NORTHWEST ARCTIC SUBAREA CONTINGENCY PLAN

SENSITIVE AREAS SECTION

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SENSITIVE AREAS: INTRODUCTION

This section is intended for use by the On-Scene Coordinators (OSC) during the initial phase of a spill event to assist in ascertaining the location and presence of spill-sensitive biological and cultural resources, services, and users in this subarea. This information is specific to this subarea. No attempt has been made to duplicate information contained in easily accessible existing documents. This section, therefore, must be used in conjunction with the referenced materials and informational contacts identified herein. More detailed and current data should be available from on-scene resource experts when they become engaged in the response. This information is geared toward early response. If appropriate, natural resources trustees may conduct natural resource damage assessment (NRDA) activities in conjunction with response activities. Information regarding NRDA activities should be directed to the natural resources trustees or to their appointed NRDA Liaison.

Often, the most detailed, up-to-date biological and resource use information will come from people who live and work in the impacted area. People from the local community are frequently knowledgeable sources for information related to fishing, hunting, non-consumptive outdoor sports, and subsistence use. They may also have a good idea of which spill response techniques (especially exclusion and diversion booming) are practicable under prevailing weather and current conditions.

The Alaska Regional Response Team (ARRT) has adopted several documents (see the *Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases* (*Unified Plan)*) that address decision making to help protect sensitive areas and resources. These documents (and their location) include:

- *ARRT Dispersant Use Plan for Alaska* (see *Unified Plan, Annex F, Appendix I*: https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20F%20Appendix1(Jan%2016).pdf)
- *ARRT In Situ Burning Guidelines for Alaska* (see *Unified Plan, Annex F, Appendix 2*: https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20F%20Appendix2-3(Jan%2010).pdf)
- *ARRT Wildlife Protection Guidelines for Alaska* (see *Unified Plan, Annex G*: https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20G%20(Oct%202012).pdf)
- *ARRT Historic Properties Protection Guidelines for Alaska Federal On-Scene Coordinators* (see *Unified Plan, Annex M:* https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20M%20(Jan%2010).pdf)
- *ARRT Places of Refuge Guidelines (*see *Unified Plan, Annex O:* https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20O%20(Jan%2010).pdf)
- 2014 Bering Strait Marine Life and Subsistence Use Data Synthesis: http://oceana.org/publications/reports/the-bering-strait-marine-life-and-subsistence-data-synthesis
- 2017 Ecological Atlas of the Bering, Chukchi, and Beaufort Seas. http://ak.audubon.org/sites/g/files/amh551/f/ecoatlasberingchukchibeaufort_chapter7_metadata.pdf

Federal OSCs in Alaska are working in cooperation with the U.S. Department of the Interior's (DOI) Office of Environmental Policy and Compliance and the U.S. Fish and Wildlife Service (USFWS), and with the U.S. Department of Commerce (DOC), National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and the Office of Response and Restoration (OR&R) to ensure response activities meet Endangered Species Act requirements, in accordance with the 2001 *Inter-*

Agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the Federal Water Pollution Control Act National Oil and Hazardous Substances Pollution Contingency Plan (see *Unified Plan, Annex K:* http://dec.alaska.gov/spar/ppr/plans/uc/mou/ky-ESA%20MOA(2001).pdf).

In addition, Annex N of the *Unified Plan* includes *Shoreline Cleanup and Assessment Guidelines*, which provide helpful information on clean-up options by shoreline type and can be found at https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20N%20(Jan%2010).pdf.

Section G of the Subarea Contingency Plan contains site-specific Geographic Response Strategies (GRS) for use by responders in protecting key sensitive areas. In addition, Environmental Sensitivity Index (ESI) maps have been produced that illustrate selected sensitive resources and shoreline types.

This section of the Northwest Arctic and the guidelines in the *Unified Plan* are also intended for use by facility/vessel operators who are required to develop an industry oil spill prevention and contingency plan as per state regulations 18 AAC 75.400 – 495. For an operator's facility or area of operation, industry contingency plans describe: (a) environmentally sensitive areas and areas of public concern, (b) how sensitive areas would be prioritized during a spill event, and (c) response strategies to protect sensitive areas at risk. The information in industry plans should be consistent with subarea contingency plans.

The definition of sensitive resources and their geographic locations requires use of field observations and data available from published and non-published materials or through additional field work. Identifying relative priorities among resources and resource uses takes considerable coordination and discussion among resource management agencies. With the limited time and funds available for subarea contingency plan development (there are ten such plans covering the State of Alaska), not all the detailed information about every possible resource at risk is included. Given seasonal fluctuations in species distribution and abundance, as well as site-specific data that may be gathered during an incident, the material included in this plan offers general information that should be refined as needed during a response. Future updates to this document will continue to add information relevant to response activities.

In January 2010, Audubon Alaska, in cooperation with Oceana, published the Arctic Marine Synthesis Atlas of the Chukchi and Beaufort Seas. This information is incorporated with the permission of Audubon Alaska and is available at http://ak.audubon.org/conservation/arctic-marine-synthesis-atlas-chukchi-and-beaufort-seas.

A substantial effort to develop and refine a sensitive areas database was undertaken by Alaska Clean Seas (ACS) and produced in their Alaskan Bering Sea Coastal Resources Manual, Norton Sound Region. The ACS material was developed with input from federal, state, and local agencies. This information is incorporated, by reference, into this section (with the permission of ACS).

Many of the maps presented in this section are available on-line at http://www.asgdc.state.ak.us/maps/cplans/subareas.html.

Figure D-1 shows the seaward boundary of the Northwest Arctic Subarea and its relationship to the other subareas. While this contingency plan is specific to the Northwest Arctic Subarea, we note that there are ecological connections to the adjacent subareas; for example, migratory species and ocean currents may cross planning boundaries. Suggestions, comments, and more current information are requested. Please contact either:

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Office of Environmental Policy and Compliance
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Fairbanks, Alaska 99701
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email: jack.winters@alaska.gov

Figure D-1. Seaward boundaries of Northwest Alaska and adjacent subareas.

SENSITIVE AREAS: PART ONE – INFORMATION SOURCES

Agency	Resources	Point of Contact
FISH AND WILDLIFE AND HABITAT RESOURCES		
Alaska Department of Fish and Game	Fish, shellfish, birds, terrestrial mammals, marine mammals	Division of Habitat Fairbanks 907-459-7289
U.S. Department of the Interior	Migratory birds, sea otters, polar bears, walrus, certain endangered species, anadromous fish in freshwater, bald eagles, wetlands	Office of Environmental Policy & Compliance Anchorage 907-271-5011
U.S. Department of Commerce, National Marine Fisheries Service	Sea lions, seals, whales, certain endangered marine species, anadromous fish in marine waters, effects of oil on fisheries resources, hydrocarbon chemistry, dispersants	Protected Resources Division Juneau 907-586-7630 Alaska Region Marine Mammal Stranding Network 877-925-7773
	Essential Fish Habitat, federally-managed commercial fish stocks, including corals, special aquatic vegetation (marine), and offshore salmon	Habitat Conservation Division Anchorage 907-271-5195
University of Alaska	Rare and endangered plants	Alaska Natural Heritage Program Anchorage 907-257-2785
University of Alaska – Fairbanks Northwest Campus Marine Advisory Program	Marine ecology, marine mammals, subsistence harvest of marine resources, foraging ecology and diet	Marine Advisory Agent Nome 907-443-2397
CULTURAL AND ARCHAEOLOGICAL SITES		
Alaska Department of Natural Resources	Historic sites, archaeological sites, National Register sites	Alaska Office of History and Archaeology Anchorage State Historic Preservation Officer - 907-269-8721 State Archeologist - 907-269-8728

Agency	Resources	Point of Contact
U.S. Department of the Interior	Archaeological/historical sites in parks, wildlife refuge system units, and public lands; National Register of Historic Places; National Historic Landmarks; Native allotments/trust lands; sunken vessels	Office of Environmental Policy & Compliance Anchorage 907-271-5011
SHORELINE TYPES		
U.S. Department of Commerce, National Oceanic & Atmospheric Administration	Shoreline types, environmental sensitivity index maps	Office of Response and Restoration Scientific Support Coordinator Anchorage 907-428-4143
U.S. Department of Commerce, National Marine Fisheries Service Alaska Regional Office	Shoreline types (Alaska ShoreZone categories), biophysical habitat data, high-resolution digital video and photographs	NOAA Fisheries Analytical Team 907-586-7858 https://alaskafisheries.noaa.gov/habitat/shorezone
LAND OWNERSHIP AND CLASSIFICATIONS/DESIGNATIONS		
Alaska Department of Natural Resources	State lands, state parks and recreation areas, state forests, tidelands	Division of Mining, Land, and Water Fairbanks 907-451-3014
Alaska Department of Fish and Game	State game refuges, state critical habitats	Division of Habitat Fairbanks 907-459-7289
U.S. Department of the Interior	National parks and preserves, national historic sites, national monuments, national wildlife refuges, public lands, national recreation areas, wild and scenic rivers, wilderness areas, Native trust lands	Office of Environmental Policy & Compliance, Anchorage 907-271-5011
U.S. Department of Defense	Military installations and reservations	Alaska Command Anchorage 907-552-3944

Agency	Resources	Point of Contact
Local Governments: – Northwest Arctic Borough – NANA Regional Corporation – Maniilaq Association – Bering Straits Native Corporation – Kawerak, Inc. – City of Nome	Municipal and private lands, and rights-of-way, coastal program special areas, plans, policies	For the current local government contact information, go to B. Resources Section, Part One Community Profiles For the current tribal contact information, go to B. Resources Section, Part Three Information Directory, Native Organizations and Federally-Recognized Tribes
COMMERCIAL HARVEST		
Alaska Department of Fish and Game	Fishing permits, seasons	Division of Commercial Fisheries Nome 907- 443-5167
Alaska Department of Natural Resources	Tideland leases	Division of Mining, Land, and Water Fairbanks 907-451-3014
Alaska Department of Environmental Conservation	Seafood processing	Division of Environmental Health Juneau 907-269-7644
U.S. Department of Commerce National Marine Fisheries Service	Fishing permits, seasons	Protected Resources Division Anchorage 907-271-5006
SUBSISTENCE, PERSONAL, AND SPORT USES		
Alaska Department of Fish and Game	Subsistence and personal uses statewide and navigable waters, sport hunting and fishing	Division of Sport Fish Fairbanks 907-459-7268
U.S. Department of the Interior	Subsistence uses on federal lands and reserved waters; subsistence uses of polar bears, walruses, and migratory birds	Office of Environmental Policy & Compliance Anchorage 907-271-5011
U.S. Department of Commerce	Subsistence use of: whales, porpoises, seals, sea lions	Protected Resources Division Anchorage 907-271-5006
RECREATION AND TOURISM USES		

Agency	Resources	Point of Contact
Alaska Department of Natural Resources	State parks and recreation areas, anchorages, boat launches, campgrounds, State public lands Nome offshore mining	Division of Parks and Outdoor Recreation Fairbanks 907-451-2695 Division of Mining, Land, & Water Fairbanks 907-451-2705
Alaska Department of Fish and Game	Sport hunting and fishing	Division of Sport Fish Fairbanks 907-459-7268 Division of Wildlife Conservation Nome 907-443-5167
Alaska Department of Commerce, Community & Economic Development	Seasonal events and activities, travel, outdoor activities, local visitor bureaus, tourism industries	Alaska Office of Tourism Development Juneau 907-465-5478
U.S. Department of the Interior	Recreation uses in national park and wildlife refuge system units and federal public lands	Office of Environmental Policy & Compliance Anchorage 907-271-5011
WATER INTAKE AND USE FACILITIES		
Alaska Department of Environmental Conservation	Public drinking water wells and source water protection, treatment, and storage, fish processing facilities	Division of Water Anchorage 907-269-7601
Alaska Department of Fish and Game	Hatcheries, ocean net pens and release sites, aquaculture	Division of Habitat Fairbanks 907-459-7289
Alaska Department of Natural Resources	Tidelands leases, aquaculture sites, private logging camps and log transfer facilities	Division of Mining, Land, and Water Fairbanks 907-451-3014
U.S. Coast Guard	Marinas and docks, mooring buoys	Sector Anchorage Anchorage 907-271-6700
U.S. Environmental Protection Agency	Source water protection	Office of Water and Watersheds 206-553-1152

SENSITIVE AREAS: PART TWO – AREAS OF ENVIRONMENTAL CONCERN

A. BACKGROUND/CRITERIA

The following relative priority listing was developed by the Sensitive Areas Work Group, with representatives from state and federal agencies and the private sector. The list prioritizes resources into designations of major, moderate, and lesser concern. Resources are not prioritized within each designation. These designations are for consideration in initial spill response activities; they are not applicable to extended clean-up activities. This prioritization scheme must be used in conjunction with spill-specific information (e.g., size and location of spill, type of product, trajectory) to determine the actual protection priorities for that discharge. Specific guidance to OSCs for protecting cultural resources is contained in Annex M of the *Unified Plan*.

The following criteria were developed as tools to establish levels of concern. These criteria are not listed in priority order.

CRITERIA FOR RELATIVE PRIORITY RATING

- human economic disruption -- economic/social value
- seafood safety/contamination, health/safety
- subsistence food safety and food security
- mortality -- wildlife, fish, other organisms (how many potentially killed in relation to abundance)
- animal displacement and sensitivity to displacement
- aesthetic degradation
- habitat availability and rarity
- sub-lethal effects, including sensitivity to physical or toxic effects of oil and hazardous substances, and long-term affects to habitat, species, or both
- threatened and endangered species, and/or other legal designation
- persistent concentration of oil or hazardous substances
- reproduction rate or recolonizing potential
- relative importance to ecosystem
- potential for physical contact with spill--pathway of oil or hazardous substances
- resource sensitivity to response measures
- cultural, historic, or archaeological resources

B. AREAS OF MAJOR CONCERN

- Shoreline Geomorphology - Coastal Habitat Types:
    - River deltas
    - Sheltered lagoons
    - Open lagoons
    - Salt marshes
    - Mud flats
    - Barrier islands
    - Spit beaches
    - Protected bays

- Lake and River Habitat Types:
    - Connected lakes
    - Freshwater springs
- Upland Habitat Types:
    - Riparian willow
- Ice Habitat Types:
    - Leads and polynyas
    - Pack and shore-fast ice edge
    - Lagoon ice area (Ikpek Lagoon, Arctic Lagoon, etc.)
- Threatened or Endangered Species Habitat:
    - Spectacled eider critical habitat
    - Polar bear critical habitat
    - Steller sea lion critical habitat
- Spotted Seal Haulout Areas (> 10 seals) and Feeding Areas
- Bearded Seal Haulout Areas and Feeding Areas
- Pacific Walrus Haulout Areas
- Polar Bear Denning and Feeding Areas
- Beluga Whale Concentration Areas and Feeding Areas
- Bowhead Whale Nearshore and Offshore Migration Routes
- Bowhead Whale General Distribution
- Other Whale Species (Gray, Minke, etc.) Habitat Concentration and Foraging Areas
- Caribou Calving and Insect Relief Areas
- Large Seabird Colonies (> 100 birds)
- Waterfowl and Shorebird Spring and Fall Concentration Areas
- Waterfowl and Shorebird Nesting or Molting Concentration Areas
- Important Bird Areas (Audubon)
- Anadromous Fish Spawning and Rearing Streams (i.e., salmon, Dolly Varden, whitefish)
- Herring Spawning Areas
- Land Management Designations:
    - Tribe: Native corporation land
    - Federal: Wilderness
      Wild and scenic rivers
      National natural landmarks
      National parks and preserves
      National monuments
      National wildlife refuges
      Public lands
      Native allotments and town sites
    - State: Refuges
      Sanctuaries
      Critical habitat areas
- Cultural Resources/Archaeological Sites:
    - National historic landmarks
    - Burial sites
    - National Register eligible village sites
    - Intertidal sites
- Subsistence Use Areas

- High Commercial Use Areas
- High Recreational Use Areas

C. AREAS OF MODERATE CONCERN

- Spotted Seal Haulout Areas (< 10 seals)
- Ringed Seal Shorefast Ice Concentration Areas
- Bearded Seal General Distribution
- Seabird Colonies (10 - 100 birds)
- Anadromous Fish Streams (rearing only)
- Grizzly Bear Concentration Areas (marine mammal/carcasses; salmon)
- Pacific Walrus Feeding Areas
- Polar Bear General Distribution
- Caribou Migration Routes
- Muskox Riparian Habitat
- Commercial Harvest Areas
- Recreational Use Areas
- Land Management Designations
    - State: State parks
- Cultural Resources/Archaeological Sites:
    - National Register eligible sites (Other than village sites)
    - Sites adjacent to shorelines
- Essential Fish Habitat (EFH)

D. AREAS OF LESSER CONCERN

- Upland Habitat Types:
    - Mesic/dry tussock tundra
    - Alpine tundra
- Gray Whale Nearshore Migration and Feeding Areas
- Walrus General Distribution
- Seabird Colonies (< 10 birds)
- Waterfowl and Shorebird General Distribution
- General Freshwater Fish Habitat
- Land Management Designations:
    - State: General public lands

E. AREAS OF LOCAL CONCERN

Some areas within the subarea warrant special attention due to the presence of highly productive wildlife habitat, ability to sustain a large part of a community's subsistence needs, occurrence of unusual historical sites or large mineral deposits, recreation, energy development, hazardous areas, or presence of important fisheries. These have been identified as Areas Meriting Special Attention, Important Use Areas, Special Use Areas, Sensitive Areas, or Subsistence Use Areas through the Bering Straits Coastal Resource Service Area, Northwest Arctic Borough, and City of Nome Coastal District Management Plans. Additional information was provided by the Alaska Maritime National Wildlife Refuge (NWR). Also, see Figures D-2 and D-3. On July 1, 2011, the federally-approved Alaska Coastal Management Program expired, resulting in a withdrawal from participation in the Coastal Zone Management Act's National Coastal Management Program. However, several of these plans were developed while the program was in effect, and habitat areas that warrant special attention were identified; they are summarized in the table below. **This information is presented without modification, except updates to Figures D-2 and D-3 for legibility reasons.**

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
1. St. Lawrence Island, Adjacent Islands, and Rocks	The area is habitat for 2.7 million seabirds and 100,000 walrus. Subsistence uses are: birds, bird eggs, walrus, polar bear, reindeer, Arctic fox, bowhead and other whales, seals, crab, fish, and plants. Sites identify early Siberian Yuit life. Steller sea lion haulouts are present.	Gambell and Savoonga
2. Little Diomede Island	Least and crested auklets are most of the 1.2 million birds here. Also habitat black-legged kittiwakes, thick-billed murres, walrus. Birds, bird eggs, native plants, walrus, seals, whales, fish, king crab are subsistence resources.	Native Corp. of Little Diomede (surface), and Bering Straits Native corp. (subsurface)
3. Stebbins Wetlands	134,000 shorebirds and waterfowl on non-aquatic areas, undetermined amount in ponds. Subsistence uses are for waterfowl and eggs. Remains of five circa 1900 marine vessels are in St. Michael Channel.	Native Corp. for the villages of St. Michael and Stebbins
4. Kwiniuk, Tubutulik, and Kwik River Drainages	Fish (salmon, Arctic char, whitefish, grayling), mammals (moose, bear, and beaver), and berries occur here. This is one of the important pink and silver salmon spawning rivers.	Native Corp. for the village of Elim (surface and subsurface estate) and federal
5. St. Michael Bay	The area is habitat for herring, and eelgrass beds provide food for birds, a nursery area for fish and crab, and a spawning area for herring. Subsistence uses: herring fishery, seals, salmon, and waterfowl. Commercial fishing occurs for herring and salmon. In 1833 St. Michael became the first European settlement in the region (historic cemeteries and buildings).	Native Corp. for the village of St. Michael (surface), The Bering Straits Native Corp. (subsurface)
6. Unalakleet River Drainage	The area provides subsistence uses for: fish (salmon, grayling, whitefish, Arctic char, smelt, and tomcod), mammals (moose, bear, caribou, and beaver), waterfowl, berries, plants, and timber. Commercial fishing occurs for the region's largest pink salmon run, king, silver and chum salmon. Historic Sites include: house pits at Old Unalakleet Village, a prehistoric village site, and sites in the river drainage. Recreation occurs at Unalakleet River Lodge. Besboro Island near Unalakleet is an important gull egg harvesting area and walrus haulout.	Native Corp. for the City of Unalakleet (surface), and Bering Straits Native Corp. (subsurface)
7. Koyuk River Drainage	The Koyuk River provides habitat for one of the region's largest moose population. Caribou winter here, and one of the region's few sheefish populations are located on the lower river. Wetlands south of the river are important for shorebird nesting, and support one of the greatest densities of waterfowl. The river from Kuzitrin Lake to Norton Bay is essential for harvest of fish (salmon, whitefish, smelt, grayling, Arctic char, and tomcod), mammals (moose, caribou, bear, and beaver) and waterfowl.	Native Corp. for the village of Kuyuk (surface), and Bering Straits Native Corp. (subsurface)

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
8. Lost River	Potential mining area for tin, tungsten, fluorite, and beryllium	Mining claims or Native Corp.
9. Island Point to Beeson Slough, including Cape Denbigh	Cape Denbigh has the largest seabird colony in eastern Norton Sound (common murres, pelagic cormorants, horned puffins). Subsistence uses include: fish (salmon and herring), shellfish (crab and clam), waterfowl, eggs, and berries. Cape Denbigh is an important archaeological site, and the oldest known settlement in the region, lyatayet is located here. Commercial fishing for herring is from May 15 to June 15, and salmon from June 8 to August 31. Murre eggs are harvested at Cape Denbigh.	Native Corp. for the village of Shaktoolik (surface), and the Bering Straits Native Corp. (subsurface)
10. Golovin Bay/ Lagoon and the Niukluk River Drainages	The Golovin Bay/Lagoon are important for herring, boreal and pond smelt; sand lance; humpback, broad, and round whitefish; Bering and least cisco; Arctic char; saffron cod; starry and Arctic flounder; and tubenose, Bering, and sturgeon poachers. The entire north shore of the Lagoon consists of oil-sensitive delta marsh with stands of sea grass. The Niukluk River drainages support moose, and birds. Villagers harvest fish (salmon and herring), shellfish (crab and clams), marine mammals (seals and beluga), kelp, and waterfowl. Several offshore mining permits were issued and are being examined to see if documented deposits exist. The Fish and Niukluk Rivers are moderately important salmon streams for commercial fishing. The Niukluk River has road access from Council and is one of the most important sport fishing areas for grayling, Arctic char, as well as pink, chum, and silver salmon. Also important moose hunting area for hunters from outside the state. Gull eggs are harvested in several areas of Golovin Bay, including Carolyn Island near its eastern entrance.	Native Corp. for the villages of Golovin, White Mountain, and Council (surface), the Bering Straits Native Corp. (subsurface), and the State
11. Rocky Point to Topkok Head	Marine waters are among the most productive in the world. There are large concentrations of sand lance, vital for fish-eating seabirds. The area contains the largest mainland seabird colonies in the region. Peregrine falcons, gyrfalcons, and rough-legged hawks nest on the cliffs. Herring spawn along rocky shores, and salmon, capelin, king crab, and several species of bottom fish are located along the coast. Historic Sites include: remaining house mounds and artifacts of several villages.	Native Corp. for the villages of Golovin and White Mountain (surface), Bering Straits Native Corp. (subsurface), and federal
12. Safety Sound	The shore is composed of extensive marshes; tideflats; and seagrasss beds, and supports large flocks of nesting and feeding waterfowl and shorebirds. A channel	Native Corp. for the village of Solomon and the City of Nome

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
	from Safety Sound to Bonanza River hosts geese, cranes, and ducks (especially in August and September). Subsistence uses are: Seals, moose, waterfowl, bird eggs, and fish. Mining occurs in the upper Eldorado River drainage and along the Salmon River drainage. There are numerous unexcavated archaeological sites in the area.	(surface), Bering Straits Native Corp. (subsurface), and the State
13. Nome River Drainage	Biologists have documented 17 species of fish in the river. The lower 30 miles of the river provide spawning for four salmon species, and the best spawning beds are located below "13 Mile Bridge", Waterfowl, moose, rabbit, ptarmigan, and three seal species (bearded, ringed, and spotted) also frequent here. From Fort Davis Bridge to the mouth of the river is important for sport fishing. Moose and bear along the river are also hunted.	Native Corp. for the City of Nome (surface), Bering Straits Native Corp. (subsurface), private, and holders of mining claims
14. McCarthy's Marsh	The area is waterfowl and shorebird habitat. Subsistence uses include: waterfowl, moose, bear, and caribou.	Federal (Bureau of Land Management)
15. Cape Woolley	Waterfowl and shorebirds use Woolley Lagoon. Subsistence uses include: fishing at the mouth of the Feather River, hunting waterfowl along lagoon and in surrounding wetlands, and hunting of walrus and seals along the coast.	Native Corp. for the community of King Island (surface), and Bering Straits Native Corp. (subsurface)
16. Kuzitrin River Drainage and Associated Wetlands	Wetlands in southwest corner of Bering Land Bridge National Preserve are important for waterfowl and shorebirds, and the drainage is considered one of the region's most important moose habitats.	Native Corp. for the community of Mary's Igloo (surface), Bering Straits Native Corp. (subsurface), and federal
17. Brevig Lagoon	Subsistence harvest includes waterfowl, herring, salmon, and gull eggs. Extensive sheltered marshes and tide flats are important molting areas for oldsquaws.	Native Corp. for the village of Brevig Mission (surface), and Bering Straits Native Corp. (subsurface)
18. Agiapuk River Drainage	Moose, waterfowl, salmon, and grayling are harvested for subsistence uses.	Native Corp. for the villages of Brevig Mission and Teller (surface), Bering Straits Native Corp. (subsurface), and federal and state
19. Grantley Harbor, Imuruk Basin, and Tuksuk Channel	One of the region's most productive marine fish habitats. Imuruk Basin supports large numbers of nesting waterfowl. Extensive sea grass lines Grantley Harbor providing feeding and rearing for fish and diving ducks. Herring, salmon, Arctic char, smelt, whitefish, tomcod, marine mammals, and waterfowl eggs are	Native Corp. for the villages of Brevig Mission, Teller, and Mary's Igloo (surface), Bering Straits Native Corp. (subsurface), federal

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
	harvested for subsistence use.	and state
20. Pilgrim River and Salmon Lake	The region's only known sockeye (red) salmon and the northernmost run in the state occurs here. This is an important moose hunting area due to easy access along the Kougarok-Nome road and high populations. 800 acres of land are proposed for disposal for seasonal and recreational home sites. Geothermal Development and Recreation: Pilgrim Hot Springs has geothermal and recreational development potential.	Native Corp. for the village of Mary's Igloo (surface), Bering Straits Native Corp. (surface and subsurface), and state and federal
21. Lopp Lagoon/ Cape Prince of Wales	Cape Prince of Wales coast consists of rocky, mostly barren, steep terrain. Lopp Lagoon is one of the primary waterfowl and shorebird nesting areas in the region. Wales residents harvest crab, salmon, beluga whale, bowhead whale, walrus, seal, and polar bear in offshore areas. They harvest shellfish from the beach; and salmon, waterfowl, moose, muskox, and berries in the lagoon area.	Native Corp. for the village of Wales (surface), Bering Straits Native Corp. (subsurface), and state and federal
22. Ikpek Lagoon and Nukluk, Pinguk, Kaguerak, and Kugrupaga Drainages	The drainages are important for migratory shorebird and waterfowl resting and feeding. Subsistence uses include hunting for waterfowl and moose, and fishing for salmon.	State and federal
23. Arctic River Drainage	Important waterfowl and salmon harvest area. Wetlands in the lower part of the drainage are important waterfowl and shorebird habitat. Ten placer mining sites and one lode mine are located in the upper reaches of the watershed. Ear mountain may contain major mineral deposits.	Native Corp. for the village of Shishmaref (surface), Bering Straits Native Corp. (subsurface), and state and federal
24. Serpentine River Drainage	One of the most important moose habitats in the region. The river supports salmon, Arctic char, and grayling, and wetlands provide habitat for waterfowl and shorebirds. Serpentine Hot Springs is a traditional historic site and a contemporary spiritual site.	Native Corp. for the village of Shishmaref (surface), Bering Straits Native Corp. (subsurface), and federal
25. Moonlight Springs Watershed	Principal water supply for the city of Nome.	Sitnasuak Native Corp.
26. Sisoalik Spit	Important feeding and staging for waterfowl in spring and shorebirds in summer. The lagoon is a rearing place for sheefish. Whitefish and herring also rear near the spit. Whales and seals are found near here. The area is a fall caribou migration route. Traditional subsistence camps are here during summer.	Maniilaq Association NANA Regional Corporation
27. Cape	The area is used by waterfowl during fall migration. Gulls and terns nest here and	National Park Service

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
Krusenstern	shorebirds use the coastal lagoons during the summer. Whitefish and herring are found in the lagoon. Seals use the barrier island beach and whales migrate in nearshore waters. The area hosts subsistence use of seals and belukha whales.	
28. Kobuk/Selawik Lakes	Gulls and waterfowl are found in the area. It is important fish rearing habitat for salmon, sheefish, whitefish, char and pike. Herring also spawn here. Subsistence use is year-round.	NANA Regional Corporation Northwest Arctic Borough U.S. Fish and Wildlife Service
29. Cape Espenberg and Goodhope River	Seal haulouts and nesting gulls and waterfowl are present in this area. Seals, birds, and bird eggs are also harvested in this area for subsistence use.	NANA Regional Corporation
30. Kobuk River Delta	The sloughs and ponds of the Delta are important habitat for waterfowl. This is a major staging area. Sheefish, salmon and char also inhabit the Delta. Burbot and grayling are also abundant. Subsistence use area.	NANA Regional Corporation
31. Selawik River Delta	This is a major waterfowl use area, and is used heavily for fall migration staging. Sheefish, whitefish, char, grayling and burbot inhabit the waters of the Delta. Caribou migrate through here in the fall. Subsistence use area.	NANA Regional Corporation U.S. Fish and Wildlife Service
32. Salmon River	The lower reaches of the river are used by waterfowl for nesting. Chum salmon and Arctic char spawn in the river. Caribou migrate through the area in the fall and spring. Lower reaches provide winter habitat for moose.	
33. Upper Selawik, Hunt, Redstone Rivers	Nesting waterfowl are found in the area. Arctic char and grayling are present. Chum salmon spawn in the lower Hunt and Ambler Rivers. The Hunt and Redstone River valleys are a major caribou spring and fall migration corridor. The upper Selawik is also a caribou migration area.	NANA Regional Corporation U.S. Fish and Wildlife Service
34. Maniilaq River and Ambler Lowlands	A subsistence use area for caribou, moose, waterfowl, and furbearers. A caribou migration area and black and grizzly bear habitat.	NANA Regional Corporation Northwest Arctic Borough
35. Inmachuk River	Subsistence uses include: fishing moose, and trapping. The wetlands support waterfowl. There are historic sites here. The area also has musk ox and bear.	NANA Regional Corporation Northwest Arctic Borough State of Alaska
36. Lower Buckland River	The area supports waterfowl and seal hunting, and berry picking. Moose and waterfowl are hunted here. Salmon and other fish are in the river. Historic sites are present. Subsistence use area.	NANA Regional Corporation
37. North Fork Squirrel River/Omar	Waterfowl hunting, winter trapping and fishing occur here. Caribou migrate through, moose overwinter, and salmon spawn here. Historic sites are present.	Northwest Arctic Borough State of Alaska

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
River	Subsistence use area.	Bureau of Land Management
38. North Kivalina Coast	Subsistence uses are: hunting for seals, walrus, belukha and bowhead whales; berry picking; fishing; and moose hunting. Waterfowl stage here, arctic terns nest, and fish spawn and overwinter here. Historic sites are present.	NANA Regional Corporation Northwest Arctic Borough
39. Onion Portage	An important waterfowl use and fish spawning area. Moose overwinter here. Grizzly bears and migrating caribou use the area. Because it is a focal point for migrating caribou, this is a high use subsistence area.	NANA Regional Corporation National Park Service
40. Eschscholtz Bay	Migrating waterfowl use the area in the spring. The Bay provides calving and feeding habitat for belukha whales. The area contains herring, cod and salmon. Seals haulout at Chamisso Island, and are common in the summer and fall. Subsistence use area.	NANA Regional Corporation
41. Elephant Point, Choris Peninsula	There is an Arctic Tern colony here. Thousands of seabirds use the area for nesting. Spotted seals haul-out here. Belukha whales are subsistence hunted in the area during the spring and early summer. Subsistence use area.	NANA Regional Corporation
42. Kobuk River	The river supports a large number of sheefish, who spawn between the Ambler and Selby Rivers in the fall. Arctic char and whitefish also spawn in the river, as do a large number of chum salmon. Subsistence use area.	NANA Regional Corporation Northwest Arctic Borough
43. Selawik River	The 10 miles below Ingraksuksuk Creek is a major area for spawning sheefish. Whitefish also spawn here.	NANA Regional Corporation U.S. Fish and Wildlife Service
44. Wulik River	Arctic char spawn and overwinter here. Small populations of salmon are also present. Subsistence use area.	NANA Regional Corporation Northwest Arctic Borough State of Alaska
45. Noatak River	This river supports the NANA region's largest salmon run. Chum salmon spawn in the lower 200 miles of the river, especially concentrated between the Eli and Kelly Rivers. In addition, pink salmon, Arctic char, and sheefish are present. A large number of gulls nest in this area and their eggs are harvested for subsistence use by the people of Noatak and Kotzebue.	NANA Regional Corporation Northwest Arctic Borough Maniilaq Association
46. Upper Kivalina River	A spawning area for chum and pink salmon and Dolly Varden. Overwintering for fish. Winter habitat for moose and caribou. Subsistence uses: fish, caribou and moose. Subsistence use area.	NANA Regional Corporation

An August 2000 federal/state joint survey of Native Tribes in the subarea yielded additional information about sensitive areas near villages, as viewed from the local perspective. The Tribes responding to the survey and the top five sites of concern (and the reason for their importance) are presented below.

Native Village of Brevig Mission

Grantley Harbor	Natural resources
Imurak Basin	Natural resources
Shelman Creek	Drinking water source
Port Clarence	Salmon migration
Bering Sea	Marine mammal migration

Native Village of Diomede

The beach	Boat dock and meat storage
Tank farm	Fuel source
Village site	People live there
Surrounding waters	Where they hunt and fish

Native Village of Koyuk

Koyuk River	Fish and mammals
Norton Bay	
Homes	Where people live

Native Village of Noatak

Noatak River	Subsistence
Noatak school	Education
Noatak clinic	Health
Noatak store	Groceries
Noatak airport	Transportation

Noorvik Native Community

Elementary and High Schools and other public/residential areas where children are

Native Village of Shungnak

The river and tributaries	Drinking water source

Stebbins Community Association

Stuart Island	Traditional fishing and wildlife gathering
Romanof to Cape Stevens coast	Traditional fishing and wildlife gathering
Romanof to Cape Stevens tundra	Traditional fishing and wildlife gathering
St. Michael Island system	Traditional fishing and wildlife gathering
Village of Stebbins	Where people live

Native Village of Wales

Village Creek	Traditional water source
Bering Strait	subsistence hunting and fishing
School grounds	Students, children, employees
New clinic grounds	Health aides, patients
Village store grounds	Groceries, fuels

Native Village of White Mountain

White Mountain River	Subsistence food and transportation
School	Children/education
Clinic	Health
Store	Food, etc.
City office	Provides electricity and running water

Figure D-2. Areas of local concern (numbers correspond to descriptions on pages D-11 through D-16).

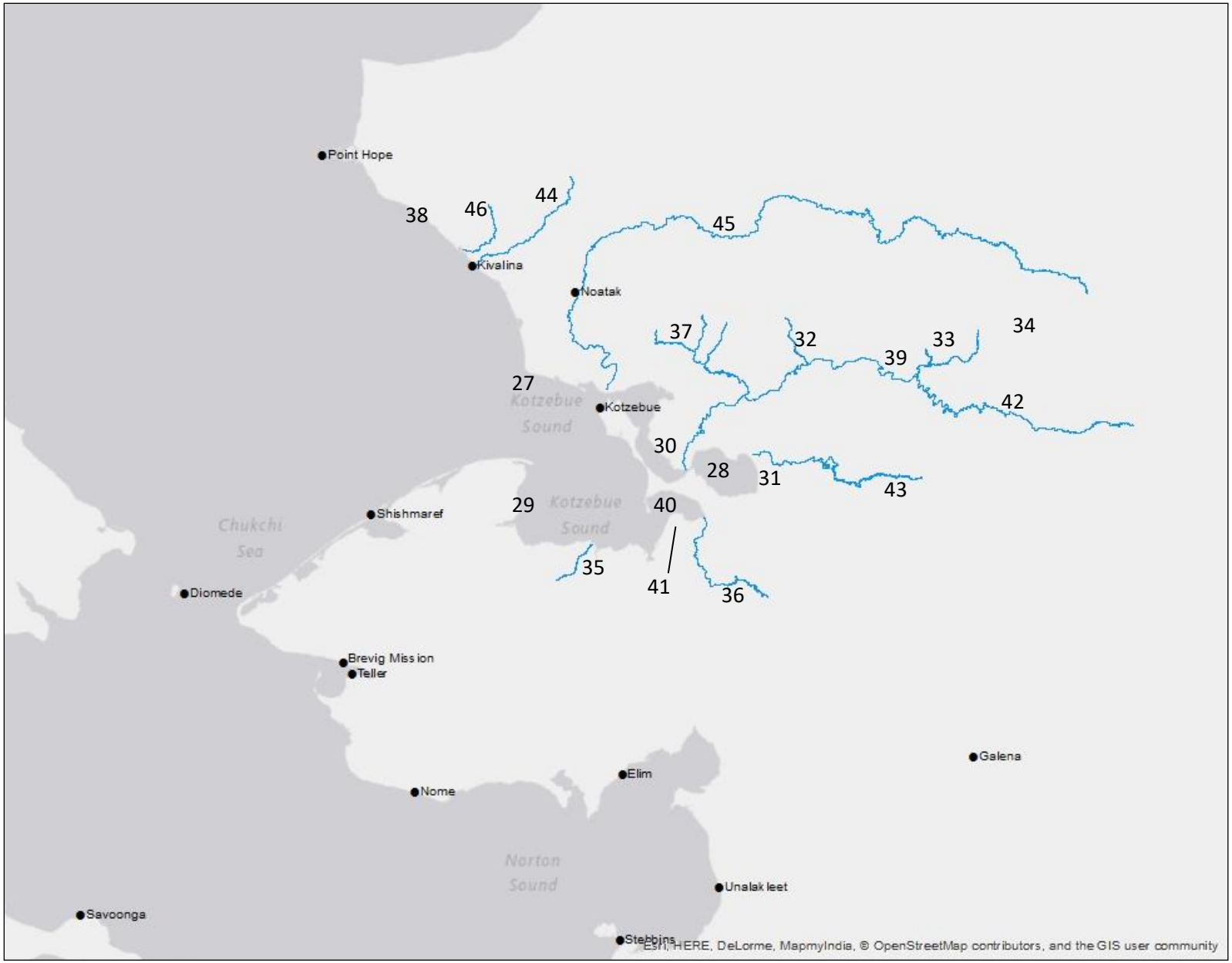


Figure D-3. Areas of local concern continued (numbers correspond to descriptions on pages D-11 through D-16).

SENSITIVE AREAS: PART THREE – RESOURCE SENSITIVITY

The following sensitivity tables were developed by the State and Federal Natural Resources Trustees with legislative responsibility for management and protection of these resources. This includes the following agencies: NMFS, USFWS, National Park Service (NPS), Bureau of Land Management (BLM), Alaska Department of Fish and Game (ADF&G), and Alaska Department of Natural Resources (ADNR). This information is a summary derived from recent field studies, research reports, long-term monitoring, stakeholder input, and local knowledge. Periods and/or conditions when resources are of varying levels of concern (low, medium, high) with respect to affects from an oil spill are noted in the following tables. Within the tables, Kotzebue Sound or Chukchi Sea refers to those areas and communities north of Little Diomede Island and Wales. Little Diomede Island, Wales, and all points south (excluding St. Lawrence Island) are included in the Norton Sound category.

SHORELINE GEOMORPHOLOGY

CATEGORY	LOW	MEDIUM	HIGH
COASTAL HABITAT TYPES	Fine-grained sand beaches Exposed wave-cut platforms Exposed rocky shores	Gravel beaches Mixed sand & gravel beaches Exposed tidal flats Coarse grained sand beaches Riprap structures	Marshes Sheltered tidal flats Sheltered rocky flats Peat shorelines Inundated low lying tundra Scrub-shrub wetlands Sheltered vegetated low banks
LAKE AND RIVER HABITAT TYPES	Exposed rocky cliffs & banks Bedrock shores & ledges, rocky shoals Eroding scarps/bank in unconsolidated sediment Exposed man-made structures	Sand beaches & bars Mixed sand & gravel beaches/bars Gravel beaches/bars Gently sloping banks Exposed flats Riprap	Sheltered scarps in bedrock Vegetated steep sloping bluffs Sheltered man-made structures Vegetated low banks Sheltered sand & mud & muddy substrates Marshes
UPLAND HABITAT TYPES	Alpine tundra Mesic/dry tussock Tundra	Low shrub vegetation Dwarf shrub mat and cushion tundra	Riparian willow

THREATENED OR ENDANGERED SPECIES[1]

CATEGORY	LOW	MEDIUM	HIGH
ENDANGERED SPECIES			**Cetaceans**: Western North Pacific DPS humpback, bowhead, fin, North Pacific right, **Pinnipeds**: Western DPS Steller sea lion **Birds**: Short-tailed albatross
THREATENED SPECIES			**Cetaceans**: Mexico DPS humpback whale **Pinnipeds**[2]: bearded seal **Birds**: Spectacled eider, Steller's eider **Mammals**: Polar bear
SPECIES OF GREATEST CONSERVATION NEED[3]			

[1] The Pacific Walrus is currently listed as a candidate species under the ESA. The USFWS is under a court-ordered deadline of September 30, 2017 to make a decision whether or not to list the Pacific Walrus (as threatened or endangered) under the ESA. Information about this decision will be available at https://www.fws.gov/alaska/fisheries/mmm/walrus/esa.htm.

[2] Ringed seals were ESA-listed as threatened in 2012. On March 11, 2016, the U.S. District Court for the District of Alaska issued a memorandum decision in a lawsuit challenging the listing of ringed seals under the ESA (Alaska Oil and Gas Association, et al. v. National Marine Fisheries Service, et al., Case No. 4:14-cv-00029-RRB). The decision vacated NMFS's listing of the Arctic subspecies of ringed seals as a threatened species. NMFS is appealing that decision. Information about this decision can be found at https://alaskafisheries.noaa.gov/pr/ice-seals.

[3] ADF&G's 2015 Alaska Wildlife Action Plan is for managing fish and wildlife species and their habitats to help prevent listings under the ESA. Appendix B of this plan includes a list of the Distribution of Species of Greatest Conservation Need in Alaska by Bioregion (http://www.adfg.alaska.gov/index.cfm?adfg=species.wapview).

RINGED SEALS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE		pack ice	shorefast ice
SUSCEPTIBILITY		year-round	
HUMAN HARVEST	Jun 15 - Oct 1 (St. Lawrence Is.)	Nov 1 - Dec 10 Jul 1 - Sept 1 (Chukchi Sea) Jun 1 - Sept 1 (Norton Sound)	Oct 1 - Jun 15 (St. Lawrence Is.) Sept 1 - Nov 1 Dec 10 - June 30 (Chukchi Sea) Sept 1 - Jun 1 (Norton Sound)

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Nearshore concentrations in shorefast ice	■	■	■	■	■	■				■	■	■
Pupping and Weaning												
Molting						■	■					
Present in area	■	■	■	■	■	■	■	■	■	■	■	■

BEARDED SEALS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE			ice-edge
SUSCEPTIBILITY		year-round	
HUMAN HARVEST	May 1 - Sept 1 (Chukchi Sea) (Norton Sound)	Dec 1 - Dec 31 (Norton Sound)	Sept 1 - Jul 1 (Chukchi Sea) Sept 1 - Dec 1 Jan 1 - Jul 1 (Norton Sound) year-round (St. Lawrence Is.)

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Molting						■						
Pupping				■	■							
Present in Bering Sea	■	■	■	■	■	■	■	■	■	■	■	■
Present in Chukchi Sea	■	■	■	■	■	■	■	■	■	■	■	■

SPOTTED SEALS

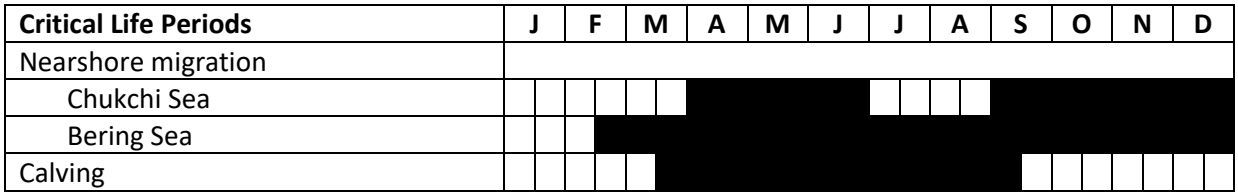
CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE (ON HAULOUTS)[1]	< 10	10 – 100	> 100
SUSCEPTIBILITY		year-round	
HUMAN HARVEST			May 1 – Nov 30 (Chukchi Sea) Apr 1 – Dec 1 (Norton Sound) Jun 1 – Dec 30 (St. Lawrence Is.)

[1] Large known concentrations of spotted seals haulout along the south side of St. Lawrence Island from April to December, and at Cape Woolley, Port Clarence, and Cape Espenberg from June to November.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Coastal haulouts/concentration areas												
Chukchi Sea								■	■	■	■	
Bering Sea							■	■	■	■	■	■
St. Lawrence Island				■	■	■	■	■	■	■	■	■
Pupping					■	■						
Molting				■	■							

BOWHEAD WHALES

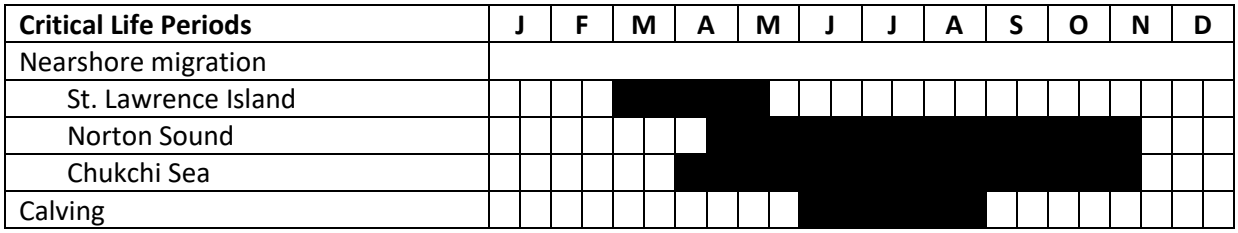
CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY	Dec 1 - Mar 20 (Chukchi Sea) Dec 1 - Mar 1	Sept 1 - Nov 30 (Chukchi Sea) Sept 1 - Nov 30 (Bering Sea)	Mar 20 - June 30 (Chukchi Sea) Mar 1 - May 30 (Bering Sea)
HUMAN HARVEST	June 20 - Mar 15 (Chukchi Sea) June 15 - Jan 15 (Bering Sea)	Mar 15 - Apr 15; June 10 - 20 (Chukchi Sea)	Apr 15 - Jun 10 (Chukchi Sea) Jan 15 - Jun 15 (Bering Sea) Apr 1 - May 30 (St. Lawrence Is.)



BELUGA WHALES

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE[2]	< 10	10 - 50	> 50
SUSCEPTIBILITY	Nov 15 – Mar 31		Apr 1 - Nov 15
HUMAN HARVEST		Apr 1 - May 30; Aug 1 - Aug 30 (Chukchi Sea)	Jun 1 - Jul 30 (Chukchi Sea) Apr 15 - Nov 15 (Norton Sound) Apr 1 - May 30 (St. Lawrence Is.)

[2] Concentrations of beluga whales occur in Kotzebue Sound (Sisualik Spit and Eschscholtz Bay) from mid-June to mid-August. Golovin Bay (June to November) and Norton Bay (May and June) are areas where beluga whales are particularly abundant.



GRAY WHALES

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	Jun 1 - Jul 31; Oct 1 - Oct 31 (Chukchi Sea) Dec 1 - Apr 30 (Bering Sea)	Aug 1 - Sept 30 (Chukchi Sea) May 1 - Nov 30 (Bering Sea)	
SUSCEPTIBILITY		When Present	
HUMAN HARVEST			Apr 15 - Nov 10 (St. Lawrence Is.)

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Nearshore migration and feeding												
Chukchi Sea						■	■	■	■	■		
Bering Sea					■	■	■	■	■	■	■	

PACIFIC WALRUS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	open water (no ice present)	Near-shore waters	Pack ice edge, leads and polynyas; haulouts
SUSCEPTIBILITY	year-round	year-round	year-round
HUMAN HARVEST	Dec – Apr (Chukchi Sea) Nov (Norton Sound) July - Oct (St. Lawrence Is.)	May, Oct –Nov (Chukchi Sea) Aug (Norton Sound) Nov – Mar (St. Lawrence Is.)	June – Sept (Chukchi Sea) May - June, Sept – Oct (Norton Sound) Mar – June (St. Lawrence Is.)

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Present on haulouts or in nearshore waters												
St. Lawrence Island	■	■	■	■	■	■					■	■
Norton Sound					■	■			■	■		

BROWN BEARS/BLACK BEARS

CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY	Nov 1 – Oct 1	Oct 30 – Jun 30	Jul 1 – Sept 30
HUMAN HARVEST		Aug 1 – Oct 31 Apr 15 – May 31	

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Denning	■	■	■	■						■	■	■
Concentration associated with:												
Mammalian food sources					■	■	■	■	■			
Salmon streams							■	■	■			

POLAR BEARS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	Open water (with no ice present), inland areas	Shoreline and shore-fast ice	Pack ice edge, shear zone, leads and polynyas, barrier islands
SUSCEPTIBILITY	year-round	fall, winter, spring	year-round
HUMAN HARVEST	July - Oct (Chukchi Sea) Aug - Sept (Norton Sound) Aug - Oct (St. Lawrence Is.)	June (Chukchi Sea) July, Oct (Norton Sound) June - July, Nov (St. Lawrence Is.)	Nov - May (Chukchi Sea) Nov - Jun (Norton Sound) Dec - May (St. Lawrence Is.)

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Denning of pregnant females	■	■	■	■	■						■	■
Along or on the coastline	■	■	■	■								■

CARIBOU

CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY	Nov 1 - May 15		May 15 - Oct 31
HUMAN HARVEST		Year round	Aug 15 - Sep 30

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Calving period					■							
Insect relief habitat							■	■	■			

MUSKOXEN

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	One population is found northwest of the Kobuk River drainage and the second larger population has expanded over much of the Seward Peninsula.		
SUSCEPTIBILITY	Year-round		
HUMAN HARVEST	Aug 1 - Mar 15		

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Calving					■	■						

WATERFOWL (including SEADUCKS) AND SHOREBIRDS

CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY[4]	Nov 1 - Apr 1	Apr 1 - May 1	May 15 – Nov 1 (Chukchi Sea) (Norton Sound) Jan 1 – Dec 31 (St. Lawrence Is.)
HUMAN HARVEST[5]		Nov 1 – Apr 1	Apr 15 – June 14; July 16 – Aug 31 (Stebbins/St. Michael Area) Apr 2 – June 14; July 16 – Aug 31 (Bering Strait/Norton Sound Region) Apr 2 – June 14; July 16 – Aug 31 (Northwest Arctic Region - Kotzebue Sound/Buckland[5,6])

[4] Wintering concentrations of waterfowl occur along the south shores of St. Lawrence Island and some sea ducks may winter in leads in the ice.

[5] Waterfowl eggs are harvested from May 20 through June 14.

[6] Molting and non-nesting waterfowl may be harvested in the Northwest Arctic Region from July 1 through July 15.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Arrival/Nesting/brood rearing			■	■	■	■	■	■				
Molting/feeding concentrations							■	■	■			
Fall migration								■	■	■		

SEABIRDS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 10	10 - 100	> 100
SUSCEPTIBILITY[7]	Nov 1 - Jan 31	Feb 1 – Mar 31	Apr 1 - Nov 1
SPECIES DIVERSITY	1 – 3	4 - 6	> 6
HUMAN HARVEST[8]		Nov 1 – Apr 1	Apr 15 – June 14; July 16 –Aug 31 (Stebbins/St. Michael Area) Apr 2 – July 19; Aug 21 – Aug 31 (Bering Strait/Norton Sound Region) Apr 2 – June 14; July 16 – Aug 31 (Northwest Arctic Region - Kotzebue Sound/Buckland)

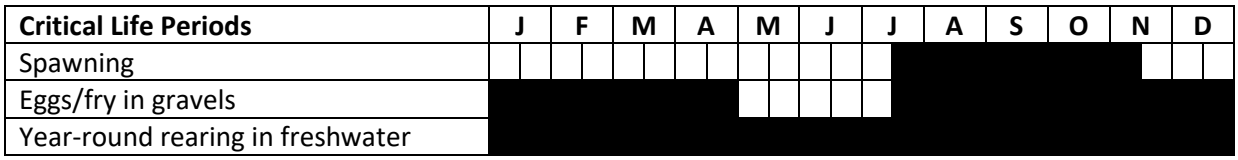
[7] Some seabirds may winter in leads in the ice.

[8] Seabird eggs are harvested from May 20 through July 12.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
At breeding colonies							■	■	■	■		
Feeding near colonies							■	■	■	■		

SALMON (pink, chum, coho, sockeye, and Chinook)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	All anadromous fish streams are important, thus of high priority.		
SUSCEPTIBILITY	Jun 15 – Jul 15		Jul 15 - Jun 15
HUMAN HARVEST			Jun 15 - Oct 30 (Kotzebue Sound) Jun 1 - Oct 30 (Norton Sound)

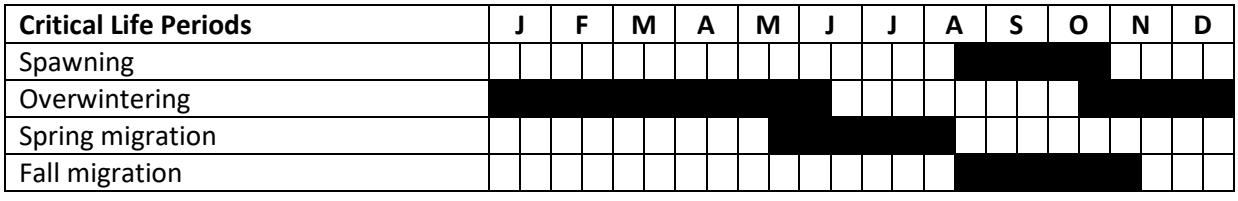


DOLLY VARDEN

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	All anadromous fish streams are important, thus of high priority.		
SUSCEPTIBILITY		Jun 1 - Sept 15	Sept 15 - Jun 1
HUMAN HARVEST	Nov 15 - Feb 1		Feb 1 - Nov 15

ANADROMOUS WHITEFISH

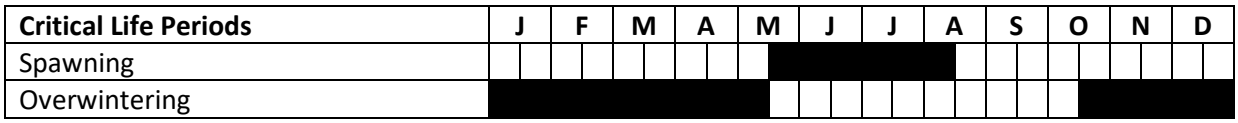
CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	Limited data is currently available on fish populations within northwest area streams.		
SUSCEPTIBILITY		June 1 - Sept 15	Sept 15 - June 1
HUMAN HARVEST			Aug 1 - Nov 15



HERRING

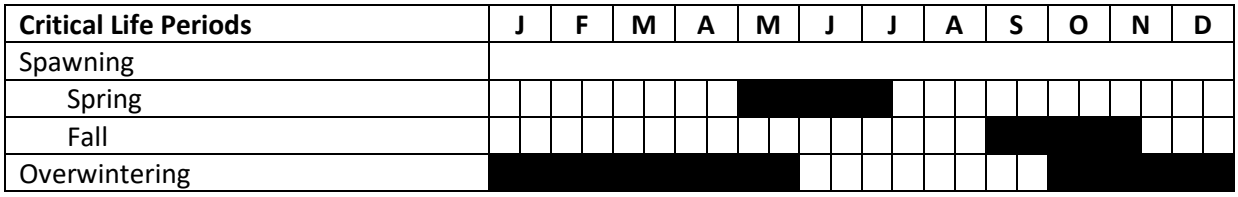
CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY		Oct 15 - May 20[9]	May 20 - Aug 30 (Chukchi Sea) May 1 - Aug 30 (Norton Sound)
HUMAN HARVEST		July 1 - Sept 30	May 1 - June 30

[9] Overwintering by some herring occurs in brackish lagoons, estuaries and bays of the Northwest area.



FRESHWATER FISH

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	Limited data is currently available on fish populations in northwest area streams.		
SUSCEPTIBILITY		Jun 1 - Oct 1	Oct 1 - Jun 1
HUMAN HARVEST	Dec 1 - May 30	June 1 - Dec 1	



LAND MANAGEMENT DESIGNATIONS

CATEGORY	LOW	MEDIUM	HIGH
FEDERAL LANDS	Public Land	National Parks National Monuments Wildlife Refuges	Wild & Scenic Rivers Wilderness Areas National Natural Landmarks
STATE LANDS	Public Land10	State Parks	Critical Habitats & Refuges

[10] Includes submerged lands out to 3 miles and historic bays and inlets.

CULTURAL RESOURCES/ARCHAEOLOGICAL SITES

CATEGORY	LOW	MEDIUM	HIGH
CULTURAL AND ARCHAEOLOGICAL SITES	Cultural resources that do not meet National Register criteria	National Register eligible sites (excluding village sites) Sites adjacent to shorelines	National Historical Landmarks National Natural Landmarks Burial sites National Register eligible village sites Intertidal sites

HUMAN USE AREAS

CATEGORY	LOW	MEDIUM	HIGH
NON-CONSUMPTIVE USES	Chicago Creek, Sinuk River,	Lost River Area, Salmon Lake	Pilgrim Hot Springs, Serpentine Hot Springs, Golovnin Bay/Lagoon, Nome River, Sinuk River
UNIQUE FISHING SITES	Lakes and rivers not directly connected to shoreline	Agiagpuk River, Imuruk Basin, Nuluk River, Pignuk River	St.Michael Bay, Unalakleet River Drainage, Island Point to Beeson Slough, Kwiniuk, Golovnin Bay, Stebbins Pass, mouth of the Nome and Snake Rivers
SEABIRD EGG HARVESTING SITES			Bluff, cliff sites along St. Lawrence Island, Stobie Rocks, Stuart Island, Besboro Island, Cape Denbigh, Carolyn Island, Bluff, Sledge Island, Safety Sound, Sinuk River Delta, Big and Little Diomede Islands,King Island, and the Cape Riley – Port Clarence and Brevig Mission vicinity, Cape Espenberg and Buckland wetlands, and Cape Deceit, Puffin Island, and the Noatak River Delta in Kotzebue Sound

SUBSISTENCE HARVEST AREAS

Refer to Part 4: Section D.4 for information regarding current subsistence harvest areas.

SENSITIVE AREAS: PART FOUR – BIOLOGICAL AND HUMAN USE RESOURCES

A. INTRODUCTION

The background information contained in this section is a mixture of references to readily available documents, knowledgeable contacts, and data not readily available elsewhere. Non-government-generated references that have had agency input and review are incorporated by reference.

In January 2010, Audubon Alaska, in cooperation with Oceana, published the *Arctic Marine Synthesis Atlas of the Chukchi and Beaufort Seas*. The atlas has a discussion of the synthesis of various data sources in to summary Geographic Information System (GIS) maps, and discusses data gaps. Below is a list of maps in the atlas. The atlas may be found at http://ak.audubon.org/arctic-marine-synthesis-atlas-chukchi-and-beaufort-seas.

PHYSICAL OCEANOGRAPHY
1. Project Area
2. Bathymetry
3. Ecoregions
4. Ocean Circulation
5. Sea Ice Dynamics
6. Sea Floor Substrate
7. Sea Surface Temperature
8. Observed Climate Change

WATER COLUMN AND BENTHIC LIFE
9. Chlorophyll-a
10. Net Primary Productivity
11. Zooplankton
12. Benthic Biomass
13. Opilio Crab

FISH
Oceanodromous
14. Capelin
15. Pacific Herring
16. Saffron Cod

Anadromous
17. Pink Salmon
18. Chum Salmon

BIRDS
Audubon Alaska WatchList
19. Yellow-billed Loon
20. Red-throated Loon
21. Spectacled Eider
22. Steller's Eider
23. King Eider
24. Common Eider
25. Long-tailed Duck
26. Ivory Gull
27. Kittlitz's Murrelet

Other Species
28. Northern Fulmar
29. Short-tailed Shearwater

Concentration Areas
30. Seabird Colonies
31. Important Bird Areas

MAMMALS
Terrestrial/Marine
32. Polar Bear
33. Arctic Fox

Pinnepeds
34. Pacific Walrus
35. Ribbon Seal
36. Spotted Seal
37. Ringed Seal
38. Bearded Seal

Cetaceans
39. Bowhead Whale
40. Beluga Whale
41. Gray Whale

PEOPLE
42. Energy Development and Protected Areas
43. Human Impact
44. Predicted Climate Change

In September 2011, Audubon Alaska published the *Place-based Summary of the Arctic Marine Synthesis Atlas of the Chukchi and Beaufort Seas*. This document provides two-page fact sheets summarizing synthesis information for the following places within the subarea and may be located at http://ak.audubon.org/sites/default/files/documents/place-based_summary_of_the_arctic_marine_synthesis_final.pdf.

St. Lawrence Island--Bering Sea US, Russia
Chirikov Basin--Bering Sea US, Russia
Norton Sound--Bering Sea US
Southeastern Chukotka Peninsula--Bering Sea Russia*
Bering Strait--Bering Sea, Chukchi Sea US, Russia
Diomede Islands--Bering Sea, Chukchi Sea US, Russia
Seward Peninsula--Bering Sea, Chukchi Sea US
Kotzebue Sound--Chukchi Sea US
Hope Basin--Chukchi Sea US, Russia
Northern Chukotka Peninsula--Chukchi Sea Russia*
Wrangel & Herald Islands--Chukchi Sea Russia*
Herald Shoal--Chukchi Sea Russia, US*
Cape Thompson & Cape Lisburne Chukchi Sea US

* pending

Several interactive mappers or reports are available with information on biological and human use resources that can be accessed for information during a spill response:

- Arctic ERMA – developed by NOAA and the University of New Hampshire with the EPA, U.S. Coast Guard, and DOI
  - http://response.restoration.noaa.gov/maps-and-spatial-data/environmental-response-management-application-erma/arctic-erma.html
- Prevention and Emergency Response – created by the Alaska Department of Environmental Conservation's (ADEC) Prevention, Preparedness, and Response Program
  - http://www.arcgis.com/home/item.html?id=ed7027b903bc4c79a4e35461cdf1d6b2
- Exchange for Local Observations and Knowledge of the Arctic (ELOKA) – a considerable amount of information that has been compiled in one place, including topics such as wildlife, habitat use, environmental changes, sea ice, and subsistence use
  - https://eloka-arctic.org/dataproducts
- Northwest Arctic Borough – interactive mappers for Subsistence and Important Ecological Areas
  - https://www.nwabor.org/subsistence-mapping-program/
- Bering Strait Response Teaching Tool – A web mapping portal developed by Defenders of Wildlife and Axiom Data Science that aggregates data from ocean waters in Norton Sound, the Bering Strait, and Kotzebue Sound
  - http://bsrtt.defenders.org/

B. HABITAT TYPES

Shoreline habitats have been defined and ranked according to Environmental Sensitivity Index (ESI) standards produced by the NOAA in *Environmental Sensitivity Index Guidelines* (October 1997). Seasonal ESI maps in poster and atlas formats have been produced for the subarea. These maps are available on the internet at: http://www.asgdc.state.ak.us/maps/cplans/subareas.html. Updated ESI information can also be found on the internet at http://response.restoration.noaa.gov/maps-and-

spatial-data/environmental-sensitivity-index-esi-maps.html.

1. *Benthic Habitats*

Oil vulnerability is lower in benthic areas than in the intertidal zone since contamination by floating slicks is less likely. However, the fate of spilled oil has been found to directly affect the water column and benthos. The vertical transport of marine oil snow (flocculation, sedimentation, accumulation) of surface spills could affect the benthos through contamination of benthic habitats. Benthic habitats include submerged aquatic vegetation beds, large beds of kelp, worm reefs, coral reefs, etc. Sensitivity is derived from the species which use the habitat. Benthic habitats have not been traditionally classed by ESI rankings, but are treated more like living resources which vary with season and location.

2. *Shoreline Habitats*

Habitats (estuarine, large lacustrine and riverine) ranked from least to most sensitive (see the following table) are described below:

ESI #1 – 1A. Exposed Rocky Shores. 1B. Exposed, Solid Man-Made Structures. Exposed impermeable vertical substrates: steep intertidal zone; exposure to high wave energy or tidal currents with strong wave reflection patterns; attached organisms are hardy and accustomed to strong hydraulic impacts.

ESI #2 – 2A. Exposed Wave-Cut Platforms in Bedrock, Mud, or Clay. Intertidal zone with flat rock bench; platform may consist of flat lying bedrock or eroding muddy marsh substrate. Regular exposure to high wave energy, with strong wave reflection. Attached organisms are hardy and used to strong hydraulic impacts. May be backed by steep scarps or low bluffs with sand- to boulder-sized sediments at the base. Substrate is impermeable with no potential for subsurface penetration, except in ephemeral beach sediments.
2B. Exposed Scarps and Steep Slopes in Clay. Regular exposure to high wave energy, with moderate to weak wave reflection. Scarp heights vary from 1 to 3 feet and usually consist of heavily rooted, loamy soil with a highly irregular, moderately permeable surface; may be accompanied by a narrow beach of fine to medium-grained sand.

ESI #3 – 3A. Fine- to Medium-Grained Sand Beaches. Semi-permeable substrate: substrate is semi-permeable with oil penetration less than 10 cm, sediments are sorted and compacted, slope is less than 5 degrees, sediment and potential for rapid burial mobility is low, surface sediments are subject to regular reworking by waves, there are relatively low densities of infauna.
3B. Scarps and Steep Slopes in Sand. Associated with beaches where erosion is episodic; tops of scarps and slopes may be vegetated with grasses, scrub-shrub or trees which are undercut by the retreating shoreline. Typically associated with undeveloped, seasonally open inlets and cut banks of meandering rivers and tidal creeks.
3C. Tundra cliffs. Erosional features with tundra vegetation overlying peat and exposed ground ice or permafrost. Commonly a narrow beach of fine sand is at the base of 1 to 10 meter high cliffs. Fragmented and irregular blocks of peat and tundra vegetation accumulate at the base as it erodes. Large numbers of migratory birds can use these shorelines during summer months.

ESI #4 – Coarse-Grained Sand Beaches. Highly permeable substrate: substrate is permeable with oil penetration up to 25 cm, slope is 5 - 15 degrees, rate of sediment mobility is high with accumulation of up to 20 cm of sediments in a single tidal cycle; sediments are soft with low trafficability. Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical.

ESI #5 – Mixed Sand and Gravel Beaches. Moderately sloping beach (8-15 degrees) composed of a

mixture of sand and at least 20 percent gravel. Soft sediments with low trafficability. Sediment mobility is very high during storms, but considerably less than sand beaches during normal conditions. Substrate has medium-to-high permeability with special variation in the distribution of grain sizes from pure sand, pebbles, or cobbles, in addition to mixed zones. Beach fauna can vary in type and density; mobile surface, burrowing, and interstitial forms are typical.

ESI #6 – 6A. Gravel Beaches. Most permeable of all beach sediment types; sediments larger than 2 mm (granules, pebbles, cobbles, and boulders). Lowest trafficability of all beach types. Rapid erosion and/or burial of shallow oil possible during storms; sediment replenishment rates are the lowest of all beach types. Slope is intermediate to steep (10-20 degrees), with multiple, wave-built berms forming the upper beach. Attached animals and plants are usually restricted to the lowest parts of the beach, where sediments are less mobile.
6B. Riprap. Cobble- to boulder-sized rock; used for shoreline protection and inlet stabilization. Attached mid- and low-intertidal zone biota may be plentiful and varied.

ESI #7 – Exposed Tidal Flats. Flat intertidal areas, composed primarily of sand and mud; sand indicates strong tidal or wind driven currents and waves. Sediments usually remain water-saturated and are generally too soft for vehicular traffic. Usually associated with other shoreline types on the landward side of the flat. Biological utilization can be very high, with large numbers of infauna, and heavy use by birds for roosting and foraging.

ESI #8 – 8A. Sheltered Rocky Shores and Sheltered Scarps in Mud and Clay. Bedrock shores of variable slope (from vertical cliffs to wide, rocky ledges) that are sheltered from exposure to most wave and tidal energy or sheltered scarps in densely rooted and organic muds. Biota may be plentiful and varied.
8B. Sheltered, Solid Man-Made Structures. Revetments, seawalls, piers, and docks constructed of impermeable materials such as concrete and wood; inside harbors and bays sheltered from direct exposure to waves. Biota may be plentiful and varied.
8C. Sheltered Riprap. Cobble-to boulder-sized rock fragments; sheltered from wave energy. Biota may be plentiful and varied.
8E. Peat Shorelines. Exposed, peat scarps, eroded peat, and slurries of rafted peats; scarps occur only where the peat is frozen. Typically erosional coastlines, resulting from wave action, ice scour, and melting of the frozen peat. Intertidal zone is very complex, with slumped peat blocks, fine- to medium-grained sands, and peat slurries intermixed. Peat slurries are found at the base or eroding peat scarps and in depositional areas; relatively permanent features which may move and vary in thickness due to shoreline transport. Not particularly important as biological habitat.

ESI #9 – 9A. Sheltered Tidal Flats. Primarily mud with minor amounts of sand and shell; sediments are very soft and cannot support even light foot traffic. Present in calm-water habitats, sheltered from major wave activity. There can be large concentrations of invertebrates on and in the sediments.
9B. Sheltered, Vegetated Low Banks. Banks of stream channels, canals, and other waterways; wave energy is very low, although there may be some tidal and/or riverine currents. Calm-water habitats that are typically muddy, soft and highly vegetated; usually found on the shores of lagoons and coastal ponds, sometimes in association with peat shorelines.

ESI #10 – 10A. Salt- and Brackish-Water Marshes. Intertidal wetlands of emergent, herbaceous vegetation. Substrate sediments range from fine sands to silts and organically rich muds.
10D. Scrub-shrub wetlands. Roots and trunks of woody vegetation may be supratidal, occasionally inundated during storm surge, spring tides, and freshwater flooding. Substrate may be sand, mud, or peat. Wrack accumulations tend to be heavy.
10E. Inundated low-lying tundra. Very low-lying arctic shorelines recently flooded by the sea due to

subsidence; also areas not normally in the intertidal zone but can be inundated by salt water during spring tides or wind-induced surges. Complex, convoluted shorelines of tundra, vegetated flats, peat mats, brackish lagoons, and small streams. May have high ice content; mostly peat with little mineral or clastic sediments. Living plant community; provides important feeding areas for migrating birds in summer.

ESI HABITAT RANKING

ESI NO.	ESTUARINE	LACUSTRINE	RIVERINE (large rivers)
1A	Exposed rocky cliffs	Exposed rocky cliffs	Exposed rocky banks
1B	Exposed sea walls	Exposed sea walls	Exposed sea walls
2A	Exposed wave-cut platforms in bedrock, mud or clay	Shelving bedrock shores	Rocky shoals; bedrock ledges
2B	Exposed scarps and steep slopes in clay		
3A	Fine- to medium-grained sand beaches	Eroding scarps in unconsolidated sediments	Exposed, eroding banks in unconsolidated sediments
3B	Scarps and steep slopes in sand		
3C	Tundra cliffs		
4	Coarse-grained sand beaches	Sand beaches	Sandy bars and gently sloping banks
5	Mixed sand and gravel beaches	Mixed sand and gravel beaches	Mixed sand and gravel bars and gently sloping banks
6A	Gravel beaches	Gravel beaches	Gravel bars and gently sloping banks
6B	Riprap	Riprap	Riprap
7	Exposed tidal flats	Exposed flats	Not present
8A	Sheltered rocky shores and sheltered scarps in mud and clay	Sheltered scarps in bedrock	Vegetated, steeply sloping bluffs
8B	Sheltered sea walls	Sheltered sea walls	Sheltered sea walls
8C	Sheltered riprap		
8E	Peat shorelines		
9A	Sheltered tidal flats		
9B	Sheltered, vegetated low banks	Sheltered vegetated low banks	Vegetated low banks
10A	Salt- and brackish-water marshes		
10B		Freshwater marshes	Freshwater marshes
10D	Scrub-shrub wetlands		
10E	Inundated low-lying tundra		

Source: Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Northwest Arctic, Alaska: HYDRO (Hydrography Lines and Polygons). August 2002. National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Alaska ShoreZone Coastal Habitat Mapping. ShoreZone is a mapping and classification system that specializes in the collection and interpretation of low-altitude aerial imagery of the coastal environment. Imagery is collected during summer low tides and is georeferenced. The ShoreZone data is set in an integrated, searchable inventory of geomorphic and biological features of the intertidal and shallow subtidal areas, which can be used as a tool for science, education, management, and environmental hazard planning and response.

Responders have access to several useful tools through the ShoreZone web portal. Low altitude video and high resolution still photos are available with longitude and latitude and presented spatially on base maps (Alaska base, Oceans, topographic, nautical, and aerial). Also, habitat maps can be generated online for attributes, such as Oil Residency Index, ESI, and sensitive biota (e.g., eelgrass). The shoreline classifications are described in the Alaska ShoreZone Protocols, and they also incorporate ESI categories. Habitat classifications for ShoreZone are based on survey data and imagery taken during the lowest tides of the year and only from zero-tide level and lower; the mapped data includes supratidal, intertidal, and shallow subtidal.

The NOAA NMFS, Alaska Regional Office hosts the Alaska ShoreZone web portal at:
http://alaskafisheries.noaa.gov/habitat/shorezone (all ShoreZone information and tutorials)
http://alaskafisheries.noaa.gov/mapping/szflex/ (access to imagery and mapping data).

3. Upland Habitats

At this time, no uplands or wetlands classifications directly related to sensitivity to oil spills have been identified; however, several mappers with uplands or wetlands information are available that may be useful during a spill response:

- A general wetlands classification has been developed by the USFWS National Wetlands Inventory in Anchorage. Considerable mapping of wetlands has been completed. A Wetlands Mapper and additional information is available at http://www.fws.gov/wetlands.
- The Alaska Natural Heritage Program houses a multitude of maps, including a Rare Plant Occurrences Mapper, Vegetation Maps, Rare Ecosystems and Plant Associations, and many others. Several maps also contain links to downloadable GIS shapefiles. Maps and additional information can be accessed at http://aknhp.uaa.alaska.edu/.
- The Alaska Vegetation Classification is a U.S. Forest Service General Technical Report (PNW-GTR-286) widely used for classifying Alaskan vegetation. It is available at http://www.fs.fed.us/pnw/publications/gtrs-prior-1997.shtml.
- The Catalogue of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fishes and its associated Atlas specifies waterbodies which support anadromous species to the extent known. It is updated annually and an interactive mapper is available at https://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=main.interactive.

C. BIOLOGICAL RESOURCES

Threatened and Endangered Species

Federally-listed threatened and endangered species are protected under the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.). If response strategies are proposed in locations where migratory birds and/or marine mammals listed as threatened and/or endangered are (or may be) present, the Federal OSC will need to immediately consult with the USFWS and/or the NMFS (as appropriate) regarding the proposed strategies, in accordance with the ESA Memorandum of Understanding (see the

Unified Plan, Annex K). The following species[a] and critical habitat occur in this subarea:

Endangered Species Act of 1973 Protected Species and Critical Habitat			
Protected Species			
Listed species	**Stock**	**Latin Name**	**Status**
Bowhead whale[1]	Western Arctic	*Balaena mysticetus*	Endangered
Fin whale[1]		*Balaenoptera physalus*	Endangered
Blue whale[1]		*Balaenoptera musculus*	Endangered
Humpback whale[1]	Western North Pacific DPS	*Megaptera novaeangliae*	Endangered
Humpback whale[1]	Mexico DPS	*Megaptera novaeangliae*	Threatened
North Pacific right whale[1]		*Eubalaena glacialis*	Endangered
Steller sea lion[1]	Western DPS	*Eumetopias jubatus*	Endangered
Bearded seal	Beringia and Okhotsk DPS	*Erignathus barbatus*	Threatened
Polar bear[2]		*Ursus maritimus*	Threatened
Spectacled eider[2]		*Somateria fischeri*	Threatened
Steller's eider[2]	Alaska breeding	*Polysticta stelleri*	Threatened
Short-tailed albatross[2]		*Diomedea albatrus*	Endangered
Eskimo curlew[2]		*Numenius borealis*	Endangered
Pacific walrus[2]		*Odobenus rosmarus divergens*	Candidate
Designated Critical Habitat			
Species Group	**General Reference Area**		
Spectacled eider[2]	Part of Norton Sound and south of St. Lawrence island are designated as critical habitat (see Figures D-4 and D-5)		
Polar bear[2]	Selected coastal areas are designated as critical habitat (see Figures D-6 and D-7)		
Steller sea lion[1]	Two haulouts are present on St. Lawrence Island and are designated as critical habitat (see Figure D-8)		

[1] Managed by the NMFS
[2] Managed by the USFWS

The Pacific walrus is currently listed as a candidate species under the ESA. Candidates are generally species for which there is enough information on their biological status and threats to propose them as endangered or threatened, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. The USFWS is under a court-ordered deadline of September 30, 2017, to make a decision whether or not to list the Pacific walrus (as threatened or endangered) under the ESA. Information about this decision will be available at https://www.fws.gov/alaska/fisheries/mmm/walrus/esa.htm.

Maps of critical habitat for ESA-listed species in this subarea are found in Figures D-4 to D-7.

[a] In its definition of species, the Endangered Species Act of 1973, as amended, includes the traditional biological species concept of the biological sciences and "any subspecies of fish or wildlife or plants, and any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature" (16 U.S.C. 1532). The National Marine Fisheries Service uses the term *evolutionarily significant unit* as synonymous with *distinct population segment* and lists Pacific salmon accordingly. For the purposes of section 7 consultations, these are all "species."

Marine Mammal Protection Act

All marine mammals, whether or not they are listed under the Endangered Species Act, are protected by the Marine Mammal Protection Act of 1972 (MMPA), as amended. Authority under the MMPA is shared between the NMFS, which has management authority for all cetaceans and most pinnipeds, and the USFWS, which manages sea otters, Pacific walruses, and polar bears in Alaskan waters. The taking (including harassment) of all marine mammals is generally prohibited in the United States under the MMPA, although the MMPA provides for certain exceptions. While each agency has permitting programs and structures to authorize ongoing or predictable activities, response to an emergency such as an oil spill may require an authorization framework that necessitates response actions, often jointly, in an expedited manner. Thus, any spill response activities that could affect marine mammals should be coordinated with the appropriate Service to ensure compliance with the MMPA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. Most avian species in Alaska are protected under the MBTA. Spill response activities that could affect birds should be coordinated with the USFWS to ensure compliance with the MBTA.

Bald and Golden Eagle Protection Act

Although Alaskan bald and golden eagles are not on the endangered species list, they are fully protected (including their nests and nest trees) under the Bald and Golden Eagle Protection Act of 1940 (BGEPA) and the MBTA. Under BGEPA, prohibited take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Thus, spill response activities that could affect eagles, their nests, or nest trees should be coordinated with the USFWS to ensure compliance with both the BGEPA and MBTA.

For updated information on the internet:

USFWS Regional Threatened and Endangered Species website:
http://alaska.fws.gov/fisheries/endangered/index.htm

NOAA Fisheries Endangered and Threatened Marine Species under NMFS' Jurisdiction website:
https://alaskafisheries.noaa.gov/pr/esa-species-list

For additional detailed information about marine mammals under NMFS's jurisdiction and NMFS's oil spill response strategy for this region, please see the NMFS Arctic Marine Mammal Disaster Response Guidelines. This document is available at the NMFS Alaska Marine Mammal Stranding Network website: https://alaskafisheries.noaa.gov/pr/strandings.

ADF&G Threatened and Endangered Species website:
http://www.wildlife.alaska.gov/index.cfm?adfg=endangered.main

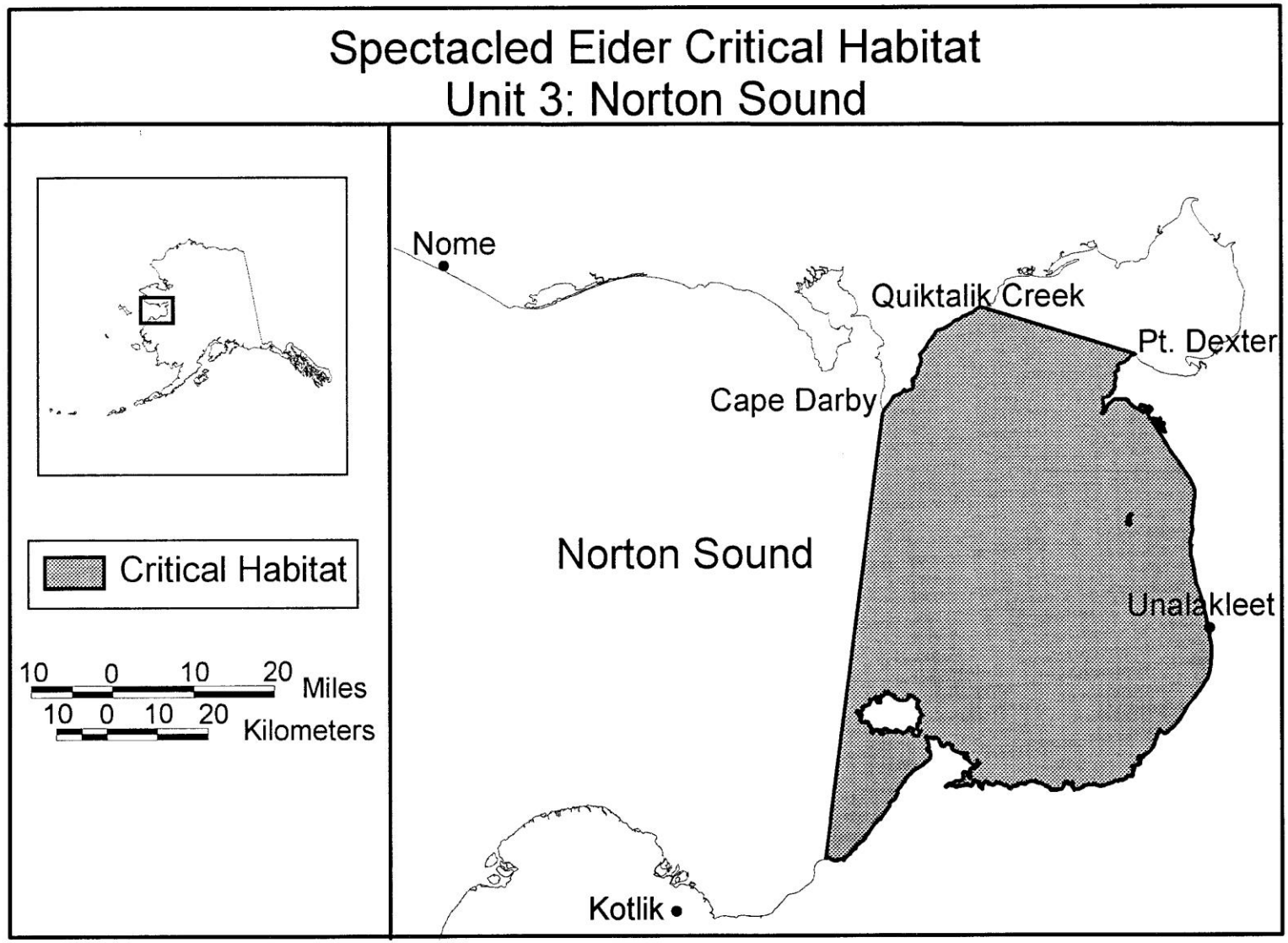


Figure D-4. Spectacled eider critical habitat, Unit 3 Norton Sound.

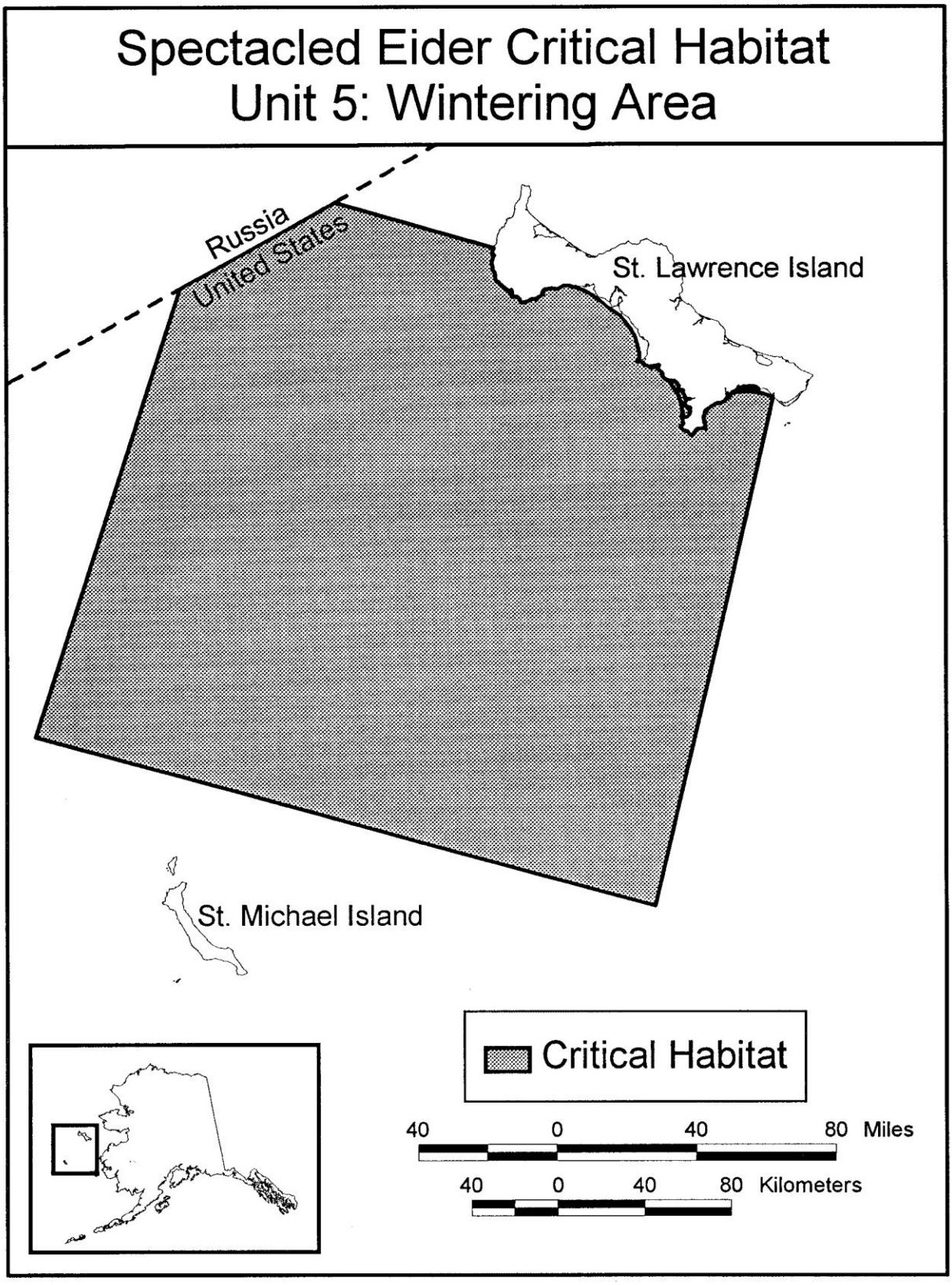


Figure D-5. Spectacled eider critical habitat, Unit 5 wintering area.

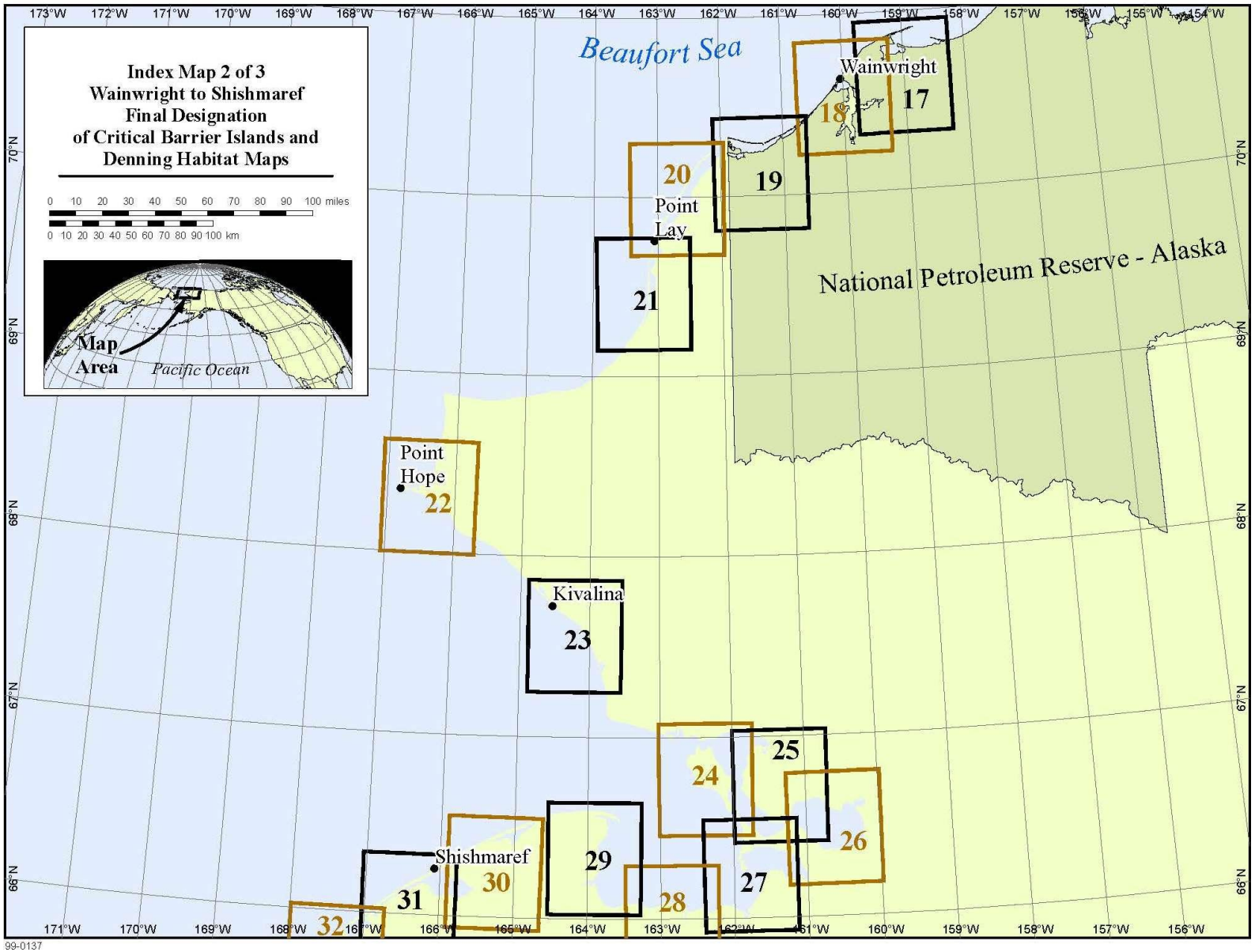


Figure D-6. Polar bear critical habitat index map 2 of 3. Detailed maps of the above designated critical habitat for polar bears can be found at http://alaska.fws.gov/fisheries/mmm/polarbear/maps_final/index_2of3.pdf.

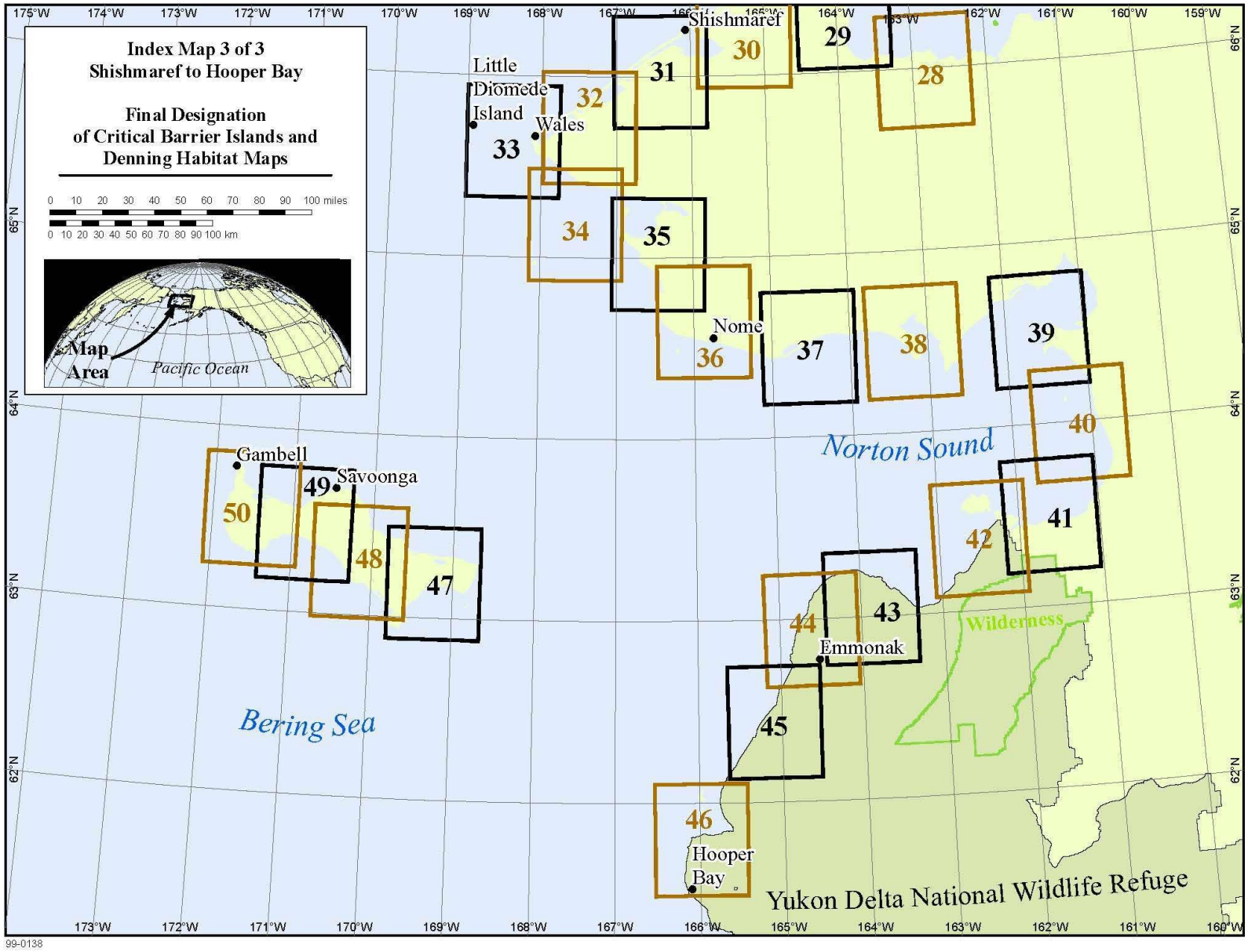


Figure D-7. Polar bear critical habitat index map 3 of 3. Detailed maps of the above designated critical habitat for polar bears can be found at http://alaska.fws.gov/fisheries/mmm/polarbear/maps_final/index_3of3.pdf.

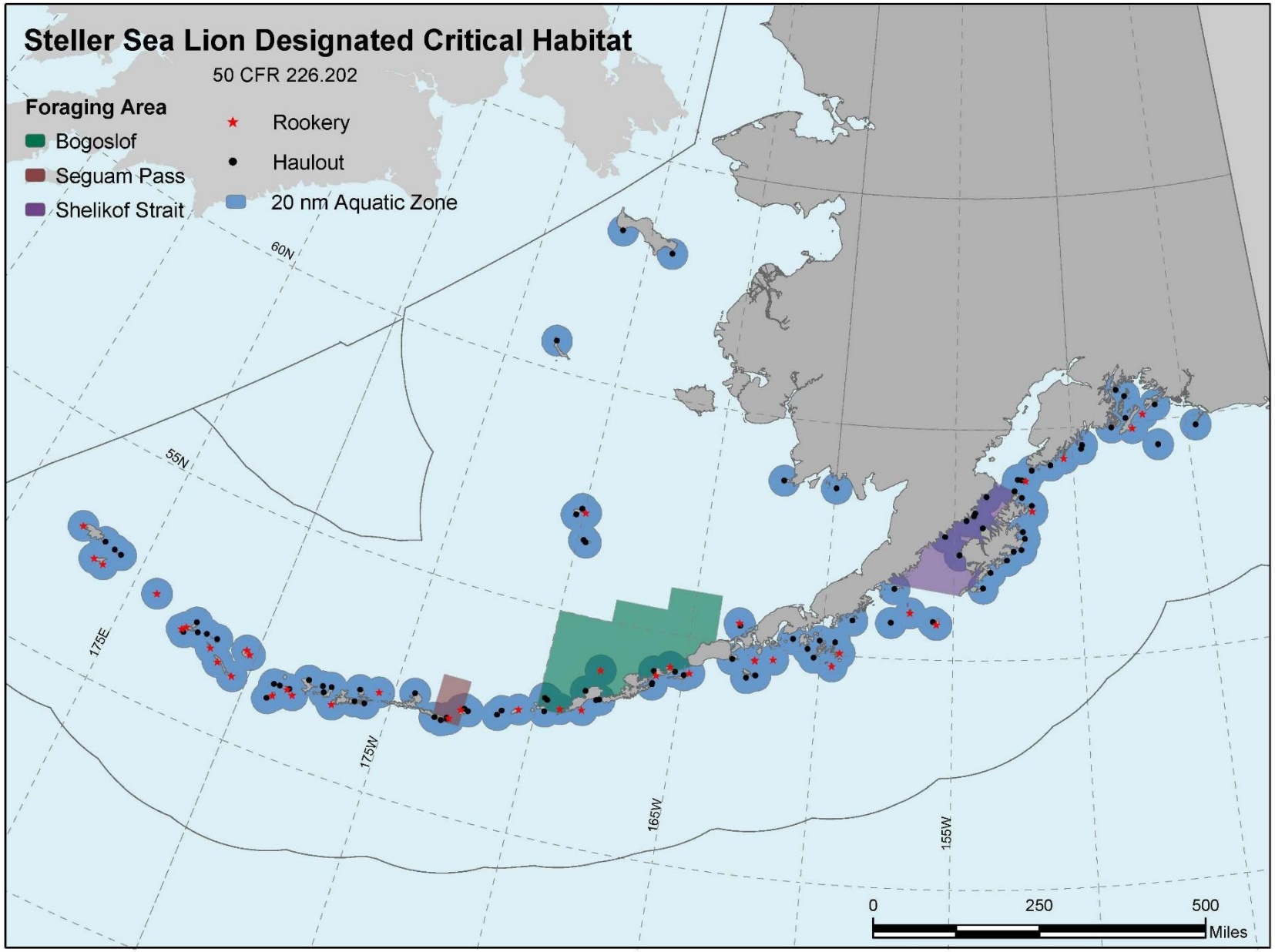


Figure D-8. Steller sea lion designated critical habitat map for Western and Southcentral Alaska.

1. Fish and Wildlife

a) ESSENTIAL FISH HABITAT (EFH)

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) introduced new provisions concerning the identification and conservation of Essential Fish Habitat (EFH). The MSA, as amended through January 17, 2007, defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The NMFS and regional Fishery Management Councils (Councils) have described and identified EFH in fishery management plans (FMPs), and, to the extent practicable, minimized the adverse effects of fishing and non-fishing activities to encourage the conservation and enhancement of EFH.

Federal agencies that authorize, fund, or undertake actions that may adversely affect EFH must consult with NMFS, and NMFS must provide conservation recommendations to federal and state agencies regarding actions that would adversely affect EFH. Most of the uncertainty surrounding the level of protection needed for EFH concerns the effects of fishing activities and non-fishing activities on sea floor habitats. Substantial differences of opinion exist as to the extent and significance of habitat contamination in EFH, outside of well-studied areas like surface waters and coastal zones, as described in Part 4b of this document. However, EFH includes the entire water column and the substrate of the benthos.

The fate of spilled oil has been found to directly affect the water column and benthos; thus, the acute and chronic toxic effects to EFH are a real concern. In short, the vertical transport of marine oil snow (flocculation, sedimentation, accumulation) of surface spills and well head spills could significantly affect EFH through the long-term contamination of benthic habitats. The protracted exposure of eggs, embryos, and larvae to, and metabolism of, toxic and carcinogenic petroleum hydrocarbons can adversely affect ecologically and economically important benthic fishes, even down to the single part-per-billion of polycyclic aromatic hydrocarbon.

NMFS can designate specific subsets of EFH as Habitat Areas of Particular Concern (HAPCs). HAPCs highlight specific habitat areas with extremely important ecological functions and/or areas that are especially vulnerable to human-induced degradation. There are no HAPCs located within the Northwest Arctic Subarea.

Interactive mapping of EFH is provided by the NMFS and can be accessed at http://www.habitat.noaa.gov/protection/efh/efhmapper.

For further information on EFH and HAPC, contact the NOAA Fisheries Habitat Division http://alaskafisheries.noaa.gov/habitat/efh.htm

b) FISH

The Northwest Arctic Subarea is drained by a number of major rivers, including the Kobuk, Selawik, Noatak, Wulik, Inmachuk, Kugruk, and Buckland Rivers in Kotzebue Sound, and the Unalakleet, Ungalik, Shaktoolik, Koyuk, Fish, Solomon, Nome, Snake, Sinuk, Feather, and Kuzitrin Rivers in Norton Sound. Most of the flowing waters and many of the lakes support populations of anadromous or resident species of fish. Lagoons and estuarine areas are important rearing and overwintering areas for anadromous fish. River deltas are particularly important areas for fish throughout the year. Shallow lakes, oxbows, and seasonally-flooded wetlands connected to streams or rivers may support fish during the summer but may freeze to the bottom in winter.

If the depth of the water exceeds three or four meters (as ice depth may approach two meters by late winter), fish may be found in a particular waterbody year-round. Deep lakes and rivers, and spring-fed stream systems serve as overwintering areas for fish in the Northwest region.

Fish may use shallow lakes (< 2-3 m deep) in summer if the lakes are connected to a stream system (i.e., tapped lakes) and sufficient water exists in late summer for fish to leave the lake and move to overwintering areas. Shallow tundra beaded streams (< 2-3 m deep) freeze solid in winter and thus can be used by fish only for summer rearing. River deltas are particularly important areas for fish throughout the year. Although many rivers have not been examined for overwintering fish, those portions of rivers with depths greater than 2-3 m should be considered potential fish overwintering habitat and protected accordingly.

RESIDENT FISH

The most common resident fish found in rivers and lakes in the Northwest Arctic Subarea include arctic grayling, northern pike, burbot, and whitefishes. Whitefish species include humpback, round, and broad whitefish, as well as least and Bering cisco. Other species that occur in the region include lake trout, slimy sculpin, Dolly Varden, longnose sucker, Alaska blackfish, and arctic lamprey.

Arctic grayling. Arctic grayling are distributed widely in most clear water streams and some of the deeper lakes. Arctic grayling spawn in May and June over substrates ranging from silt to gravel in small streams or in lakes. Arctic grayling often feed in shallow streams throughout the summer that may freeze solid in winter. Arctic grayling winter in deep, large rivers or lakes, or in smaller streams if adequate water quality and flow exists throughout the winter.

Whitefish. Broad and humpback whitefish and least cisco are found commonly in summer in slow-moving waters of sloughs, interconnected lakes (e.g., Selawik Flats), the lower reaches of large rivers, and nearshore marine waters such as Port Clarence and Golovin Bay. Round whitefish are found more commonly in streams or lakes. Bering cisco are found in Port Clarence and Grantley Harbor. These five species of whitefish spawn in late September and early October over sand and gravel bottoms of streams and lakes. These whitefish generally overwinter in deep, large rivers or lakes, although some may overwinter in estuarine areas such as Hotham Inlet and Grantley Harbor.

Northern pike. Northern pike are found commonly in summer in slow-moving waters of sloughs and interconnected lakes (e.g., Selawik Flats), larger rivers, and some of the large lakes. They spawn in the spring shortly after breakup in shallow water with emergent vegetation and little current. Northern pike overwinter in deep, large rivers or lakes, or in smaller tributary streams if adequate water quality and flow exists.

Dolly Varden. Stream-resident Dolly Varden occur at isolated locations in small mountain streams within Kotzebue and Norton Sound drainages. Stream-resident Dolly Varden spawn in late September or October.

Burbot. Burbot are found in portions of the Northwest Arctic Subarea, in both rivers and in deep lakes. They also are found in summer in interconnected lakes and sloughs in lowland areas such as the Selawik Flats. Burbot overwinter in deep, large rivers or lakes, or in smaller tributary streams if adequate water quality and flow exists.

Arctic Char. Arctic char are found in deep lakes of the Brooks Range and of the Seward Peninsula. Arctic char spawn in September and October.

Lake trout. Lake trout are found in the large deep lakes of the Brooks Range. Lake trout spawn in September.

ANADROMOUS FISH

Information for the ADF&G Anadromous Waters Catalog, including an interactive mapper, may be found at http://www.adfg.alaska.gov/sf/SARR/AWC/index.cfm?ADFG=maps.selectMap&Region=ARC.

Sheefish. The Kobuk and Selawik Rivers support populations of anadromous sheefish that spawn in the upper reaches of these rivers. These anadromous sheefish overwinter in the lower rivers, Selawik Lake, Hotham Inlet, and Kotzebue Sound. Immature fish use Kotzebue Sound, Hotham Inlet, Selawik Lake, and the lower rivers during summer. Fish that will spawn in the current year begin an upstream migration from estuarine areas at breakup. Sheefish enter spawning areas in August and early September and spawn in late September and early October. A small population of sheefish occurs in Koyuk River and winters in Norton Bay.

Whitefishes. Anadromous whitefish (broad and humpback whitefish, least and Bering cisco) migrate from overwintering areas to estuarine and nearshore brackish marine waters at breakup in mid-May to early July. The whitefish remain in the nearshore marine and estuarine environment for several weeks to several months. Whitefish return to overwinter and spawn in major rivers in September and October. Some may overwinter in estuarine areas.

Dolly Varden. Juvenile Dolly Varden spend up to their first five years in freshwater streams before migrating to marine summer feeding areas. Immature and mature Dolly Varden migrate from overwintering areas to marine feeding areas following breakup in mid-May to early July. Fish begin returning to freshwater spawning and overwintering areas from July through October. Spawning occurs from September through December. Fry emerge from the streambed gravels between April and early June. Spawning and overwintering areas are restricted to streams with perennial springs and groundwater sources. Dolly Varden inhabit nearly all of the region's drainages, including those on St. Lawrence Island. Significant numbers of Dolly Varden are found in the Noatak, Kivalina, and Wulik River drainages.

Salmon. Chinook, coho, sockeye, pink, and chum salmon occur within the Northwest Arctic Subarea. Pink and chum salmon are the most widely distributed and most abundant salmon in the region. Sockeye salmon are least abundant. Salmon are present in estuaries and bays three to four weeks before spawning (see below). Small populations of the least abundant sockeye salmon occur in the Sinuk and Pilgrim Rivers on the Seward Peninsula and in the Chukchi Sea drainages of the Noatak and Kivalina Rivers.

Salmon eggs incubate in the stream gravels over the winter. Chum and pink salmon fry hatch in mid or late winter and migrate to sea following breakup in early May to late June; Chinook, sockeye, and coho fry will remain in fresh water from one to four years before migrating to sea. Salmon are present in bays and estuaries from June through August and move into spawning grounds from July through September.

MARINE FISH

Herring. Major herring spawning areas occur in the following areas: the coast of St. Michael Island, the mainland coast from St. Michael to Tolstoi Point, much of the coastline from Unalakleet to Norton Bay, portions of Norton Bay, most of the coastline from Elim to Topkok Head, Golovin Bay, Port Clarence and the Imuruk Basin, around Shishmaref, the Deering-Kiwalik area in Kotzebue Sound, Elephant Point, northern Hotham Inlet, the Baldwin Peninsula, Krusenstern and Kivalina lagoons, and near Sisualik Spit.

Herring spawn in shallow bays, inlets, lagoons, rocky shorelines, and on rocky headlands throughout most of Norton Sound from late May through June, in the Port Clarence area from late June through early July, and from mid to late July along the northern Seward Peninsula. Herring spawning in Kotzebue Sound may occur from late May until August, depending on ice conditions. Herring overwintering occurs in Shishmaref Inlet, Imuruk Basin, Safety Sound, Golovin Bay, and some may overwinter in brackish lagoons and estuaries of the Kotzebue Sound area. Large schools of spawned-out herring move northward along the Chukchi coast into the Cape Thompson area during mid-June to mid-July, just as the sea ice is breaking up. The fish typically hug the shoreline and usually show up at Cape Thompson during the last few days of June or first few days of July (the origin of these fish is unknown).

Capelin. These spawn along gravel beaches along the shoreline of northern Norton Sound from Rocky Point to Cape Rodney over a four-week period beginning in late May. Capelin also spawn from Cape Rodney to Port Clarence, and in Shishmaref Inlet.

Rainbow smelt. Adult rainbow smelt are distributed in epibenthic waters along the nearshore throughout Arctic waters in areas mainly consisting of sandy gravel and cobbles. Adults spawn in coastal freshwater streams. Egg and larval distribution is unknown.

Arctic cod. Insufficient information is available to determine EFH for eggs, larvae, and early juveniles. The general distribution areas for Arctic cod late juveniles and adults are located in pelagic and epipelagic waters from the nearshore to offshore areas along the entire shelf (0 to 200 m) and upper slope (200 to 500 m) throughout Arctic waters and often associated with ice floes which may occur in deeper waters. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Saffron cod. Insufficient information is available to determine EFH for eggs, larvae, and early juveniles. The general distribution areas for saffron cod late juveniles and adults are located in pelagic and epipelagic waters along the coastline, within nearshore bays, and under ice along the inner (0 to 50 m) shelf throughout the Arctic waters and wherever there are substrates consisting of sand and gravel. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Pacific cod. This transoceanic species, occurring at depths from shoreline to 500 m. The southern limit of the species' distribution is about 34° N latitude, with a northern limit of about 63° N latitude. Adults are demersal and form aggregations during the peak spawning season, which extends approximately from January through May. Pacific cod eggs are demersal and adhesive. Eggs hatch in about 15-20 days. Little is known about the distribution of Pacific cod larvae. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Walleye Pollock. Eggs and spawning are pelagic on outer continental shelf generally over 100-200 m depth in Bering Sea. Larvae are in pelagic outer to mid-shelf region in Bering Sea. Juveniles age 0 appears to be pelagic, as is age 2 and 3. Age 1 are pelagic and demersal with a widespread distribution and no known benthic habitat preference. Adults occur both pelagically and demersally on the outer and mid-continental shelf of the Gulf of Alaska, eastern Bering Sea, and Aleutian Islands. In the eastern Bering Sea, few adult pollock occur in waters shallower than 70 m. Adult pollock range throughout the Bering Sea in both the U.S. and Russian waters. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Alaska Plaice. Adult Alaska plaice are distributed in waters of the Chukchi Sea to 70° N latitude, mainly in areas south of Point Barrow, and are located in the lower portion of the water column (demersal) within nearshore bays and along the entire shelf (0 to 200 m). Adults are found in areas consisting of sand, mud, and gravel. Adults are known to migrate in association with seasonal ice movements and from the shelf to shallower areas (< 100 m) for spring spawning. Larvae are planktonic and inhabit shallow areas. Both larvae and eggs have been found in the late spring and early summer throughout the entire shelf (0 to 200m). Egg and larval distribution extents are unknown. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Yellowfin Sole. Adult and late juvenile yellowfin sole are distributed in waters of the Chukchi Sea to 70° N latitude, mainly in areas south of Point Barrow, and are located in the lower portion of the water column (demersal) within nearshore bays and along the entire shelf (0 to 200 m). Adults are found in areas consisting of sand, mud, and gravel. Adults are known to migrate between outer shelf (100 to 200 m) and inner shelf (0 to 50 m) to feed and spawn. Juvenile yellowfin sole (< 15 cm) separate from adults and associate with softer substrates (sand) to feed on meiofaunal prey and bury for protection. Larvae are planktonic and inhabit shallow areas. Yellowfin sole eggs have not been found north of Nunivak Island. Egg and larval distribution extents are unknown. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Rock sole. Insufficient information is available to determine EFH for eggs and early juveniles. EFH for larval rock sole is the general distribution area for this life stage, located in pelagic waters along the entire shelf (0 to 200 m) and upper slope (200 to 1,000 m) throughout the Bering Sea Aleutian Islands (BSAI). EFH for late juvenile and adult rock sole is the general distribution area for this life stage, located in the lower portion of the water column along the inner (0 to 50 m), middle (50 to100 m), and outer (100 to 200 m) shelf throughout the BSAI wherever there are softer substrates consisting of sand, gravel, and cobble.

Flatehead sole/ Bering flounder. Adult Flathead sole/Bering flounder are distributed in waters of the Chukchi Sea to 70° N latitude, mainly in areas south of Point Barrow, and are located in the lower portion of the water column (demersal) within nearshore bays and along the inner (0 to 50 m) and middle shelf (50 to 100 m). Adults are found in areas consisting of sand and mud. Adults are known to migrate between outer shelf (100 to 200 m) spawning areas and inner shelf (0 to 50 m) feeding areas. Juveniles (< 2 yrs) inhabit shallow areas separate from adults. Egg and larval distribution extents are unknown. Generally, flathead sole are located south of Bering Strait, while Bering flounder range throughout the northern Bering Sea and Chukchi Sea to Point Barrow. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Starry flounder. Adult Starry flounder are distributed in waters of the Chukchi Sea to 70° N latitude, mainly in areas south of Point Barrow, and are located in the lower portion of the water column (demersal) within nearshore bays, estuaries, river mouths, and along the entire shelf (0 to 200 m). Adults are found in areas consisting of sand, mud, and gravel. Adults are known to seasonally migrate between outer shelf (100 to 200 m) summer areas and inner shelf (0 to 50 m).

Halibut. Commercial and subsistence halibut fisheries take place in the relevant nearshore areas. However, information is not available on the amounts of harvest or on juvenile Pacific halibut in these nearshore areas.

c) SHELLFISH

Opilio crab. Insufficient information is available to determine EFH for larvae and early juveniles. The general distribution areas for late juveniles and adults are located in bottom habitats along the inner (0 to 50 m) and middle (50 to 100 m) shelf in Arctic waters south of Cape Lisburne, wherever there are substrates consisting mainly of mud. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Blue King Crab. Adult, egg-laden adults, and late juvenile blue king crab have a discontinuous distribution throughout a large range (Hokkaido, Japan to Southeast Alaska) and are located on bottom habitats along the nearshore (possible spawning aggregations) and the inner (0 to 50 m) and middle (50 to100 m) shelf in Arctic waters. Local distributions exist near St. Lawrence Island, and their distribution extends northward into Bering Strait. Blue king crab are commonly found associated with rockier substrates, sponges, barnacles, and shell hash. Adult male blue king crabs occur at an average depth of 70 m and an average temperature of 0.6° C. Larvae are pelagic and occur in depths between 40 and 60 m. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

Red King Crab. Red King Crab larvae generally exhibit a diel movement, being most abundant in the upper water column during the day and deeper at night. Young of the year crab occur at depth of 50 m or less. They are solitary and need high relief habitat or coarse substrate such as boulders, cobble, shell hash, and living substrates such as bryozoans and stalked ascidians. Between the ages of two and four years, there is a decreasing reliance on habitat and a tendency for the crab to form pods consisting of thousands of crabs. Podding generally continues until four years of age (about 6.5 cm), when the crab move to deeper water and join adults in the spring migration to shallow water for spawning. Adult red king crab occur to a depth of 365 m; preferred habitat for reproduction is water less than 90 m. Red king crab are widely distributed south of the Alaska Peninsula. They move into waters of less than 10 fathoms from about mid-February through June 1 to mate and molt. Red king crab also occur north of the peninsula; however, no notable concentrations have been reported.

The species listed above for habitat descriptions are either: species commercially harvested in the Bering Sea and that also occur in the Arctic Management Area; or are species that may play an important role in the Arctic marine ecosystem as forage species. EFH is defined for this species: http://www.habitat.noaa.gov/protection/efh/efhmapper/.

d) BIRDS

Important Bird Areas (IBA): Audubon, as the U.S. Partner for BirdLife International, has identified IBA worldwide, several of which are located in the Northwest Arctic Subarea (see Figure D-9). Many of the IBA that have been designated in the Northwest Arctic Subarea are of global importance. An interactive map and more information on IBA can be found at http://ak.audubon.org/important-bird-areas-4.

Audubon Alaska also maintains an Alaska WatchList to highlight declining and vulnerable bird populations. More information and the most recent list can be found at http://ak.audubon.org/conservation/alaska-watchlist.

The Northwest Arctic Subarea provides important wetland areas for nesting waterfowl (ducks, geese, and swans) and other birds, and serves as an important spring and fall staging area and migratory route for those birds headed to and returning from more northerly or westerly feeding and nesting areas. Waterfowl are concentrated on areas of open water along the major rivers in spring before wetland areas thaw. Important nesting, molting, and spring and fall staging areas include: coastal lagoons from

Kivalina to Cape Krusenstern, Sisualik Spit, Noatak River Delta, lower Noatak River valley, Kobuk River Delta, Hotham Inlet, Selawik Flats and Delta, portions of the coastlines of Eschscholtz and Spafarief Bays, the coastline from Spafarief Bay to Cape Espenberg, the barrier islands, coastal lagoons, wetlands from Cape Espenberg to Wales, Brevig Lagoon, Port Clarence, Grantley Harbor, the Imuruk Basin, the Kuzitrin River flats, the coast from Cape Douglas to Cape Rodney, Safety Sound, Fish River Delta/upper Golovin Bay, Moses Point, Koyuk River flats/upper Norton Bay, the Shaktoolik area, wetlands southwest of Stebbins, and the southern coast of St. Lawrence Island.

Ducks. Ducks begin arriving in late April and continue to arrive through the end of May, although most ducks arrive by mid-May. Nesting begins in mid-May, with most eggs hatching from mid-June through mid-July. Broods are reared on lakes, ponds, flooded wetlands, coastal lagoons, and rivers. Some ducks begin molting in mid-June, most during July, and a few are still in molt condition in late August. Large numbers of scoters and eiders molt in lagoons and sheltered bays. Eastern Norton Sound serves as a primary molting area for female spectacled eiders nesting on the Yukon-Kuskokwim Delta. Important feeding and fall staging areas for ducks include river deltas, lagoons, salt marshes, mudflats, and coastal tundra areas. Some ducks begin their fall migration in mid-July, although most leave the mainland areas from mid-August through late September. Some ducks remain until late October before leaving at freeze-up. Large numbers of long-tails and eiders spend the winter in open water areas around St. Lawrence Island.

Geese. Canada, emperor, and white-fronted geese and brant nest, molt and stage along lakes, coastal lagoons, wetlands, and rivers. Snow geese stage within the region during spring and fall migrations, but do not breed in the subarea. Birds arrive from early May through June, nest from late May through July, molt and rear young during July and August, and undertake fall migration during late August through September.

Swans. Tundra swans (and a few trumpeter swans) occur within the subarea. Concentration areas used by swans include the Kobuk and Selawik River Deltas. Swans begin nesting around mid-May, and eggs hatch from mid-to-late June. Molting occurs in July and August. Young swans are unable to fly until mid or late September. Important fall coastal staging areas include the Kobuk, Noatak, and Selawik River Deltas, as well as the eastern side of the Baldwin Peninsula. Swans leave the subarea from late September to mid-October.

For more information on waterfowl in Alaska, see the USFWS web site at http://alaska.fws.gov/mbsp/mbm/waterfowl/waterfowl.htm.

Seabirds. Seabirds (primarily murres, puffins, auklets, and kittiwakes) are most abundant at St. Lawrence, King, and Little Diomede Islands and at Cape Thompson (auklets are not present at the latter location). St. Lawrence Island has 19 colonies containing 1.8 million seabirds, Little Diomede contains 1.25 million birds, the 5 Cape Thompson colonies support over 400,000 birds, and King Island supports about 246,000 seabirds. Smaller colonies are found scattered along and near the region's coastline, including the Chamisso-Puffin Islands in Kotzebue Sound and Sledge Island, Bluff, and Cape Denbigh in Norton Sound. These seabirds begin arriving in mid-April and occupy the colonies through September. Some birds may remain in the area until the formation of sea ice forces them to more southerly areas. Gulls and terns also nest on barrier islands and spits, as well as islets and gravel bars in river deltas throughout the region (see Figure D-10).

The North Pacific Pelagic Seabird Database (NPPSD) provides comprehensive geographic data on the pelagic distribution of seabirds in Alaska and the North Pacific. The current version of the NPPSD contains 335 unique taxa and include four-letter codes, common names, ITIS taxonomic serial number,

and NODC taxonomic code for marine birds and mammals observed on surveys in the NPPSD dataset. This list is provided to further the goal of standardizing pelagic seabird data. Researchers are encouraged to use this list for marine bird and mammal surveys in the North Pacific. This dataset is managed by the U.S. Geological Survey, Alaska Science Center and can be accessed at http://alaska.usgs.gov/science/biology/nppsd/index.php.

The North Pacific Seabird Data Portal provides access to the North Pacific Seabird Colony Register, an automated database that contains the distribution of breeding seabirds and the relative size of all the colonies in Alaska. Download requests can be submitted online, and colony data can be downloaded directly to a computer. The downloaded colony data provides information on a colony's location, species composition, and estimated numbers of breeding seabirds at that colony. The North Pacific Seabird Data Portal is maintained by the USFWS Division of Migratory Bird Management in Anchorage. For updated information, visit http://www.fws.gov/alaska/mbsp/mbm/northpacificseabirds/colonies/.

Shorebirds. Shorebirds (sandpipers, plovers, phalaropes) arrive in the region beginning in mid-May, using most of areas identified as concentration areas for waterfowl. They begin nesting on tundra wetland habitat by mid-June. Most eggs hatch from late June to mid-July. Shorebirds congregate along the barrier islands, coastal lagoons, bays, salt marshes, river deltas, and mudflats from mid-July through September to feed before beginning their fall migration in August or September (some may begin their fall migration in July). For more information on shorebirds, see the USFWS website at http://alaska.fws.gov/mbsp/mbm/shorebirds/shorebirds.htm.

Birds of Prey. Birds of prey occurring in the subarea include golden and occasionally bald eagles; osprey; gyrfalcon, peregrine, and other falcons; goshawks and other hawks; and owls. Golden eagles, peregrine falcons, gyrfalcons, and rough-legged hawks nest on coastal or inland cliffs, bluffs, or other steep terrain. Snowy and short-eared owls nest on the tundra. Hawks and owls commonly use woodlands, forests, and forested wetland areas for nesting. Prime feeding areas include wetlands containing waterfowl, seabirds, shorebirds, and other small birds. Except for snowy owls and gyrfalcons, which are year-round residents, all other birds of prey winter in areas outside the subarea. These birds arrive in the area in early May and depart in late August or September.

Upland Birds. In addition, many upland species, such as ptarmigan, ravens and other nesting birds use the area. For more information on landbirds and raptors, see the USFWS website at http://alaska.fws.gov/mbsp/mbm/landbirds/landbirds.htm.

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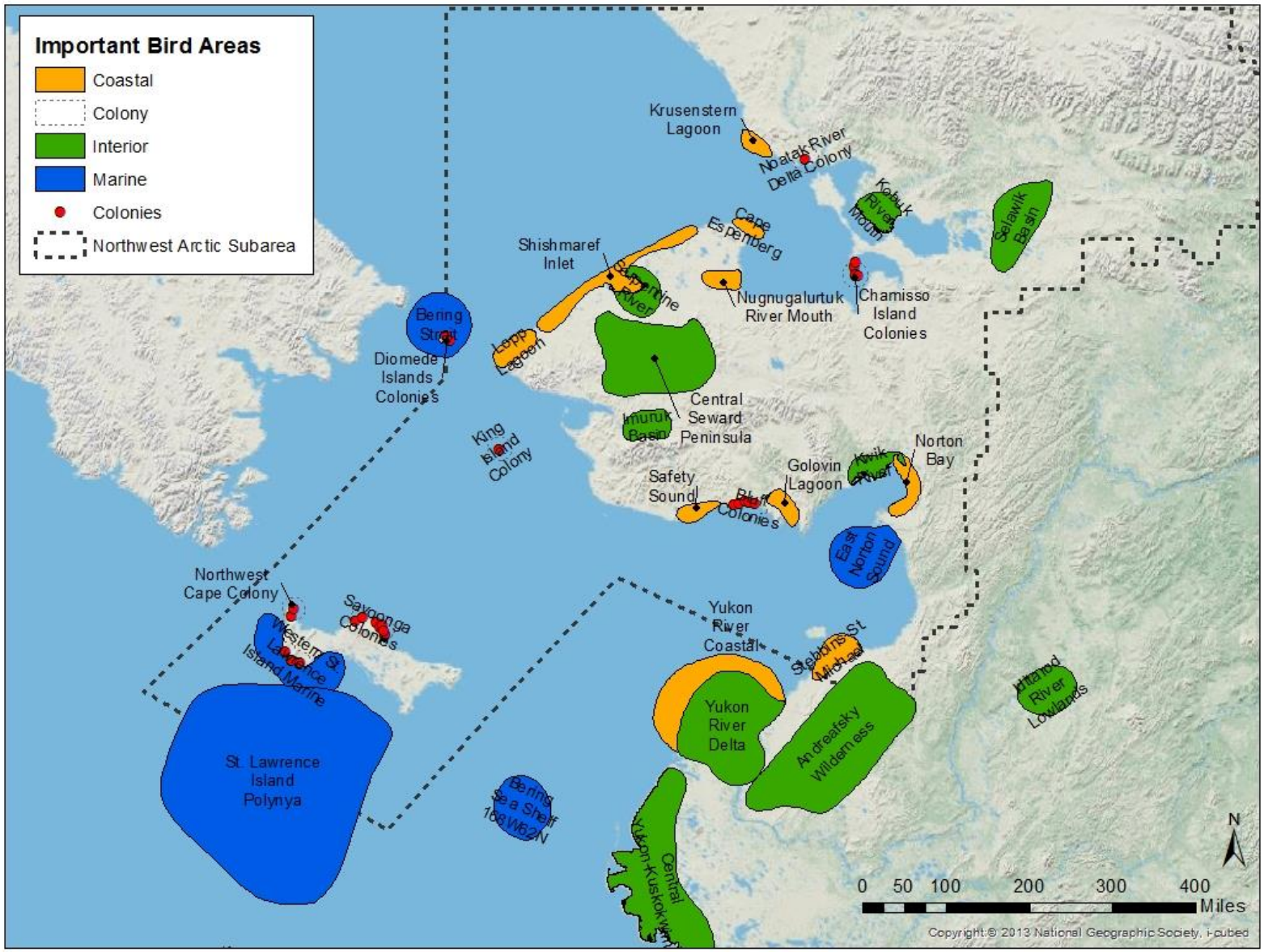

Figure D-9. Important bird areas within the Northwest Arctic Subarea (Audubon Alaska 2014).

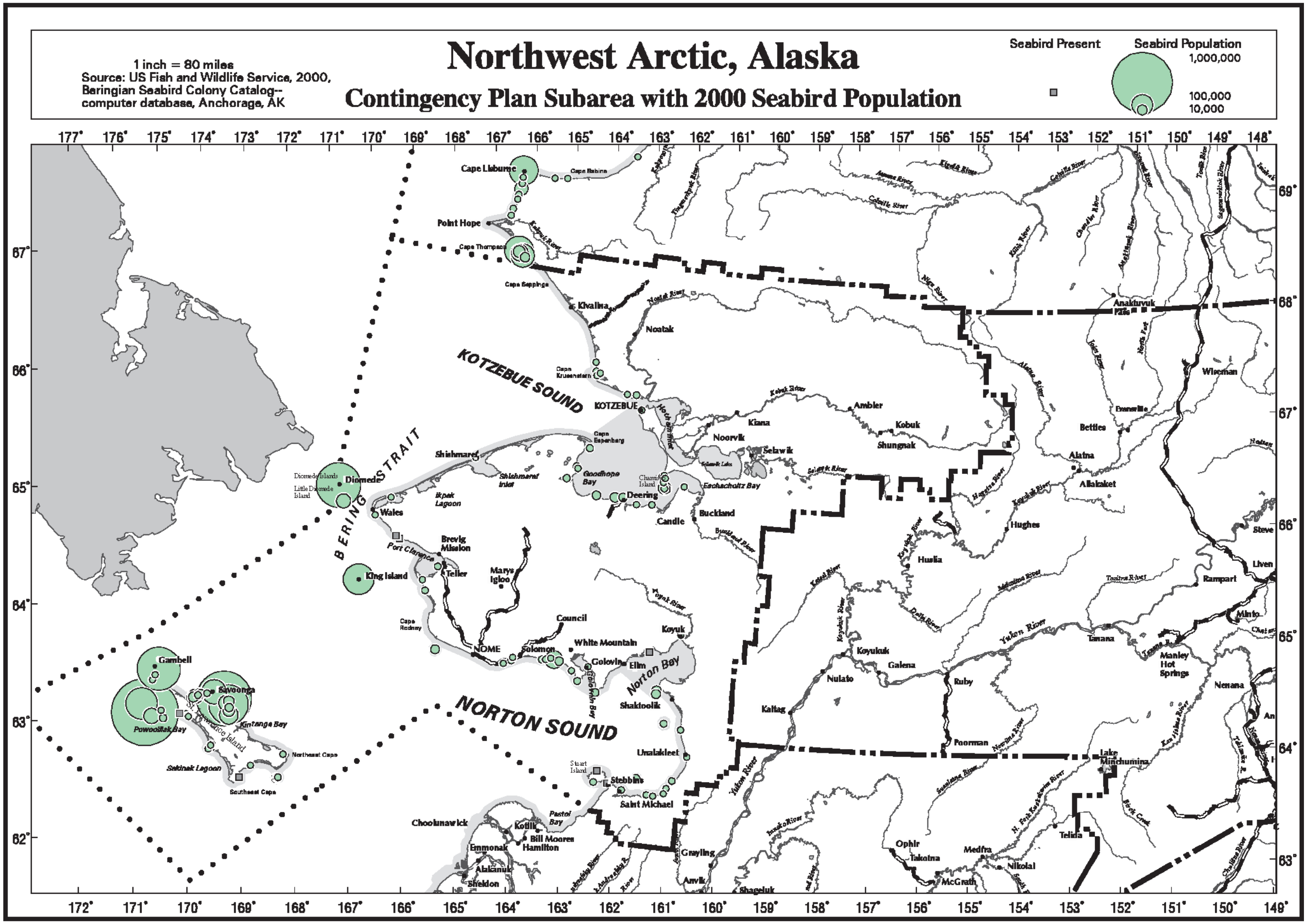

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Figure D-10. Northwest Arctic Subarea seabird colonies map.

e) MARINE MAMMALS

Polar Bears. This species is associated with sea ice of the Bering, Chukchi, and Beaufort Seas. During summer, polar bears concentrate along the southern edge of pack ice, although polar bears may be found on land when pack ice edge is near shore. Polar bears commonly travel along barrier islands and mainland beaches to search for den sites and to feed on beached marine mammal carrion. In winter, polar bears are found most commonly along areas of open water, such as the pack and shorefast ice edge, flaw zone, and leads and polynyas. In late October or November, pregnant females seek out denning areas in snowdrifts on land (generally within 50 km of the coast), on shorefast ice, or drifting sea ice. Females and cubs emerge from the maternity dens in late March or early April. Most polar bears move north with receding pack ice during summer months. For more information on polar bears, see the USFWS website at http://alaska.fws.gov/fisheries/mmm/polarbear/pbmain.htm.

Seals. Three species of seal commonly occur in the nearshore waters of the Northwest Arctic Subarea: ringed seal, bearded seal, and spotted seal. All three species are food resource for many communities within the Northwest Arctic Subarea. The ringed seal is the most common species of seal found in the Chukchi Sea and in Norton Sound. For more information on seals, see the NMFS website at http://www.fakr.noaa.gov/protectedresources/seals/default.htm.

Ringed Seals. Most ringed seal pups are born in March or April in birthing lairs constructed on shorefast ice or pack ice with adequate snow cover. The seal pups remain in the lairs for four to six weeks until they are weaned. Ringed seals molt on shorefast ice and on large flat ice flows in the pack from late March until July, with peak molting occurring in June. During summer, most ringed seals are believed to occupy the southern pack ice edge, although a few may remain in ice-free areas. They return to nearshore areas in late fall and early winter as the shorefast ice reforms in October and November. Within the Northwest Arctic Subarea, the shorefast ice in Norton Sound, Kotzebue Sound (and Hotham Inlet), and St. Lawrence Island is known to contain significant breeding and pupping habitat. More information and maps on ringed seals may be found at the Kotzebue IRA website at http://www.kotzebueira.org/.

Spotted Seals. Major population segments of spotted seals migrate through outer Norton Sound from April to June and from late November to early January. During summer, spotted seals occur throughout St. Lawrence Island, Norton Sound, Kotzebue Sound, and the Chukchi Sea coastline, particularly in nearshore areas and the lagoons of the outer Seward Peninsula, from Lopp Lagoon to Cape Espenberg. Spotted seals haul out on sandy spits and shoals from mid-July until freeze-up in late October or early November. Important haulouts are located on St. Lawrence Island, St. Michael Island, Stuart Island, Besboro Island, Cape Denbigh, Cape Darby, Safety Sound, and Port Clarence. Additional haulout and concentration areas along the Chukchi Sea coastline include Cape Espenberg, Chamisso Island, Elephant Point, Sisualik Spit, and near the mouths of rivers and other areas with an abundance of anadromous fish, herring, smelt, capelin, or cod. Spotted seal occur in the Kotzebue area (including Hotham Inlet and occasionally Selawik Lake) from June to November. The south side of St. Lawrence Island is used heavily by spotted seals from April to December. In U.S. waters, pupping occurs from April to May. Molting occurs from May to June.

Bearded Seals. This species is associated primarily with the pack ice and in association with leads, flaws, and polynyas. Consequently, though they are primarily found offshore, nearshore areas (e.g., Kotzebue Sound) can have significant concentrations depending on the season and ice conditions. Many bearded seals that winter in the Bering Sea migrate through the Bering Strait from late April through June and spend the summer along the ice edge in the Chukchi Sea. Bearded seals occur in Kotzebue Sound from August to July and in Norton Sound from late November to late June. Juvenile bearded seals may

remain in these areas through September. The northern estuary is important rearing habitat for young-of-the-year bearded seals. From December through March, bearded seals are abundant immediately north of St. Lawrence Island. Pupping occurs from mid-March to early May. Molting occurs between April and August, with a peak in May and June. More information and maps on bearded seals may be found at the Kotzebue IRA website at http://www.kotzebueira.org/.

Ribbon seals. Ribbon seals prefer offshore water and are rarely seen along the coast. From late March through mid-July, they are generally found along the Bering Sea ice front. For most of the rest of the year, they occupy the ice-free waters of the Bering Sea. A few ribbon seals migrate into the Chukchi Sea for the summer, and though rare, they are occasionally seen in the Gulf of Alaska and North Pacific Ocean.

Beluga Whales. Whales bound for the Beaufort Sea migrate past St. Lawrence Island mainly in March and April, reach the Bering Strait from late March through mid-May, and continue northward in leads along the northwestern Alaska coast. Belugas bound for Norton and Kotzebue Sounds begin moving to their wintering area to coastal areas from March through May. Belugas enter Norton Sound coastal waters in May and June and remain until October or November. Belugas occupy the coast of the northern Seward Peninsula, from June through October, and Kotzebue Sound, from mid-June to August. Summer use areas in Norton Sound include Norton Bay (May and June) and Golovin Bay (June to November). Concentrations in Kotzebue Sound include Eschscholtz Bay and Sisualik Spit. Eastern Kotzebue Sound is a high summer use area. Belugas generally return to wintering areas in the Bering Sea in October and November. Some may winter northwest of St. Lawrence Island, a few may winter in the southeastern Chukchi Sea, and a few may winter in Norton Sound when prevailing winds keep polynyas and leads open.

Bowhead Whales. These whales move northward past St. Lawrence Island in March and April, through the Bering Strait from late March through May, and northward along the Chukchi Sea coast as leads open in the sea ice. Bowhead whales rarely enter Norton Sound. Fall migration in the Chukchi Sea occurs offshore. Bowhead whales move south through the Bering Strait from September to December. Bowhead whales winter in the Bering Sea near the pack ice edge.

Humpback Whales. Both the endangered Western North Pacific Distinct Population Segment (DPS) and the Mexico DPS humpback whale can be found throughout much of the North Pacific Ocean and into the Bering and Chukchi Seas. In winter, most humpback whales occur in subtropical and tropical waters. It is uncertain as to whether individuals seen in these waters are from the Central or Western North Pacific stock. The summer feeding range of humpback whales in the North Pacific encompasses coastal and inland waters of the Bering Sea and north of the Bering Strait. Sightings in the northeastern Chukchi and Beaufort Seas remain rare. Three humpback sightings were reported in 2007 and one in 2008 during surveys of the eastern Chukchi Sea. This may be a recent phenomenon, as no humpback whales were sighted during previous surveys in the Chukchi Sea from 1982 through 1991. Additional sightings of four humpback whales occurred in 2009 south of Point Hope. It is possible humpback whales are expanding their present range due to climate changes resulting in increased prey. For more information on humpback whales, see the NOAA website at: https://alaskafisheries.noaa.gov/pr/humpback.

Other Whales. Gray whales feed in waters near the southern capes of St. Lawrence Island, from St. Lawrence Island north to the Bering Strait, and in portions of Norton Sound from mid-May through November. Gray whales enter the Chukchi Sea during the ice-free season (June to October). Killer and fin whales are seen occasionally along the Alaskan Chukchi Sea coast and are frequently seen in the vicinity of St. Lawrence Island from spring through fall. Minke whales are regularly seen in the St. Lawrence Island area during the summer. Occasional use of the St. Lawrence Island area by North Pacific right whales during the open water period may occur. For more information on whales, see the NMFS website at: http://www.fakr.noaa.gov/protectedresources/whales/default.htm.

Pacific Walrus. Primarily female and juvenile walrus begin migrating north past St. Lawrence Island in March and April. Most reach the Bering Strait by late May or early June and continue migrating northward into the Chukchi Sea. Some males remain in the Bering Sea year-round. Walruses in the Chukchi Sea begin to move south in September and early October as pack ice forms. In recent years, walruses have been hauling out in large numbers near Point Lay and Cape Lisburne, from mid-August through mid-October. Between October and December, large numbers occasionally haul out at St. Lawrence, Punuk, Diomede, and King Islands, and in Norton Sound. With continuing development of ice, most walruses move to wintering areas south of St. Lawrence Island. Walruses return to the Bering Sea in September and early October as pack ice reforms. Large numbers arrive between October and December at haulouts at St. Lawrence, Punuk, Diomede, and King Islands. See Figure D-11 for the walrus range and haulouts. A comprehensive Pacific walrus haulout database has been compiled, in part to assist with monitoring changes in haulout behavior and locations due to reductions in seasonal sea ice. This georeferenced database (http://alaska.usgs.gov/products/data.php?dataid=74) includes information on walrus haulouts from 1852 to 2016 and can be accessed to find a list of known traditional haulouts where walrus might be expected.

Steller Sea Lion. During the ice-free months, a few sea lions haul out on portions of St. Lawrence Island, the southern Punuk Islands, on Fairway Rock, and occasionally on the Diomede Islands. The highest number of Steller sea lions counted on St. Lawrence Island during repeated surveys was 262 (during a survey at the Sivuonok haulout in November 2010). Fifty to 100 sea lions were seen in the water off the north end of Sivuqaq Mountain.

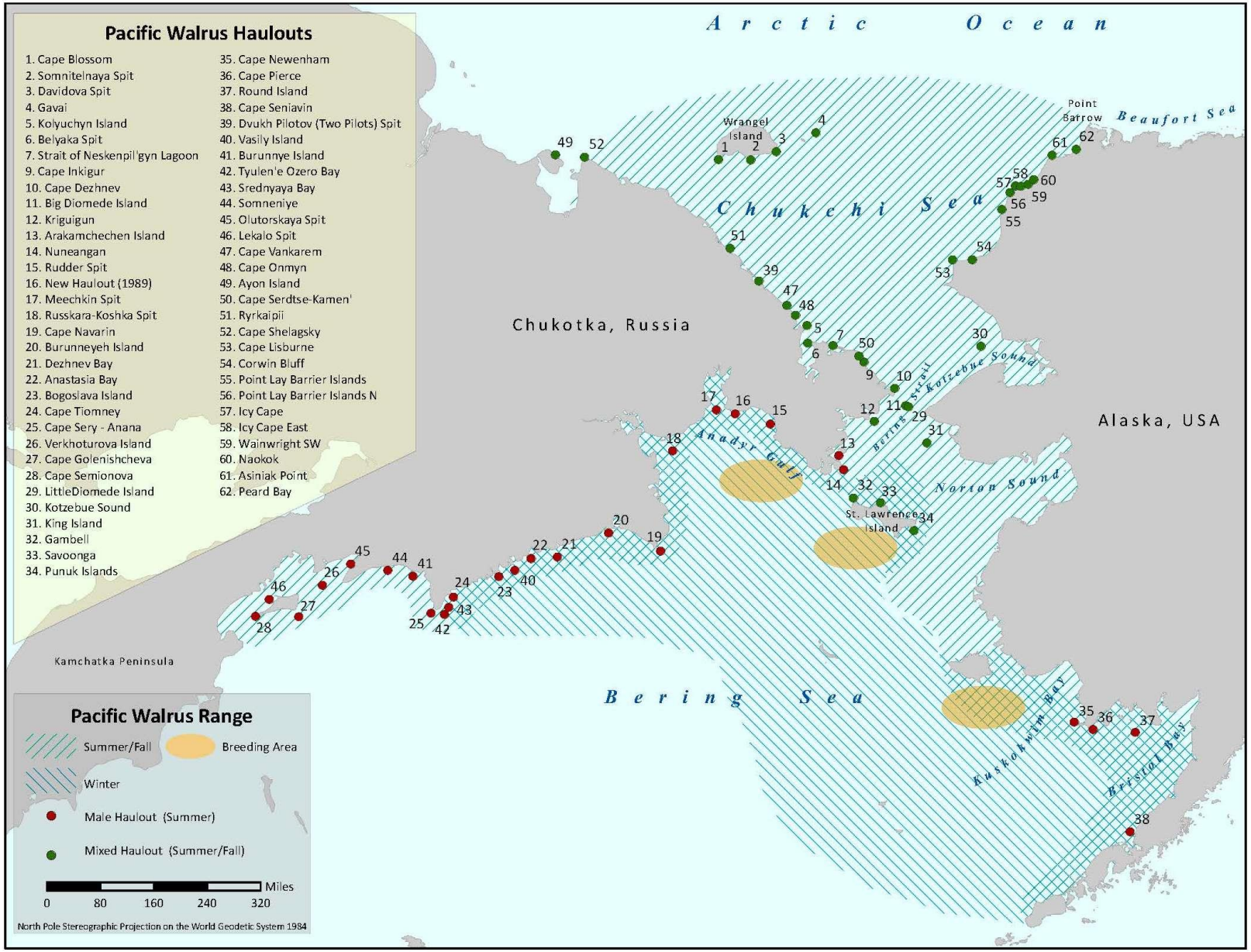


Figure D-11. Pacific walrus haulout map.

f) TERRESTRIAL MAMMALS

Caribou. The Western Arctic Caribou Herd has declined from a peak of 490,000 in 2003 to 377,000 in 2007. As the herd approached its peak, their seasonal dispersion has expanded westward into the Seward Peninsula. Currently, portions of the herd may be found in much of the subarea, primarily in late summer through winter. Much of the herd migrates along the eastern half of the subarea, funneling through the Selawik National Wildlife Refuge to calving grounds on the eastern North Slope. Although caribou may be found in different habitats, important summer habitat for willow browsing and insect relief includes riparian and coastal areas, especially with open gravel bars and remaining snowpack. See Figure D-12 for Alaska caribou herd ranges.

Reindeer. Reindeer, some mixed with caribou, may be found throughout the Seward Peninsula and St. Lawrence Island. They are frequently found in the far western areas of the Seward Peninsula including barrier islands along the western portion of the peninsula. Reindeer may be more tolerant to human activity and usually calve in April, one month earlier than caribou. They are private property, and it would be beneficial to have the herder help haze both reindeer and caribou if needed.

Black Bear. These are most common in forested river floodplains and lowlands in the Kobuk, Selawik and Noatak River drainages, although black bears occasionally may occur in alpine areas. Black bears also occur along the Norton Sound coast between Shaktoolik and Klikitarik. Important summer habitats include sedge meadows, as well as areas of shrubs and forest containing berries. Black bears also may feed at salmon spawning areas. Black bears begin entering dens for the winter in early October and emerge from dens in the spring from mid-April through mid-May.

Brown Bear (grizzly bears). These primarily occur in upland and mountainous areas of the northwest region, but may occur in lowland and coastal areas. Concentrations of bears may be found along rivers when spawning salmon are present, at beached marine mammal carcasses along the Chukchi Sea coastline between Cape Seppings and Cape Thompson, in reindeer calving areas, and in caribou calving grounds and migration corridors. Brown bears enter dens from mid-October through November and emerge from their dens from early April through late May. Concentrations of bears are attracted to spawning salmon on the lower Noatak, Squirrel, Salmon, Nimiuktuk, lower Kougarok, Agiapuk, lower Pilgrim, lower Sinuk, lower Cripple, lower Penny, lower Flambeau and Eldorado, lower Kwiniuk, lower Tubutulik, lower Inglutalik, lower Ungalik, lower Shaktoolik, lower Egavik, lower North, and lower Unalakleet Rivers. Spring concentration areas include Cape Espenberg to Goodhope Bay coastline, Cape Rodney to Tiksuk River, coastline near Bluff, and coastline from Unalakleet to St. Michael.

Moose. This species occurs in habitats throughout the subarea, ranging from aquatic and riparian floodplain areas to sub-alpine willow-dominated areas. Sedge meadows, ponds and lakes with extensive aquatic vegetation, riparian and subalpine willow stands, and forested areas provide important summer habitat for moose. Important winter habitat includes forested areas and shrub-dominated alpine and riparian areas. Riparian areas along the major rivers and tributary streams are particularly important during winter. Calving occurs in late May and early June.

Dall Sheep. These are found throughout the central Brooks Range and to the Wulik Peaks area of the extreme western end of the western Brooks Range. Sheep often are concentrated during winter on windblown slopes and ridges along major river valleys. During summer, sheep disperse to smaller valleys, mountain peaks, and other areas. Mineral licks are important habitat that sheep use primarily from late May through mid-July, although sheep may be seen at these sites from April through October. Lambing occurs from mid-May through mid-June.

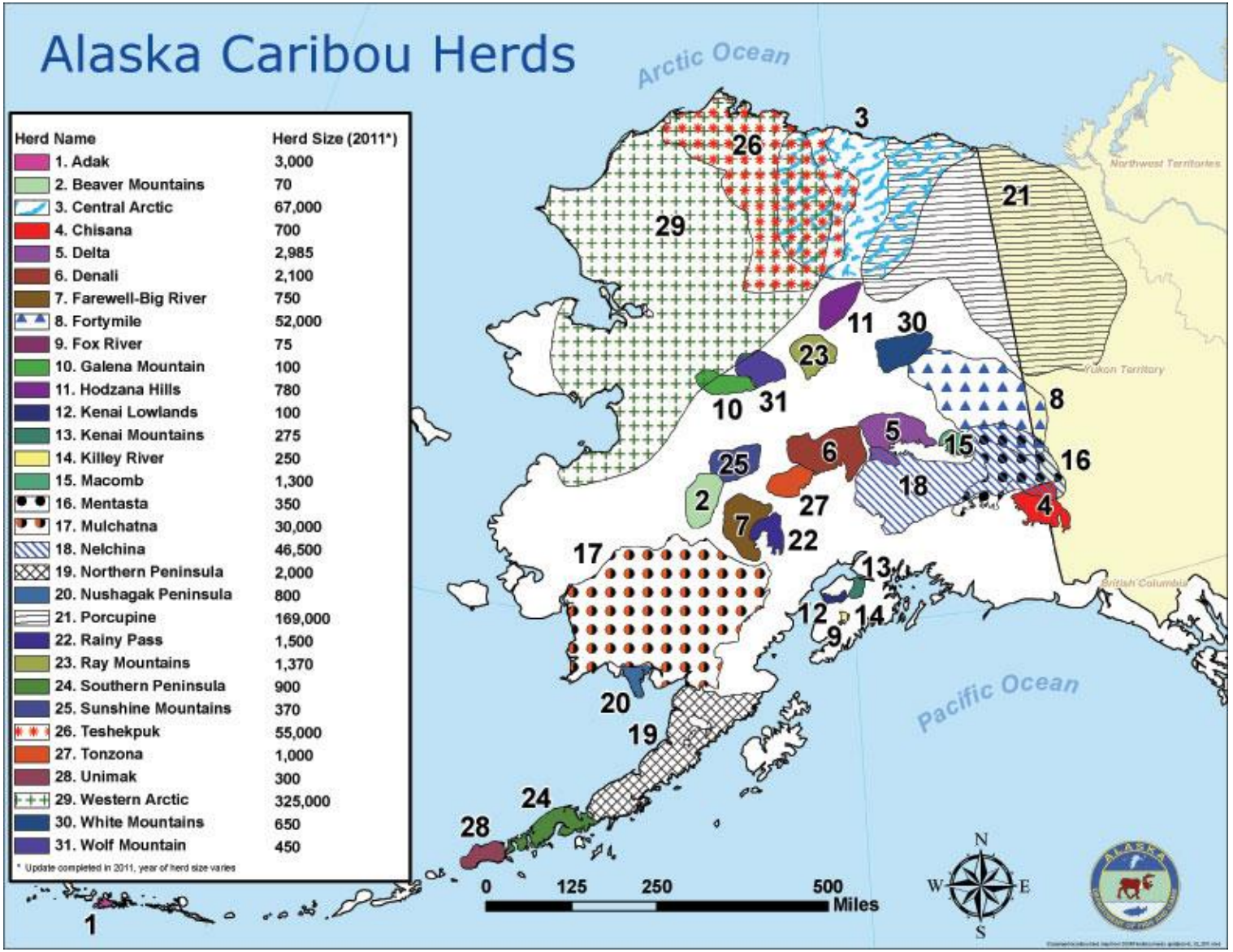


Figure D-12. Alaska caribou herds.

Muskoxen. Most muskox are found over much of the Seward Peninsula and about 400 are concentrated around Cape Thompson within 20 miles of the coast, but are expanding north and southeast; they are found in riparian habitat in summer and windswept uplands in winter through calving (late April to mid-June).

Wolves and Foxes. These are found throughout the subarea. Arctic foxes occupy St. Lawrence Island and coastal areas, whereas red foxes generally occupy inland areas. Some red foxes do occur and den near the coast. Wolves and foxes select den sites where unfrozen, well-drained soils occur (e.g., dunes, river banks, moraines, pingos). Wolves may initiate den construction in mid-April. Pups are born from mid-May through early June and generally leave the den by mid-July, although dens may be occupied until August. Arctic and red foxes have a reproductive pattern similar to that of wolves.

Wood Bison. In 2015, this species was reintroduced to Alaska in the lower Innoko/Yukon River area. Although their release and current core range are outside of the Northwest Arctic Subarea boundary, their current extent range may reach into this subarea southeast of Norton Sound. More information on this species and their reintroduction can be found at http://www.adfg.alaska.gov/index.cfm?adfg=woodbisonrestoration.main.

A*quatic Furbearers*. Beaver, mink, muskrat, and river otter are common inhabitants of aquatic and riparian floodplain and wetland areas, including marshes, ponds, lakes, streams, and rivers.

For more information on terrestrial mammals, see the ADF&G website at http://www.adfg.alaska.gov/index.cfm?adfg=animals.listmammals.

2. Vegetation

Rare plant species are identified below, as documented by the Alaska Natural Heritage Program. Figure D-13 identifies the general locations of these rare plants. For more information, check the Alaska Natural Heritage Program's Rare Plant Data Portal at http://aknhp.uaa.alaska.edu/maps-js/integrated-map/rare_plants.php.

RARE PLANTS KNOWN FROM THE NORTHWEST ARCTIC SUBAREA

Global Rank[1]	State Rank[2]	Scientific Name	Common name
G1?	S1	*Saussurea triangulata*	
G2	S2S3	*Erigeron muirii*	
G2	S2	*Oxytropis kobukensis*	Kobuk Locoweed
G2	S2	*Rumex krausei*	Cape Krause sorrel
G2G3	S2S3	*Aster yukonensis*	Yukon Aster
G2G3	S2S3	*Douglasia alaskana*	Alaska Rockjasmine
G2G3Q	S2S3	*Oxytropis tananensis*	
G3	S1	*Claytonia arctica*	Arctic Springbeauty
G3	S2	*Lupinus kuschei*	
G3	S2	*Oxytropis kokrinensis*	
G3	S3	*Aphragmus eschscholtzianus*	
G3	S3	*Symphyotrichum yukonense*	
G3	S3	*Potamogeton subsibiricus*	
G3	S2S3	*Artemisia senjavinensis*	Arctic Sage
G3	S3	*Stellaria alaskana*	
G3	S3	*Stellaria dicranoides*	
G3	S3	*Thlaspi arcticum*	
G3	S3	*Arenaria longipedunculata*	
G3	S3	*Draba exalata*	
G3	S3	*Douglasia beringensis*	
G3	S3	*Oxytropis kokrinensis*	Kokrines Oxytrope
G3	S3	*Papaver walpolei*	Walpole Poppy
G3	S2S3	*Primula tschuktschorum*	Chukch Primrose
G3G4Q	S2S3	*Saxifraga nudicaulis*	
G3?	S2S3	*Puccinellia wrightii*	Wright's Arctic Grass
G3G4	S1	*Festuca edlundiae*	
G3G4	S3S4	*Primula anvilensis*	Anvil Mountain Primrose
G3G4T?	S1	*Gentianopsis detonsa* ssp.*detonsa*	Sheared Gentian
G4	S1	*Potentilla fragiformis*	
G4	S1	*Puccinellia vaginata*	
G4	S2	*Carex heleonastes*	
G4?	S2	*Carex holostoma*	
G4	S2S3	*Cardamine microphylla* ssp. *blaisdellii*	
G4	S2S3	*Puccinellia vahliana*	
G4	S2S3	*Potentilla rubricaulis*	
G4	S3	*Campanula aurita*	
G4	S3	*Erigeron porsildii*	

-continued-

Global Rank[1]	State Rank[2]	Scientific Name	Common name
G4	S3	*Asplenium viride*	
G4	S3	*Asplenium trichomanes-ramosum*	Green Spleenwort
G4	S3	*Minuartia yukonensis*	
G4	S3	*Colpodium vahlianum*	Niokornak Arctic Grass
G4G5	S3	*Festuca lenensis*	
G4G5	S1	*Pleuropogon sabinei*	Sabine-grass
G4	S2S3	*Eleocharis kamtschatica*	
G4G5	S2S3	*Oxygraphis glacialis*	
G4G5	S2	*Carex holostoma*	
G4T1T2Q	S1S2	*Artemisia globularia* var *lutea*	
G4T2	S2	*Oxytropis arctica* var *barnebyana*	
G4T2T3Q	S2	*Phlox richardsonii* ssp. *richardsonii*	Richardson's Phlox
G4T3T4	S2	*Ranunculus glacialis* var *camissonis*	
G5	S1S2	*Ranunculus monophyllus*	
G5	S2S3	*Cryptogramma stelleri*	
G5	S2	*Schizachne purpurascens*	
G5	S2	*Glyceria striata* ssp. *stricta*	
G5	S1	*Potentilla stipularis*	Circumpolar Cinquefoil
G5	S3	*Zannichellia palustris*	Horned Pondweed
G5?	S1	*Pedicularis hirsuta*	Hairy Lousewort
G5	S3	*Viola selkirkii*	
G5	S2	*Eriophorum viridicarinatum*	
G5	S2S3	*Glyceria pulchella*	
G5	S2S3	*Smelowskia porsildii*	
G5T2?Q	S2?	*Corispermum ochotense* var *alaskanum*	
G5T4	S1	*Chenopodium glaucum* ssp. *salinum*	
G5	S1S2	*Carex deflexa*	
G5T5	S2S3	*Cypripedium parviflorum*	Small Yellow Lady's Slipper
G5	S2S3	*Stellaria umbellate*	
G5	S3S4	*Minuartia biflora*	
		X_Dupoa labradorica	

[1] G1 = Critically imperiled globally. (Typically 5 or fewer occurrences)
G2 = Imperiled globally. (6-20 occurrences)
G3 = Rare or uncommon globally. (21-100 occurrences)
G4 = Apparently secure globally, but cause for long-term concern. (Usually more than 100 occurrences)
G5 = Demonstrably secure globally.
G#G# = Rank of species uncertain, best described as a range between the two ranks.
G#Q = Taxonomically questionable.
G#T# = Global rank of species and global rank of the described variety or subspecies of the species.

[2] S1 = Critically imperiled in state. (Usually 5 or fewer occurrences)
S2 = Imperiled in state. (6-20 occurrences)
S3 = Rare or uncommon in state. (21-100 occurrences)
S4 = Apparently secure in state, but with cause for long-term concern (usually more than 100 occurrences)

S5 = Demonstrably secure in state.
S#S# = State rank of species uncertain, best described as a range between the two ranks.

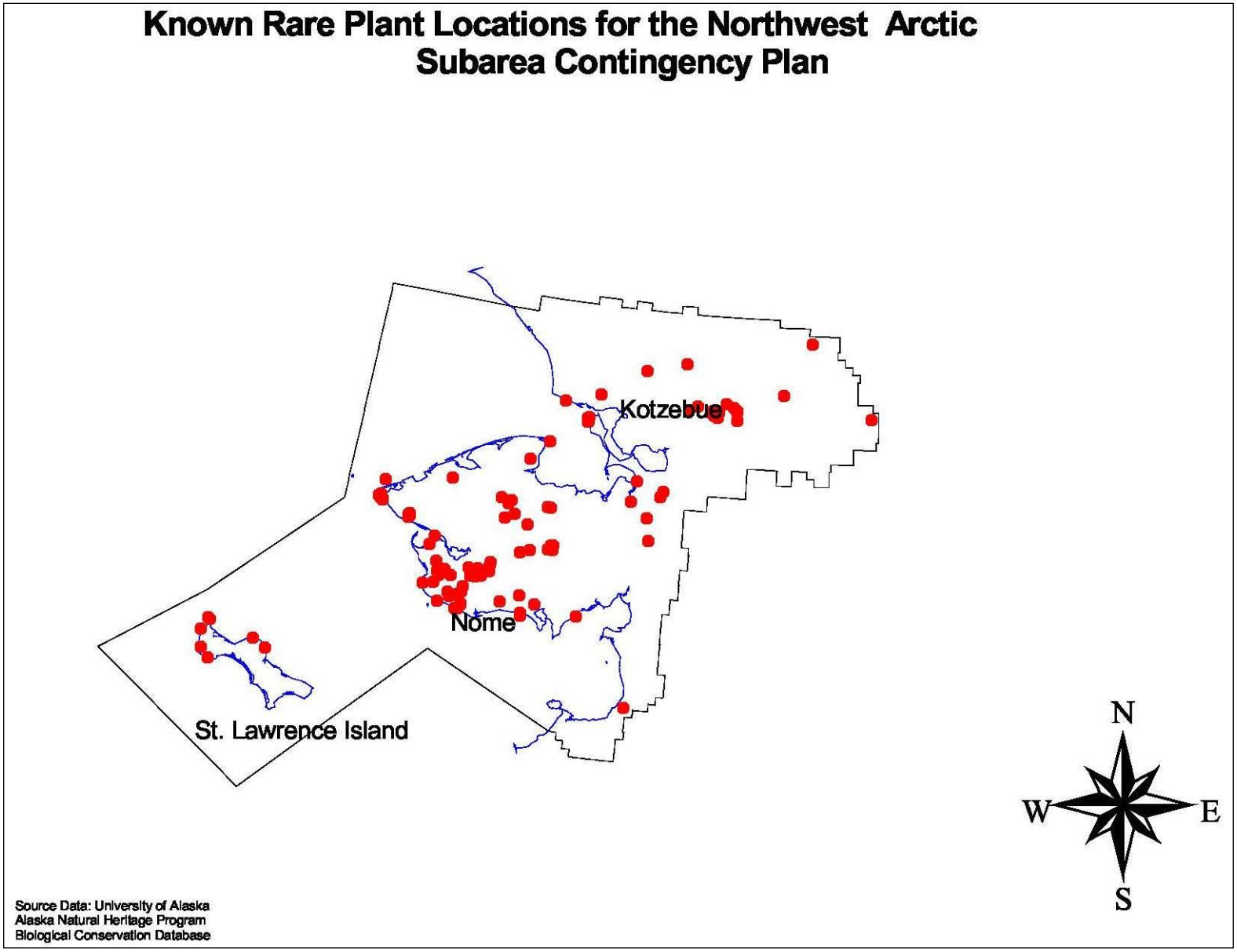


Figure D-13. Known rare plant locations in the Northwest Arctic Subarea.

D. HUMAN USE RESOURCES

1. *Fish Hatcheries and Associated Ocean Net Pens*

There are no fish hatcheries operating in the subarea.

4. *Aquaculture Sites*

There are no aquaculture sites in the subarea.

5. *Cultural Resources and Historic Properties*

The Northwest Arctic Subarea contains a multitude of known and unidentified historic properties. These may include National Historic Landmarks, burial sites, village sites, and other National Register of Historic Places eligible archaeological and historic sites in intertidal and on-shore locations. Oil spills and hazardous substance releases may result in severe impacts to these resources through both direct and indirect effects. OSCs are responsible for ensuring that response actions take the protection of historic properties into account and that the statutory requirements for protecting these resources are met. Guidance about how to ensure that preparedness and response accomplish this goal is provided in the *Alaska Implementation Guidelines for Federal On-Scene Coordinators for the Programmatic Agreement on Protection of Historic Properties During Emergency Response Under the National Oil and Hazardous Substances Pollution Contingency Plan*. This guidance is found in Annex M of the *Unified Plan* under the title *Historic Properties Protection Guidelines for Alaska Federal On-Scene Coordinators*.

Stringent federal and Alaska State protections exist that maintain confidentiality for the locations of known historic properties. For this reason, pre-incident site identification is limited. During a drill or an actual incident, the FOSC's Historic Preservation Specialist and the ADNR Office of History and Archaeology provide information to the Unified Command on an as needed basis.

6. *Subsistence and Personal Use Harvest*

Subsistence-related uses of natural resources play an important role in the economy and culture of many communities in the subarea. A subsistence economy may be defined as follows:

> ...an economy in which the customary and traditional uses of fish, wildlife, and plant resources contribute substantially to the social, cultural, and economic welfare of families in the form of food, clothing, transportation, and handicrafts. Sharing of resources, kinship-based production, small scale technology, and the dissemination of information about subsistence across generational lines are additional characteristics.

Before 1990, the State of Alaska and the Alaska Boards of Fisheries and Game made all decisions regarding the management of subsistence resources and harvest opportunities. In 1990, however, the federal government became responsible for managing subsistence resources on federal public lands and, in 1999, in federal reserved waters. The Federal Subsistence Board makes the regulations which are administered by various federal agencies on federal public lands. State regulations continue to apply to state and private lands. As a consequence, the number of agencies involved in managing subsistence resources and uses has increased. Therefore, in the event of a spill, extensive coordination will be required in order to address subsistence resource issues.

Regulations regarding subsistence harvest can also be expected to undergo further regular modification. Current information on harvest regulations can be obtained from the ADF&G at http://www.adfg.alaska.gov/index.cfm?adfg=subsistence.main or from the DOI Federal Subsistence Management Program at https://www.doi.gov/subsistence.

Traditional subsistence harvest areas include the Bering Strait area, the Western Seward Peninsula, and Norton Sound Coast. The communities identified within the Bering Strait area include Diomede, Gambell, Savoonga, and Wales; the Western Seward Peninsula area includes Teller, Shishmaref, Brevig Mission, Mary's Igloo, and King Islanders living in Nome; and the communities associated with the Norton Sound Coast area include Solomon, Golovin, White Mountain, Council, Elim, Koyuk, Shaktoolik, Unalakleet, St. Michael, and Stebbins. The subsistence harvest areas and species associated with these areas are identified in The Bering Straits Coastal Resource Service Area Board, Volume One-Resource Inventory, Maps 2(A), 2(B), and 2(C). The outer coast of northwest Seward Peninsula is highly utilized (From Wales to Cape Espenberg) for subsistence fishing (whitefish, anadromous fish) and hunting (caribou, moose, muskox). In addition, Cape Krustenstern National Monument is highly used for subsistence fishing (whitefish and anadromous salmonid runs) and hunting (caribou, bear, moose). There is an extensive network of hunting and fishing camps from Sesaulik (on the Noatak Delta) to Kivalina.

Traditional subsistence harvest areas for the Northwest Arctic Borough or NANA region include lands surrounding the villages of Ambler, Buckland, Deering, Kiana, Kivalina, Kobuk, Kotzebue, Noatak, Noorvik, Selawik, and Shungnak. The Exchange for Local Observations and Knowledge of the Arctic (ELOKA) website contains subsistence use information and maps for Pacific walrus, seals, whales, fish, and shellfish at https://eloka-arctic.org/dataproducts. Subsistence use maps from this website are shown below, but use areas may change over time (see Figures D-14 – D-18). The Northwest Arctic Borough website also hosts an interactive Subsistence Mapping Program at https://www.nwabor.org/subsistence-mapping-program/.

More specific information, including technical reports and detailed maps, can be obtained from the ADF&G, Northwest Arctic Borough, Bering Straits Regional Corporation, Maniilaq Association, and NANA Regional Corporation. The Community Subsistence Information System contains Alaska community harvest information gathered by the ADF&G Division of Subsistence, including an Interactive Map of Geographic Survey Data available at http://www.adfg.alaska.gov/sb/CSIS/. For more information, contact the ADF&G Division of Subsistence at (907) 267-2362. Local communities can provide the most detailed and accurate information regarding current subsistence and personal use harvest. Contacts for potentially affected communities are identified in the Response Section, Part One.

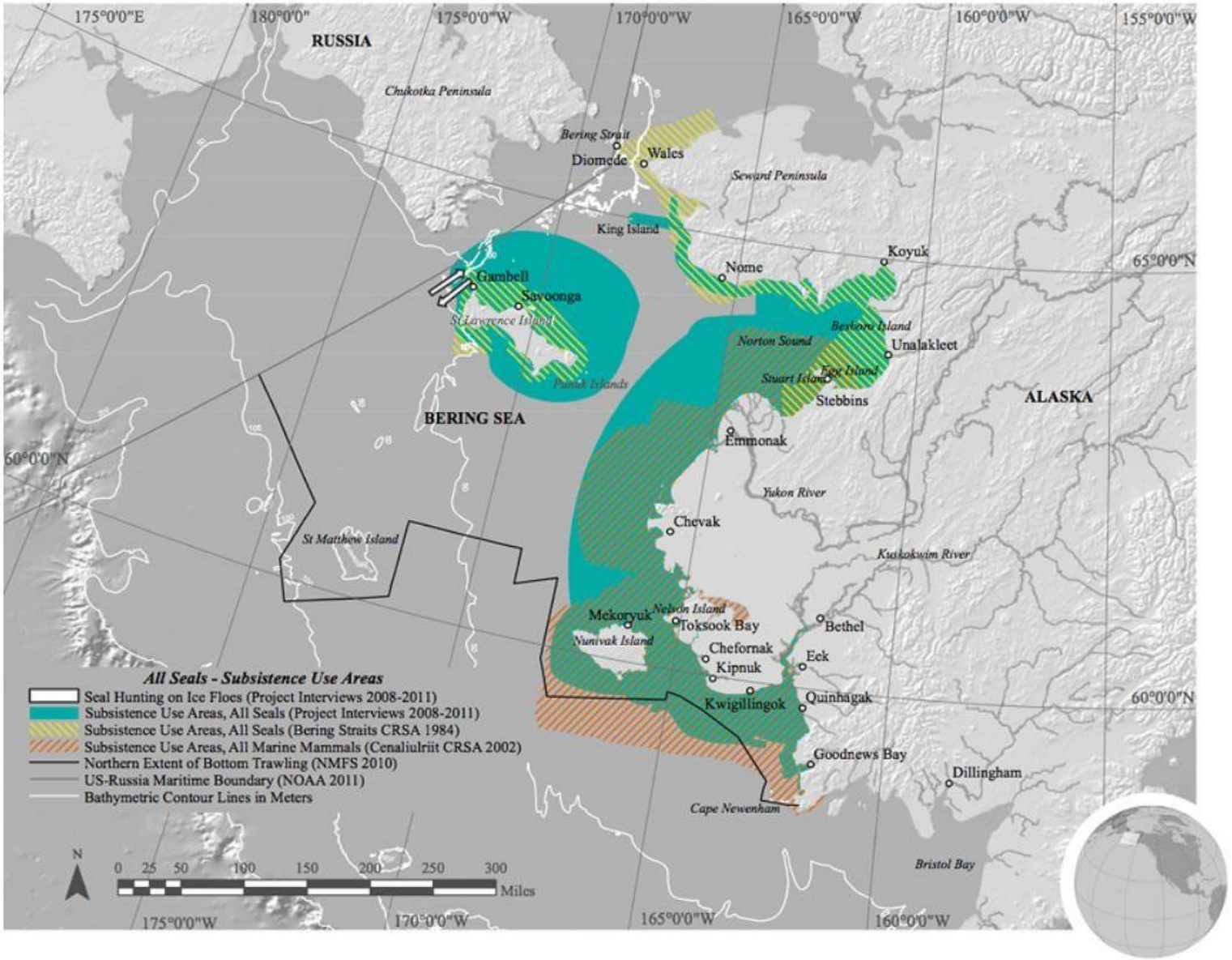


Figure D-14. Map of subsistence use areas for seals. *Source*: https://eloka-arctic.org/dataproducts.

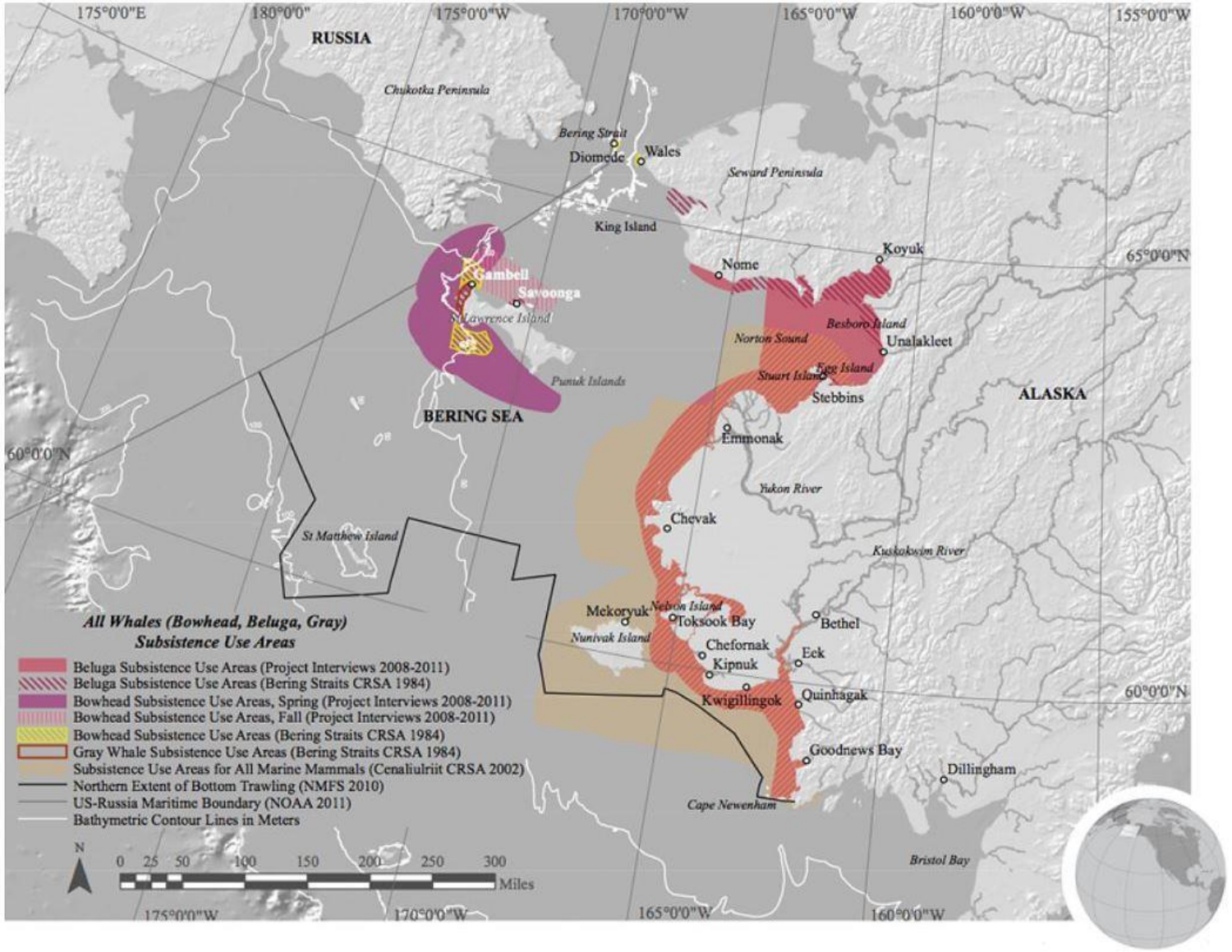


Figure D-15. Map of subsistence use areas for whales. *Source*: https://eloka-arctic.org/dataproducts.

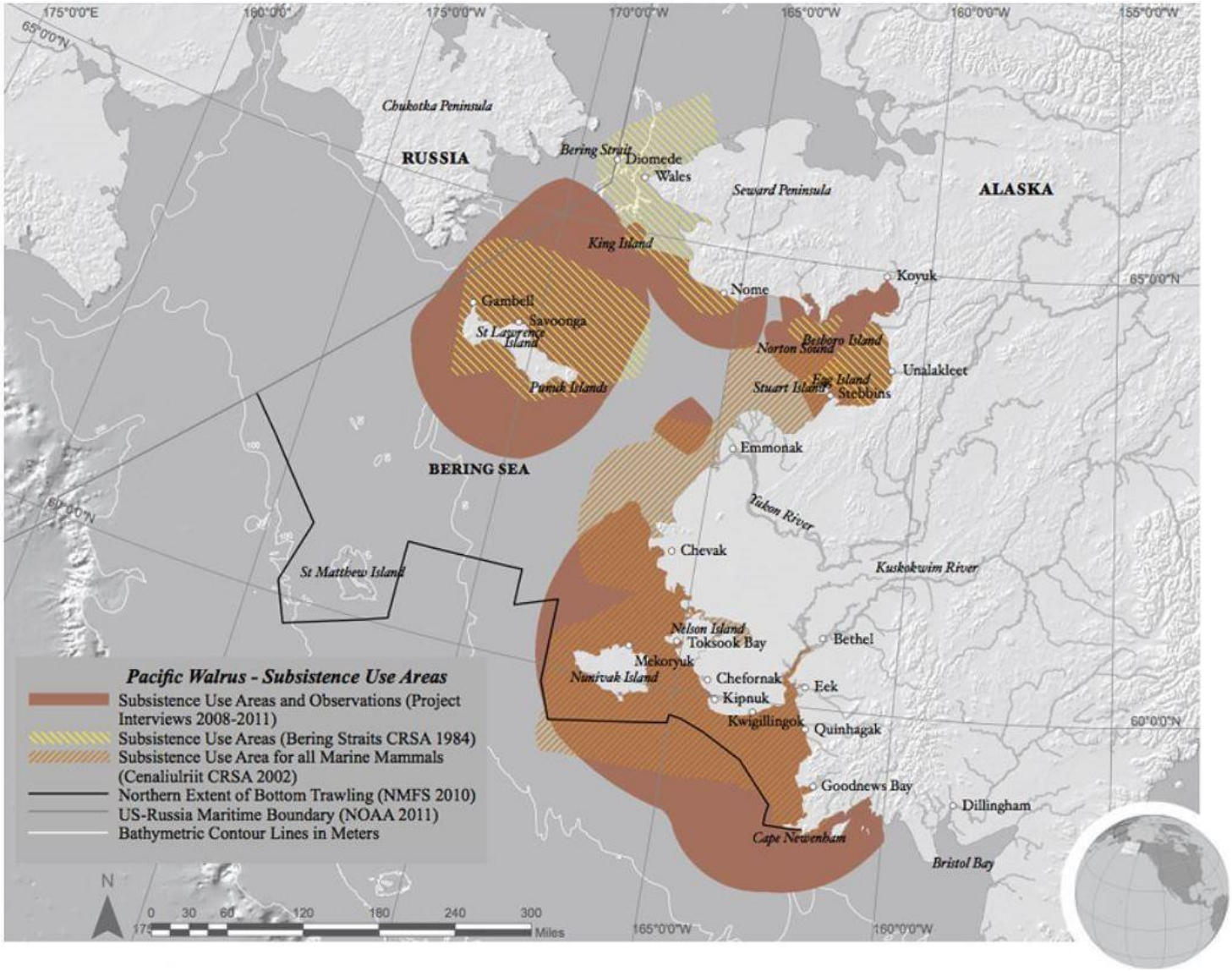
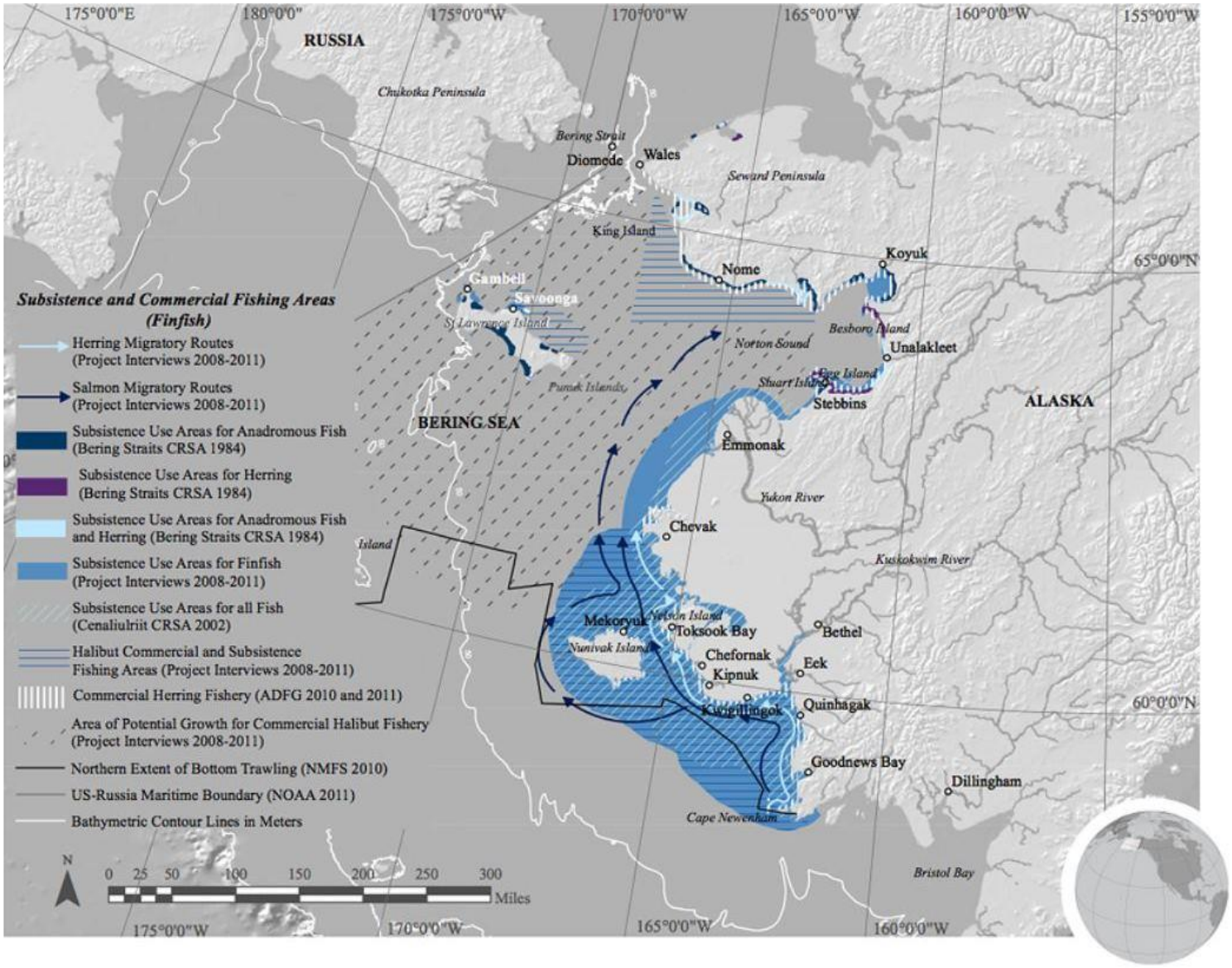


Figure D-16. Map of subsistence use areas for Pacific walrus. *Source*: https://eloka-arctic.org/dataproducts.


175°0'0"E
180°0'0"
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170°0'0"W
165°0'0"W
160°0'0"W
155°0'0"W
65°0'0"N
60°0'0"N
RUSSIA
Chukotka Peninsula
Bering Strait
Diomede
Wales
Seward Peninsula
King Island
Nome
Koyuk
Gambell
Savoonga
St Lawrence Island
Norton Sound
Besboro Island
Unalakleet
Punuk Islands
Stuart Island
Egg Island
Stebbins
ALASKA
BERING SEA
Emmonak
Yukon River
Chevak
Kuskokwim River
Nelson Island
Mekoryuk
Toksook Bay
Nunivak Island
Bethel
Chefornak
Eck
Kipnuk
Kwigillingok
Quinhagak
Goodnews Bay
Dillingham
Cape Newenham
Bristol Bay
Subsistence and Commercial Fishing Areas (Finfish)
Herring Migratory Routes (Project Interviews 2008-2011)
Salmon Migratory Routes (Project Interviews 2008-2011)
Subsistence Use Areas for Anadromous Fish (Bering Straits CRSA 1984)
Subsistence Use Areas for Herring (Bering Straits CRSA 1984)
Subsistence Use Areas for Anadromous Fish and Herring (Bering Straits CRSA 1984)
Subsistence Use Areas for Finfish (Project Interviews 2008-2011)
Subsistence Use Areas for all Fish (Cenaliulriit CRSA 2002)
Halibut Commercial and Subsistence Fishing Areas (Project Interviews 2008-2011)
Commercial Herring Fishery (ADFG 2010 and 2011)
Area of Potential Growth for Commercial Halibut Fishery (Project Interviews 2008-2011)
Northern Extent of Bottom Trawling (NMFS 2010)
US-Russia Maritime Boundary (NOAA 2011)
Bathymetric Contour Lines in Meters
N
0 25 50 100 150 200 250 300
Miles

Figure D-17. Map of finfish subsistence and commercial fishing areas. *Source*: https://eloka-arctic.org/dataproducts.

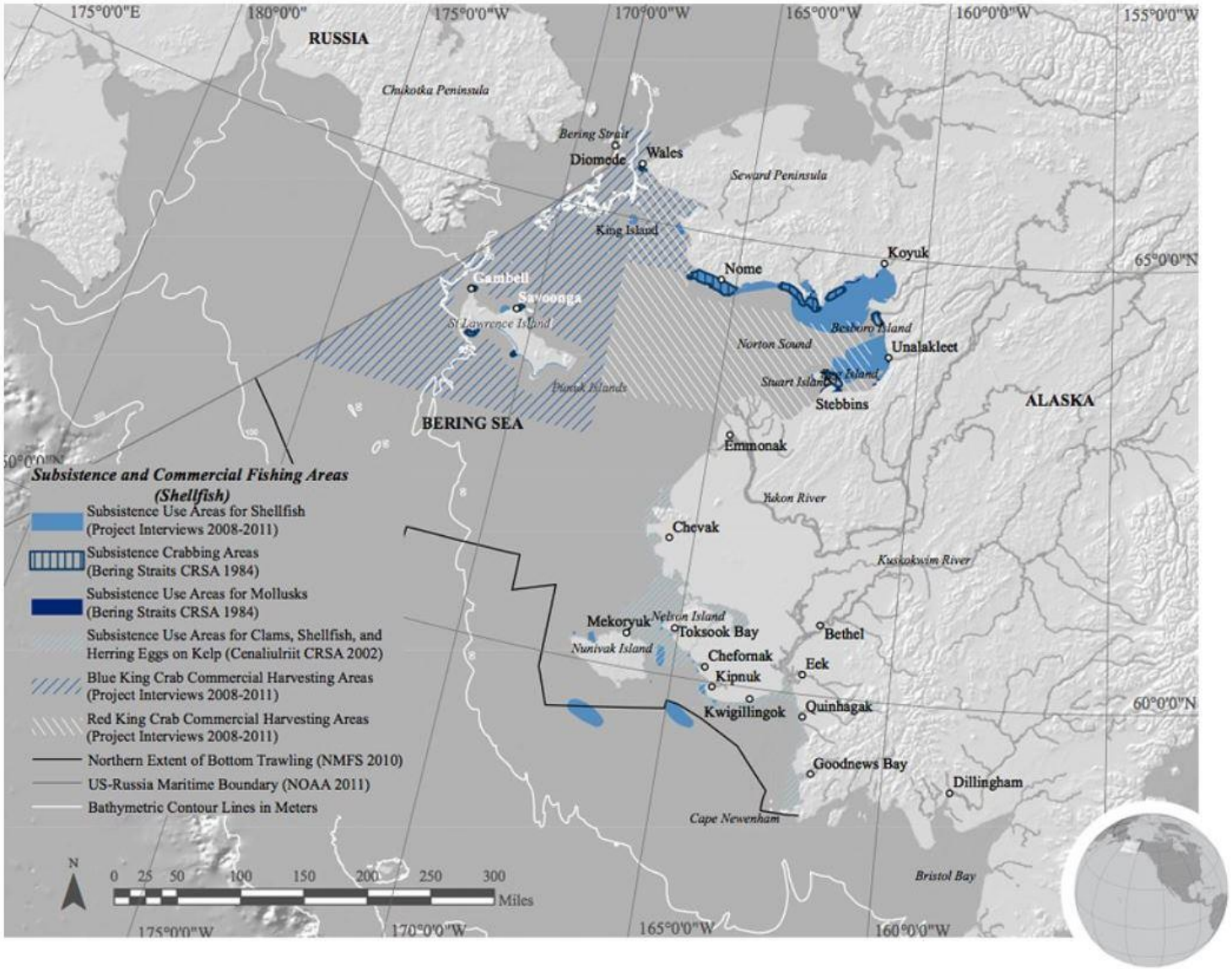

Figure D-18. Map of shellfish subsistence and commercial fishing areas. *Source*: https://eloka-arctic.org/dataproducts.

7. Commercial Fishing

Commercial fishing occurs in Kotzebue Sound for salmon and, to a much lesser extent, crab and sheefish, as well as in Norton Sound for salmon, herring, Pacific halibut, red king crab, and miscellaneous finfish (e.g., tom cod, whitefish, and Dolly Varden). Commercial fishing for salmon in Kotzebue Sound generally occurs from July 10 to August 31 in the Kobuk and Noatak Rivers. Salmon fishing in Norton Sound generally occurs from June 25 to September 7, depending on the location and species harvested. A limited tom cod, whitefish, and Dolly Varden commercial harvest occurs in the late fall and winter. A crab commercial harvest occurs in the summer, and a smaller crab fishery occurs through the ice from February into late March or April. A limited bait herring fishery in Norton Sound generally occurs from May 20 to June 10, with harvests occurring along coastline south of Cape Dennigh. The fishing season for crab runs from June 15 to September 3 in offshore waters south of Shishmaref and south to Cape Romanzof, but almost all crab fishing occurs in offshore waters from Nome to Unalakleet. The dates given above indicate periods when fisheries are commonly, but not always, open. As fishing periods are adjusted yearly by emergency openings and closures, contact ADF&G for current fishing periods. Updated information may be found at their Commercial Fisheries Arctic Management Area website http://www.cf.adfg.state.ak.us/region3/nomehome.php.

8. Sport Fishing and Hunting

Sport fishing and hunting occurs at a wide variety of locations in the subarea throughout the year, but generally are at their highest levels from August to October in the Noatak, Kelly, and Squirrel River areas. Seasons and harvest regulations vary depending on the species and the area and may be changed from year to year. Contact the ADF&G for current seasons within the area of the spill. Updated information may be found at their Sport Fish Northwest Management Area website http://www.sf.adfg.state.ak.us/Management/areas.cfm/FA/northwestoverview.overview

9. Commercial Tourism

The communities of the subarea are just a quick flight away from Fairbanks and Anchorage, and many convenient tour packages are available. Commercial tourism in the Northwest Arctic Subarea tends to be relatively large compared to the rest of rural Alaska, receiving about 10,000 visitors annually. Nome, St. Lawrence Island (the villages of Gambell and Savoonga), and Kotzebue receive the majority of the areas tourism. Region-wide activities include: ABEC's Alaska Adventure (907-457-8909), Brooks Range Adventures (907-479-8203), and Kobuk River Jets (907-475-2149). Local Activities include: Gambell Village Tour (907-274-5400), Arctic Circle Adventures (Winter: 907-276-0976, Summer: 907-442-3509), NPS Kotzebue Visitor Center (907-442-3760), Tour Arctic (907-442-3301), Nome Custom Adventures (907-443-5134), Nome Tour and Marketing (907-443-2323), and Visit Russia Far East From Nome (907-443-5464). Travel to the Northwest Arctic Subarea is dictated by seasonal changes, and it should be noted that the majority of the tourism occurs in the summer months. For additional information contact:

Alaska Office of Tourism Development	(907) 465-2012
Alaska State Chamber of Commerce	(907) 586-2323
Alaska Native Tourism Council	(907) 274-5400
Alaska Wilderness Recreation & Tourism Assoc.	(907) 463-3038
Nome Convention and Visitors Bureau	(907) 443-6555

10. Recreational Sites and Facilities

Unalakleet River Lodge is located on the Unalakleet River about 10 miles upstream from the mouth. This lodge caters to an international sport fisherman clientele. The Unalakleet River has been designated as a wild and scenic river and attracts an increasing number of visitors each year. The Niuluk River has road access from Council and is one of the most important sport fishing areas in the Seward Peninsula for grayling and Arctic char, as well as pink, chum, and silver salmon. Access to Fish River from the Niuluk River also makes it easily accessible for sport fishing. A sport lodge located on the Fish River at White Mountain caters to an international sport fishing clientele. Golovin Bay, Golovin Lagoon, and the Fish and Niukluk Rivers also provide moose hunting for Nome residents and hunters from outside the state. A number of licensed guides have established use areas, as regulated by the State of Alaska Big Game Commercial Services Board and the ADNR Division of Land, Mining, and Water.

11. Marinas and Ports (see B. Resources Section)

Teck Alaska Inc. operates the DeLong Mountain Terminal for the Alaska Industrial Development and Export Authority along the Chukchi Sea, 17 miles southeast of Kivalina, for marine shipment of lead and zinc concentrate and for receiving and storing fuel. Kotzebue and Nome serve as storage and trans-shipment sites for fuel and other cargo. St. Michael also serves as a fuel storage and trans-shipment site.

12. Fish Processing

The ADEC Food Safety and Sanitation Program issues Seafood Processing Permits statewide. Permits expire at the end of each calendar year, and some permittees only operate seasonally. A list of current permit holders in the Northwest Arctic Subarea is available at http://ak.healthinspections.us/alaska/seafood_listing.cfm or by contacting the Food Safety and Sanitation Program at (907) 269-7501.

The ADEC Division of Water issues wastewater discharge permits under their Alaska Pollutant Discharge Elimination System authority. An interactive mapper entitled, Alaska DEC Seafood Processing, displays seafood processing facility and discharge locations, seafood processing vessels, and other related information at http://dec.alaska.gov/das/GIS/apps.htm. Information in the map is linked to the wastewater discharge permits, which can also be accessed using the Water Permit Search tool at http://dec.alaska.gov/Applications/Water/WaterPermitSearch/Search.aspx.

As of this printing, fish processing facilities are located in Nome, Unalakleet, and Savoonga. Contact numbers and facility names are listed below.

Nome facilities include:	Norton Sound Seafood Products	(907) 274-7575 (Anchorage) (907) 443-2304 (Nome)
Unalakleet facilities include:	Norton Sound Seafood Products	(907) 274-2248 (Anchorage) (907) 624-3014 (Unalakleet)
Savoonga facilities include:	Norton Sound Seafood Products	(907) 443-2304 (Nome) (907) 274-2248 (Anchorage)

13. Logging Facilities

There are no commercial logging operations in the subarea.

14. Water Intake/Use

Public water system (PWS) sources are regulated by the ADEC. An interactive web map application titled, "Alaska DEC Drinking Water Protection Areas" (found at http://dec.alaska.gov/das/gis/apps.htm), dynamically displays the Drinking Water Protection Areas for PWS sources. Some layers are scale-dependent, such that they are activated by zooming in to an area of interest. Searches can be accomplished several ways: 1) city, state; 2) longitude, latitude; 3) PWS identification number (ex. AK2######); or 4) meridian, township, range section (MTRS). Click on the Drinking Water Protection Area for more information about the associated PWS, including a hyperlink to Drinking Water Watch where additional PWS information, such as sampling results, can be found. Other ADEC layers are included in the map, and information about those can be accessed by clicking on the associated points or areas. Many of the layers in the map are also available as services and can be added individually to your local mapping application. Additional information regarding regulated PWS sources can be obtained from ADEC at (907) 451-2138 or at http://dec.alaska.gov/eh/dw/index.htm.

For private water systems, contact the ADNR at (907) 269-8645, and for additional information visit http://dnr.alaska.gov/mlw/water/.

SENSITIVE AREAS: PART FIVE – LAND MANAGEMENT

A. LAND MANAGEMENT DESIGNATIONS

1. *Access to Lands*

Land ownership must be determined and landowners contacted to evaluate incident-specific protection priorities, obtain land-use permitting requirements, and obtain permission to access lands. Native corporation lands, as well as local, state, and federal government lands often require special use permits. If an incident affects private lands or Native allotments, permission to enter lands should be sought from the landowner. The local borough government is often the best source of private land ownership records.

2. *Tribal*

Native corporations may be landowners and should be contacted for access. ADNR maintains a searchable list of regional and village Corporations at http://dnr.alaska.gov/mlw/trails/17b/corpindex.cfm.

There are 229 federally-recognized tribes in Alaska (as of May 2017). Tribal governments in Alaska generally fall into two groups. About 70 tribal governments were formed under the Indian Reorganization Act (IRA), as amended, while about 150 of the tribes have traditional councils. In many communities, a municipal government may also exist.

St. Lawrence Island is unique as the lands are jointly owned and managed by Savoonga and Gambell, and permits are required for non-tribal members. Please contact the tribal IRA office for additional details.

Contact information for tribal representatives can be found at https://www.bia.gov/WhoWeAre/BIA/OIS/TribalGovernmentServices/TribalDirectory/.

3. *State*

The State of Alaska owns the majority of tidal lands from mean high tide out to three geographic miles along the coast and submerged lands below ordinary high water along navigable water bodies. There are other areas of state-owned land in the region, but there are no legislatively designated special areas requiring extra fish and wildlife habitat protection.

4. *Federal*

Gates of the Arctic National Park and Preserve. About 250 miles northwest of Fairbanks, the Gates of the Arctic National Park and Preserve was established in 1980 and encompasses approximately 7,952,000 acres. The area is managed to protect its wild and undeveloped character for mountaineering and wilderness recreation, to protect habitat and wildlife, and to protect current and continued subsistence uses. Caribou, moose, Dall sheep, grizzly bear, wolves, and raptors are in abundance. The Tinayguk/North Fork, John, upper Alatna, upper Kobuk, and Noatak Rivers are nationally designated wild and scenic rivers.

Noatak National Preserve. The 6.5 million acre preserve encompasses more than 250 miles of the Noatak River, a wild and scenic river. Noatak National Preserve protects the largest undeveloped mountain-rimmed river basin in the United States. It represents a yardstick of environmental health against which future

conditions can be compared. In recognition of the value of this Arctic wilderness, UNESCO has designated the Noatak River Basin an International Biosphere Reserve. The river basin provides an outstanding resource for scientific research, environmental education, and subsistence and recreational opportunities.

Kobuk Valley National Park. Kobuk Valley National Park, a 1.75 million acre area about 75 miles east of Kotzebue, was created to maintain the environmental integrity of the natural features of the Kobuk Valley, including the Kobuk, Salmon, and other rivers; the boreal forest; and the Great Kobuk Sand Dunes, the largest active dune field in arctic latitudes. The valley remains an important area for traditional subsistence harvest of caribou, moose, bear, fish, waterfowl, and many edible and medicinal plants. The slow-moving Kobuk River is popular for fishing, canoeing, and kayaking. Backpacking and photography are educational recreational uses.

Cape Krusenstern National Monument. Cape Krusenstern National Monument is found along the Chukchi Sea coast northwest of Kotzebue. The nearly 650,000 acre monument is characterized by a coastal plain dotted with sizable lagoons and backed by gently rolling limestone hills. This area has been designated an Archeological District in the National Register of Historic Places and a National Historic Landmark (which includes the monument and extends beyond). Bluffs and a series of 114 beach ridges record the changing shorelines of the Chukchi Sea and contain a chronological record of an estimated 6,000 years of prehistoric and historic use. Portions of the monument are important use areas for subsistence activities.

Selawik National Wildlife Refuge. The Selawik NWR includes about 3.2 million acres east of Kotzebue Sound in northwestern Alaska. The area is managed to conserve fish and wildlife populations and habitat, as well as to provide for current and continued subsistence uses by local residents. The refuge includes large river deltas, alpine tundra, extensive wetland and lake complexes, meadows, mountains, glacial valleys, sand dunes, and sand, gravel, and mud beaches. The refuge is used by large numbers of anadromous and resident fish, waterfowl and other birds, terrestrial mammals, and furbearers. Seals and beluga whales occur in marine waters along the western boundary of the refuge. The upper reaches of the Selawik River are designated as “wild and scenic.”

Bering Land Bridge National Preserve. The Bering Land Bridge National Preserve encompasses approximately 2.8 million acres of the Seward Peninsula. The primary purpose of the preserve is to protect and preserve, for research and interpretation, a portion of the 1,000 mile wide land link that intermittently connected Asia and North America 14,000 to 25,000 years ago. Significant natural resources of the preserve include areas of past volcanic activity in the Arctic, dynamic coastal barrier beaches with interior lagoons, and a full representation of tundra vegetation from sea level to 3,500 feet. Some 112 migratory bird species may be seen here, along with occasional walrus, seals, and whales. Significant cultural resources include archaeological sites over 10,000 years old, former Eskimo village sites, and more recent early mining and exploration activities. Today, Eskimos from neighboring villages pursue subsistence lifestyles and manage their reindeer herds in and around the preserve.

Alaska Maritime National Wildlife Refuge. Public lands on islands, barrier islands, islets, rocks, reefs, and spires in the Chukchi Sea make up the Chukchi Sea Unit of the refuge. Similar areas along the southern Seward Peninsula and in Norton Sound are included in the Bering Sea Unit of the refuge. The Alaska Maritime NWR consists of over 2,400 islands, headlands, rocks, islets, spires, and reefs along the Alaskan coast, stretching from Southeast Alaska to Cape Lisburne on the Chukchi Sea. The refuge is synonymous with seabirds. About 75 percent of Alaska's marine birds (15 to 30 million of 55 species) use the refuge. Thousands of sea lions, seals, and walruses live in the Bering and Chukchi units of the refuge. Wildlife viewing, photography, backpacking, and harvesting of subsistence resources (e.g., seabirds and their eggs,

marine mammals) are primary activities.

National Wild and Scenic Rivers. Congress established the National Wild and Scenic Rivers System to preserve, in a free-flowing condition, rivers of remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar value. All or part of 25 such rivers in Alaska are designated wild and scenic. Those located in the Northwest Arctic Subarea include: the Noatak, Kobuk, and Salmon Rivers administered by the NPS; the Unalakleet River administered by the BLM; and the Selawik River administered by the USFWS. By classifying these rivers as such, Congress mandated that these rivers will be "managed to be free of impoundments and generally inaccessible by trail, with watersheds or shorelines primitive, and waters unpolluted...representing vestiges of primitive America."

E. LAND MANAGEMENT MAPS

The ADNR, under agreement with the ADEC, produced digital base and land management maps for each of the subareas using their ARC-INFO based GIS. The following land management maps provide an index to the Public Land Record and should not be viewed as legal documents. These maps are available on the internet at http://www.asgdc.state.ak.us/maps/cplans/subareas.html.

For more current detailed information on land status, go to the BLM's Spatial Data Management System web site at http://sdms.ak.blm.gov/isdms/imf.jsp?site=sdms and click on the Generalized Land Status layer.

Northwest Arctic Subarea Land Management Links:

http://www.asgdc.state.ak.us/maps/cplans/base/LegendPage.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap1of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap2of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap3of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap4of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap5of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap6of7.pdf

http://www.asgdc.state.ak.us/maps/cplans/nwa/NorthwestMap7of7.pdf

SENSITIVE AREAS: ATTACHMENT ONE

U.S. FISH AND WILDLIFE SERVICE
Seabird Colonies

The following information was generated by the USFWS Division of Migratory Bird Management and is the best current estimate of seabird colonies located in the Northwest Arctic Subarea. This table was produced with data obtained from the North Pacific Seabird Colony Database. Additional information is available from the Division of Migratory Bird Management.

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
3-Nest	63.70546	-171.6893	Herring Gull	Breeding	6	
Agate	68.13499	-165.94913	Glaucous Gull	Breeding	104	
			Horned Puffin	Breeding		200
			Common Murre	Breeding		
			Black-legged Kittiwake	Breeding	9,500	
			Thick-billed Murre	Breeding		
			Unidentified Murre	Breeding and Roosting		44,000
			Pelagic Cormorant	Unspecified		
			Tufted Puffin	Unspecified		
Airplane Tailwing	63.65503	-171.71642	Herring Gull	Breeding	10	
Aqeftaapuk	63.60894	-170.79645	Thick-billed Murre	Breeding		14,568
			Pelagic Cormorant	Breeding	44	
			Black-legged Kittiwake	Breeding		1,850
			Parakeet Auklet	Breeding		9
			Pigeon Guillemot	Breeding		35

			Glaucous Gull	Breeding	2	
Name	**Latitude**	**Longitude**	**Species Common Name**	**Site Use**	**No. Breeding Individuals**	**Total No. Individuals**
			Tufted Puffin	Breeding		23
			Common Murre	Breeding		19,403
			Horned Puffin	Breeding		92
Artigotrat	68.1144	-165.86668	Common Murre	Breeding		
			Black-legged Kittiwake	Breeding	10,400	
			Unidentified Murre	Breeding and Roosting		123,000
			Thick-billed Murre	Breeding		
			Horned Puffin	Breeding		470
			Glaucous Gull	Breeding	40	
			Pelagic Cormorant	Breeding	36	
			Black Guillemot	Breeding		2
			Pigeon Guillemot	Breeding		4
Besboro Island	64.1264	-161.30559	Common Murre	Unspecified		
			Thick-billed Murre	Unspecified		
			Horned Puffin	Unspecified		250
			Pigeon Guillemot	Unspecified		4
			Tufted Puffin	Unspecified		20
			Pelagic Cormorant	Breeding	182	
			Glaucous Gull	Unspecified		47
			Common Eider	Breeding		

Big Diomede Island (Ostrov Ratmanova)	65.79777	-168.99948	Unidentified Auklet (Tribe Aethiini)	Breeding		2,000,000
Name	**Latitude**	**Longitude**	**Species Common Name**	**Site Use**	**No. Breeding Individuals**	**Total No. Individuals**
			Unidentified Murre	Breeding		12,000
			Tufted Puffin	Breeding		670
			Least Auklet	Breeding		3,500,000
			Glaucous Gull	Breeding		460
			Pelagic Cormorant	Breeding		535
			Parakeet Auklet	Breeding		60,000
			Crested Auklet	Breeding		550,000
			Common Murre	Breeding		9,700
			Thick-billed Murre	Breeding		4,000
			Pigeon Guillemot	Breeding		880
			Horned Puffin	Breeding		3,900
			Black-legged Kittiwake	Breeding		3,400
Black Cove Island	63.52863	-161.1385	Glaucous Gull	Unspecified		
			Common Eider	Breeding		
			Horned Puffin	Breeding		100
			Tufted Puffin	Breeding		2
			Arctic Tern	Unspecified		8
Black Point	63.55081	-161.11152	Glaucous Gull	Unspecified		
			Pelagic Cormorant	Unspecified		18
Bluff	64.57012	-163.72858	Unidentified Cormorant (Genus Phalacrocorax)	Breeding and Roosting		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Pigeon Guillemot	Breeding and Roosting		
			Parakeet Auklet	Unspecified		65
			Thick-billed Murre	Breeding and Roosting		560
			Common Murre	Breeding and Roosting		56,000
			Horned Puffin	Breeding		800
			Glaucous-winged Gull	Breeding and Roosting		75
			Tufted Puffin	Breeding		98
			Unidentified Murre	Breeding and Roosting		35,527
			Black-legged Kittiwake	Breeding and Roosting		12,459
			Glaucous Gull	Breeding and Roosting		143
			Pelagic Cormorant	Breeding and Roosting		229
Bluff Triangle	63.52029	-170.04778	Unidentified Murre	Breeding and Roosting		7,000
			Tufted Puffin	Breeding		210
			Horned Puffin	Breeding		236
			Parakeet Auklet	Breeding		151
			Thick-billed Murre	Breeding		4,311
			Pigeon Guillemot	Breeding		324
			Black-legged Kittiwake	Breeding		2,537
			Pelagic Cormorant	Breeding	62	
			Common Murre	Breeding		1,435

			Herring Gull	Breeding	4	
Name	**Latitude**	**Longitude**	**Species Common Name**	**Site Use**	**No. Breeding Individuals**	**Total No. Individuals**
			Least Auklet	Breeding		29,928
			Crested Auklet	Breeding		35,412
Cape Darby	64.3306	-162.78329	Horned Puffin	Unspecified		575
			Pelagic Cormorant	Breeding	448	
			Tufted Puffin	Unspecified		52
			Glaucous Gull	Breeding	290	
Cape Deceit	66.0997	-162.74279	Tufted Puffin	Breeding		
			Common Murre	Breeding		
			Glaucous Gull	Breeding		14
			Thick-billed Murre	Breeding		
			Horned Puffin	Breeding		20
			Unidentified Murre	Breeding		1,700
			Black-legged Kittiwake	Breeding		1,864
Cape Denbigh, North	64.4128	-161.52639	Unidentified Murre	Breeding		
			Glaucous-winged Gull	Breeding		
			Pelagic Cormorant	Breeding	46	
			Glaucous Gull	Unspecified		30
			Black-legged Kittiwake	Unspecified		1,200
			Tufted Puffin	Unspecified		3
			Horned Puffin	Unspecified		40
			Thick-billed Murre	Unspecified		60

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Common Murre	Unspecified		5,840
Cape Denbigh, South	64.38279	-161.52892	Glaucous-winged Gull	Breeding		
			Tufted Puffin	Breeding		
			Glaucous Gull	Breeding	50	
			Black-legged Kittiwake	Breeding		700
			Common Murre	Breeding		4,260
			Common Eider	Unspecified		3
			Thick-billed Murre	Breeding		40
			Pelagic Cormorant	Breeding	48	
			Horned Puffin	Breeding		35
Cape Douglas	64.98999	-166.64249	Glaucous Gull	Breeding	160	
Cape Dyer	68.6533	-166.22499	Tufted Puffin	Breeding	4	
			Horned Puffin	Breeding	24	
			Pelagic Cormorant	Breeding	26	
			Glaucous Gull	Unspecified		48
Cape Kitnik	63.55818	-170.0641	Unidentified Murre	Breeding and Roosting		6,000
			Pelagic Cormorant	Breeding	26	
			Herring Gull	Breeding	4	
			Crested Auklet	Breeding		10
			Black-legged Kittiwake	Breeding		4,331
			Pigeon Guillemot	Breeding		210

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Breeding		82
			Parakeet Auklet	Breeding		119
			Least Auklet	Breeding		30
			Tufted Puffin	Breeding		19
			Common Murre	Breeding		8,648
			Thick-billed Murre	Breeding		2,979
Cape Lewis	68.70885	-166.19033	Glaucous Gull	Breeding	50	
			Pelagic Cormorant	Breeding	58	
			Thick-billed Murre	Breeding and Roosting		17,500
			Black Guillemot	Breeding	28	
			Pigeon Guillemot	Unspecified		
			Black-legged Kittiwake	Unspecified		3,000
			Unidentified Murre	Breeding and Roosting		
			Horned Puffin	Breeding		300
			Common Murre	Breeding and Roosting		7,500
			Tufted Puffin	Breeding	4	
Cape Lisburne	68.8752	-166.21711	Thick-billed Murre	Breeding and Roosting		130,000
			Black-legged Kittiwake	Unspecified		15,000
			Horned Puffin	Unspecified		1,450
			Tufted Puffin	Unspecified		20

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Common Murre	Breeding and Roosting		70,000
			Glaucous Gull	Breeding	20	
			Pelagic Cormorant	Unspecified	78	
			Black Guillemot	Unspecified		170
			Pigeon Guillemot	Unspecified		
Cape Myaughee	63.6547	-170.21968	Least Auklet	Breeding		606,060
			Crested Auklet	Breeding		194,550
			Pigeon Guillemot	Breeding		723
			Tufted Puffin	Breeding		286
			Pelagic Cormorant	Breeding	18	
			Black-legged Kittiwake	Breeding		3,249
			Parakeet Auklet	Breeding		483
			Common Murre	Breeding		7,317
			Horned Puffin	Breeding		441
			Herring Gull	Breeding	10	
			Thick-billed Murre	Breeding		10,917
Cape Riley	65.22302	-166.47294	Glaucous-winged Gull	Unspecified		
			Pelagic Cormorant	Unspecified		100
			Horned Puffin	Unspecified		100
			Pigeon Guillemot	Unspecified		20
			Glaucous Gull	Breeding		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Black-legged Kittiwake	Unspecified		
Cape Thompson	68.14456	-165.97246	Horned Puffin	Breeding		178
			Black-legged Kittiwake	Breeding	6,300	
			Thick-billed Murre	Breeding		
			Unidentified Murre	Breeding and Roosting		12,000
			Common Murre	Breeding		
			Glaucous Gull	Breeding	4	
			Tufted Puffin	Unspecified		
			Pelagic Cormorant	Breeding	2	
Chamisso Island	66.2192	-161.82219	Pelagic Cormorant	Breeding and Roosting		4
			Tufted Puffin	Breeding	10	
			Horned Puffin	Breeding	2,800	
			Thick-billed Murre	Breeding		180
			Common Eider	Breeding	16	
			Common Murre	Breeding		120
			Glaucous Gull	Breeding	20	
			Unidentified Murre	Breeding		
Channel Island	63.45638	-162.04445	Aleutian Tern	Unspecified		
Cliff	63.56999	-170.07239	Pigeon Guillemot	Breeding and Roosting		30
Corwin Creek	68.8736	-165.11778	Pelagic Cormorant	Unspecified		33

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Unspecified		3
Crowbill Point	68.10381	-165.80704	Thick-billed Murre	Unspecified		
			Common Murre	Unspecified		
			Horned Puffin	Breeding		418
			Unidentified Murre	Breeding and Roosting		6,300
			Tufted Puffin	Breeding		6
			Pelagic Cormorant	Breeding	8	
			Glaucous Gull	Breeding	120	
E. Choris Peninsula	66.3147	-161.86669	Horned Puffin	Unspecified		30
			Glaucous Gull	Unspecified		7
E. York Mountain Cliffs	65.40329	-167.39328	Horned Puffin	Unspecified		
			Glaucous Gull	Unspecified		
			Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Pelagic Cormorant	Unspecified		
Egavik	64.08639	-160.94514	Pelagic Cormorant	Unspecified		12
			Glaucous Gull	Unspecified		5
			Horned Puffin	Unspecified		12
Egg Island	63.61049	-161.741	Thick-billed Murre	Unspecified		40
			Common Murre	Unspecified		1,960
			Tufted Puffin	Unspecified		25

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Unspecified		210
			Parakeet Auklet	Unspecified		23
			Pelagic Cormorant	Breeding		10
			Black-legged Kittiwake	Breeding		700
Eider Duck Island	63.47428	-161.49772	Aleutian Tern	Unspecified		
			Glaucous Gull	Unspecified		8
			Arctic Tern	Unspecified		4
			Horned Puffin	Unspecified		30
			Common Eider	Breeding		25
Fairway Rock	65.62615	-168.74475	Glaucous-winged Gull	Unspecified		
			Parakeet Auklet	Unspecified		500
			Crested Auklet	Unspecified		10,000
			Common Murre	Unspecified		5,000
			Thick-billed Murre	Unspecified		15,000
			Least Auklet	Unspecified		15,000
			Glaucous Gull	Breeding and Roosting		1,237
			Black-legged Kittiwake	Breeding	2,610	
			Tufted Puffin	Breeding and Roosting		1,237
			Horned Puffin	Breeding and Roosting		34
			Pigeon Guillemot	Breeding		2

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Pelagic Cormorant	Breeding	18	
			Unidentified Murre	Breeding and Roosting		4,470
Golovin Spit	64.55122	-163.00481	Aleutian Tern	Breeding		30
Imnakpak Cliff	68.15419	-165.97719	Unidentified Murre	Breeding and Roosting		208,000
			Common Murre	Breeding		
			Horned Puffin	Breeding		540
			Thick-billed Murre	Breeding		
			Black-legged Kittiwake	Breeding	3,400	
			Glaucous Gull	Breeding	32	
			Tufted Puffin	Unspecified		
			Pigeon Guillemot	Breeding		10
			Black Guillemot	Breeding		2
			Pelagic Cormorant	Unspecified		
Is. In Lake E. Of Safety Sound	64.5333	-164.58329	Glaucous Gull	Breeding	60	
Island S. Cape Espenberg 4 Mi.	66.49719	-163.62468	Glaucous Gull	Unspecified		800
			Common Eider	Breeding		
Ivekan Mountain	63.35728	-171.69148	Least Auklet	Breeding		293,321
			Crested Auklet	Breeding		814,389
			Pigeon Guillemot	Breeding		482
			Pelagic Cormorant	Breeding	396	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Glaucous Gull	Breeding	70	
			Thick-billed Murre	Breeding		25,965
			Tufted Puffin	Breeding		208
			Common Murre	Breeding		62,972
			Parakeet Auklet	Breeding		855
			Horned Puffin	Breeding		622
			Black-legged Kittiwake	Breeding	13,916	
Iviagik Mountain	68.60969	-166.22887	Unidentified Murre	Breeding and Roosting		20
Kaghkusalik	63.6131	-170.77989	Crested Auklet	Breeding and Roosting		8,000
			Least Auklet	Breeding and Roosting		14,000
			Horned Puffin	Breeding		
			Black-legged Kittiwake	Breeding		3,000
			Unidentified Murre	Breeding		65,000
			Pigeon Guillemot	Breeding		300
			Glaucous Gull	Breeding		
			Pelagic Cormorant	Breeding		
			Parakeet Auklet	Breeding		
			Black Guillemot	Breeding		
Kaghkusalik Point	63.59882	-170.82768	Pelagic Cormorant	Breeding	44	
			Thick-billed Murre	Breeding		3,958

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Common Murre	Breeding		2,920
			Pigeon Guillemot	Breeding		2
			Horned Puffin	Breeding		35
			Tufted Puffin	Breeding		5
			Black-legged Kittiwake	Breeding		2,218
Kangee Cliffs	63.59062	-170.84657	Pelagic Cormorant	Breeding	6	
			Parakeet Auklet	Breeding		162
			Tufted Puffin	Breeding		42
			Common Murre	Breeding		1,904
			Black-legged Kittiwake	Breeding		3,432
			Horned Puffin	Breeding		75
			Thick-billed Murre	Breeding		6,198
			Pigeon Guillemot	Breeding		209
Kasik Lagoon	67.1783	-163.63419	Mew Gull	Breeding	20	
			Glaucous Gull	Breeding	30	
Kilikralik Pass	68.5178	-166.29558	Black-legged Kittiwake	Unspecified		
			Pelagic Cormorant	Breeding	40	
			Horned Puffin	Breeding	60	
			Glaucous Gull	Breeding	50	
King Island	64.96876	-168.06666	Glaucous-winged Gull	Unspecified		
			Pigeon Guillemot	Breeding		700

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Parakeet Auklet	Breeding		42,000
			Black-legged Kittiwake	Breeding		4,000
			Least Auklet	Breeding		80,000
			Tufted Puffin	Breeding		2,300
			Crested Auklet	Breeding		22,000
			Pelagic Cormorant	Breeding	120	
			Thick-billed Murre	Breeding		45,000
			Glaucous Gull	Breeding	90	
			Horned Puffin	Breeding		4,700
			Common Murre	Breeding		45,000
Kiveepuk	63.65018	-170.69624	Pigeon Guillemot	Breeding		40
			Black-legged Kittiwake	Breeding		463
			Parakeet Auklet	Breeding		9
			Thick-billed Murre	Breeding		986
			Herring Gull	Breeding	2	
			Horned Puffin	Breeding		35
			Common Murre	Breeding		246
			Tufted Puffin	Breeding		8
Koomlangeelkuk Bay	63.66318	-170.57977	Pelagic Cormorant	Breeding	4	
			Horned Puffin	Breeding		3
			Herring Gull	Breeding	2	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Breeding		3
			Parakeet Auklet	Breeding		78
			Pigeon Guillemot	Breeding		56
Koozata Lagoon (1)	63.42829	-171.01169	Common Eider	Breeding		
			Herring Gull	Breeding		
Koozata Lagoon (2)	63.4364	-170.89138	Glaucous Gull	Breeding	44	
			Herring Gull	Breeding	44	
			Common Eider	Breeding	64	
Koozata Lagoon (3)	63.2197	-170.25529	Common Eider	Breeding	16	
			Herring Gull	Breeding		
Koozata Lagoon (4)	63.20047	-170.23372	Herring Gull	Breeding	286	
			Glaucous Gull	Breeding	154	
			Common Eider	Breeding	56	
Koozata Lagoon (5)	63.42071	-170.82651	Common Eider	Breeding	16	
Koozata Lagoon (6)	63.4237	-170.8371	Herring Gull	Breeding	70	
			Common Eider	Breeding	12	
			Glaucous Gull	Breeding	2	
Kotzebue Airport	66.9	-162.58333	Aleutian Tern	Unspecified		50
Kowtuk Point	68.45408	-166.31525	Pelagic Cormorant	Breeding	30	
			Black-legged Kittiwake	Breeding		100
Koyuk River Mouth	64.93202	-161.14904	Aleutian Tern	Breeding		5

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Krusenstern Lagoon	67.1547	-163.70077	Arctic Tern	Breeding	100	
Little Diomede Island	65.75609	-168.92638	Parakeet Auklet	Unspecified		20,000
			Black Guillemot	Unspecified		
			Dovekie	Breeding and Roosting		50
			Tufted Puffin	Breeding and Roosting		433
			Unidentified Murre	Breeding and Roosting		29,485
			Pigeon Guillemot	Breeding and Roosting		95
			Horned Puffin	Breeding and Roosting		2,393
			Glaucous Gull	Breeding and Roosting		187
			Pelagic Cormorant	Breeding	126	
			Common Murre	Breeding		
			Black-legged Kittiwake	Breeding	64,554	
			Thick-billed Murre	Breeding		
			Crested Auklet	Breeding and Roosting		219,000
			Least Auklet	Breeding and Roosting		207,000
Little Rocky Point	64.4944	-163.33468	Glaucous Gull	Breeding	20	
			Horned Puffin	Unspecified		10
			Pelagic Cormorant	Breeding	12	
Lopp Lagoon	65.75	-167.75	Aleutian Tern	Breeding		3
Mid Rock	66.22555	-161.85855	Tufted Puffin	Breeding		2

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Breeding		8
			Thick-billed Murre	Breeding		
			Common Murre	Breeding		
			Unidentified Murre	Breeding		300
			Black-legged Kittiwake	Breeding	84	
			Glaucous Gull	Breeding		20
Middle Punuk Island	63.07593	-168.82154	Herring Gull	Breeding	274	
			Tufted Puffin	Breeding	942	
			Common Eider	Breeding	160	
Moses Point	64.75031	-161.76588	Aleutian Tern	Breeding		
Motherwood Point	66.06532	-162.09024	Unidentified Murre	Unspecified		
			Horned Puffin	Breeding		40
			Glaucous Gull	Breeding		54
Myaugh	63.61999	-170.15828	Crested Auklet	Breeding		10,710
			Least Auklet	Breeding		28,350
			Tufted Puffin	Breeding		43
			Herring Gull	Breeding	24	
			Parakeet Auklet	Breeding		320
			Pelagic Cormorant	Breeding	14	
			Pigeon Guillemot	Breeding		56
			Horned Puffin	Breeding		142

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
N. Stuart Island	63.63826	-162.53666	Arctic Tern	Unspecified		
			Pelagic Cormorant	Unspecified		
			Horned Puffin	Unspecified		
			Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Tufted Puffin	Unspecified		
N.E. Choris Peninsula	66.34029	-161.89579	Horned Puffin	Breeding		50
			Glaucous Gull	Unspecified		6
N.W. Choris Peninsula	66.33322	-161.93355	Glaucous Gull	Breeding		90
			Horned Puffin	Breeding		60
			Pelagic Cormorant	Unspecified		
Near Ninemile Point	66.04958	-162.42772	Black-legged Kittiwake	Unspecified		5
			Glaucous Gull	Breeding		14
			Horned Puffin	Breeding		40
Niak Creek	68.81239	-166.19499	Pelagic Cormorant	Breeding	2	
North Punuk Island	63.07983	-168.80542	Least Auklet	Breeding		
			Pelagic Cormorant	Breeding		
			Common Eider	Unspecified		
			Unidentified Murre	Breeding		
			Parakeet Auklet	Breeding		168
			Pigeon Guillemot	Breeding		66
			Horned Puffin	Breeding		22

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Common Murre	Breeding		
			Tufted Puffin	Breeding		35
Noyalik Peak	68.75571	-166.19249	Horned Puffin	Breeding		35
			Tufted Puffin	Breeding		12
			Pelagic Cormorant	Breeding	4	
			Unidentified Murre	Unspecified		20
Nugnugaluktuk River	66.1992	-164.03418	Common Eider	Unspecified		
			Arctic Tern	Unspecified		
			Mew Gull	Unspecified		
			Glaucous Gull	Breeding		1,000
Nunangeeghak Rocks	63.18425	-170.28369	Pelagic Cormorant	Breeding	42	
			Herring Gull	Breeding	22	
Omalik Spit	69.16499	-163.48999	Arctic Tern	Breeding		10
Oolahpuk Mountain	63.00059	-169.55919	Herring Gull	Breeding		
			Common Eider	Breeding		
Owalit Mountain	63.42507	-171.79888	Common Eider	Unspecified		
			Crested Auklet	Breeding		109,900
			Least Auklet	Breeding		106,014
			Common Murre	Breeding		29,070
			Glaucous Gull	Breeding	18	
			Tufted Puffin	Breeding		948

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Black-legged Kittiwake	Breeding	5,390	
			Pelagic Cormorant	Breeding	708	
			Parakeet Auklet	Breeding		1,069
			Pigeon Guillemot	Breeding		585
			Horned Puffin	Breeding		660
			Thick-billed Murre	Breeding		6,343
Pinaapuk	63.64266	-170.71927	Thick-billed Murre	Breeding		5,182
			Pelagic Cormorant	Breeding	12	
			Tufted Puffin	Breeding		30
			Herring Gull	Breeding	6	
			Black-legged Kittiwake	Breeding		3,184
			Horned Puffin	Breeding		43
			Glaucous Gull	Breeding	4	
			Common Murre	Breeding		2,507
			Pigeon Guillemot	Breeding		26
			Parakeet Auklet	Breeding		2
Pitgnayuk	63.12936	-169.39132	Pelagic Cormorant	Breeding	40	
			Herring Gull	Breeding	2	
Point Spencer	65.0786	-166.74009	Glaucous Gull	Breeding	70	
Poowooiliak	63.34967	-171.3078	Pigeon Guillemot	Breeding		282
			Parakeet Auklet	Breeding		84

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Pelagic Cormorant	Breeding	434	
			Tufted Puffin	Breeding		58
			Black-legged Kittiwake	Breeding	2	
			Horned Puffin	Breeding		115
			Glaucous Gull	Breeding	2	
Puffin Island	66.2292	-161.85748	Tufted Puffin	Breeding	10	
			Glaucous Gull	Breeding	24	
			Common Murre	Breeding		
			Thick-billed Murre	Breeding		
			Horned Puffin	Breeding		10,000
			Unidentified Murre	Breeding		10,400
			Black-legged Kittiwake	Breeding	3,308	
Punuk Islands	63.0761	-168.81998	Pelagic Cormorant	Breeding		
			Thick-billed Murre	Breeding		
			Black-legged Kittiwake	Breeding		
			Glaucous Gull	Breeding		
			Horned Puffin	Breeding		
			Pigeon Guillemot	Breeding		
			Common Murre	Breeding		
			Common Eider	Breeding		
			Parakeet Auklet	Breeding		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Breeding		
Putgut Plateau Island	63.41128	-171.38795	Common Eider	Breeding	22	
			Herring Gull	Breeding	30	
Qikiqtaichaik Island, Noatak Delta	67.02809	-162.74279	Aleutian Tern	Breeding	180	
Rex Point	66.08559	-163.33078	Tufted Puffin	Unspecified		
			Glaucous Gull	Breeding	30	
			Black-legged Kittiwake	Breeding		1,000
			Thick-billed Murre	Breeding		1,400
			Horned Puffin	Breeding		70
			Common Murre	Breeding		1,600
Rocky Point	64.41029	-163.18419	Pelagic Cormorant	Breeding	416	
			Glaucous Gull	Breeding	12	
			Tufted Puffin	Unspecified		4
			Horned Puffin	Unspecified		68
S. Side Cape Kitnik	63.54824	-170.06481	Unidentified Murre	Breeding and Roosting		3,000
			Common Murre	Breeding and Roosting		
			Pigeon Guillemot	Breeding and Roosting		300
			Black-legged Kittiwake	Breeding and Roosting		2,000
			Horned Puffin	Breeding and Roosting		700
			Thick-billed Murre	Breeding and Roosting		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
S. Stuart Island	63.53216	-162.58579	Arctic Tern	Breeding		
			Tufted Puffin	Breeding and Roosting		15
			Horned Puffin	Breeding and Roosting		185
			Glaucous Gull	Breeding		
			Pelagic Cormorant	Breeding		
			Unidentified Murre	Breeding		
S.W. Choris Peninsula	66.27757	-161.89601	Horned Puffin	Breeding		70
			Tufted Puffin	Breeding		4
			Pelagic Cormorant	Unspecified		
			Glaucous Gull	Breeding		14
Safety Lagoon	64.50658	-164.60585	Arctic Tern	Breeding		19
			Aleutian Tern	Breeding		480
			Glaucous Gull	Unspecified		9
			Unidentified Tern	Unspecified		50
			Aleutian Tern	Unspecified		2
			Common Eider	Breeding		30
			Arctic Tern	Unspecified		5
Sandbar W Of Lagoon Entrance	64.46773	-164.75776	Arctic Tern	Breeding		10
			Aleutian Tern	Breeding		
Sapumik Ridge	68.85559	-165.42419	Glaucous Gull	Unspecified		40

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Black Guillemot	Unspecified		9
Sarichef Island	66.24835	-166.09784	Aleutian Tern	Breeding	6	
Savoonga	63.69139	-170.44968	Unidentified Murre	Breeding		5,000
			Least Auklet	Breeding		17,814
			Crested Auklet	Breeding		128,208
			Pigeon Guillemot	Breeding		402
			Pelagic Cormorant	Breeding	8	
			Tufted Puffin	Breeding		104
			Thick-billed Murre	Breeding		733
			Parakeet Auklet	Breeding		151
			Common Murre	Breeding		168
			Horned Puffin	Breeding		155
			Glaucous Gull	Breeding	4	
			Black-legged Kittiwake	Breeding		387
			Herring Gull	Breeding	2	
Seevookhan Mountain	63.29109	-168.80859	Glaucous Gull	Breeding		61
			Herring Gull	Breeding		59
Sevuokuk Mountain	63.76579	-171.65028	Parakeet Auklet	Breeding		
			Pigeon Guillemot	Breeding		795
			Crested Auklet	Breeding		127,500
			Least Auklet	Breeding		382,600

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Breeding		830
			Tufted Puffin	Breeding		251
			Dovekie	Breeding		9
Shiekuk Creek	63.62744	-170.74885	Pelagic Cormorant	Breeding	16	
			Herring Gull	Breeding	2	
			Pigeon Guillemot	Breeding		22
			Thick-billed Murre	Breeding		162
			Horned Puffin	Breeding		81
			Tufted Puffin	Breeding		20
Singikpo Cape	63.58639	-170.08919	Least Auklet	Breeding and Roosting		128,000
Singikpo Cape	63.58639	-170.08919	Crested Auklet	Breeding and Roosting		14,000
			Black-legged Kittiwake	Breeding		2,000
			Common Eider	Breeding		
			Pelagic Cormorant	Breeding		80
			Unidentified Murre	Breeding		5,000
Singikpo Cape	63.61174	-170.10278	Unidentified Murre	Breeding and Roosting		60,000
			Dovekie	Breeding	2	
			Least Auklet	Breeding		335,868
			Crested Auklet	Breeding		85,542
			Black-legged Kittiwake	Breeding		123

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Parakeet Auklet	Breeding		64
			Common Murre	Breeding		33
			Thick-billed Murre	Breeding		287
			Horned Puffin	Breeding		28
			Pigeon Guillemot	Breeding		79
			Pelagic Cormorant	Breeding	24	
			Tufted Puffin	Breeding		70
Skalik	63.58758	-170.07644	Crested Auklet	Breeding		234
			Least Auklet	Breeding		3,108
			Parakeet Auklet	Breeding		46
			Horned Puffin	Breeding		17
			Pigeon Guillemot	Breeding		64
			Tufted Puffin	Breeding		6
Sledge Island	64.48749	-166.20669	Glaucous-winged Gull	Unspecified		
			Crested Auklet	Unspecified		
			Least Auklet	Unspecified		
			Horned Puffin	Breeding		160
			Black-legged Kittiwake	Unspecified		1,300
			Pigeon Guillemot	Unspecified		4
			Glaucous Gull	Breeding	12	
			Common Murre	Unspecified		2,540

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Breeding		13
			Parakeet Auklet	Unspecified		85
			Pelagic Cormorant	Breeding	300	
			Thick-billed Murre	Unspecified		360
			Common Eider	Unspecified		4
South Punuk Island	63.06921	-168.83518	Least Auklet	Breeding		
			Common Eider	Breeding		
			Black-legged Kittiwake	Breeding	52	
			Tufted Puffin	Breeding		4,450
			Pelagic Cormorant	Breeding	504	
			Glaucous Gull	Breeding	2	
			Horned Puffin	Breeding		
			Pigeon Guillemot	Breeding		350
			Parakeet Auklet	Breeding		30
South Rock	66.22346	-161.86202	Thick-billed Murre	Breeding		
			Horned Puffin	Breeding	10	
			Black-legged Kittiwake	Breeding	106	
			Glaucous Gull	Breeding	30	
			Unidentified Murre	Breeding		80
			Common Murre	Breeding		
Southwest Cape	63.34037	-171.54425	Herring Gull	Breeding	2	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Black Guillemot	Breeding		
			Common Eider	Breeding		
			Unidentified Murre	Breeding		200,000
			Black-legged Kittiwake	Breeding	5,634	
			Parakeet Auklet	Breeding		248
			Horned Puffin	Breeding		1,299
			Pelagic Cormorant	Breeding	1,314	
			Pigeon Guillemot	Breeding		313
			Thick-billed Murre	Breeding		18,696
			Common Murre	Breeding		16,758
			Glaucous Gull	Breeding	290	
			Tufted Puffin	Breeding		486
Square Rock	64.56439	-163.61529	Horned Puffin	Breeding and Roosting		125
			Black-legged Kittiwake	Unspecified		550
			Common Murre	Unspecified		3,200
			Tufted Puffin	Unspecified		1
			Glaucous Gull	Breeding	30	
			Pelagic Cormorant	Breeding	4	
St. Michael Island	63.53985	-162.30287	Black-legged Kittiwake	Unspecified		
			Glaucous Gull	Unspecified		
			Unidentified Murre	Unspecified		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Pigeon Guillemot	Unspecified		
Stolbi Rocks	63.64079	-170.11559	Thick-billed Murre	Breeding		2,433
			Pelagic Cormorant	Breeding	20	
			Black-legged Kittiwake	Breeding		168
			Common Murre	Breeding		8,564
			Glaucous Gull	Breeding		
Tasaychek Lagoon	67.2719	-163.7667	Arctic Tern	Breeding	30	
			Aleutian Tern	Breeding	76	
Tekiyeauk Island	63.22708	-170.23244	Arctic Tern	Breeding	194	
			Aleutian Tern	Breeding	2	
Tin City	65.56389	-168.00968	Horned Puffin	Breeding		
			Black-legged Kittiwake	Breeding		
			Pelagic Cormorant	Unspecified		20
Toawlevic Point	66.09009	-162.91963	Tufted Puffin	Unspecified		
			Black-legged Kittiwake	Breeding		702
			Thick-billed Murre	Breeding		3,250
			Pelagic Cormorant	Breeding	6	
			Common Murre	Breeding		3,250
			Horned Puffin	Breeding		400
			Glaucous Gull	Breeding		50
Tolstoi Point	63.62329	-161.01252	Pelagic Cormorant	Breeding		65

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Glaucous Gull	Breeding		55
			Horned Puffin	Breeding		14
Tolukowuk Bluffs	63.47006	-161.36373	Pelagic Cormorant	Unspecified		8
Tonok	64.57869	-163.79883	Glaucous Gull	Unspecified		2
			Horned Puffin	Unspecified		5
			Pelagic Cormorant	Unspecified		2
Topkok East	64.56193	-163.90148	Pelagic Cormorant	Breeding	16	
			Glaucous Gull	Breeding	4	
			Horned Puffin	Breeding		31
Topkok Head	64.55584	-163.9791	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Unidentified Murre	Unspecified		
			Thick-billed Murre	Breeding		
			Common Murre	Breeding		
			Pigeon Guillemot	Unspecified		20
			Horned Puffin	Unspecified		50
			Pelagic Cormorant	Breeding	294	
			Glaucous Gull	Unspecified		40
			Tufted Puffin	Unspecified		30
			Glaucous Gull	Breeding		269
			Pigeon Guillemot	Unspecified		18
			Horned Puffin	Breeding		178

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Unspecified		74
			Pelagic Cormorant	Breeding	340	336
Uhl-Williams Camp	67.0233	-162.95188	Arctic Tern	Breeding	30	
			Aleutian Tern	Breeding	20	
Unalakleet River Island	63.84965	-160.76378	Aleutian Tern	Breeding		35
Unnamed Colony	63.50159	-161.15777	Pelagic Cormorant	Unspecified		8
Unnamed Island	66.30059	-163.81859	Arctic Tern	Unspecified		
Unnamed Island	66.31829	-163.85778	Common Eider	Breeding		150
			Glaucous Gull	Breeding		250
			Arctic Tern	Unspecified		20
Unnamed Island	66.30059	-163.81859	Glaucous Gull	Unspecified		100
			Common Eider	Unspecified		
Unnamed Lake	67.19139	-163.72888	Arctic Tern	Breeding	40	
			Glaucous Gull	Breeding	40	
			Aleutian Tern	Breeding	58	
W. Of Elephant Point	66.25889	-161.42779	Arctic Tern	Breeding		20
W. York Mountain Cliffs	65.42091	-167.47777	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Glaucous Gull	Unspecified		
			Pelagic Cormorant	Unspecified		
Whale & Beulah Island	63.4922	-162.00748	Pigeon Guillemot	Unspecified		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Black-legged Kittiwake	Unspecified		100
			Horned Puffin	Unspecified		140
			Tufted Puffin	Unspecified		10