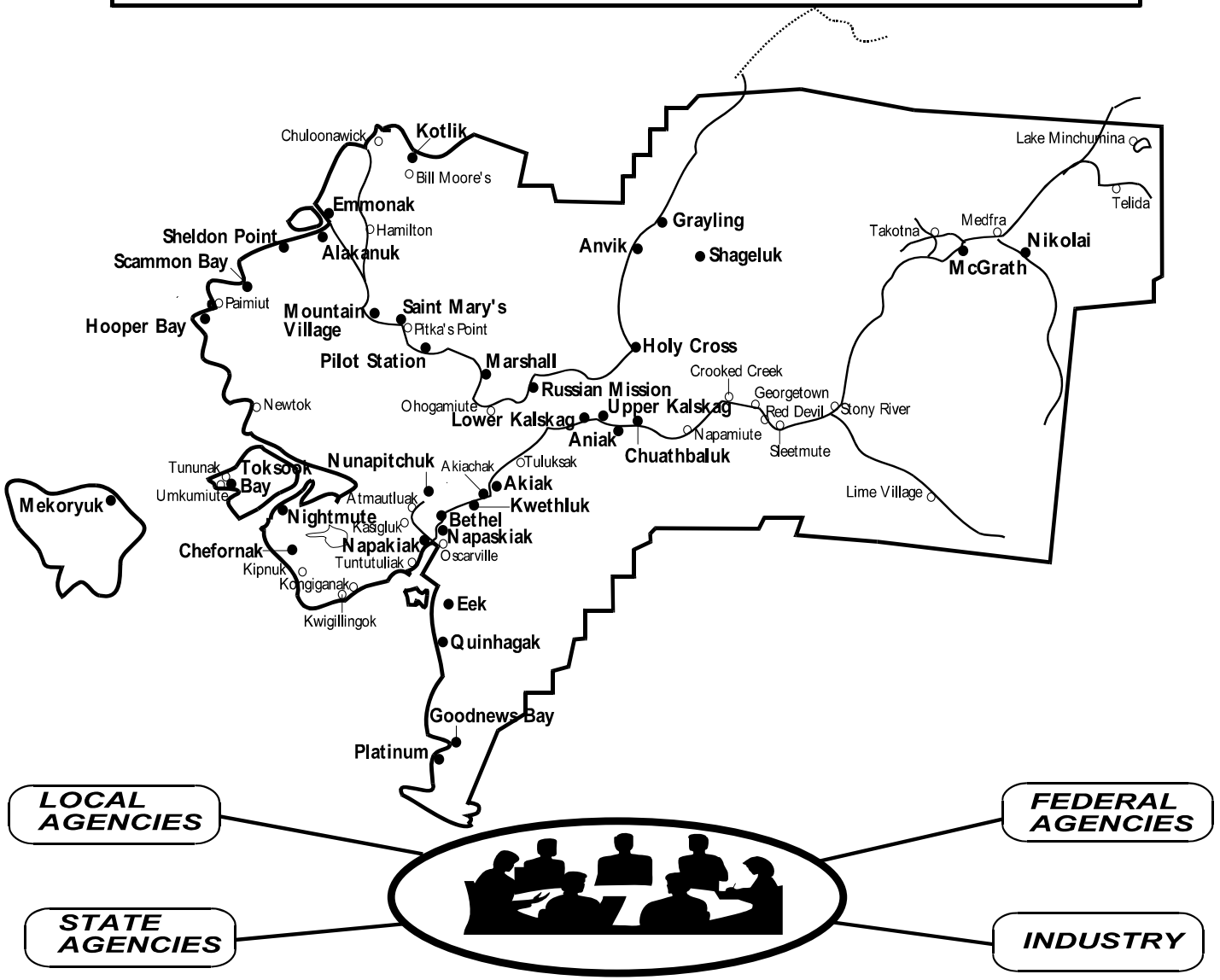
Subarea Work Groups
The Western Alaska Subarea Committee has formed the following work groups:

A representative from the U.S. Department of the Interior, Office of Environmental Policy and Compliance chairs the Sensitive Areas Work Group. This group will coordinate the preparation of the necessary information for each separate subarea and will ensure that the information is submitted in a common format. Participation by local community staff is vital to acquire local input and validate existing information. The Western Alaska subarea-specific sensitive areas information has been prepared and incorporated into the Sensitive Areas Section of this plan.

The Logistics Work Group is co-chaired by representatives from the US Coast Guard, EPA, and ADEC. This work group is responsible for preparing the Resources Section of this plan.

Representatives from the EPA, ADEC and the Coast Guard chair the Operations Work Group. This work group is responsible for scenario development and the refinement/expansion of the Emergency Notification Lists and the Response Checklists located in the Response Section of this plan.

PLANNING ORGANIZATION
WESTERN ALASKA SUBAREA CONTINGENCY PLAN



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BACKGROUND: PART TWO - RESPONSE POLICY AND STRATEGIES

The strategy for responding to a specific spill or hazmat incident depends upon numerous factors. The strategy can change as the situation changes. As a general rule, the strategies listed below should be used as a guide in developing an effective response. Consider all factors that may affect the particular situation and revise/modify/expand these priorities as the situation dictates. The strategies are further delineated in the procedures contained in the Response Section. Additional information can be found in the **Unified Plan**.

A. FEDERAL RESPONSE ACTION PRIORITIES/STRATEGIES

The following priorities are general guidelines for response to a pollution incident within the EPA Inland Zone and COTP Western Alaska zone. They are based on the premise that the safety of life is of paramount importance in any pollution incident, with the protection of property and the environment, although important, being secondary. Nothing in this part is meant to indicate that higher priority items must be completed before performing a lower priority task. They may be carried out simultaneously or in the most logical sequence for each individual incident.

Priority One - Safety of Life - for all incidents which may occur, the safety of personnel, including response personnel, must be given absolute priority. No personnel are to be sent into an affected area without first determining the hazards involved and that adequate precautions have been taken to protect personnel.

Priority Two - Safety of Vessel/Facility and Cargo - the facility and/or vessel and its cargo shall become the second priority.

Priority Three - Protection of the Environment by elimination of the pollution source - containment and recovery of oil in the open water must be effected expeditiously to preclude involvement of the beaches and shorelines. Due to remote locations and restricted accessibility, it is extremely difficult to protect the majority of the coastline by diversion or exclusion methods. Therefore, securing the source and rapid containment and recovery is especially critical and should normally be the first line of defense to protect the environment. Likewise, spills which occur on land or in upland water courses will be dammed, boomed, diked, etc., as feasible to prevent the spread of the pollutant downstream. NOTE: In-situ burning (see the Unified Plan, Annex F for checklist) of a vessel and its pollutant may be an alternative considered by the OSCs; this strategy places environmental protection priorities above saving the vessel and its cargo.

Priority Four - Protection of the environment by diversion/exclusion, dispersion, or in-situ burning. In the event that the location of a spill or the weather conditions do not permit rapid recovery, protection of the inland waters of the U.S. becomes paramount, especially areas of greatest sensitivity. It is not possible to protect some areas entirely or even in part. It may be necessary to sacrifice some areas in order to achieve the best overall protection of the environment. The OSC may consider *in situ* burning as a response option. Refer to the **Unified Plan** for an *in situ* burning checklist. The use of dispersants must be considered early in the response phase while the oil is in the open water. Subpart J of the NCP and the **Unified Plan, Annex F** address in detail the responsibilities of the OSC in the use of chemicals.

Priority Five - Protection of the Environment by beach cleanup and the use of Sacrificial Areas. It may not be possible to protect the inland waters adjoining shoreline from oil. In fact, it may be allowed purposely to come ashore in some areas as an alternative to damaging others. Selection of the proper shoreline cleanup technique depends on many different factors including the following:

- Type of substrate
- Amount of oil on the shoreline
- Depth of oil in the sediment
- Type of oil (tar balls, pooled oil, viscous coating, etc.)
- Trafficability of equipment on the shoreline
- Environmental or cultural sensitivity of the oil shoreline
- Prevailing oceanographic, riverine and meteorological conditions

The best way to minimize debate over the most appropriate response is to involve all interested government and private agencies. The shoreline assessment groups shall attempt to agree on the amount and character of the oil that is on the shorelines, anticipate interactions between the stranded oil and the environment, and the geological and ecological environment of the involved shorelines. Once a consensus is achieved, a process is necessary to determine the proper treatment required.

Shoreline cleanup options may include the use of physical and/or chemical processes. Chemical shoreline cleanup products may increase the efficiency of water-washing during the cleanup of contaminated shorelines. However, the product must be listed on the EPA National Contingency Plan Product Schedule and authorization must be obtained from the ARRT and the government on-scene coordinator at the spill. Physical shoreline cleaning methods include techniques such as: natural recovery, manual sorbent application, manual removal of oiled materials, low pressure flushing (ambient temperature), vacuum trucks, warm water washing, high pressure flushing, manual scraping, mechanical removal using heavy equipment. Bioremediation is also considered as a shoreline cleaning method. Bioremediation is the application of nutrients to the shoreline to accelerate the natural biodegradation of oil. The OSC shall request the RRT to provide site-specific guidelines for source protection measures required during shoreline cleanup operations.

Traffic Patterns: The majority of petroleum products are transported through the Western Alaska subarea primarily through fuel barges.

Occurrence Probability: Most pollution incidents in the Western Alaska subarea can be expected to be minor in nature involving spills of diesel oil, lube oil, or gasoline. The probability of a hazardous substance discharge is low. The occurrence of a medium or major oil spill will most likely occur from a fuel barge or large vessel.

Determining response strategies in the Western Alaska subarea is difficult due to the remote geography. Limited accessibility to the remote areas of the subarea may place an unwarranted time-delay on response equipment.

B. STATE OF ALASKA RESPONSE PRIORITIES

1. **Safety:** Ensure the safety of persons involved, responding, or exposed to the immediate effects of the incident.

2. **Public Health:** Ensure protection of public health and welfare from the direct or indirect effects of contamination of drinking water, air, and food.

3. **Environment:** Ensure protection of the environment, natural and cultural resources, and biota from the direct or indirect effects of contamination.

4. **Cleanup:** Ensure adequate containment, control, cleanup and disposal by the responsible party or supplement or take over when cleanup is inadequate.

5. **Restoration:** Ensure assessment of contamination and damage and restoration of property, natural resources and the environment.

6. **Cost Recovery:** Ensure recovery of costs and penalties to the Response Fund for response, containment, removal, remedial actions, or damage.

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BACKGROUND: PART THREE - SUBAREA SPILL HISTORY

The following spill history was obtained from Alaska Department of Environmental Conservation records. This partial listing draws only from those spills of 500 gallons or more. This abbreviated spill history dates to the start of a spills database maintained by ADEC and is provided to give an overall view of the vast array of transportation-related accidents that can occur. The Western Alaska subarea supports a wide variety of fixed and mobile hazardous substance sources including everything from fixed facilities, bulk fuel farms, fishing vessels and fuel barges.

All cities and villages in the Western Alaska subarea are not immune to oil discharges or hazardous material releases. The commercial and subsistence fishing industry activities and the number of fuel transfers that take place in these areas are significant factors, thus the opportunity for a spill is greatly increased.

The most notable spill in the Western Alaska subarea was reported on April 16, 1993 in Bethel. Approximately 132,000 gallons of diesel fuel was released from the Bureau of Indian Affairs tank farm. A broken pipe caused the release.

A. NAVIGABLE WATERS SPILL HISTORY

The Western Alaska subarea experiences a large amount of vessel traffic, primarily resupply barges and the commercial and subsistence fishing fleet. Response to major spills in this subarea is further compounded by the remoteness and limited accessibility to the different locations within the subarea.

The probability of a major oil spill exists due to the activities occurring in the region. Listed below is a brief synopsis of significant spills in the region. A complete list is available through ADEC.

DATE	LOCATION/CAUSE	QUANTITY	SUBSTANCE
07/05/95	Eek F/V Mattie-O (Overturn/Capsize)	3,000 gallons	Diesel (Lube Oil)
07/08/95	St Mary's Yutana Barge Lines (Valve Left Open)	800 gallons	Diesel
08/15/98	Johnson River (1/2 mile from Confluence with the Kuskokwim River Faulkner Walsh Constructors (Overturn/Capsize)	1,000 gallons	Diesel
05/13/00	Bethel – Steamboat Slough (Cause Unknown)	500 gallons	Diesel
08/24/02	Bethel - Qanirtuuq Princess (Vessel Sank)	500 gallons	Diesel

B. INLAND SPILL HISTORY

The Western Alaska subarea communities are accessible only by air or water. With limited access by air and water, a major spill in the region would present severe logistical problems for spill responders.

A fair number of releases occur in this region primarily from the fuel resupply operations in the remote villages. Listed below is a brief synopsis of significant releases of hazardous substances in the region. This information was collected from the ADEC spill database (which began recording spills in the subarea beginning in July 1995). A complete list is available through ADEC.

DATE	LOCATION/CAUSE	QUANTITY	SUBSTANCE
04/16/93	Bethel BIA Tank Farm (Broken Pipe)	132,000 gallons	Diesel
05/12/95	Atmautluak Tank Farm (Tank Overfill)	5,000 gallons	Diesel
07/07/95	Chevak Chevak Company Corporation Intentional Release (Kids Playing with valves)	2,000 gallons	Gasoline
06/17/96	Tuntutuliak Qinarnivit (Valve Left Open)	9,000 gallons	Gasoline
07/31/96	Bethel Bethel Fuels (Tank Overfill)	5,000 gallons	Diesel
04/14/97	Bethel Federal Aviation Administration (Line Ruptured)	1,000 gallons	Diesel
07/08/97	Bethel City of Bethel (Intentional Release – Kids playing)	1,500 gallons	Diesel
05/22/98	Marshall Marshall Enterprises (Faulty Valve)	1,200 gallons	Gasoline
12/19/98	Emmonak Yukon Delta Fish Coop (Faulty Connection)	1,100 gallons	Diesel
02/25/99	Tuluksak	1,900 gallons	Diesel

	Tuluksak Traditional Council (Valve Left Open)		
05/19/99	Cape Romanzof Long Range Radar Site PMC/Frontec Joint Venture (Tank Overfill)	1,500 gallons	Diesel
09/10/99	Kwigillingok City of Kwigillingok (Faulty Connection)	1,000 gallons	Diesel
02/09/00	Aniak Aniak Light and Power (Bad Weld)	1,886 gallons	Diesel
09/15/00	Emmonak – Grant Aviation (Human Error)	1,000 gallons	Gasoline
01/12/02	Chevak School (Line Failure)	1,000 gallons	Diesel
03/22/02	Mountain Village Cannery (Human Error)	1,500 gallons	Diesel
04/02/02	Kipnuk Fuel Terminal (Cause Unknown)	1,500 gallons	Diesel
07/15/02	Marshall – Hunter Tank Farm (Corrosion)	1,000 gallons	Diesel
02/03/03	Emmonak – Grant Aviation Tank Farm Overfill)	1,000 gallons	Diesel
03/12/04	Kongiganak Power Plant (Valve Failure)	1,800 gallons	Diesel
09/08/04	Scammon Bay Fuel Terminal (Human Error)	1,500 gallons	Diesel
02/07/05	AVEC Nunapitchuk (Human Error)	8,000 gallons	Gasoline
03/14/05	McGrath – Nixon Fork Mine (Equipment Failure)	1,070 gallons	Diesel
07/05/06	Kipnuk Bulk Tank (Line Failure)	6,100 gallons	Diesel

12/21/06	Hooper Bay (Crowley Tank Farm) (Overfill)	3,200 gallons	Gasoline
07/13/07	Aniak (Crowley Marine) (Truck Rollover)	3,000 gallons	Diesel
01/15/08	Mountain Village School (Corrosion)	1,000 gallons	Diesel
01/03/09	Kongiganak – fuel truck (Vehicle Leak)	1,500 gallons	Diesel
04/08/10	Kipnuk Gas Station (Overfill)	2,080 gallons	Gasoline
09/25/10	Tuluksak-Aboveground Tank (Overfill)	5,000 gallons	Diesel
03/08/11	Aniak Tank Farm (Human Error)	7,000 gallons	Turbine Fuel

C. HAZMAT RELEASE HISTORY

Date	Location	Quantity	Substance
06/27/97	Red Devil – Red Devil Chemicals (Intentional Release)	100 pounds	Other
04/06/98	Bethel Kuskokwim Fish Coop	1 pound	Anhydrous Ammonia
05/24/10	Platinum (Coastal Villages) (Equipment Failure)	6,000 pounds	Freon
07/06/10	Emmonak (Leak)	100 gallons	Propylene

Western Alaska Subarea

Total Spills:	776
Total Volume:	88,597
Average Spill Size:	114
Average Spills/Year:	78
Average Volume/Year:	8,860

Top 5 Causes

Cause	Spills	Gallons
Human Error	55	19,561
Overfill	120	15,462
Line Failure	77	7,539
Valve Failure	49	7,130
Leak	109	6,558

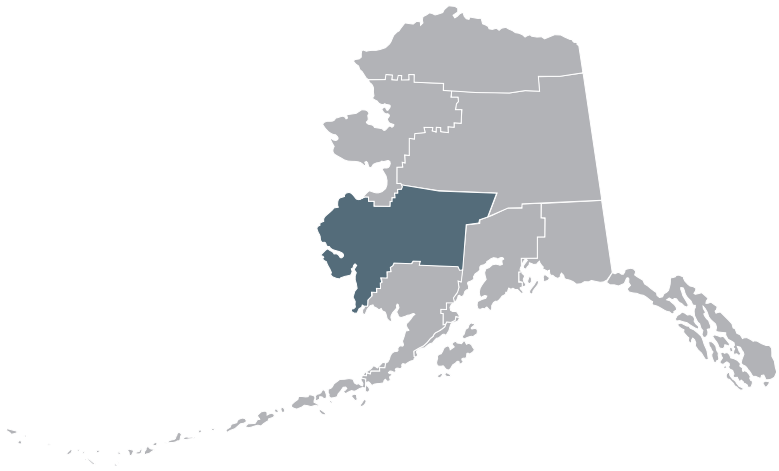
Top 5 Products

Product	Spills	Gallons
Diesel	521	67,327
Gasoline	68	16,945
Used Oil	38	838
Aviation Fuel	21	752
Hydraulic Oil	52	736

Top 5 Facility Types

Facility Type	Spills	Gallons
Noncrude Terminal	82	28,655
Other	151	13,086
School	102	9,852
Vessel	56	6,486
Residence	97	6,298

NOTE: The data summary above excludes spills reported in pounds and potential spills.



Shoreline: 2,900 miles
Land Area: 60,100,000 acres or 94,000 square miles

The Western Alaska subarea is characterized by the two major river systems (Yukon and Kuskokwim) that traverse through the subarea. Residents along the river depend on these waterways for commercial and subsistence fishing, as well as a means of transportation. The coastal communities likewise rely on the Bering Sea for commercial and subsistence fishing. The area is predominantly wetland tundra in the Yukon-Kuskokwim delta region, transitioning to rolling hills and several mountain ranges further inland.

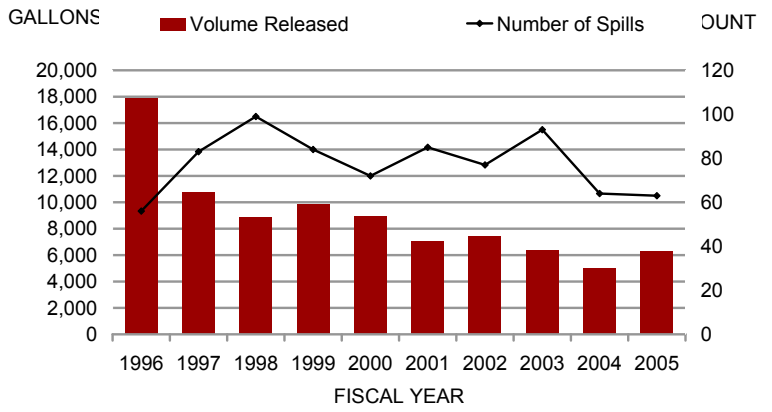
Bethel and McGrath are the principal employment centers of the subarea. Infrastructural development is minimal and the existing road network is minor and local. Most travel within the region is by plane (scheduled and charter), private boat or snow machine (during the winter). There is no connecting road network and the Alaska Marine Highway System does not service the Western Alaska subarea. The population centers of the region are thus physically isolated from one another. There are a total of 64 communities in the region, with the majority also identified as federally-recognized Native tribes.

Deliveries of noncrude oils are made to the villages in this area primarily by barges operating from Dutch Harbor or the Cook Inlet subarea. Deliveries are ice dependent and do not occur as ice forms. Small 300,000-gallon barges operate during the ice-free season to supply interior villages and some villages along the outer coast.

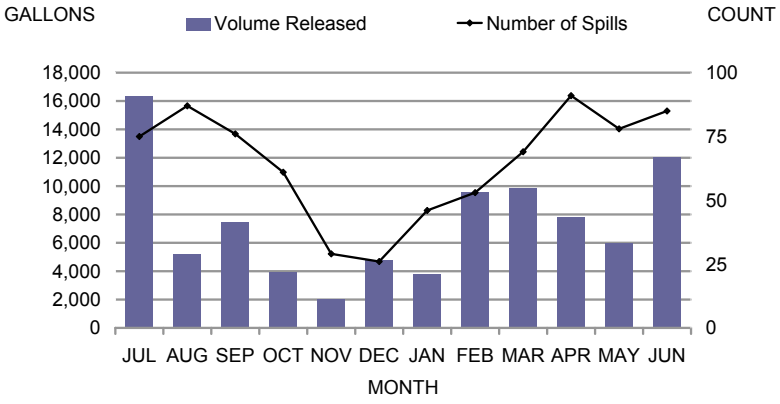
Discernible Trends:

- The largest spill in the subarea during this reporting period was a 9,000-gallon gasoline spill at Tuntuliak on June 17, 1996. A Bethel Fuels tank overfill resulted in a spill of 5,000 gallons of diesel on July 31, 1996. A line failure at an AVEC tank farm in Nunapitchuk on February 7, 2005 resulted in a spill of 8,000 gallons of diesel.
- There appears to be a definite seasonal trend for the spills in the Western Alaska subarea. Spills generally increase during the Spring breakup period, proceed thru the Summer months, then decline over the winter period (September thru February).
- Storage facilities contributed to 51% of the total number of spills, and also 72% of the total volume spilled.
- In terms of primary causes of spills, Structural/Mechanical (45%) and Human Factors (38%) accounted for 83% of the total number of spills. Similarly, both causes accounted for 85% of the total volume spilled.
- The overwhelming majority (98%) of the spill count involved noncrude oil. Noncrude oil spills also accounted for 99% of the total volume released.

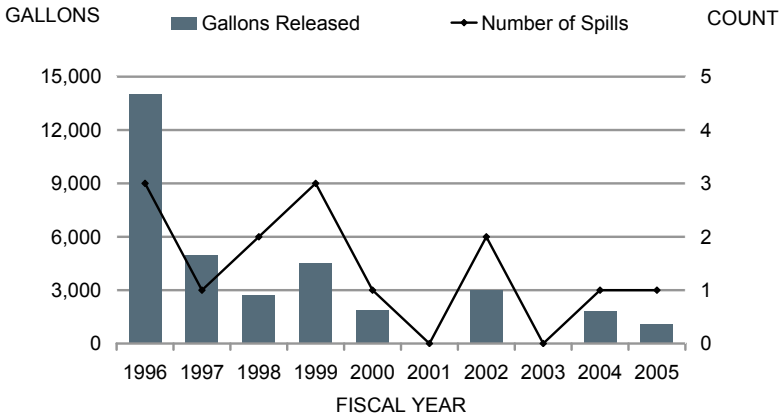
All Spills by Fiscal Year



All Spills by Month



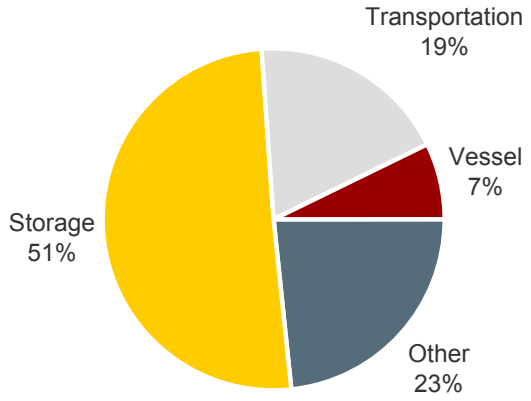
Spills >1,000 gallons



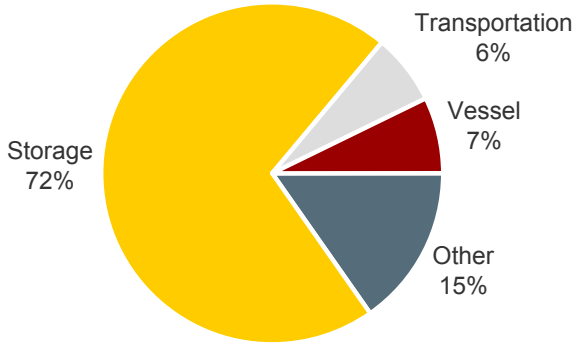
NOTE: Graphs do not include spills reported in pounds or potential spills.

Western Alaska Subarea Spills by Facility Type

Number of Spills

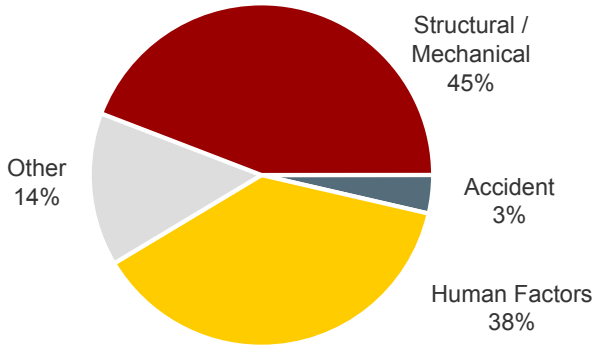


Gallons Released

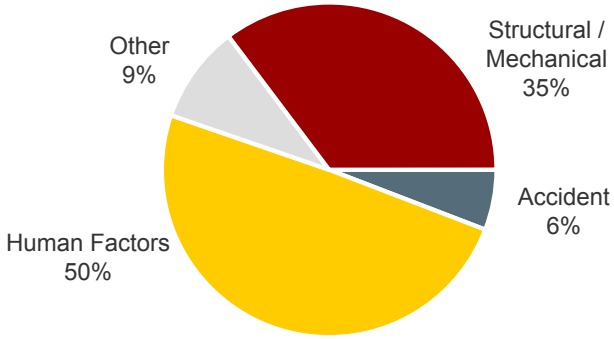


Western Alaska Subarea Spills by Cause

Number of Spills

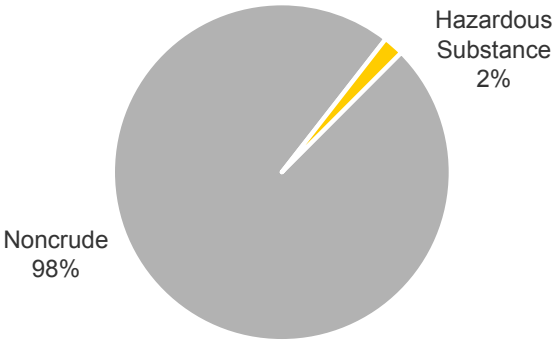


Gallons Released

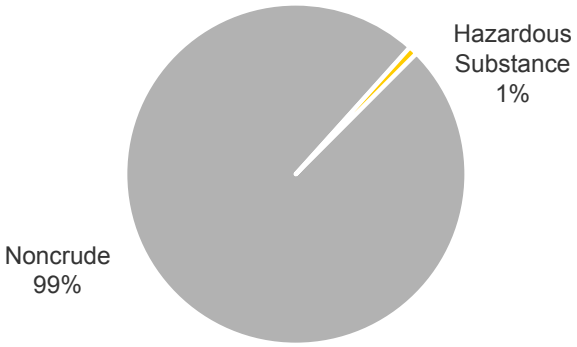


Western Alaska Subarea Spills by Product

Number of Spills



Gallons Released

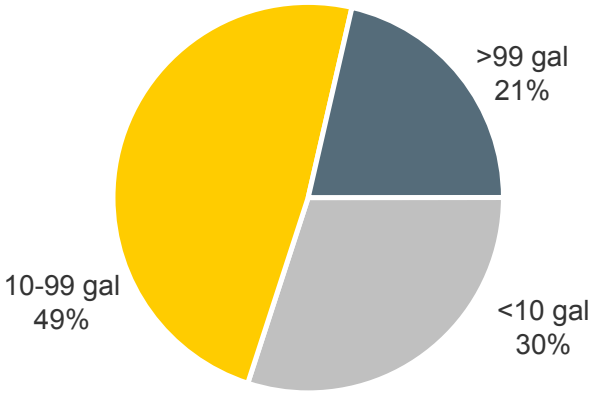


NOTE: Graphs do not include spills reported in pounds or potential spills.

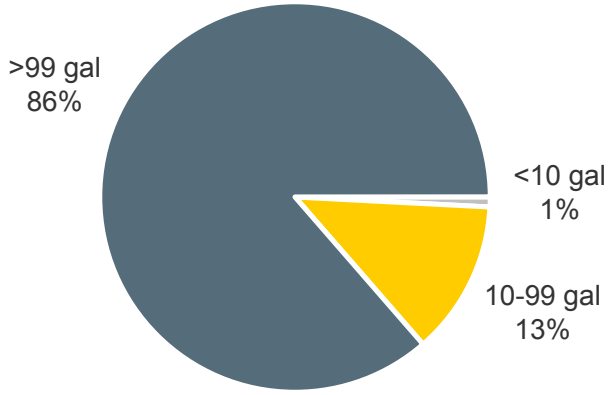
Western Alaska Subarea Spills by Size Class

- Nearly half of the spills during the 10-year period were between 10 and 99 gallons.
- Approximately 86% of the total volume released resulted from spills larger than 99 gallons.

Number of Spills



Gallons Released



NOTE: Graphs do not include spills reported in pounds or potential spills.

Western Alaska Subarea Spills at Regulated vs. Unregulated Facilities

Numerous oil facilities and vessels operating in Alaska are subject to Alaska's spill response planning and financial responsibility statutes. This section summarizes spills from:

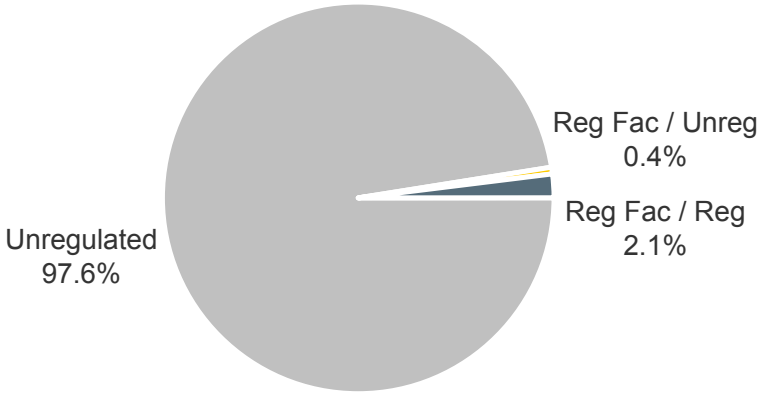
- facilities and vessels required by statute to have an approved oil discharge prevention and contingency plan; and,
- non-tank vessels which are required to have an approved certificate of financial responsibility are also included.

Spills from underground storage tanks are not included in this analysis.

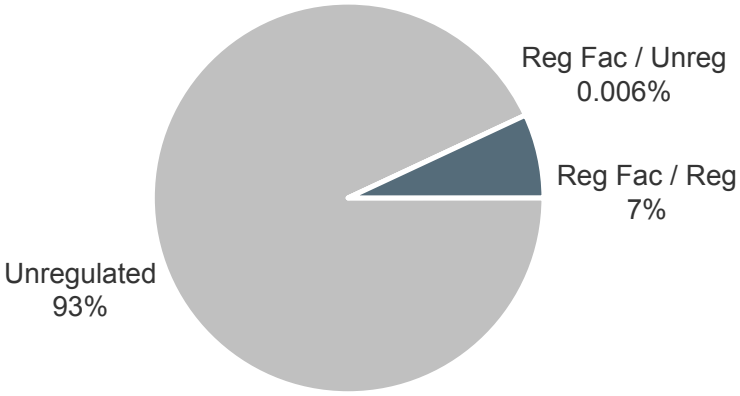
Alaska's contingency planning requirements apply to specific aspects (components) of a facility's or vessel's operations. The analysis in this report distinguishes between spills from regulated versus unregulated components. Examples of spills from unregulated components include:

- a spill from a vehicle at a regulated facility;
- a spill from a fuel tank (below the regulatory threshold of 10,000 barrels) at a regulated facility

Number of Spills



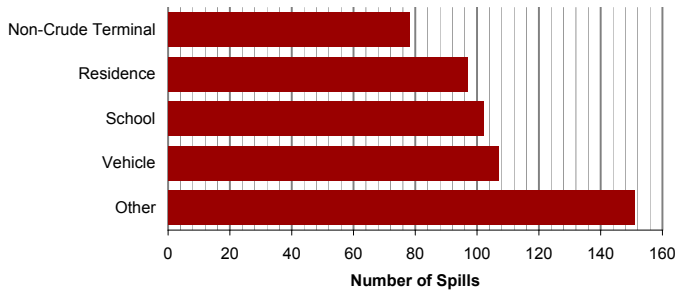
Gallons Released



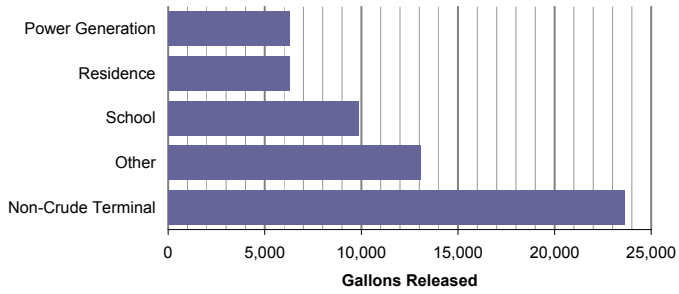
- More than 97% the spills during the 10-year period were from unregulated facilities.
- Non-Crude Terminal facilities were responsible for the greatest volume spilled during the report period.

Top Unregulated Facilities

Number of Spills



Gallons Released



NOTE: Graphs do not include spills reported in pounds or potential spills.

Major Spills in the Western Alaska Subarea

Date	Name	Product	Gallons
4/16/1993	BIA Tank Farm, Bethel	Diesel	132,000
6/17/1996	Tuntutuliak, Qinarnivit	Gasoline	9,000
7/31/1996	Bethel Fuels Tank Farm	Diesel	5,000
7/5/1995	F/V Mattie-O, Eek	Diesel (Lube Oil)	3,000
7/7/1995	Chevak Village Owned Tank Farm	Gasoline	2,000
2/25/1999	Tuluksak City Traditional Council Power Plant	Diesel	1,900
2/9/2000	Aniak Light and Power	Diesel	1,886
3/12/2004	Kongiganak Power Plant Diesel	Diesel	1,800
5/19/1999	Cape Romanzof Long Range Radar Site	Diesel	1,500
3/22/2002	Mountain Village Well #75	Diesel	1,500
4/2/2002	Kipnuk	Diesel	1,500
7/8/1997	Bethel	Diesel	1,500
5/22/1998	Marshall Enterprises Gas Station	Gasoline	1,200
12/19/1998	Emmonak Yukon Delta Fish Coop	Diesel	1,100
3/14/2005	Nixon Fork Mine	Diesel	1,070
8/15/1998	Faulkner Walsh Constructors, Johnson River	Diesel	1,000
4/14/1997	Federal Aviation Administration, Bethel	Diesel	1,000

Data Sources:

Department of Environmental Conservation

Western Alaska Subarea Contingency Plan for Oil and Hazardous Substance Discharges/Releases, June 2001

Contingency Plan Facilities in the Western Alaska Subarea

Facility Name	Facility Type
Island Tug and Barge, Ltd. Barges (1)	Barge
Crowley Barges (1)	Barge
Sea Coast Transportation Barges (1)	Barge
Sirius Maritime Barges	Barge
Sause Brothers, Inc. - Klamath	Barge
Ruby Marine - Melozi	Barge
Ruby Marine - Novi	Barge
Crowley Tanker Vessel	Tank Vessel
Chembulk New Orleans	Tank Vessel
Renda	Tank Vessel
Crowley Marine Services Bethel (BFS) Tan	Noncrude Terminal
Crowley Marine Services Bethel Tank Farm	Noncrude Terminal
Crowley Marine Services St. Mary's Tank	Noncrude Terminal
Crowley Marine Services St. Michael Tank	Noncrude Terminal

NOTES:

(1) Authorized to operate statewide

Active Contaminated Sites in the Western Alaska Subarea

This table summarizes the number of active contaminated site cleanup projects in the Western Alaska subarea as of August 20, 2007.

Primary Contaminant	Sites	%
Petroleum	152	92%
Hazardous Substances	14	8%
Total	166	

Western Alaska Subarea Spill Preparedness and Response Initiatives

Response Corps and Equipment Depots

Community	CRSA	Conex	Nearshore	Other Equipment
Aniak	■	●		
Bethel	■	●		
Goodnews Bay	■			
Mekoryuk	■			
Mountain Village	■	●		
Toksook Bay	■	●		

Western Alaska Contingency Plan for Oil and Hazardous Substance Spills and Releases

The current plan is dated June 2001, and a revision is planned for the 2008/2009 timeframe. The plan can be accessed at the following website: http://www.dec.state.ak.us/spar/perp/plans/scp_we.htm

D. OIL FATE AND GENERAL RISK ASSESSMENT

1. Fate of Spilled Oil

Natural processes that may act to reduce the severity of an oil spill or accelerate the decomposition of spilled oil are always at work in the aquatic environment. These natural processes include weathering, evaporation, oxidation, biodegradation, and emulsification.

- **Weathering** is a series of chemical and physical changes that cause spilled oil to break down and become heavier than water. Winds, waves, and currents may result in natural *dispersion*, breaking a slick into droplets which are then distributed throughout the water. These droplets may also result in the creation of a secondary slick or thin film on the surface of the water.

- **Evaporation** occurs when the lighter substances within the oil mixture become vapors and leave the surface of the water. This process leaves behind the heavier components of the oil, which may undergo further weathering or may sink to the ocean floor. For example, spills of lighter refined petroleum-based products such as kerosene and gasoline contain a high proportion of flammable components known as *light ends*. These may evaporate completely within a few hours, thereby reducing the toxic effects to the environment. Heavier oils leave a thicker, more viscous residue, which may have serious physical and chemical impacts on the environment. Wind, waves, and currents increase both evaporation and natural dispersion.

- **Biodegradation** occurs when micro-organisms such as bacteria feed on oil. A wide range of micro-organisms is required for a significant reduction of the oil. To sustain biodegradation, nutrients such as nitrogen and phosphorus are sometimes added to the water to encourage the micro-organisms to grow and reproduce. Biodegradation tends to work best in warm water environments.

Emulsification is a process that forms *emulsions* consisting of a mixture of small droplets of oil and water. Emulsions are formed by wave action, and greatly hamper weathering and cleanup processes. Two types of emulsions exist: water-in-oil and oil-in-water. Water-in-oil emulsions are frequently called "chocolate mousse," and they are formed when strong currents or wave action causes water to become trapped inside viscous oil. Chocolate mousse emulsions may linger in the environment for months or even years. Oil and water emulsions cause oil to sink and disappear from the surface, which give the false impression that it is gone and the threat to the environment has ended.

E. ICE, WIND AND CURRENTS

The following is an overview of wind, tide, ice and current conditions in the Bering Sea and Kuskokwim Bay. Much of the available data is general in nature and should be supplemented by area-specific updates and any information available from local residents. Included herein are wind data, tidal ranges, data on a variety of ice conditions and maps of net surface currents. Using the current edition of the U.S. Department of Commerce National Oceanic and Atmospheric Administration tide current tables for the Pacific coast of North America, it is possible to predict the times of ebb and flood tides for points within this region.

1. Sea Ice Conditions

Sea ice generally forms off the Yukon River beginning in mid October. Between mid December and mid April, sea ice coverage ranges from 70 to 100 percent. Shorefast ice reaches offshore from 15 to 60 km. In deeper waters beyond the shorefast ice, sea ice persists until April or May. By mid June or by early July, the delta area is ice free.

An estimated 97% of the ice in the Bering Sea is formed within the Bering Sea; very little is transported south through the Bering Strait. During periods of increasing ice and prevailing northerly winds, the ice apparently is generated along the south-facing coasts of the Bering Sea and moves southward with the wind at as much as 1 knot before melting at its southern limit. During periods of southerly winds, ice coverage generally decreases in the Bering, causing a wide variation in ice cover from month to month and year to year.

In the Bering Sea a wind-induced polynya immediately south of St Lawrence island is a frequent but undependable feature. Northerly winds cause the polynya to form in the lee of the island as sea ice is advected to the south. A polynya can form on any side of Nunivak Island, depending upon prevailing wind direction. Usually the feature is located to the north or south, under southerly or northerly winds, respectively. Like the polynya off St. Lawrence Island, the appearance of this polynya is variable, but it is usually observed at least once a year, often more. Its extent is variable, and thin ice commonly covers the polynya quickly during cold, northerly wind storms.

2. Current Data

Tides in the Bering Sea are considered to be the result of co-oscillation with large oceans. Once inside the Bering Sea. Each tidal constituent propagates rapidly as a free wave subject to the Coriolis effect and bottom friction. The tide wave propagates rapidly across the deep western basin. Part of it then propagates onto the southeast Bering shelf where large amplitudes are found along the Alaska Peninsula and in Kvichak and Kuskokwim Bays. Circulation in the northern Bering Sea and near the Yukon River Delta, is dominated by a northward mean flow paralleling the local bathymetry.

Average Arctic Marine Breakup and Freezeup Dates

Location	Avg. Breakup Date	Avg. Freezeup Date	Avg. Years Record
Platinum/Goodnews Bay	May 1	November 19	
St Michael	June 9	November 10	
Akulurak	May 27	October 24	
Hamilton	May 22	October 25	
Azacharak	May 20	November 13	
Pilot Station	May 17	November 8	
Russian Mission	May 12	November 4	
Holy Cross	May 17	October 31	
Hooper Bay	May 26	November 12	
Mekoryuk	May 12	November 27	
Bethel	May 15	October 29	
Quinhagak	May 1	November 19	

Source: AEIDC. 1983. AEIDC 1975. ADF&G 1986a US Coast Pilot #9, 1/83

3. Tidal Ranges

Tides in the Yukon River delta area exhibit a high degree of spatial variability in amplitude and phase because of the delta's complex topography. The tides are a mixture of diurnal and semi-diurnal tides depending on the location and time of year. The diurnal tidal range at the face of the delta is about 1 to 2 m. Storm surges may occur in the area during the ice-free period, particularly during autumn.

4. Winds

In many cases, spill trajectory is determined primarily by winds, especially when currents are weak Throughout the Bering the wind is fairly strong year-round but blows the hardest in winter. Prevailing summer winds blow from the south or southwest at 7 to 10 knots. Winter winds generally come from the east or northeast at 10 to 15 knots, and can persist in one direction for weeks at a time causing a wide variety of water and ice movement. Winds are usually stronger at

St. Lawrence Island (averaging 15.5 knots) than along the mainland. Maximum recorded sustained wind speed at Nome is 78 knots and 92 knots at Unalakleet.

5. Spill Trajectory Modeling

The behavior of spilled oil on water is the result of the complex interaction of the forces described above. Accordingly, trajectory modeling can be difficult. The National Oceanic and Atmospheric Administration is capable of generating computerized spill trajectory forecasts. Requests for this service should be directed to:

John Whitney
Scientific Support Coordinator
National Oceanic and Atmospheric Administration
Anchorage, Alaska

working hours: 271-3593
fax: 271-3139
after hours: 346-1634
beeper: 275-3134

5. Data Sources

Hood and Zimmerman (eds). Gulf of Alaska: Physical Environment and Biological Resource. (Gulf of Alaska net surface currents)

LaBelle, J.C. and J.L. Wise. 1983. Alaska Marine Ice Atlas.

National Climatic Data Center and Arctic Environmental Information and Data Center (AEIDC). 1988. Climatic Atlas, Volume II: Bering Sea. (wind roses, tidal range data and map)

Thorsteinson, L.K., P.R. Becker, and D. A. Hale. 1989. The Yukon Delta: a synthesis of information. Outer Continental Shelf Environmental Assessment Program. OCS Study MMS 89-0081. USDC:NOAA and USDI:MMS. Anchorage, Alaska. 89 pp.

U.S. Department of Commerce National Oceanic And Atmospheric Administration. 1989. Tide Current Tables 1990: Pacific Coast of North America and Asia. (tidal current data and information)

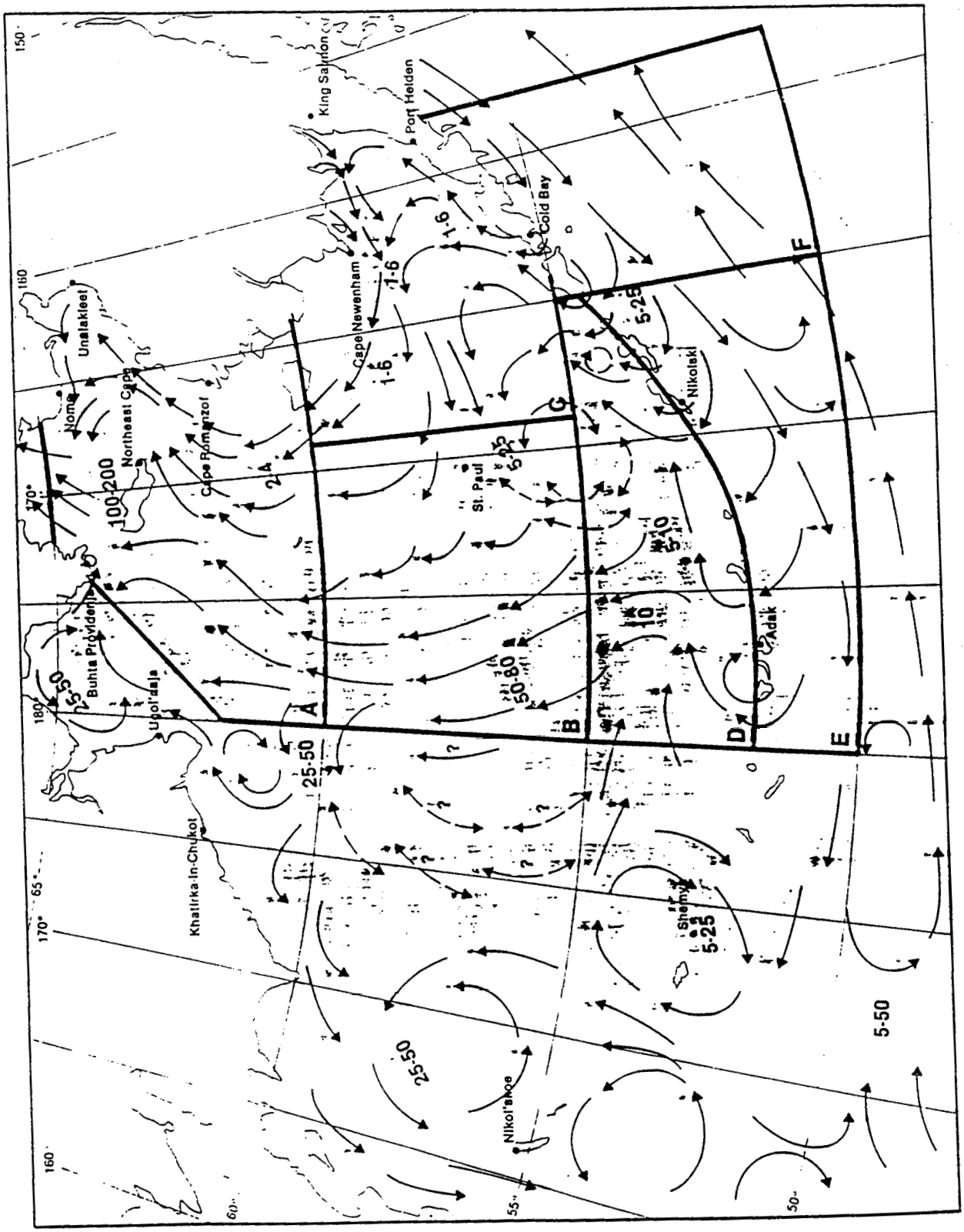
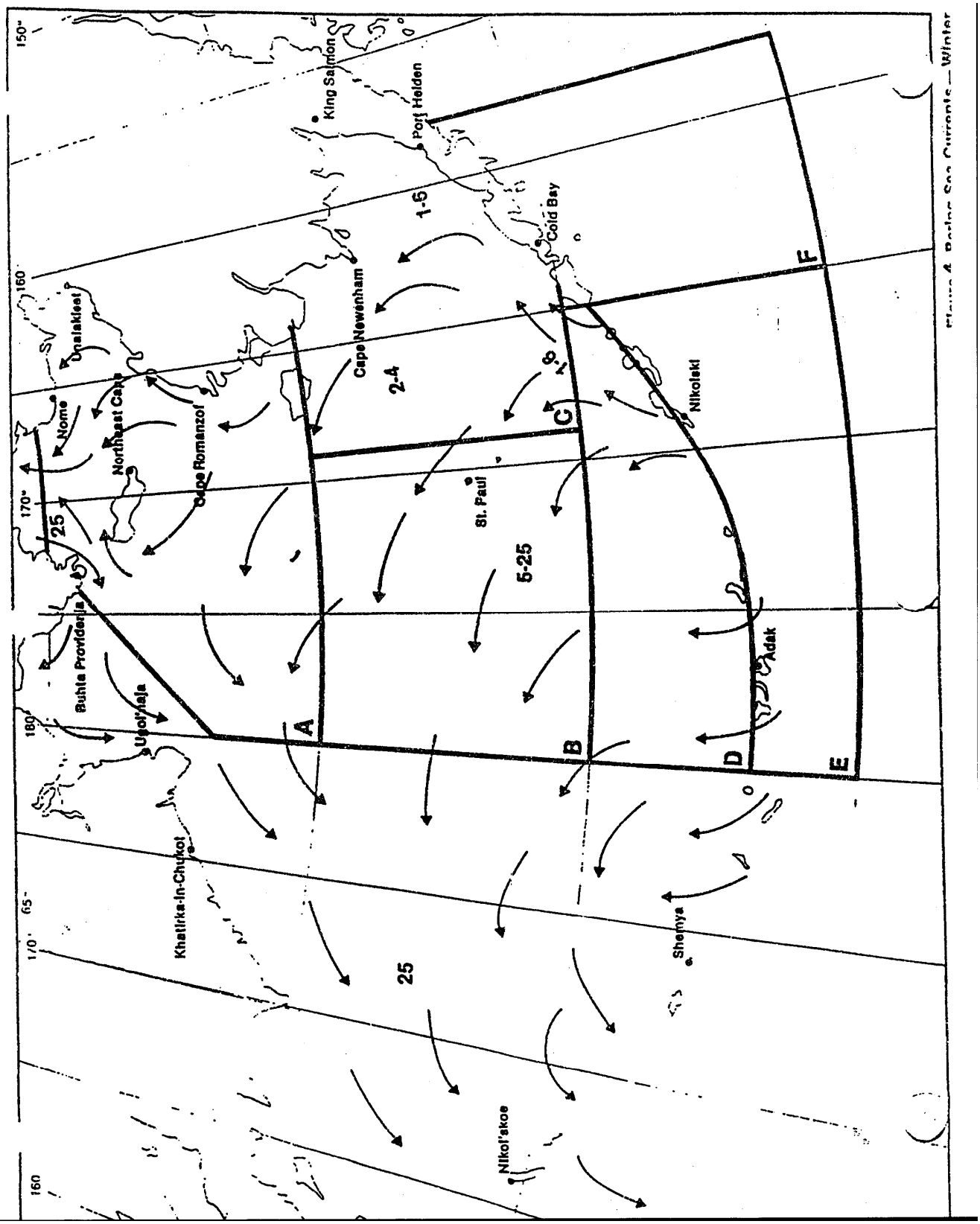


Figure 4. Bering Sea Currents—Summer


150°
160°
170°
180
160
65°
King Salmon
Port Heiden
Cold Bay
Unalakleet
Nome
Northeast Cape
Cape Romanzof
Cape Newenham
St. Paul
Nikolski
Adak
Shemya
Nikol'skoe
Khatirka-In-Chukot
Ugol'naja
Bukta Providenija
1-5
2-4
5-25
25
A
B
C
D
E
F

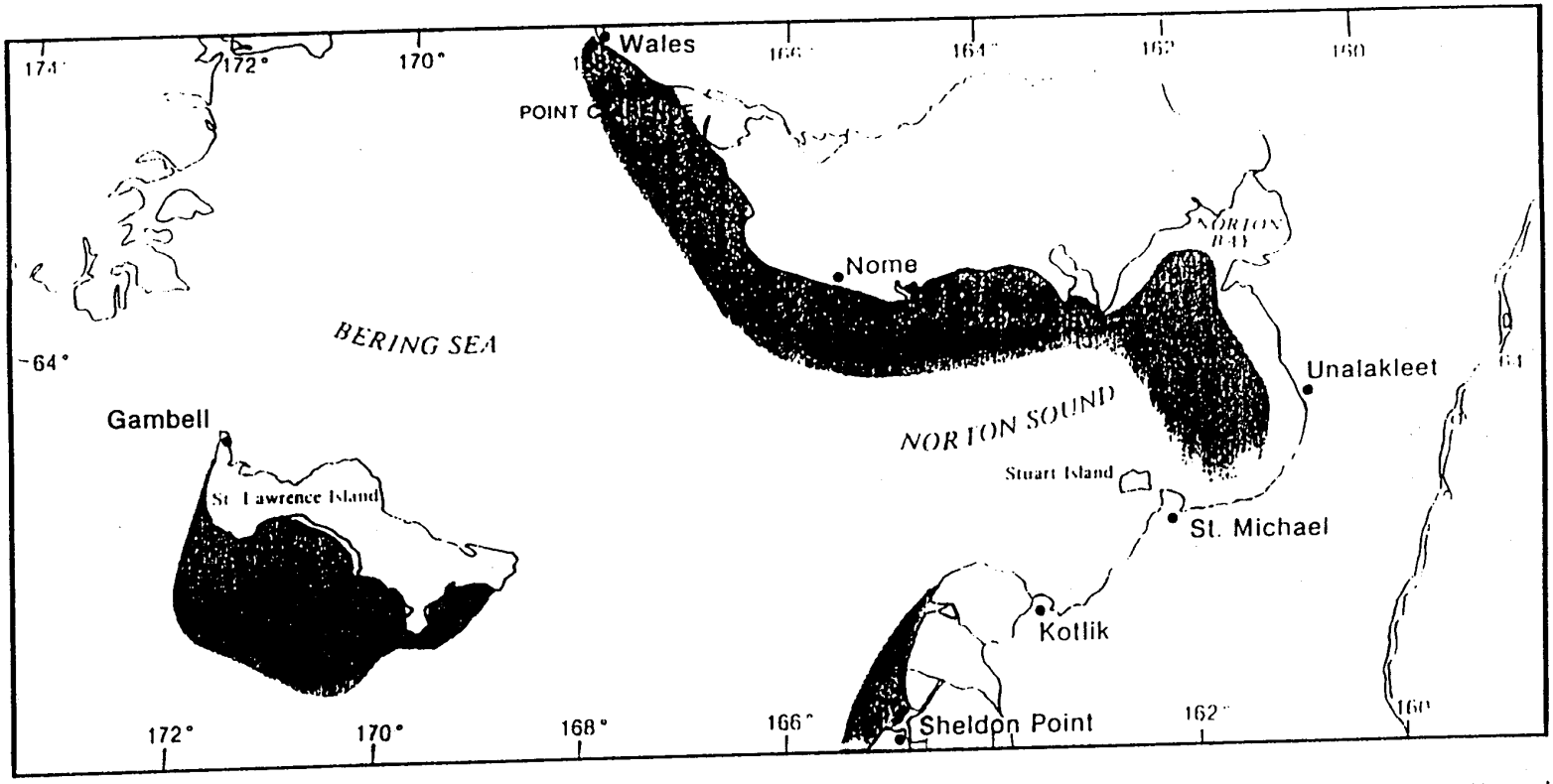


Figure 6. Recurring Polynyas

Synthesized from: McNutt 1981; Stringer, Barrett, and Schreurs 1980; Wohl 1982.

BACKGROUND: PART FOUR – ABBREVIATIONS & ACRONYMS

AAC	Alaska Administrative Code
ACFT	Aircraft
ACP	Area Contingency Plan
ADCED	Alaska Department of Community and Economic Development
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game, also as ADFG
ADMVA	Alaska Department of Military and Veterans Affairs
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities, also as ADOTPF
AFB	Air Force Base
AIR	Air Operations
AKANG	Alaska Air National Guard
AKARNG	Alaska Army National Guard
AKNG	Alaska National Guard
ALCOM	Alaska Command
ARRT	Alaska Regional Response Team
AS	Alaska Statute, also Air Station (USAF)
ASAP	As soon as possible
BBLS	Barrels
BLM	Bureau of Land Management
BOA	Basic Ordering Agreement
CAMEO	Computer-Aided Management of Emergency Operations
CCGD 17	Commander, Coast Guard District 17
CFR	Code of Federal Regulations
COM	Communications equipment/capabilities
COMDTINST	Commandant Instruction (USCG)
COTP	Captain of the Port (USCG)
CP	Command Post
C-Plan	Contingency Plan
CTAG	Cultural Technical Advisory Group
CUL	Cultural Resources
DAA	Documentation/Administrative Assistance
DES	Division of Emergency Services (a division under ADMVA)
DOD	Department of Defense
DOI	Department of the Interior Alaska
DOI-FWS	Department of the Interior Alaska – Fish and Wildlife Service
DRAT	District Response Advisory Team
DRG	District Response Group
EMS	Emergency Medical Services
ENV	Environmental Unit Support
EOC	Emergency Operations Center
EPA	Environmental Protection Agency, also as USEPA
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESI	(Alaskan) Environmental Sensitivity Index
FDA	Food and Drug Administration

FIN	Finance
FIR	Fire Protection/fire fighting
F/V	Fishing Vessel
FAA	Federal Aviation Administration
FLIP	Flight Information Publication
FOG	Field Operations Guide
FPN	Federal Pollution Number
FOSC	Federal On-Scene Coordinator
FWPCA	Federal Water Pollution Control Act
GIS	Geographic Information System
GRS	Geographic Response Strategies
GSA	General Services Administration
HAZ	Hazmat
HAZMAT	Hazardous Materials, also as hazmat
HAZWOPER	Hazardous Waste Operations and Emergency Response
HQ	Headquarters
IC	Incident Commander
ICS	Incident Command System
IDLH	Immediately Dangerous to Life and Health
INMARSAT	International Maritime Satellite Organization
LAT	Latitude
LEG	Legal
LEPC	Local Emergency Planning Committee
LEPD	Local Emergency Planning District
LERP	Local Emergency Response Plan
LO	Liaison Officer
LONG	Longitude
LOSC	Local On-Scene Coordinator
MAC	Multiagency Coordinating Committee
MAP	Mapping
MAR CH	Marine Channel
MED	Medical Support/Health Care
MESA	Most Environmentally Sensitive Area
M/V	Motor Vessel
MLC	Maintenance and Logistics Command (USCG Pacific Area)
MLT	Municipal Lands Trustee Program
MOA	Memoranda of Agreement, also Municipality of Anchorage
MOU	Memoranda of Understanding
MSD	Marine Safety Detachment (USCG)
MSO	Marine Safety Office (USCG)
MSRC	Marine Spill Response Corp. (national industry cooperative)
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NIIMS	National Interagency Incident Management System
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOTAMS	Notice to All Mariners; also, Notice to Airmen

NPDES	National Pollution Discharge Elimination System
NPFC	National Pollution Fund Center
NRC	National Response Center
NRT	National Response Team
NRDA	Natural Resource Damage Assessment (Federal/State)
NSF	National Strike Force
NSFCC	National Strike Force Coordinating Center
NWR	NOAA Weather Radio
OHMSETT	Oil and Hazardous Material Simulated Environment Test Tank
OOD	Duty Officer or Officer on Duty
OPA 90	Oil Pollution Act of 1990
OPCEN	Operations Center
OPS	General Response Operations, also Office of Pipeline Safety (U.S. DOT)
OSC	On-Scene Coordinator
OSHA	Occupational Health and Safety Administration
OSLTF	Oil Spill Liability Trust Fund
OSRO	Oil Spill Response Organization
O/S	On-Scene
PIAT	Public Information Assist Team
PIO	Public Information Officer
PL	Private Line
PLN	General Planning Operations
POLREP	Pollution Report (USCG)
PPE	Personal Protective Equipment
RAC	Response Action Contractor
RCC	Rescue Coordination Center
RCRA	Resource Conservation and Recovery Act of 1978
RP	Responsible Party
RPOSC	Responsible Party On-Scene Coordinator
RPD	Recovery, Protection and Decontamination
RQ	Reportable Quantity
RRT	Regional Response Team
RSC	Regional Stakeholder Committee
RV	Recreational Vehicle
SAR	Search and Rescue
SCBA	Self-Contained Breathing Apparatus
SCP	Subarea Contingency Plan
SEC	Security
SHPO	State Historic Preservation Officer (ADNR)
SITREP	Situation Report (ADEC)
SONS	Spill of National Significance
SOSC	State On-Scene Coordinator
SS	Technical Expertise/Scientific Support
SSC	Scientific Support Coordinator (NOAA)
STORMS	Standard Oil Spill Response Management System
SUPSALV	U.S. Navy Supervisor of Salvage, also as NAVSUPSALV
TA	Trajectory Analysis

TPO	Tribal Police Officer
T/V	Tank Vessel
USAF	United States Air Force
USCG	United States Coast Guard
VOSS	Vessel of Opportunity Skimming System
VPO	Village Police Officer
VPSO	Village Public Safety Officer
VTS	Vessel Traffic System
WRR	Wildlife Protection/Care/Rehabilitation/Recovery
WX	Weather