COOK INLET SUBAREA CONTINGENCY PLAN

SENSITIVE AREAS SECTION

LIST OF FIGURES

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 resource trustees may be conducting natural resource damage assessment (NRDA) activities in conjunction with response activities. Information regarding NRDA activities should be directed to the natural resource trustees or to their appointed NRDA Representative.

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 often 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)
- *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)
- *Wildlife Protection Guidelines for Alaska* (see *Unified Plan, Annex G:* https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20G%20(Oct%202012).pdf)
- *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)
- *Places of Refuge Guidelines (see Unified Plan, Annex O:* https://dec.alaska.gov/spar/ppr/plans/uc/Annex%20O%20(Jan%2010).pdf)

In addition, Federal OSCs in Alaska work in cooperation with the U.S. Department of the Interior (DOI) Office of Environmental Policy and Compliance, the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) and National Ocean Service (NOS) 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's National Oil and Hazardous Substances Pollution Contingency Plan and the Endangered Species Act* (see *Unified Plan, Annex K:* http://dec.alaska.gov/spar/ppr/plans/uc/mou/ky-ESA%20MOA(2001).pdf).

Annex N of the *Unified Plan* includes *Shoreline Cleanup and Assessment Guidelines*, which provides 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.

The Geographic Response Strategies (GRS) Section of the subarea contingency plans contains site-specific instructions 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. Although these areas have been pre-identified for protection, other sites in the area of a spill may require protection.

This section 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 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.

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

Figure D-1 shows the seaward boundary of the Cook Inlet Subarea and its relationship to the other subareas. While this contingency plan is specific to the Cook Inlet 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:

Dr. Philip Johnson
U.S. Department of the Interior
Office of Environmental Policy and Compliance
1689 C Street, Room 119
Anchorage, Alaska 99501
(907) 271-5011
FAX (907) 271-4102
email: philip_johnson@ios.doi.gov

Jeanette Alas
Alaska Department of Fish and Game
Division of Habitat
333 Raspberry Road
Anchorage, Alaska 99518
(907) 267-2342
FAX (907) 267-2499
email: jeanette.alas@alaska.gov

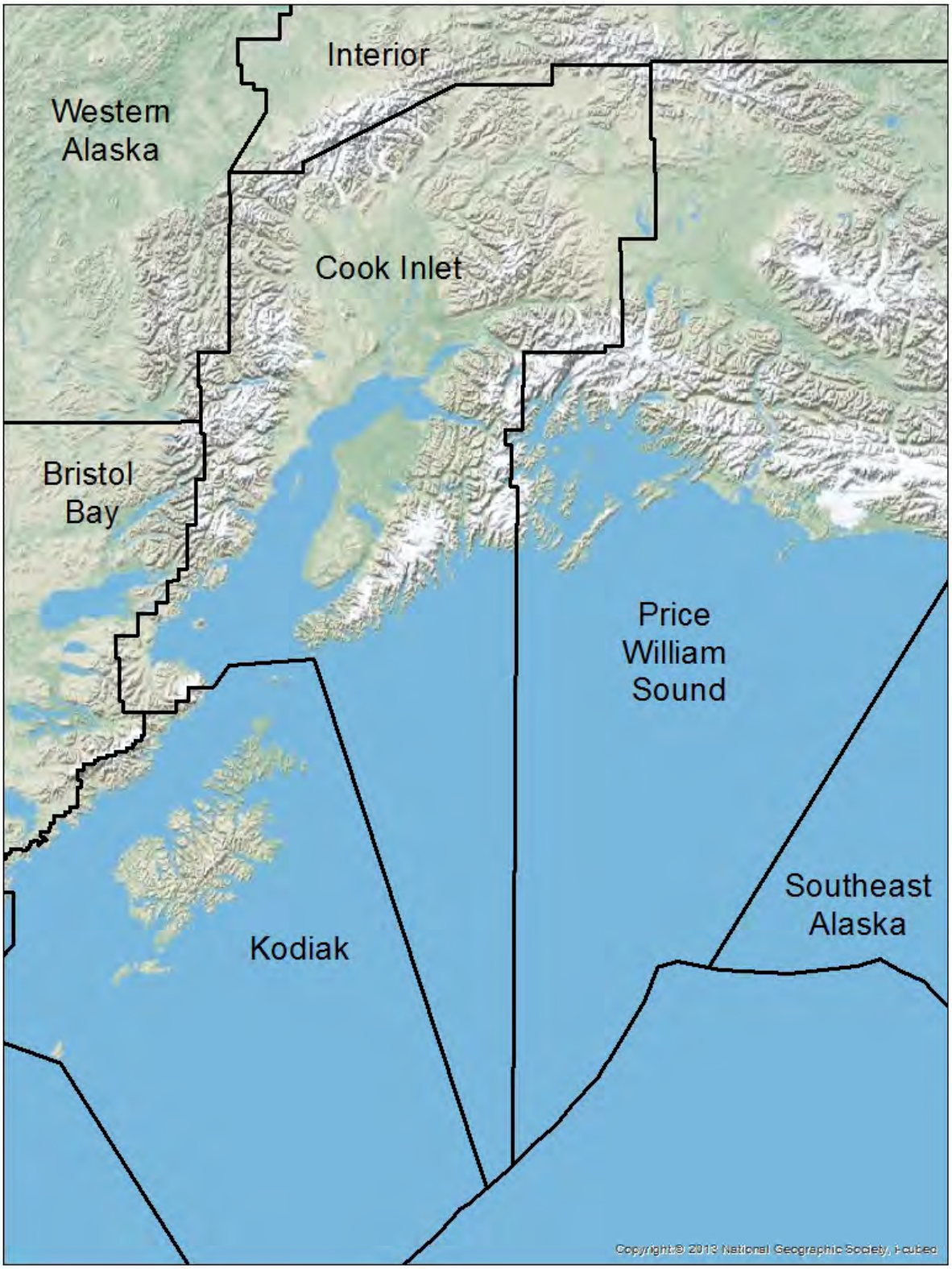


Figure D-1 – Seaward boundaries of Cook Inlet and adjacent subareas.

SENSITIVE AREAS: PART ONE – INFORMATION SOURCES

AGENCY	RESOURCES	POINT OF CONTACT
Fish & Wildlife Habitat Resources		
Alaska Department of Fish and Game	Fish, shellfish, birds, terrestrial mammals, marine mammals	Division of Habitat Anchorage - 907-267-2342
U.S. Department of the Interior	Migratory birds, sea otters, polar bears, walrus, 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, endangered marine species and listed anadromous fish in marine waters, designated critical habitat	Protected Resources Division Juneau- 907-586-7630
U.S. Department of Commerce, National Marine Fisheries Service	Essential Fish Habitat, federally managed commercial fish stocks, including corals, special aquatic vegetation (marine), and offshore salmon	Habitat Conservation Division Anchorage - 907-271-5195
U.S. Department of Commerce, National Marine Fisheries Service	Effects of oil and oil spill response on marine mammals, fisheries resources, hydrocarbon chemistry, dispersants	Protected Resources Division Juneau- 907-586-7630
U.S. Department of Agriculture	National forest lands	Chugach National Forest – Glacier Ranger District Girdwood – 907-783-3242
University of Alaska	Rare and endangered plants	Alaska Natural Heritage Program Anchorage - 907-257-2785
Cultural and Archaeological Sites		
Alaska Department of Natural Resources	Historic sites, archaeological sites, national register sites	Alaska Office of History and Archaeology Anchorage - 907-269-8721
U.S. Department of the Interior	Archaeological/historical sites in park and wildlife refuge system units, public lands, Native allotments/trust lands; sunken vessels	Office of Environmental Policy & Compliance Anchorage - 907-271-5011
U.S. Department of Agriculture	Archaeological/historical sites on national forest lands	Chugach National Forest – Glacier Ranger District Girdwood - 907-783-3242
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 Anchorage - 907-269-8565
Alaska Department of Fish and Game	State game refuges, state critical habitats	Division of Habitat Anchorage - 907-267-22342
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 Agriculture	National forests, national monuments, wild and scenic rivers, wilderness areas, research natural areas	Chugach National Forest – Glacier Ranger District Girdwood - 907-783-3242

AGENCY	RESOURCES	POINT OF CONTACT
U.S. Department of Defense	Military installations and reservations	Alaska Command Anchorage - 907-552-3944
University of Alaska Anchorage Alaska Center for Conservation Science	Kachemak Bay Research Reserve	http://accs.uaa.alaska.edu/kbnerr/
Local Governments: – Municipality of Anchorage – Matanuska-Susitna Borough – Kenai Peninsula Borough	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 Upper Cook Inlet (Soldotna) – 907 - 262-9368 Lower Cook Inlet (Homer) – 907-235-8191
Alaska Department of Natural Resources	Tideland leases	Division of Mining, Land, and Water Anchorage - 907-269-8565
Alaska Department of Environmental Conservation	Seafood processing, commercial shellfish growing areas and operators	Division of Environmental Health Food Safety & Sanitation Program Anchorage - 907-269-7501 Division of Water Anchorage - 907-269-7561
U.S. Department of Commerce National Marine Fisheries Service	Fishing permits, seasons	Protected Resources Division Juneau- 907-586-7630
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 Anchorage - 907-267-2218, Palmer - 907-746-6300, Soldotna - 907-262-9368
U.S. Department of the Interior	Subsistence uses on Federal lands and reserved waters; subsistence uses of: sea otters 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 Juneau - 907-586-7630
U.S. Department of Agriculture	Subsistence uses on Federal Forest Service lands	Chugach National Forest – Cordova Ranger District Cordova – 907-424-7661
Recreation and Tourism Uses		
Alaska Department of Natural Resources	State parks and recreation areas, anchorages, boat launches, campgrounds, State public lands	Division of Parks and Outdoor Recreation Anchorage - 907-269-8400
Alaska Department of Fish and Game	Sport hunting and fishing	Division of Wildlife Conservation Anchorage - 907-267-2257 (see above for Division of Sport Fish contacts)
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 park and wildlife refuge system units and Federal public lands	Office of Environmental Policy & Compliance, Anchorage - 907-271-5011

AGENCY	RESOURCES	POINT OF CONTACT
U.S. Department of Agriculture	Campgrounds, cabins, recreation areas, trails, within the national forest system	Chugach National Forest – Glacier Ranger District Girdwood - 907-783-3242
Water Intake and Use Facilities		
Alaska Department of Environmental Conservation	Public drinking water wells, 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 Commercial Fisheries Juneau – 907-465-4235
Alaska Department of Natural Resources	Tidelands leases, aquaculture sites, private logging camps and log transfer facilities	Division of Mining, Land, and Water Juneau - 907-465-3400
U.S. Coast Guard	Marinas and docks, mooring buoys	Sector Anchorage Anchorage - 907-428-4100
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 Workgroup, 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 cleanup 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 historic properties and cultural resources is contained in Annex M of the *Unified Plan.*

The following criteria were developed as a tool to establish levels of concern. These criteria are not listed in a 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 threatened 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 or hazardous substances and long-term affects to habitat, species, or both
- threatened and endangered species, designated critical habitat, and/or other legal designation
- bioconcentration 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 countermeasure

B. AREAS OF MAJOR CONCERN

- Threatened or Endangered Species Habitats:
    - Steller Sea Lion Rookeries, Haulouts, Designated Critical Habitat, and No Approach Buffer Zones
    - Steller's Eiders Wintering Areas
    - Beluga Whale Designated Critical Habitat
    - Southwest Alaska Distinct Population Segment (DPS) Northern Sea Otter Designated Critical Habitat
    - Western North Pacific DPS and Mexico DPS Humpback, Fin, and North Pacific Right Whale Foraging Areas

- Shoreline Geomorphology - Coastal Habitat Types:
    - Marshes
    - Sheltered Tidal Flats
    - Sheltered Rocky Shores
    - High Density Kelp Beds
    - Eelgrass Beds
- Catcher Beaches
- Sea Otter Concentration Areas (>20)
- Harbor Seal Haulouts (>10)
- Large Seabird Colonies (>5,000)
- Waterfowl and Shorebird Spring, Fall, Winter Concentration Areas
- Bald Eagle Nest Sites
- Bald Eagle Feeding Concentration Areas
- Anadromous Fish Streams # of Spawners
    - >25,000 sockeye salmon
    - >30,000 pink salmon
    - >10,000 chum salmon
    - >2,500 coho salmon
    - >1,000 Chinook salmon
- Intertidal and Freshwater Salmon and Forage Fish Spawning Areas
- Hatcheries
- Herring Spawning Areas
- Habitat Areas of Particular Concern (HAPC)
- Beluga Whale Concentration Areas
- Land Management Designations:
    - Federal:
        - Wilderness
        - Wild and Scenic Rivers
        - National Natural Landmarks
        - National Parks and Preserves
        - National Monuments
        - National Wildlife Refuges
        - Public Lands
        - National Forests
        - 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
- High Use Subsistence Harvest Areas
- High Use Commercial Fishing Areas
- High Use Recreational Areas

C. AREAS OF MODERATE CONCERN

- Species of Concern Habitats (Threatened or Endangered Candidate Species)
- Shoreline Geomorphology - Coastal Habitat Types:
    - Gravel Beaches
    - Mixed Sand and Gravel Beaches
    - Exposed Tidal Flats
    - Coarse-Grained Sand Beaches
- Sea Otter General Distribution Areas (<20)
- Harbor Seal Haulouts (<10)
- Seabird Colonies (1,000-5,000)
- Waterfowl and Shorebird Nesting and Molting Concentration Areas
- Anadromous Fish Streams (# of Spawners)
    - ≥4,000 to ≤25,000 sockeye salmon
    - ≥5,000 to ≤30,000 pink salmon
    - ≥5,000 to ≤10,000 chum salmon
    - <500 to ≤2,500 coho salmon
    - ≤1,000 Chinook salmon
- Shellfish Growing Waters and Beaches
- Bear Spring Concentration Areas
- Land Management Designations:
    - State:
        - State Parks
- Cultural Resources/Archaeological Sites:
    - National Register Eligible Sites (Other Than Village Sites)
    - Sites Adjacent To Shorelines
- Commercial Fish Harvest Areas
- Recreational Use Areas
- Essential Fish Habitat (EFH)
- Commercial Seafood Processing Facilities
- Offsite Hatchery Release Locations

D. AREAS OF LESSER CONCERN

- Shoreline Geomorphology - Coastal Habitat Types:
    - Fine-Grained Sand Beaches
    - Exposed Wave-Cut Platforms

    - Exposed Rocky Shores
- Seabird Colonies (<1,000)
- Raptor Feeding Areas
- Waterfowl and Shorebird General Distribution Areas
- Bear Fall Concentration Areas
- Anadromous Fish Streams (# of Spawners)
    - <4,000 sockeye salmon
    - <5,000 pink salmon
    - <5,000 chum salmon
    - <500 coho salmon
- Land Management Designations:
    - State:
        - General Public Lands

E. AREAS OF LOCAL CONCERN

AGENCY DESIGNATED AREAS: Some areas within the Cook Inlet Subarea warrant special attention due to the presence of highly productive wildlife habitat, the ability to sustain a large part of a villages' subsistence needs, the occurrence of unusual historical sites or large mineral deposits, recreation, energy development, hazardous areas, or the presence of important fisheries. These were previously identified as Areas Meriting Special Attention, Important Use Areas, Special Use Areas, or Sensitive Areas through the Anchorage Coastal Management Plan, Kenai Peninsula Borough Coastal Management Program, Port Graham/Nanwalek Area Which Merits Special Attention Plan (Kenai Peninsula Borough), Matanuska-Susitna Borough Coastal Management Plan, and Point Mackenzie Area Which Merits Special Attention Plan (Matanuska-Susitna Borough). 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.**

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
Anchor River Mouth	Area is habitat for salmon, steelhead, Dolly Varden, halibut, wildlife and seabirds. Used for recreational purposes. Boat launching area.	Private, State (Anchor River Recreation Area)
Andesitic Dike at Potter Marsh on the Old Seward Highway	Unique geology.	State
Bird Creek Regional Park	Spawning ground for anadromous fish. Is habitat for moose, brown and black bear, lynx, wolverine, hare, grouse, dall sheep and birds. Used for recreational and scenic purposes.	Municipality of Anchorage
Bridge Creek Watershed	Important moose habitat. Major water supply for the City of Homer and marine-related industrial development. Used for recreational and scenic purposes.	Private, State
Cape Starichof	Area is habitat for Salmon and steelhead. Used for recreational and scenic purposes.	Kenai Peninsula Borough, private, State
Chuitna Area	Important waterfowl habitat near Beluga. Major drainages are anadromous. Significant moose harvesting area. Contains mineral and other natural resources as well as archeological sites. Used for recreational and scenic purposes.	Surface and subsurface: Kenai Peninsula Borough, private, State Major private ownerships: Cook Inlet Region, Inc., Tyonek Native Corporation Port and industrial sites: Kenai Peninsula Borough
Eagle River (drainage)	Used for recreational and scenic purposes. Provides flood control. Contributes to water supply.	Eklutna Incorporated, Fort Richardson Military Reservation (Seaward ownership), State
Fish Creek	Unique coastal marsh system. Visual and recreational open space resource.	Tidelands owned by the Municipality of Anchorage. Other owners include Alaska Railroad (right-of-way) and private ownership by adjacent property owners.
Goose Bay State Game Refuge	Protection and management of fish and wildlife populations and habitats. Provides limited public recreational opportunities.	State; also private, university and federal inholdings
Kasilof River	Important habitat for salmon, moose and migratory waterfowl. Wetlands naturally retain floodwaters. Presence of historic and archeological sites. Used for recreational and scenic purposes.	State, federal, Kenai Peninsula Borough, private
Kenai River	Migration, spawning and rearing area for salmon and other anadromous fish. Important waterfowl, bird, eagle and wildlife habitat area. Wetlands and floodplain areas provide natural water storage and water quality functions. Used for recreational and scenic purposes.	State, federal, municipal, private
Knik/Matanuska River Floodplain	Mitigates flood hazard potential along the Knik/Matanuska River. Contains areas of essential habitat for waterfowl and wildlife. Offers recreational opportunities.	State
Nancy Lake State Recreation Area	Used for recreational and scenic purposes.	Private, State

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
Nikiski Industrial Area	Commercial development.	Kenai Peninsula Borough, Federal, private, State
Ninilchik/Deep Creek	Area is habitat for salmon, steelhead, halibut, dolly varden, moose, shorebirds and clams. Historic Russian village and church. Used for recreational and scenic purposes.	Kenai Peninsula Borough, private, State
Old Girdwood Townsite South of Seward Highway	Provides resting and habitat area for migratory waterfowl and other birds. Site used for recreational and scenic purposes.	Private, State
Palmer Flats State Game Refuge	Protection and management of fish and wildlife populations and habitats. Offers limited public recreational opportunities.	State
Point Campbell-Point Woronzof Coastal Wetlands	Supports numerous species of wading birds and migratory waterfowl. Used for recreational and scenic purposes.	State
Point Campbell Dunes and Delta	Contains evidence of five glacial periods. Only Anchorage locality where active sand dune migration can be observed.	Municipality of Anchorage
Point Mackenzie Industrial Port/Park Site	Port development.	Matanuska-Susitna Borough, State
Point Woronzof Bluffs	Contains the only known fossil beds in the Anchorage area.	Municipality of Anchorage, State
Port of Anchorage Area	Port and marina activity.	Alaska Railroad, Municipality of Anchorage
Port Graham/Nanwalek Area	Important area for subsistence hunting, fishing, and food gathering. Possesses unique cultural value and historical significance.	Chugach Alaska Corporation (subsurface), Nanwalek Village Corporation, Port Graham Village Corporation, State (submerged lands and tidelands)
Port Graham Waterfront	Area is habitat for salmon and clams. Contains timber resources. Presence of historic and archaeological sites (some undiscovered). Used for recreational and scenic purposes.	State
Seldovia Watershed	Black bear habitat. Potential timber resources. High scenic value.	Private
Seward Highway/ Turnagain Arm	Designated national scenic byway.	State
Susitna Flats State Game Refuge	Protection and management of fish and wildlife populations and habitats. Offers limited public recreational and commercial opportunities.	Private inholdings within the refuge, State
Upper Resurrection Bay	Area is habitat for fish, birds and wildlife. Spawning area for anadromous fish. Eulachon are present in small numbers. Supports important recreational fishery. Unique geology. Used for recreational and scenic purposes.	Alaska Railroad, City of Seward, State, Private

TRIBE-IDENTIFIED AREAS: An August 2000 survey of Native tribes in the subarea conducted by the Environmental Protection Agency (EPA) yielded additional information about sensitive areas near villages, as viewed from the local perspective. The tables below indicate the responding tribes, their primary sites of concern, and the reasons for their importance as noted by the tribes.

1. Chickaloon Village Traditional Council

SENSITIVE AREA	REASONS FOR DESIGNATION
Waterways	None stated
Chickaloon River	Salmon
Moose Creek	Salmon
Mantanuska River	Salmon, protection of inlet (affects other tribes)
Main office/school	Important to the tribe
Health and government building	Important to the tribe

2. Knik Tribe

SENSITIVE AREA	REASONS FOR DESIGNATION
Goose Bay	Subsistence activities
Fish Creek	Subsistence activities
Cook Inlet	Subsistence activities

3. Port Graham Village Council

SENSITIVE AREA	REASONS FOR DESIGNATION
Port Graham Hatchery	Salmon enhancement
Port Graham Bay	Subsistence activities
Head of Port Graham Bay	Spawning stream
Mouth of Port Graham Bay	Subsistence activities
Johnson Slough	Spawning stream

SENSITIVE AREAS: PART THREE – RESOURCE SENSITIVITY

The following sensitivity tables were developed by the State and Federal Natural Resource 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 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.

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	Marshes Sheltered tidal flats Sheltered rocky shores
Lake and River Habitat Types	Exposed rocky cliffs & banks Bedrock shores & ledges, rocky shoals Eroding scarps/banks 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	To Be Developed	To Be Developed	To Be Developed

Threatened or Endangered Species

Category	Low	Medium	High
ENDANGERED SPECIES			Whales: Western North Pacific DPS Humpback, Fin, Blue, Sei, Sperm, North Pacific right, Cook Inlet Beluga Birds: Short-tailed albatross Pinnipeds: Steller sea lion
THREATENED SPECIES			Birds: Steller's eider Marine Mammals: Southwest Alaska DPS Northern sea otter, Mexico DPS Humpback Whale
SPECIES OF GREATEST CONSERVATION NEED*			

*The Alaska Wildlife Action Plan is under review at the time of the Sensitive Areas Change 2 approval. The 2015 draft and final version (when available) can be found at http://www.adfg.alaska.gov/index.cfm?adfg=species.wap2015revision.

SEA OTTERS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE		< 20	> 20
HUMAN HARVEST	year round		

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Present nearshore	■	■	■	■	■	■	■	■	■	■	■	■
Pupping				■	■	■						

HARBOR SEALS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE[1]	< 10	10 – 25	> 25
HUMAN HARVEST	year round		

[1] Based on counts within survey units (see Figures D-13 and D-14 for survey units).

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Pupping					■	■	■					
Molting					■	■	■	■	■	■		
On haulouts	■	■	■	■	■	■	■	■	■	■	■	■

STELLER SEA LIONS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE (ON HAULOUTS)	< 15	15 - 30	> 30
SEASONAL SUSCEPTIBILITY	Nov – April	Aug – Oct	May – July
HUMAN HARVEST	Nov - March 15	June 15 - Oct 31	March 15 - June 15

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Territory establishment & breeding						■	■					
Pupping						■	■	■				
Molting							■	■	■	■		
On rookeries[1]						■	■	■	■	■		
On haulouts[1]	■	■	■	■	■	■	■	■	■	■	■	■
In foraging agregations[2]												

[1] The temporal pattern of habitat use can vary by site, and it is not generalizable by "type"; sites used as rookeries during the breeding season may be occupied year-round. Some haulouts are primarily used in one season; others are used year-round.
[2] The seasonality of foraging aggregations varies with the kind of fish they area foraging on. Many of the spawning aggregations of herring, eulachon, returning salmon, etc. could be expected to attract Steller sea lions if the spawning area is within their range.

WHALES

CATEGORY	LOW	MEDIUM	HIGH
SUSCEPTIBILITY		Cook Inlet Beluga spring and fall concentrations Gray migration corridor off coast Humpback whale feeding areas in lower Cook Inlet and waters adjacent to and south of the subarea boundary.	April 15 – Oct 15[1]

[1] Cook Inlet beluga whales near Susitna Delta region.

Cook Inlet Beluga Whales:

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

BEARS (Brown and Black)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE			
SEASONAL SUSCEPTIBILITY[1,2]	Nov 1 - April 14	April 15 - May 30 Aug 16 - Oct 31	June 1 - Aug 15
COMMERCIAL VALUE[1,2]	Nov 1 - April 14		April 15 - Oct 31
HUMAN HARVEST	Nov 1 - April 14	July 1 – Oct 31	April 15 - June 30

[1] Bear densities and susceptibility to oil impacts increases through spring as more individuals emerge from dens and move to coastal areas. Bear densities and susceptibility to oil impacts decreases through the summer depending upon the availability of fish in lower reaches of streams.

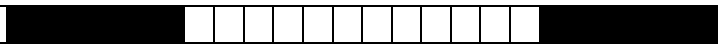
[2] Most bear hunting opportunities are closed during the summer period; however, bear viewing opportunities in some areas peak during the summer period.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Denning	■	■	■	■							■	■
Spring coastal concentrations					■	■						
Salmon stream concentrations						■	■	■	■	■		

CARIBOU

CATEGORY	LOW	MEDIUM	HIGH
SEASONAL SUSCEPTIBILITY	October 1 – May 1		April 1 – June 7 Sept 1 – Oct 15
HUMAN HARVEST	None on lowland herd		

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

Wintering concentrations	

STELLER'S EIDERS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE			1 or more
SUSCEPTIBILITY		March 15 – April 15[1] July 15 – Aug 15[1,2]	– Aug 15 – April 15[2]

[1] Upper Cook Inlet
[2] Lower Cook Inlet

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Spring migration												
Fall migration												
Winter concentrations												

WATERFOWL AND SHOREBIRDS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 100	100 - 1,000	> 1,000
SEASONAL SUSCEPTIBILITY	Nov 1 - Jan 31	Feb 1 - Apr 14 June 1 - Aug 14	Oct 15 – Apr 15[1] Apr 15 - May 30 Aug 15 - Oct 31
SPECIES DIVERSITY	1 - 3	4 – 6	> 6
HUMAN HARVEST	Feb 1 - Aug 31[1] Feb 1 - Sept 30[2]	Nov 30 - Jan 31[1] Dec 17 - Jan 31[2]	Sept 1 - Oct 31[1] Oct 1 - Dec 16[2]

[1] Upper Cook Inlet: area north of the latitude of Anchor Point
[2] Lower Cook Inlet: area south of latitude of Anchor Point

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Spring migration												
Nesting/rearing												
Fall migration												
Winter concentrations												

SEABIRDS

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 1000	1000 - 5000	> 5000
SEASONAL SUSCEPTIBILITY	Nov 1 - Jan 31	Feb 1 - April 30	May 1 - Oct 31
SPECIES DIVERSITY	1 - 3	4 - 6	> 6
HUMAN HARVEST			May 1 - June 3[1] April 15 - June 30[2]

[1] Upper Cook Inlet: area north of the latitude of Anchor Point

[2] Lower Cook Inlet: area south of latitude of Anchor Point

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

RAPTORS (generally eagles)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	1 / coastal mile	2-5 / coastal mile	> 5 / coastal mile
SEASONAL SUSCEPTIBILITY[1]	year round		

[1] There are fewer eagles present during the winter, particularly in central and upper Cook Inlet.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Nesting/rearing			■	■	■	■	■	■	■			
Present near coast	■	■	■	■	■	■	■	■	■	■	■	■

HERRING and SMELT (including capelin/eulachon)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE (Biomass in Tons)	< 500	500 - 5,000	> 5,000
SEASONAL SUSCEPTIBILITY	Oct 1 - Feb 28	March and Sept	April 1 - Aug 31
HUMAN HARVEST[1]			April 1 - May 31

[1] Capelin and eulachon

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Spawning					■							
Present nearshore				■	■	■	■	■	■			

SALMON

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 4,000 sockeye < 5,000 pink < 5,000 chum < 500 coho	4,000-25,000 sockeye 5,000-30,000 pink 5,000-10,000 chum < 1,000 chinook < 500-2,500 coho	> 25,000 sockeye > 30,000 pink > 10,000 chum > 1,000 chinook > 2,500 coho
SEASONAL SUSCEPTIBILITY	Dec 1 - Mar 1	Feb 1 - March 31 Nov 1 - Dec 31	April 1 - Oct 31
SPECIES DIVERSITY	1	2 - 4	5
HUMAN HARVEST		Nov 1 - March 31	May 15 - Oct 15[1] May 1 - Oct 31[2]

[1] Upper Cook Inlet: area north of the latitude of Anchor Point
[2] Lower Cook Inlet: area south of latitude of Anchor Point. Sport fishing off Homer Spit.

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Adults nearshore				■	■	■	■	■	■	■		
Spawning	■										■	■
Eggs/young development	■	■	■	■	■	■	■	■	■	■	■	■
Smolt/fry outmigration						■	■					

CLAMS

CATEGORY	LOW	MEDIUM	HIGH
HUMAN HARVEST	Nov 1 - March 31	July 1 - Oct 31[1] August[2]	April 1 - June 30[1] April 1 - July 31 and Sept 1- Oct 31[2]

[1] Upper Cook Inlet: area north of the latitude of Anchor Point
[2] Lower Cook Inlet: area south of latitude of Anchor Point

Critical Life Periods	J	F	M	A	M	J	J	A	S	O	N	D
Spawning								■	■			
Planktonic larvae								■	■	■	■	■

LAND MANAGEMENT DESIGNATIONS

CATEGORY	LOW	MEDIUM	HIGH
FEDERAL LANDS			Wild & Scenic Rivers National Natural Landmarks Wilderness Areas National Parks & Preserves National Monuments National Wildlife Refuges Chugach National Forest Public Lands Native Allotments and Town Sites[2]
STATE LANDS	Public Lands[1]	State Parks	Critical Habitats Refuges Sanctuaries

[1] Includes submerged lands out to 3 miles and historic bays and inlets.
[2] Allotments are privately owned; however, access should be coordinated through the DOI, Bureau of Indian Affairs.

CULTURAL RESOURCES/ARCHAEOLOGICAL SITES

CATEGORY	LOW	MEDIUM	HIGH

HISTORICAL 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 Burial sites National Register eligible village sites Intertidal sites

SENSITIVE AREAS: PART FOUR – BIOLOGICAL AND HUMAN USE RESOURCES

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

A. 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, as shown on the following index map. 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.

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:

- Cook Inlet Response Tool – developed by Alaska Ocean Observing System and Cook Inlet Regional Citizens Advisory Council
  - http://portal.aoos.org/cirt.php
- 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
- Bureau of Ocean Energy Management – Cook Inlet Planning Area - Oil and Gas Lease Sales Environmental Impact Statement
  - http://www.boem.gov/Alaska-Region/

1. Benthic Habitats

Oil vulnerability is lower in subtidal benthic areas than in the littoral or intertidal benthic areas since contamination by floating slicks is unlikely. Sensitivity is derived from the species that 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. Benthic habitats include submerged aquatic vegetation beds and large beds of kelp.

2. Shoreline Habitats

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

ESI #1 – Exposed Rocky Shores. Exposed impermeable vertical substrates: exposure to high wave energy or tidal currents on a regular basis, strong wave-reflection patterns common, substrate is impermeable

with no potential for subsurface penetration, slope of intertidal zone is 30 degrees or greater, attached organisms are hardy and accustomed to high hydraulic impacts.

ESI #2 – Exposed Rocky Platforms. Exposed impermeable substrates, non-vertical: exposure to high wave energy or tidal currents on a regular basis, strong wave-reflection patterns regular, substrate is impermeable with no potential for subsurface penetration over most of intertidal zone, slope of intertidal zone is less than 30 degrees, there can be accumulated but mobile sediments at the base of cliff, attached organisms are hardy and accustomed to high hydraulic impacts.

ESI #3 – Fine-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.

ESI #4 – Course-grained Sand Beaches. Medium permeability substrate: substrate is permeable with oil penetration up to 25 cm, slope is between 5 and 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 traffic ability, low densities of infauna.

ESI #5 – Mixed Sand and Gravel Beaches. Medium to high permeability substrate: substrate of medium to high permeability which allows oil penetration up to 50 cm, spatial variations in distribution of grain sizes with finer ones at high tide line and coarser ones in the storm berm and at toe of beach, 20% gravel, slope between 8 to 15 degrees, sediment mobility is high during storms, sediments are soft with low traffic ability, low populations infauna and epifauna except at lowest intertidal levels.

ESI #6 – 6A. Gravel Beaches. 6B. Rip-rap Structures. High permeability substrates: substrate is highly permeable with oil penetration up to 100 cm, slope is 10 to 20 degrees, rapid burial and erosion of shallow oil can occur during storms, high annual variability in degree of exposure and frequency of wave mobilization, sediments have lowest traffic ability of all beaches, natural replenishment rate is the lowest of all beaches, low populations of infauna and epifauna except at lowest intertidal levels.

ESI #7 – Exposed Tidal Flats. Exposed flat permeable substrate: flat (less than 3 degrees) accumulations of sediment, highly permeable substrate dominated by sand, sediments are well saturated so oil penetration is limited, exposure to wave or tidal-current energy is evidenced in ripples or scour marks or sand ridges, width can vary from a few meters to one kilometer, sediments are soft with low traffic ability, high infaunal densities.

ESI #8 – 8A. Sheltered Rocky Shores. 8B. Sheltered Man-made Structures. Sheltered impermeable substrate: sheltered from wave energy and strong tidal currents, substrate of bedrock or rocky rubble, variable in oil permeability, slope greater than 15 degrees with a narrow intertidal zone, high coverage of attached algae and organisms.

ESI #9 – Sheltered Tidal Flats. Sheltered flat semi-permeable substrate: sheltered from wave energy and strong tidal currents, substrate is flat (less than 3 degrees) and dominated by mud, sediments are water-saturated so permeability is low, width varies from a few meters to one kilometer, sediments are soft with low traffic ability, infaunal densities are high.

ESI #10 – 10A. Salt- and Brackish-Water Marshes. 10B. Fresh-water Marshes. Vegetated wetlands: marshes and swamps with various types of emergent herbaceous grasses and woody vegetation over the substrate.

ESI Shoreline Habitat Rankings for Cook Inlet

ESI Rank	Estuarine (Marine)	Lacustrine (Lake)	Riverine (Large Rivers)
1A	Exposed rocky shores	Exposed rocky shores	Exposed rocky banks
2A	Exposed wave-cut platforms in bedrock, mud, or clay	Shelving bedrock shores	Rocky shoals, bedrock ledges
3A	Fine to medium-grained sand beaches	–	–
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 tidal flats	–
8A	Sheltered scarps in bedrock, mud, or clay	Sheltered scarps in bedrock, mud, or clay	–
8B	Sheltered, solid man-made structures	Sheltered, solid man-made structures	Sheltered, solid man-made structures
9A	Sheltered tidal flats	Sheltered sand/mud flats	–
10A	Salt- and brackish-water marshes	–	–
10B	Freshwater marshes	Freshwater marshes	Freshwater marshes

Source: NOAA, Office of Response and Restoration. Shoreline Sensitivity Rankings List. http://response.restoration.noaa.gov/maps-and-spatial-data/shoreline-sensitivity-rankings-list.html (accessed February 29, 2016).

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. Mapping of the entire Cook Inlet Subarea is anticipated to be completed in 2016.

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).

ShoreZone imagery and habitat data is also available through the Cook Inlet Response Tool ocean data portal at http://portal.aoos.org/cirt. This on-line tool allows visualization of Alaska ShoreZone imagery and shoreline habitat data with dozens of other data layers, including many identified throughout this plan.

3. Upland Habitat

At this time, no uplands or wetlands classifications directly related to sensitivity to oil spills has 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 Geographic Information System (GIS) shapefiles. Maps and additional information can be accessed at http://aknhp.uaa.alaska.edu/.
- The Kenai Peninsula Borough has an Interactive Parcel Viewer with layers, including ownership, coastal erosion, land use, borough maintained roads, and others; this map is available at http://mapserver.borough.kenai.ak.us/kpbmapviewer/.
- The Municipality of Anchorage has multiple maps and map applications, including Park and Trail Maps, Floodplain Mapping, and Street Maintenance Maps available at http://www.muni.org/maps/Pages/default.aspx.
- The Matanuska-Susitna Borough website contains links to maps and interactive mappers, such as Wetlands, Flood Zones, and Road Service Areas available at http://www.matsugov.us/#p.
- The Alaska Vegetation Classification is a U.S. Forest Service (USFS) 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.

B. BIOLOGICAL RESOURCES

1. Threatened and Endangered Species

Federally listed threatened and endangered species are protected under the Endangered Species Act. Spill response activities which could impact a listed species should be coordinated with the USFWS and NMFS. The North Pacific right whale, humpback whale, and short-tailed albatross are also on the State of Alaska's endangered species list. As of July 2016, the following species[a] and critical habitat occur in the Cook Inlet Subarea and have been provided protection under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.):

[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 USC 1532). NMFS 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."

Endangered Species Act of 1973 Protected Species and Critical Habitat			
Protected Species			
Listed species	**Distinct Population Segment (DPS)**	**Latin Name**	**Status**
Blue whale[1]		*Balaenoptera musculus*	Endangered
Bowhead whale[1]		*Balaena mysticetus*	Endangered
Fin whale[1]		*Balaenoptera physalus*	Endangered
Gray whale[1]		*Eschrichtius robustus*	Delisted
Humpback whale[1]	Western North Pacific DPS	*Megaptera novaeangliae*	Endangered
Humpback whale[1]	Mexico DPS	*Megaptera novaeangliae*	Threatened
North Pacific Right whale[1]		*Eubalaena japonica glacialis*	Endangered
Sei whale[1]		*Balaenoptera borealis*	Endangered
Sperm whale[1]		*Physeter macrocephalus*	Endangered
Beluga whale[1]	Cook Inlet	*Delphinapterus leucas*	Endangered
Steller sea lion[1]	Western DPS	*Eumetopias jubatus*	Endangered
Steller sea lion[1]	Eastern DPS	*Eumetopias jubatus*	Delisted
Leatherback sea turtle[1]		*Dermochelys coriacea*	Endangered
Northern sea otter[2]	Southwest Alaska DPS	*Enhydra lutris kenyoni*	Threatened
American Peregrine Falcon[2]		*Falco peregrinus anatum*	Delisted
Short-tailed Albatross[2]		*Phoebastria albatrus*	Endangered
Aleutian Canada Goose[2]		*Branta canadensis leucopareia*	Delisted
Steller's Eider[2]		*Polysticta stelleri*	Threatened

Designated Critical Habitat	
Species Group	**General Reference Area**
Cook Inlet beluga[1]	Northern and throughout nearshore Cook Inlet, and Kachemak Bay
Steller sea lion[1]	Multiple areas: (see full description in 50 CFR Part 226.12)
Pacific Salmon[1,3]	No critical habitat has been designated in Alaska for any salmon species.
Northern Sea otter[2]	Barren Islands and lower west Cook Inlet from Redoubt Pt. south past Cape Douglas (50 CFR Part 17)

[1] Managed by the NMFS
[2] Managed by the USFWS
[3] No species of Pacific salmon originating from freshwater habitat in Alaska are listed under the Endangered Species Act (ESA). West coast salmon species currently listed under the ESA originate in freshwater habitat in Washington, Oregon, Idaho, and California. At least some of the listed salmon and steelhead are presumed to range into marine waters off Alaska during ocean migration and growth to maturity phases of their anadromous life history.

The Northern sea otter (Figures D-3 and D-4), short-tailed albatross, and Steller's eider are threatened or endangered species under the jurisdiction of the USFWS, Alaska Region. The USFWS also manages the polar bear, walrus, all migratory bird species, and some freshwater fisheries. Most salmon species in marine waters are under the jurisdiction of the NMFS; however, ADF&G has primary jurisdiction over some salmon fisheries, including those within Cook Inlet. NMFS has authority over other marine fish, marine invertebrates, and most marine mammal species (seals, sea lions, whales and porpoises). Threatened and endangered species under NMFS's authority in the Cook Inlet Subarea are the Cook Inlet beluga whale, Steller sea lions in the western DPS, humpback whales in the Western North Pacific DPS and Mexico DPS, North Pacific right whale, western North Pacific gray whale, fin whale, sei whale, sperm whale, and several salmon stocks.

Steller's Eider: The threatened Steller's eider winters in the Kachemak Bay/lower Cook Inlet area. They tend to concentrate off the southwest end of Homer Spit and offshore of Bluff Point, between Homer and Anchor Point, but have also been observed along the southern shoreline of Kachemak Bay as well. Large flocks also concentrate offshore of Deep Creek just north of Ninilchik; 2,370 Steller's eiders were observed here during a March 2001 survey. A winter aerial shoreline count in 1994 detected 1,363 Steller's eiders in the Kamishak Bay area. While variable between years, arrival of Steller's eiders from nesting grounds probably begins in mid-July with numbers continuing to build in Cook Inlet habitats through early winter, peaking in January and February, then declining for spring migration in March and April (Larned 2005). The Alaska-breeding population of the Steller's eider was listed as threatened under the U.S. Endangered Species Act in 1997 after it became evident that the species range had contracted on the North Slope of Alaska and had virtually disappeared from its breeding grounds in western Alaska.

Steller's eiders winter in both eastern and western lower Cook Inlet (see Figure D-2). They generally associate with the nearshore environment in protected waters less than 10m in depth. Areas frequented by substantial numbers of Steller's eiders in winter (during surveys 2001-2005) included, in eastern Cook Inlet, the nearshore area from Anchor Point to 25km north of Ninilchik (1,141 in January 2005 and 2,370 in March 2001) and the nearshore area from Homer Spit to Anchor Point (338 in February 2004). Important areas in western Cook Inlet were Kamishak Bay from Douglas River to Bruin Bay, including the shoreline between Bruin Bay and Ursus Cove, a shoal 12 km southeast of Bruin Bay (3,921 in January 2005), and the mouth of Iniskin Bay (363 in January 2005). High wintering population estimates from 2004-2005 surveys were 1,247 and 4,284 eiders in eastern and western Cook Inlet, respectively (a higher estimate of 2,370 for eastern Cook Inlet was recorded previously, see above). Most of the estimates made during this study are likely biased slightly low because data were uncorrected for eiders not detected during surveys. The survey area did not include much of Kachemak Bay where more eiders were likely present. An earlier winter aerial shoreline count in 1994 detected 1,363 Steller's eiders in the Kamishak Bay area (Larned 2005).

Short-Tailed Albatross: This species was federally listed as endangered throughout its range, including the United States, in 2000. At the time of listing, designation of critical habitat was determined to not be prudent. The species is known to breed on only a few islands in Japan, from December through April. During the non-breeding season, short-tailed albatross range along the Pacific Rim from southern Japan to northern California, primarily along continental shelf margins. They may also be found at upwelling hotspots closer to shore. Overall, short-tailed albatross spend the greatest proportion of the non-breeding season off Alaska, especially within the Aleutian Islands and Bering Sea. Because short-tailed albatross forage extensively along continental shelf margins, the majority of time is spent within the national Exclusive Economic Zones (EEZ), rather than over international waters. In the Cook Inlet Subarea, they are most likely to be present at the northern edge of the Gulf of Alaska. Additional information is available at http://ecos.fws.gov/docs/five_year_review/doc2623.pdf.

Steller Sea Lions: Endangered Steller sea lions occur both within Cook Inlet and in the offshore waters extending to the 200 nm EEZ. The eastern DPS of Steller sea lions was delisted and removed from the list of threatened species by NOAA in 2013. This population overlaps with the western DPS Steller sea lions in the Cook Inlet region; however, this subarea is west of the longitudinal separation of the two populations and is considered habitat primarily for the western DPS of Steller sea lions, which is listed as endangered. Designated Steller sea lion critical habitat in the Cook Inlet Subarea is located south of the Kenai Peninsula, in lower Cook Inlet, and adjacent areas (see Figure D-5).

Beluga Whales: For Cook Inlet, the endangered Cook Inlet beluga whale is the species of greatest concern under NMFS's jurisdiction during oil spills and spill response. This endemic DPS occurs only within the confines of Cook Inlet, and the population continues to slowly decline. Large congregations of belugas in the spring through fall near the Susitna Delta region make them particularly vulnerable during that time of year (see Figures D-6 and D-7).

Humpback Whales: In Cook Inlet, the humpback whales most likely to be encountered are expected to be 89% Hawaii DPS (no longer listed under the ESA), 10.5% Mexico DPS (ESA-listed as threatened), and 0.5% Western North Pacific DPS (ESA-listed as endangered). The DPSs are not distinguishable by sight, and therefore must all be treated as ESA protected species when implementing mitigation measures under an Emergency Section 7 consultation for oil spill response. Humpback whale sightings in Cook Inlet were rare historically but have increased in recent years. Humpback whales occur in Cook Inlet in low numbers and in the offshore waters extending to the 200 nm EEZ in greater numbers. See https://alaskafisheries.noaa.gov/pr/humpback for more information on humpback whale ESA listings.

Other whales and fish species: The other endangered whale species listed above and the threatened and endangered salmon stocks occur in the offshore water portion of the Cook Inlet Subarea.

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. Any spill response activities that could affect marine mammals should be coordinated with the USFWS and the NMFS.

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 and the Migratory Bird Treaty Act. Spill response activities that could affect these species should be coordinated with the USFWS.

For updated information on the internet:

USFWS National Threatened and Endangered Species website:
http://endangered.fws.gov/

NOAA Fisheries Endangered and Threatened Marine Species under NMFS' Jurisdiction website:
http://www.nmfs.noaa.gov/pr/species/esa/listed.htm or
https://alaskafisheries.noaa.gov/protectedresources/esa/

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

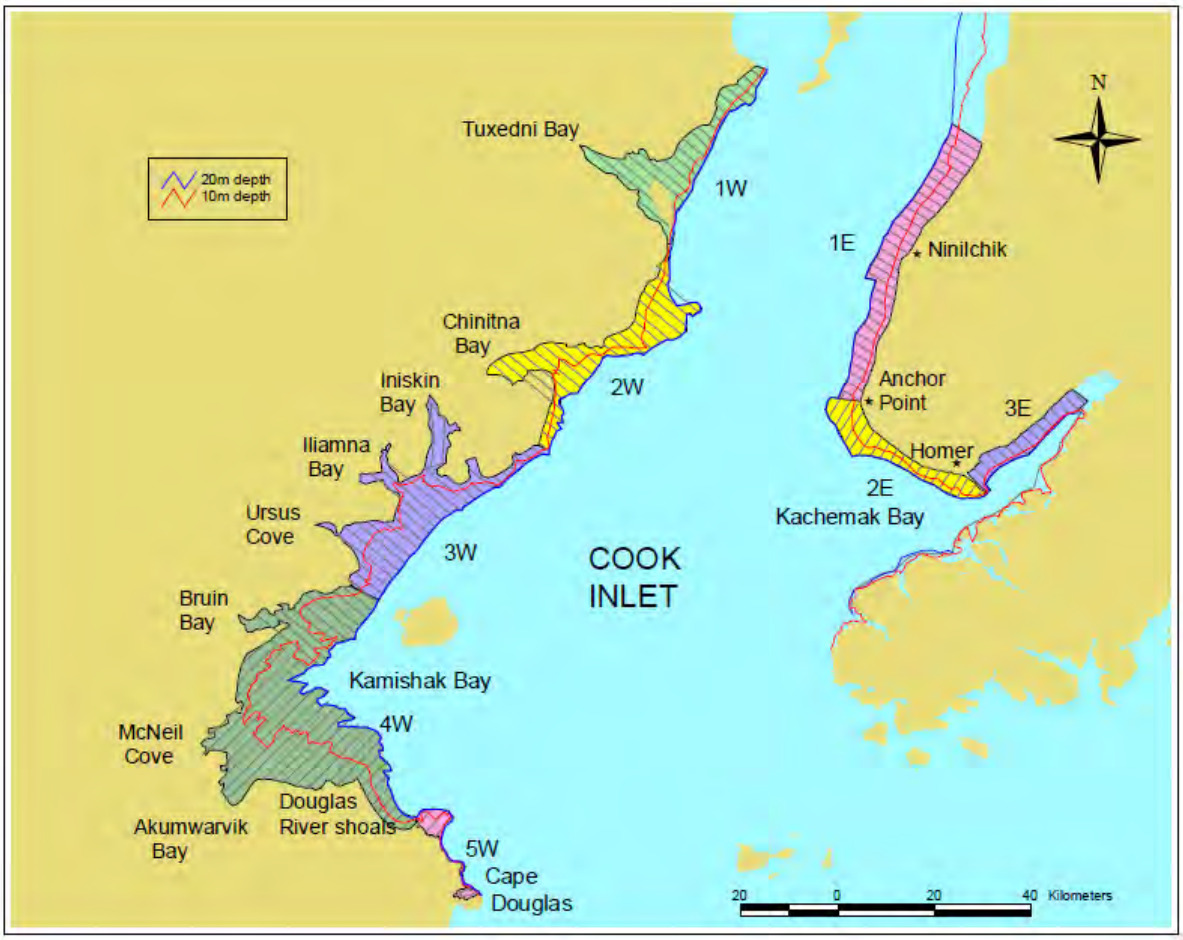


Figure D-2 – Steller's Eiders Overwintering Locations. USFWS study area showing survey units, aerial transects, bathymetry, and prominent shoreline features for 2004-2005 Steller's eider wintering survey. Steller's eiders were observed in all survey units with the exception of 1W (Larned 2006).

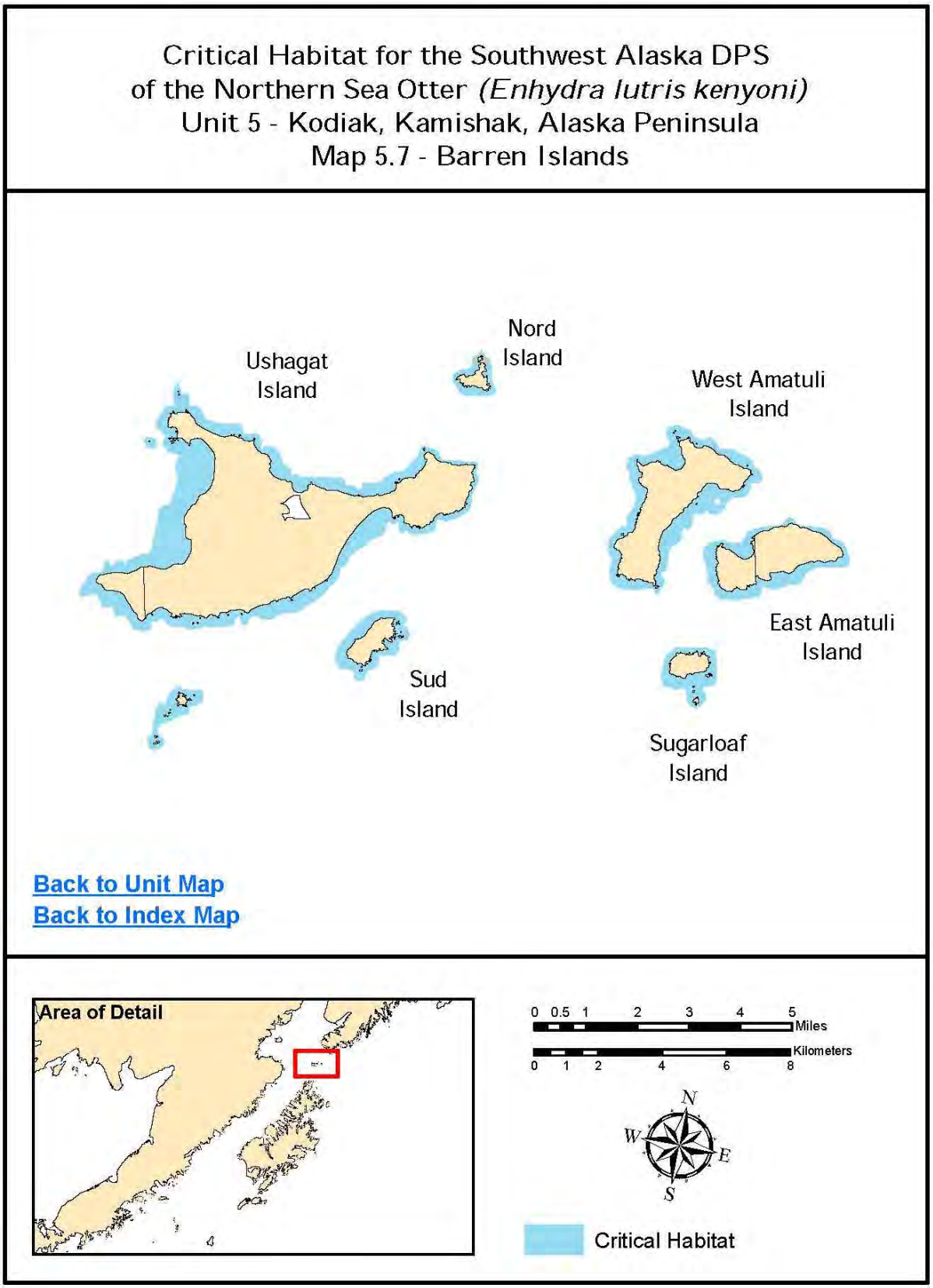


Figure D-3 – Sea Otter Critical Habitat, Barren Islands.

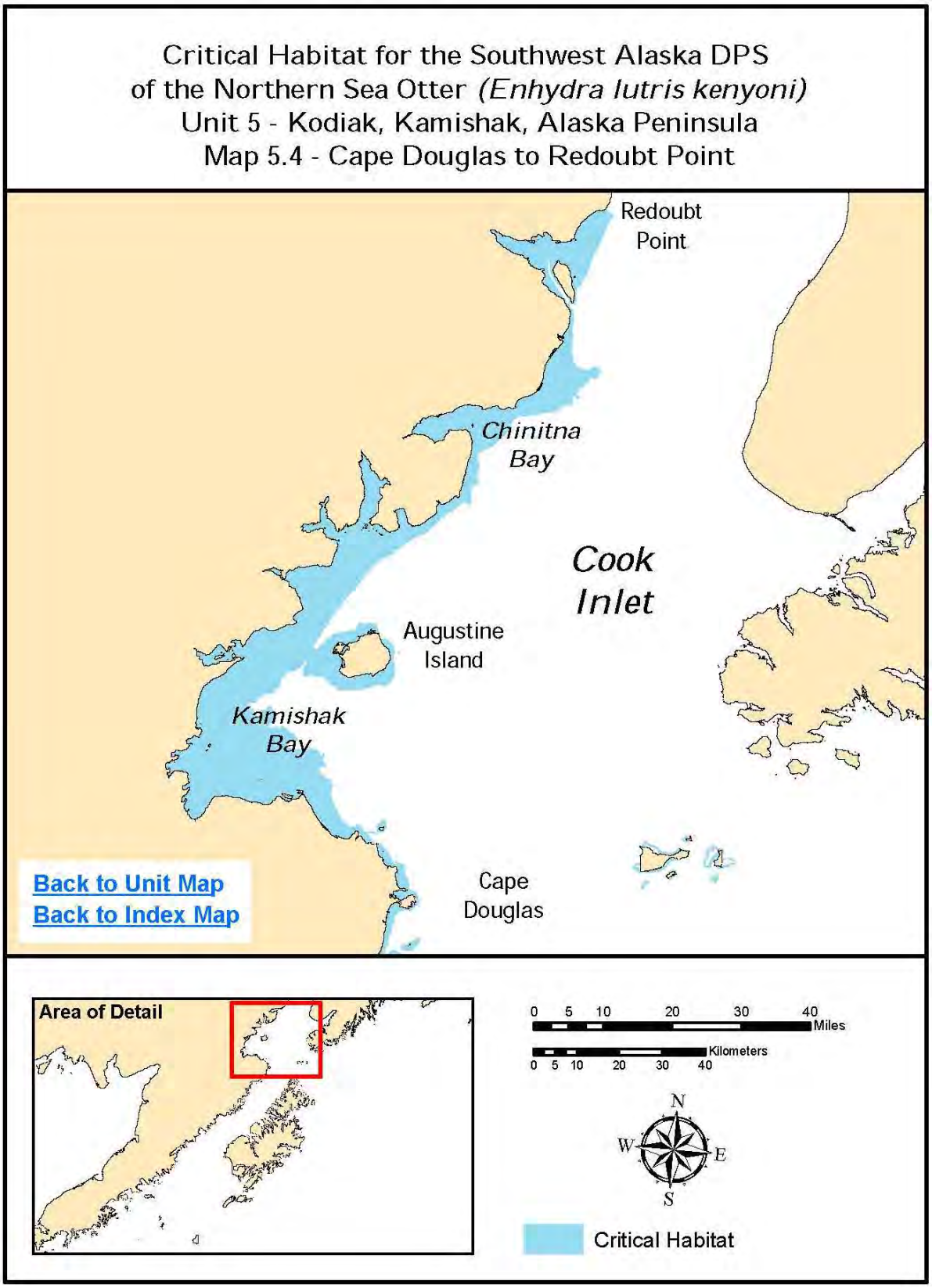


Figure D-4 – Sea Otter Critical Habitat, Cape Douglas to Redoubt Point.

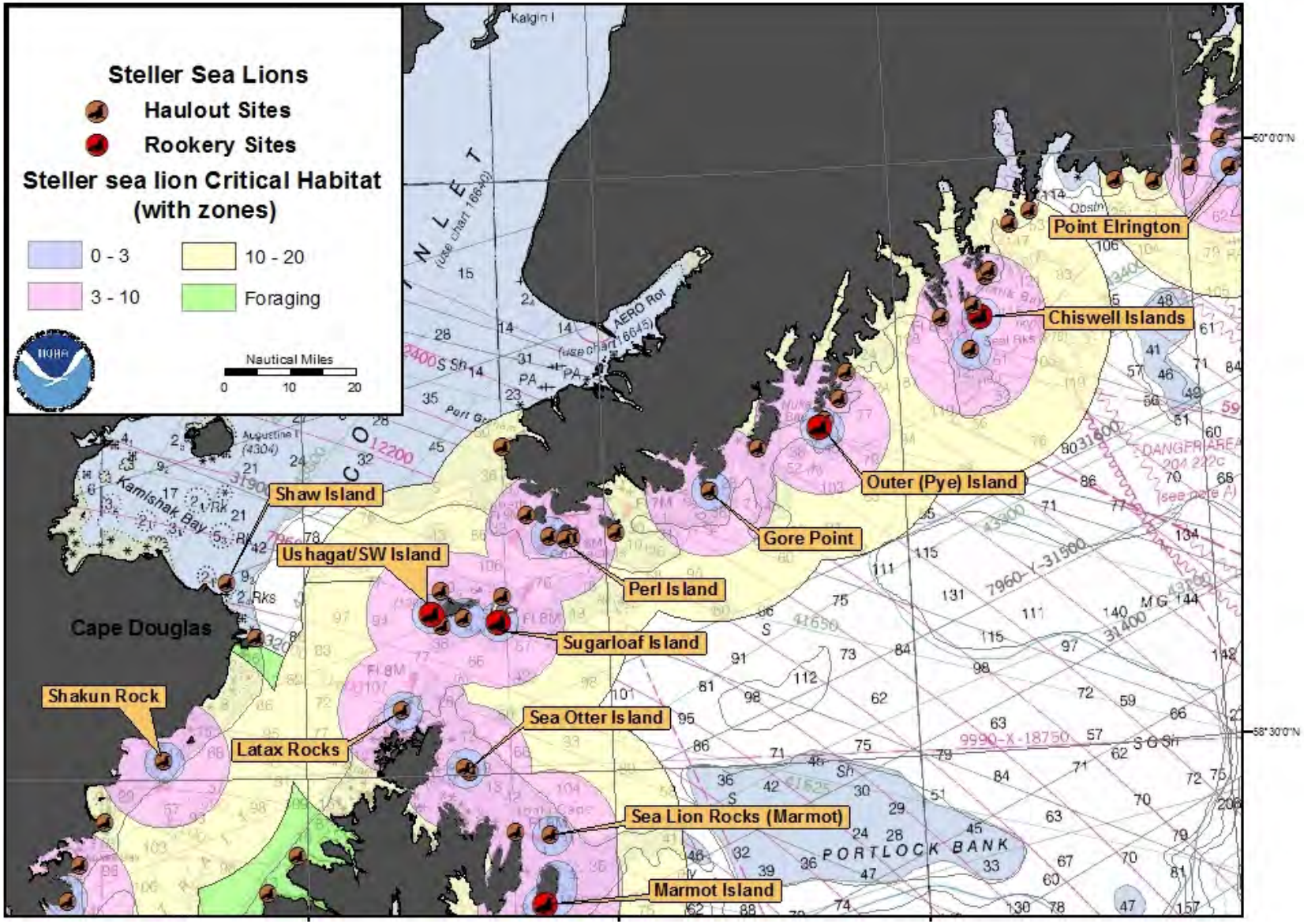


Figure D-5 – Steller Sea Lion Critical Habitat and known haulout and rookery sites in the Cook Inlet Subarea. *Note*: Chiswell Island is a small rookery with about 30-60 pups produced each year. This rookery is monitored by remote camera from the Alaska Sea Life Center in Seward.

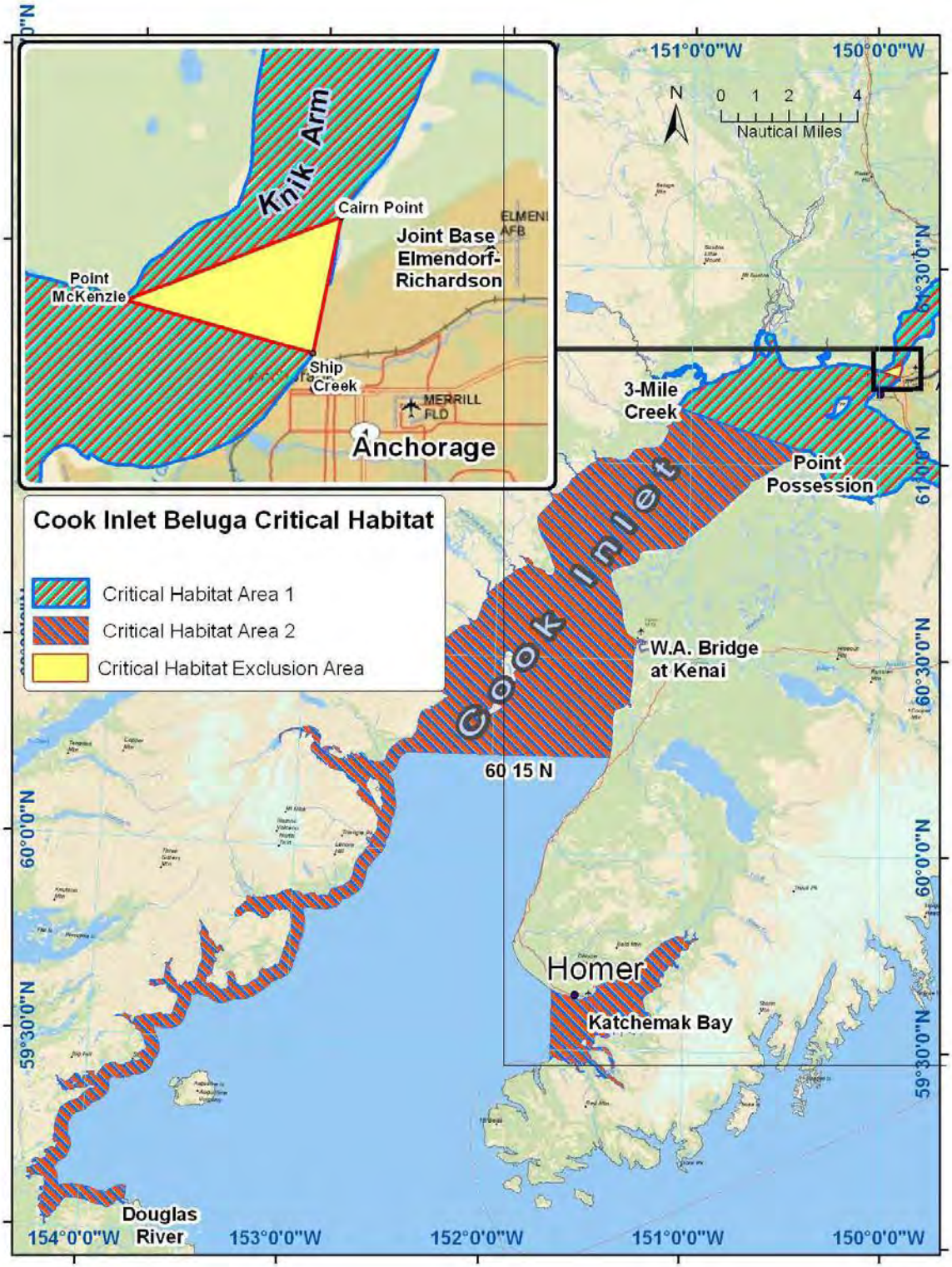


Figure D-6 – Cook Inlet Beluga Whale Critical Habitat. The exclusion zone is habitat excluded from critical habitat designation.

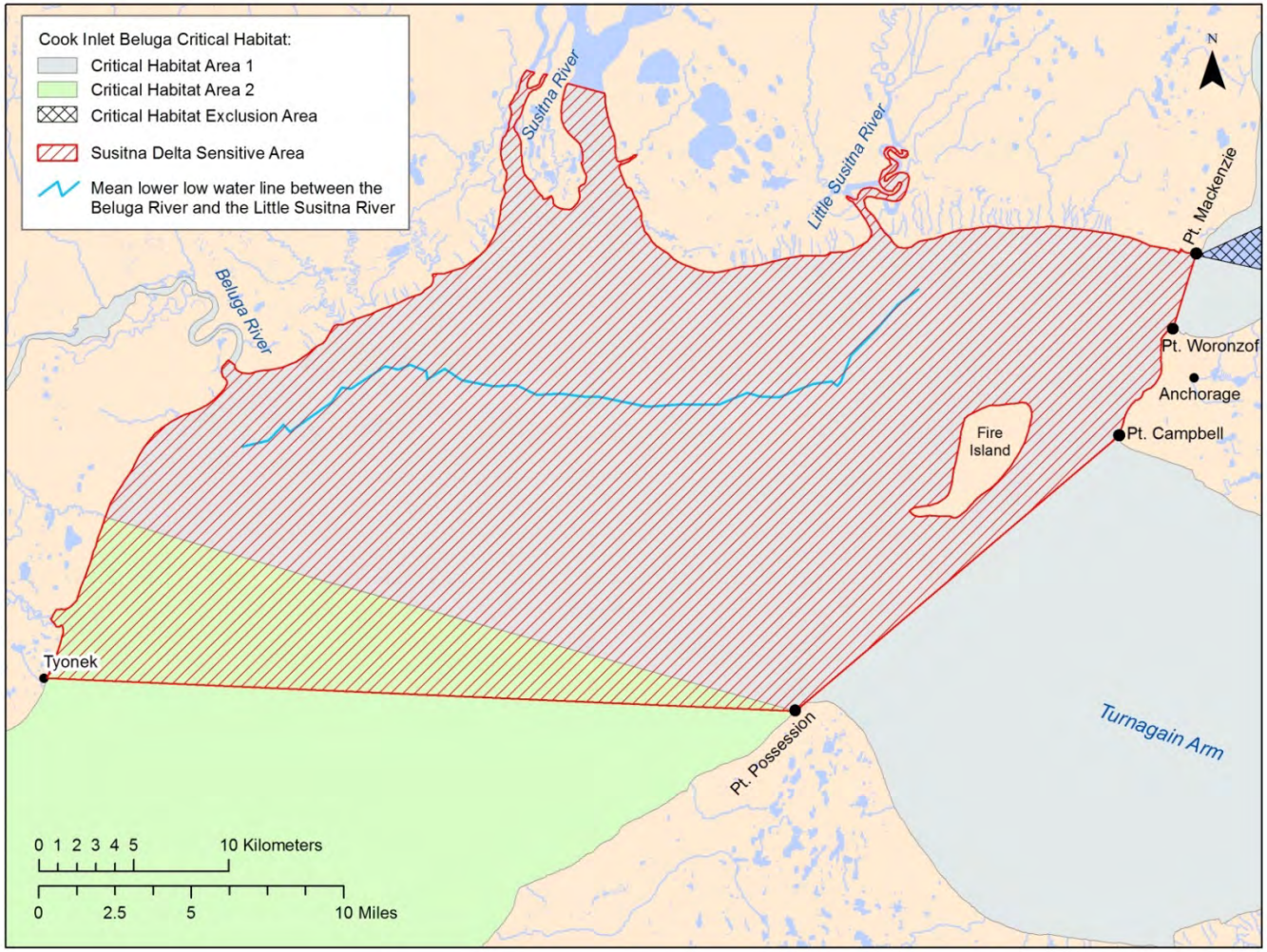


Figure D-7 – Susitna Delta Sensitive Habitat. The Susitna River Delta region is an area of high importance to Cook Inlet beluga whales, especially from mid-April to mid-October. During this time period, large congregations of belugas (sometimes in excess of 200 animals) may use this area for foraging and reproduction/calving.

2. 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 and HAPC 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.

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

For further information, contact the NMFS at http://www.fakr.noaa.gov/.

Groundfish EFH. The Cook Inlet Subarea includes EFH for arrowtooth flounder, Pacific cod, skate, pollock, weathervane scallop, and all salmon species. Specific habitat information of groundfish in the Cook Inlet and Gulf of Alaska can be found in Appendix D of the FMP for Groundfish of the Gulf of Alaska: http://www.npfmc.org/wp-content/PDFdocuments/fmp/GOA/GOAfmpAppendix.pdf.

Species-specific maps for Groundfish EFH in the subarea, as identified by the NMFS, can be found on their interactive mapping website: http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html.

Salmon EFH. Marine EFH for the salmon fisheries in Alaska includes all estuarine and marine areas utilized by Pacific salmon of Alaska origin, extending from the influence of tidewater and tidally submerged habitats to the limits of the U.S. EEZ. For more information, reference Appendix A of the FMP for the Salmon Fisheries in the EEZ of Alaska: http://www.npfmc.org/wp-content/PDFdocuments/fmp/Salmon/SalmonFMPfinal1212.pdf.

Weathervane Scallop EFH. Insufficient information is available to describe EFH for Eggs, Larvae, and early Juvenile life stages.

Late Juveniles
EFH for late juvenile weathervane scallops is the general distribution area for this life stage, located in the sea floor along the inner (1 to 50 m), middle (50 to 100 m), and outer (100 to 200 m) shelf in concentrated areas of the Gulf of Alaska and Bering Sea Aleutian Islands where there are substrates of clay, mud, sand, and gravel that are generally elongated in the direction of current flow (see Figure D-8).

Adults
EFH for adult weathervane scallops is the general distribution area for this life stage, located in the sea floor along the inner (1 to 50 m), middle (50 to 100 m) and outer (100 to 200 m) shelf in concentrated areas of the Cook Inlet and Gulf of Alaska where there are substrates of clay, mud, sand, and gravel that are generally elongated in the direction of current flow (see Figure D-8).

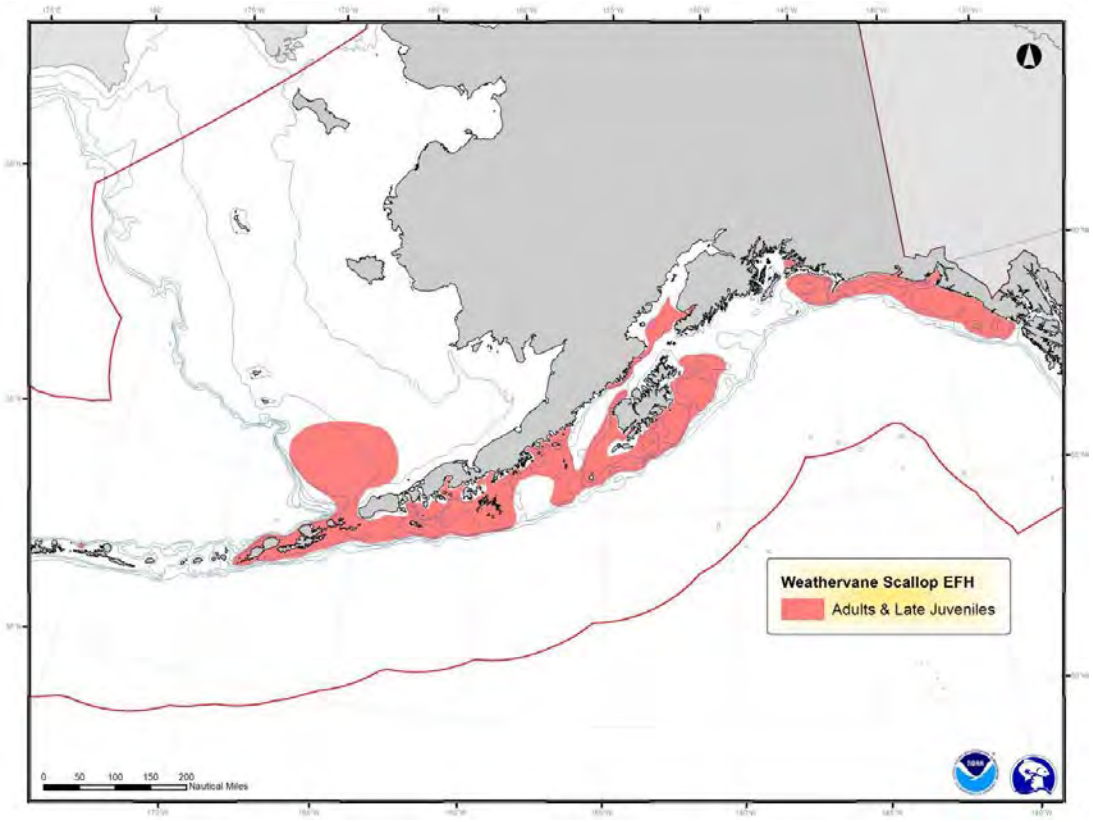


Figure D-8 – Weathervane Scallop Essential Fish Habitat (EFH) for adults and late juveniles.

(b) HABITAT AREAS OF PARTICULAR CONCERN (HAPC)

HAPC are specific sites within EFH of particular ecological significance. HAPC highlight specific habitat areas with extremely important ecological functions and/or areas that are especially vulnerable to human-induced degradation. HAPC are specific sites within EFH that are of particular ecological importance to the long-term sustainability of managed species, are of a rare type, or are especially susceptible to degradation or development (see Figure D-9). HAPC are meant to provide greater focus to conservation and management efforts and may require additional protection from adverse effects.

Two HAPC are located within the Cook Inlet Subarea, as follows:

Gulf of Alaska Slope Habitat Conservation Area

Cable	58	40.00	N	148	0.00	W
Cable	59	6.28	N	149	0.28	W
Cable	59	0.00	N	149	0.00	W
Cable	58	34.91	N	147	59.85	W

Alaska Seamount Habitat Protection Area

Kodiak Seamount	57	0.00	N	149	6.00	W
Kodiak Seamount	57	0.00	N	149	30.00	W
Kodiak Seamount	56	48.00	N	149	30.00	W
Kodiak Seamount	56	48.00	N	149	6.00	W

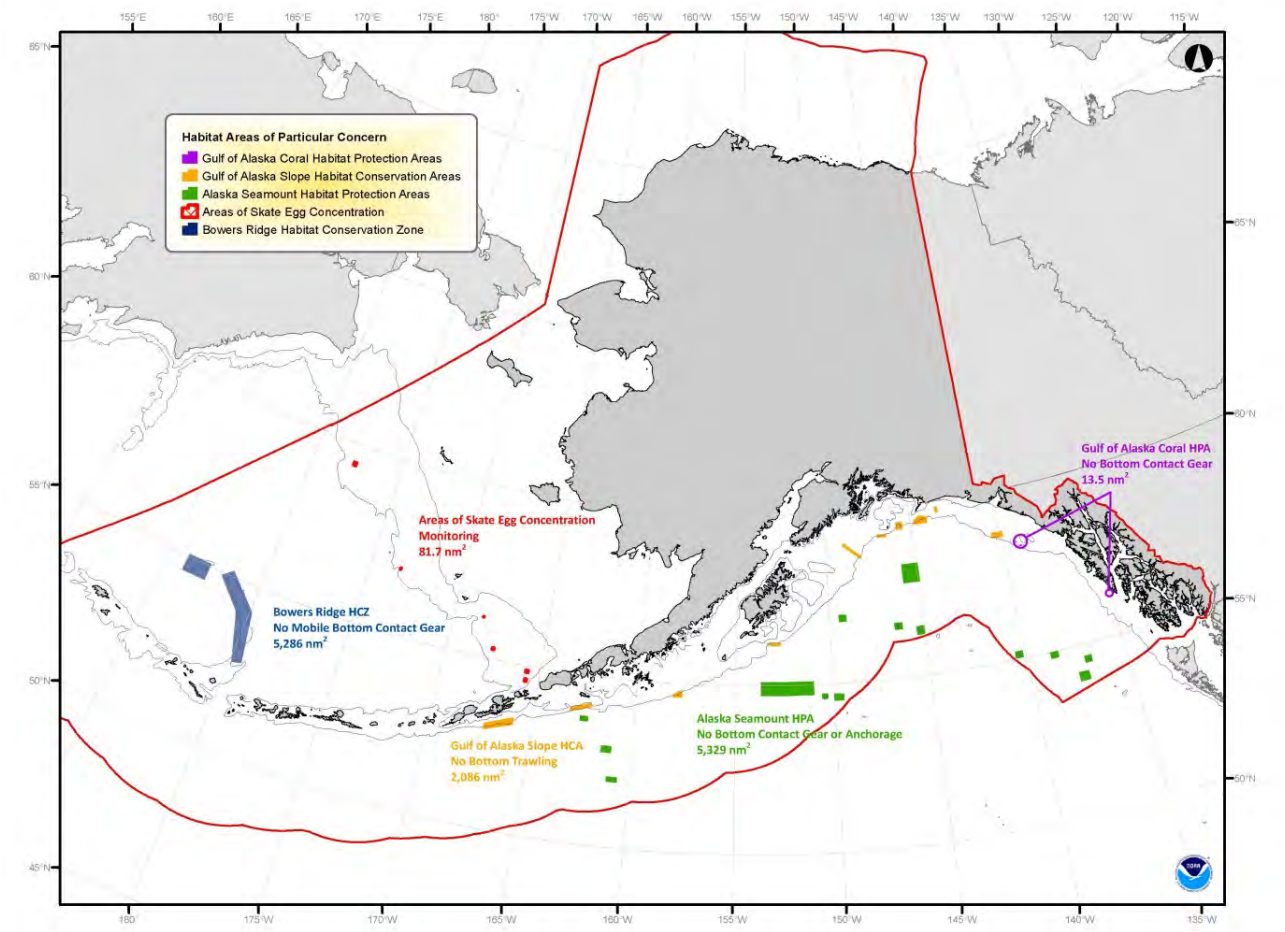


Figure D-9 – HAPC in the EEZ off Alaska. HAPC in the Cook Inlet Subarea can be viewed with a NOAA Fisheries interactive mapper at http://www.habitat.noaa.gov/protection/efh/efhmapper/.

(c) FISH

The waters of the Cook Inlet Subarea are among the most productive in the world and are economically important to the subarea. Major freshwater systems of the region include the Kenai, Kasilof, and Susitna Rivers as well as the Kamishak, McNeil, and Douglas on the western shore. Most of the flowing waters and many of the lakes support populations of anadromous and/or resident fish species.

Dolly Varden. This species is widely distributed throughout the Cook Inlet Subarea; drainages supporting large populations include the Anchor River, Amakdedori Creek, Deep Creek, Little Kamishak River, Ninilchik River, Stariski Creek, and the Kenai River. Juveniles become smolt and migrate to Cook Inlet to forage, often returning to fresh water during mid-summer where they remain to overwinter. Resident and rearing populations of Dolly Varden occur in all but the smallest streams.

Rainbow Trout and Steelhead. Most drainages of the northern and western Kenai Peninsula, from the Anchor River north to the Chickaloon River support Rainbow trout and steelhead; drainages supporting populations include the Anchor River, Deep Creek, Stariski Creek, and the Ninilchik River. The largest steelhead run in lower Cook Inlet occurs in the Anchor River and is estimated at 1,500 adults. Steelhead stocks are fall run fish that enter fresh water from August to November, spawn from April to May, and return to the ocean during May and June. Rainbow trout occur in the lower Susitna River drainage and some of the larger rivers flowing into northwestern Cook Inlet.

Pacific Salmon. Chinook, sockeye, coho, chum, and pink salmon occur within the subarea. Significant drainages supporting salmon in the region include the Kenai, Kasilof, Crescent, Susitna, Little Susitna, Ninilchik, and Anchor Rivers, and Deep Creek in upper Cook Inlet as well as the Fox River, Humpy Creek, Barabara Creek and several smaller drainages in the Kachemak Bay area. On the western side of Cook Inlet, south of Chinitna Bay, are numerous streams that support commercially significant salmon populations. These systems include Cottonwood Creek and Iniskin and Bruin rivers, as well as the McNeil, Kamishak, and Douglas Rivers. On the outer coast between Cook Inlet and Resurrection Bay are numerous pink, chum, and sockeye systems that are of significant economic importance to Alaskan commercial fishermen. Adult salmon are present in freshwater from mid-March through January, depending on the species of salmon and the system. Salmon eggs incubate in stream gravels through winter; fry emerge from stream gravels from mid-March through early June. Chinook, sockeye, and coho salmon fry remain in fresh water from one to four years before migrating to sea. Pink and chum salmon fry migrate to the sea shortly after emerging from the gravel.

Pacific Herring. Spawning concentration areas for herring occur in Kamishak Bay near Douglas Reefs, Chenik Head, Bruin Bay, Rocky/Ursus Cove, and Iniskin Bay, as well as in Kachemak Bay near Mallard Bay, Homer Spit/Mud Bay, Glacier Spit/Halibut Cove, and Tutka Bay. Spawning occurs from late April through mid-June on rocky headlands or in shallow lagoons and bays. Herring may return to different spawning locations each year. Eggs are deposited sub-tidally or intertidally on aquatic vegetation; kelp or eelgrass are generally the preferred spawning substrates, but herring may also spawn prolifically on other algae. Herring generally move offshore following spawning to feed and into deeper water during winter. Small commercial gillnet harvests of this species occur in upper Cook Inlet, while the sac roe fishery in lower Cook Inlet has been closed since the late 1990s due to depressed spawning populations.

Forage fish. Numerous species of fish inhabit the nearshore areas of Cook Inlet and are important forage species for higher trophic predators, such as seabirds and marine mammals. Capelin spawn in the intertidal zone from late May through mid-July. Eggs are deposited in sand and small gravel, hatch two weeks later, and remain larval through the winter. Eulachon smelt return to freshwater systems in

upper Cook Inlet to spawn from mid-May through mid-June. Little is known of the life history of this species in upper Cook Inlet.

Pacific Halibut. Widely distributed in lower Cook Inlet, halibut provide important recreational and commercial fisheries based out of Homer, Deep Creek, Anchor River, and Whiskey Gulch. Adult halibut use shallow feeding grounds (27-274 m) in Cook Inlet in the summer and migrate to deeper winter spawning grounds (up to 1,094 m) in the Gulf of Alaska.

Groundfish. Commercially important groundfish species in Cook Inlet include Pacific cod, rockfish, lingcod, and sablefish. Juvenile groundfish occupy shallow nearshore habitats, later moving to deeper areas when they reach sexual maturity.

(d) SHELLFISH

Dungeness crab (*Cancer magister/ syn. Metacarcinus magister*). Sharply declining crab populations in the late 1980s prompted a closure of the commercial fishery in 1991; the noncommercial fishery closed in 1998. Dungeness crabs are found in the intertidal region to a depth of 230 m. Dungeness crab are most common on sand or muddy-sand bottoms in the subtidal region and are often found in or near eelgrass beds. However, they can also be found on a number of other substrata, including various mixtures of silt, sand, pebble, cobble, and shell. Juvenile Dungeness crabs are found in similar habitats as adults, but they generally occupy shallower depths than adults. Juvenile crab can be very abundant in the intertidal zone, but also occur in shallow subtidal areas. Survival of young crab is greatest in habitats, such as intertidal shell and eelgrass beds where they can gain refuge from predators. Dungeness crab are distributed in lower Cook Inlet south of Anchor Point, and a major concentration of adults is found in the shallow, nearshore waters along the north shore of Kachemak Bay. They have been documented as far north as Kalgin Island during the summer. Reproductive concentrations in western Cook Inlet are found along the Kamishak Bay coast. Mating occurs in the spring during the molting period. Larvae are planktonic and associated with the nearshore location of females in spring. Post larval crab are most abundant on sandy bottom, inshore areas shallower than five fathoms.

King Crab (*Paralithodes camtschaticus*). Populations of king crab have been severely depressed since the mid-1980s, which prompted closure of the commercial fishery. King 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 a 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 including 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 of up to thousands of individuals. 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 can occur up to a depth of 365 m; preferred habitat for reproduction is less than 90 m in depth.

When king crab were abundant in Cook Inlet, they were common in lower Cook Inlet south of Anchor Point. The inshore migration of king crab in Kachemak Bay began in late December, peaked in March, and extended through May. Migration of king crab into Kamishak Bay began in February. Mating and release of larvae occurred in nearshore areas. Large numbers of king crab spawned in outer Kachemak Bay and around Augustine Island in Kamishak Bay in waters 18-85 m deep. In Kachemak Bay, spawning began in February, peaked in April, and continued through May. Spawning in Kamishak Bay was thought to be slightly later. Offshore winter migration began in August and continued through November. The

Bluff-Anchor Point area was a major nursery area for juvenile king crab in lower Cook Inlet. Juveniles were also common at the mouth of Iniskin Bay, at Spring Point, Koyuktlik Bay Lagoon (Dog Fish Lagoon), and along the south shore of Kachemak Bay.

Tanner crab (*Chionoecetes bairdi*). There has not been a commercial fishery for Tanner crab since the 1995 closure; noncommercial harvest in lower Cook Inlet has been closed since 2012 due to low abundance. Tanner crab larvae are strong swimmers and perform diel vertical migrations in the water column (down at night). They usually stay near the depth of the chlorophyll maximum during the day. The length of time larvae take to mature is unknown, although it has been estimated to be as little as 12 to 14 days. After settling to the bottom, Tanner crab are widely distributed at depths up to 473 m. Though their populations are greatly reduced compared to populations prior to the 1980s, Tanner crab is distributed throughout Cook Inlet south of Anchor Point, around the Kenai Peninsula south and west, and in Kamishak Bay. Tanner crab are found in the littoral zone to 550 m.

Adult Tanner crab were historically thought to be most abundant in the deepwater region between Augustine Island and the Barren Islands. Tanner crab migrated into Cook Inlet from March through September, and spawning occurred from May to June. Concentrations of juveniles have been reported near Cape Douglas, Iniskin Bay, and Kamishak Bay. Females are known to form high density mating aggregations consisting of hundreds of crab per mound. The mounds likely form in the same general location each year, but the location of mounds is largely undocumented.

Shrimp. Pandalid shrimp, mainly the Northern Pink Shrimp (*Pandalus borealis*), occur throughout lower Cook Inlet with historical concentration areas in Kachemak Bay and in the deep waters off Cape Douglas. Large populations of northern pink shrimp and coonstripe shrimp (*Pandalus hypsinotis*) occurred in lower Cook Inlet until the early 1980s when declining shrimp populations prompted the closure of commercial trawl and pot shrimp fisheries by the mid-1990s.

Razor clams (*Siliqua patula*). The east side of Cook Inlet supports razor clams from the Homer Spit north to Cape Kasilof with major concentration areas at Clam Gulch, Ninilchik, Deep Creek, Happy Valley, and Whiskey Gulch. On the west side of Cook Inlet, razor clams are found from Kustatan, at the west foreland, southwest to Tuxedni Bay, with small populations at Chinitna Bay and the south shore of Augustine Island. Commercial harvest for razor clams occurs on the west side of Cook Inlet from the Crescent River to Redoubt Point. A commercial harvest for hardshell clams occurs on the south side of Kachemak Bay between Bradley River and Barabara Point.

Weathervane Scallop. Weathervane scallops occur throughout Alaska waters in discrete beds with patchy distribution. They are found at depths ranging from intertidal waters to depths of 300 m, but abundance tends to be greatest between depths of 45-130 m on substrates consisting of mud, clay, sand, or gravel. Commercial fisheries for Alaskan scallops typically take place in relatively shallow waters (< 200 m). Although weathervane scallops are widely distributed along the shelf, the highest densities in Alaska have been found to occur in discrete areas. Weathervane scallops develop through egg, larval, juvenile, and adult life stages. Spawning occurs from May to July. Eggs and spermatozoa are released into the water. After a few days, eggs hatch, and larvae rise into the water column and drift with currents. Larvae are pelagic and drift for about one month until metamorphosis to the juvenile stage when they settle to the bottom. Juvenile and adult scallops are non-burrowing filter feeders that subsist primarily on phytoplankton. Scallops have limited swimming ability. The highest concentration of weathervane scallops in Cook Inlet is located in Kamishak Bay, which has two scallop beds (a north bed and a south bed) and supports a commercial fishery. ADF&G surveys show that over the past 20 years, abundance and biomass in both beds have fallen to their lowest level. However, a small increase

in biomass in 2015 allowed a modest harvest from the north bed. Based on performance in that fishery, the department plans to allow additional commercial harvest in 2016. Kachemak Bay has a few small beds that do not contain enough biomass to support commercial fishing.

(e) BIRDS

Important Bird Areas (IBA): Audubon, as the U.S. Partner for BirdLife International, has identified Important Bird Areas worldwide, several of which are located in the Cook Inlet Subarea (see Figure D-10). Many of the IBA that have been designated in the Cook Inlet 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.

Important Bird Habitats/Communities

Tidal Flats. Tidal flats are used most intensively in spring and fall and also provide important overwintering habitat for shorebirds. Large numbers of shorebirds (primarily Western Sandpiper) as well as ducks (primarily northern pintails, green-winged teal, mallards, and American widgeon) are found resting from the tide line to one-half mile offshore and feeding on *Macoma* clams and other invertebrates in the intertidal area.

Puccinellia-Triglochin community. The near-coastal *Puccinellia-Triglochin* community, frequently flooded by tides, is most valuable for snow and cackling Canada geese, Taverner's Canada geese, and tule and Pacific white-fronted geese that stop to feed during spring migration.

Ramenski sedge-shallow pond community. The Ramenski sedge-shallow pond community is also used primarily for feeding and roosting. The numerous semi-permanent ponds attract migrant ducks and are used by resident dabbling ducks for brood rearing.

Marsh community. The marsh community is the most valuable habitat type for most waterfowl. During spring and fall, numerous permanent ponds and cover are the primary staging area for tundra swans, loons, grebes, and diving ducks. Marsh habitat is also the most productive nesting habitat for tule white-fronted geese, ducks, loons, grebes, and gulls. The coastal marsh community is flooded only on the highest tides.

Shrub-bog community. During fall, Canada and tule geese use this habitat type for roosting at night. The interface between marsh and shrub-bog communities has the greatest concentration of nesting ducks, geese, and cranes.

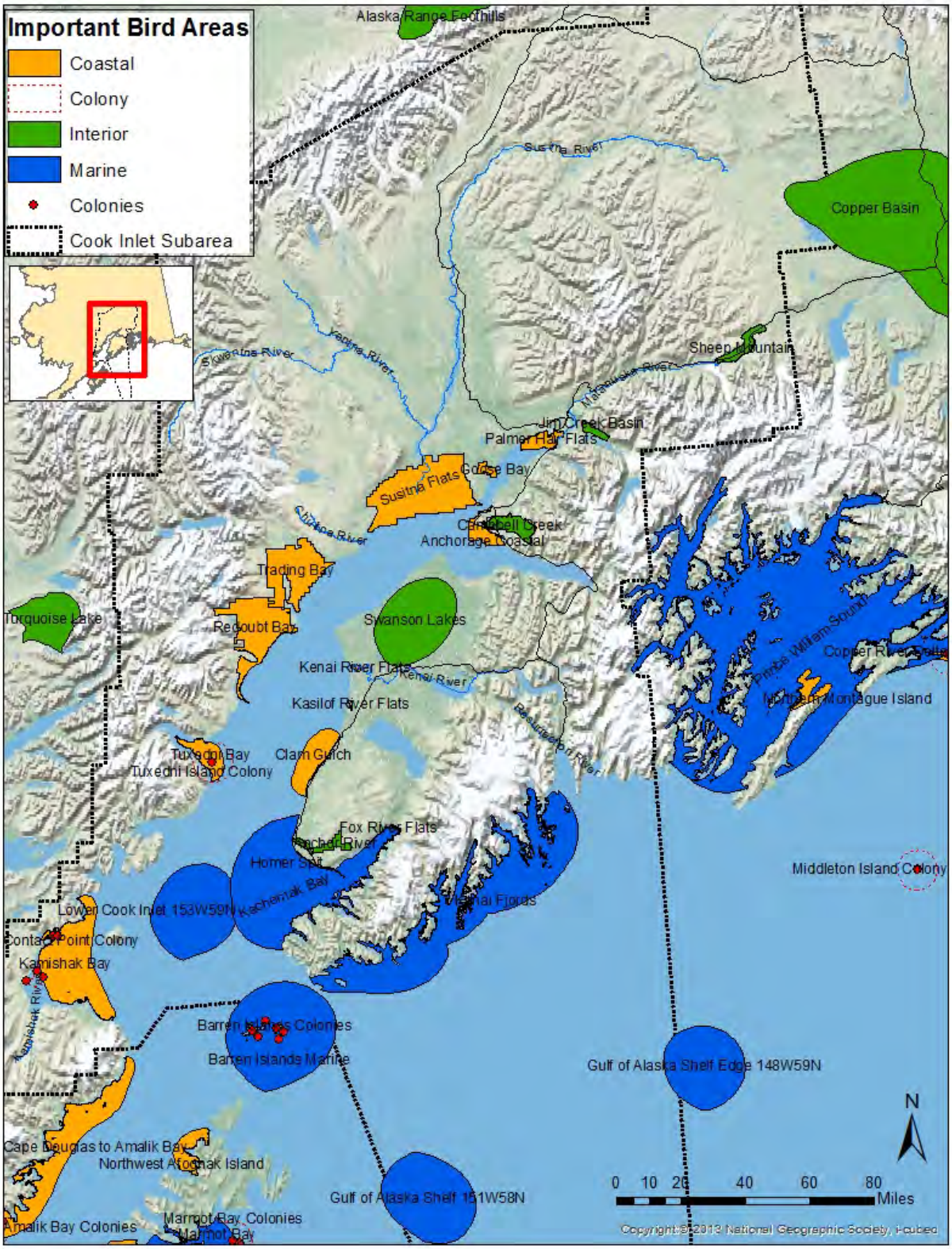


Figure D-10 – Important Bird Areas within the Cook Inlet Subarea (Audubon Alaska 2014).

Trumpeter Swans. One of the most significant wildlife populations in the northern Cook Inlet critical habitat areas is that of the trumpeter swan. Swans typically begin arriving in upper Cook Inlet in early April, but some may overwinter in the area. The peak of migration occurs in early May, depending largely on snow melt. Many trumpeters remain to nest in this area. Trumpeter swan nesting and brood-rearing is widespread; the most concentrated use occurs in the drainages of the Kustatan River, Bachatna Creek, North Fork Big River, Twentymile River, and the lower Big and Chakachatna rivers. See Figure D-12 for the Cook Inlet section of the 2005 USFWS trumpeter swan census (the east side of Knik Arm, a known spring and fall stopover for moderate numbers of swans, was not surveyed). Trumpeter swans are sensitive to human activity, particularly in the vicinity of their nests and broods. By mid-October, most swans have left upper Cook Inlet for wintering areas along the Pacific coast.

Geese. During spring migration, thousands of Canada (lesser, Taverner's, and cackling), snow, and Pacific and Tule white-fronted geese use the coastal wetlands of Cook Inlet. Upper Cook Inlet, including Trading Bay and Redoubt Bay, is considered critical migration habitat for cackling Canada geese, Pacific white-fronted geese, and the entire Wrangel Island population of snow geese. These coastal wetlands are the last feeding areas that cackling Canada geese are known to use before they arrive on nesting areas of the Yukon-Kuskokwim Delta. Butler and Gill (1987) found that spring goose numbers in upper Cook Inlet varied from 50,000 to 100,000, depending on habitat availability throughout the state.

Some geese are sensitive to human disturbance; feeding flocks are easily spooked by air traffic. In Redoubt Bay, aircraft flying at or below an altitude of 500 ft and passing within 500 ft cause flocks of geese to take flight. On Susitna Flats, aircraft over 600 ft did not usually flush snow geese, and aircraft passing by at distances greater than one-third mile from a flock caused minimal alert behavior. All geese are particularly sensitive to disturbance during nesting and brood-rearing.

Tule White-fronted Goose. This species is one of the few waterfowl in North America considered at risk by the International Waterfowl Research Bureau and wintering ground counts indicate that the population consists of fewer than 10,000 individuals. Tule breeding range is restricted as well and is only known to nest in boreal forest habitats of the Cook Inlet Basin, making them one of the most vulnerable waterfowl populations in North America. The west side of upper Cook Inlet has one of two known nesting, brood-rearing, and molting areas for tule white-fronted geese.

Snow Goose. Up to 34,000 snow geese have been counted in Cook Inlet marshes enroute from their wintering areas in Washington and British Columbia to their nesting area on Wrangel Island, Siberia. Critical stops include Kenai River Flats, Anchorage Coastal Wetlands, Trading Bay, Redoubt Bay, Susitna Flats, Eagle River Flats, Palmer Hay Flats, and Goose Bay. Typically, up to 15,000 geese can be observed in these areas, although in some years only a few thousand geese may be observed due to rapid turnover of individuals.

Dabbling ducks. Surveys in upper Cook Inlet have shown a peak in April at around 20,000 ducks with the highest concentrations on Susitna Flats and Trading Bay (Eldridge 1995). Fall numbers peaked at over 45,000. Smaller numbers but still thousands of ducks were counted on Chickaloon Flats, Goose Bay, Eagle River Flats and Palmer Hay Flats. Mallard, American Wigeon, green-winged teal, northern shoveler, and northern pintail (a listed Common Bird in Steep Decline) were the most common dabbling ducks counted. Dabbling ducks make extensive use of intertidal coastal mudflats on the Susitna Flats,

Trading Bay and Redoubt Bay for feeding and resting from mid-August into November, depending on freeze up. They also use these mudflats during spring migrations.

Diving ducks and sea ducks. Most scaup wintering along the coast in salt water are greater scaup, but many or most breeding in inland lakes are lesser scaup. Surveys of the coastal areas from Tuxedni Bay to Chinitna Bay during April through September 1994-96 found a peak number of diving ducks (most of which were scaup) of 16,400 birds during migration in mid-May, with fewer than 2,000 in April and June (Bennett 1996). In lower Cook Inlet and Kachemak Bay in 1993, small boat surveys estimated about 1,600 scaup, mostly within five nm of the shoreline (Agler et al. 1995). Scaup also use the intertidal mudflats of Trading Bay and Redoubt Bay in October, but not in large numbers. The breeding population estimate for the Kenai-Susitna area for May 2000 was 15,916, which is 13% of the total for Alaska.

Cook Inlet has both Barrows and Common goldeneye, primarily as winter residents, though Barrows are far more abundant. The lower Cook Inlet winter boat survey estimated 3,638 goldeneye. Aerial shoreline surveys estimated 1,128 goldeneyes in Kachemak Bay (Agler et al. 1995). Residents of Kachemak Bay have noted a dramatic decline in winter goldeneye populations there over the last 10 years.

Long-tailed ducks are primarily winter residents of Cook Inlet, with an estimated 11,058 present in eastern lower Cook Inlet during the winter of 1994 (Agler et al. 1995). During spring, migration numbers peaked along the Lake Clark National Park shoreline in April and May at an estimated 1,486 birds. Longtails do not breed in the Cook Inlet area.

Harlequin ducks winter in small numbers along much of the lower Cook Inlet shoreline and breed in low densities in many Cook Inlet river systems. Estimates during boat surveys of lower Cook Inlet ranged from 3,774 in all of lower Cook Inlet in the summer of 1993, to 1,940 in eastern lower Cook Inlet in winter of 1994, mostly within Kachemak Bay (Agler et al. 1995).

Common eiders breed in low densities along east and west shorelines in lower Cook Inlet. 1994 summer observations estimated 2,844 common eiders. The estimate of 5,822 eiders in eastern lower Cook Inlet in winter of 1994 contained king and Steller's eiders as well as Common eiders. Up to several hundred Steller's eiders are present in Kachemak Bay in the winter, particularly along the Homer spit and offshore south of Bluff Point, and up to 2,400 have been estimated wintering in nearshore habitats near Ninilchik (USFWS unpublished data). A winter aerial shoreline count in 1994 detected 1,363 in the Kamishak Bay area and 4,284 in eastern Cook Inlet in a 2005 survey (Larned 2005). Important areas in western Cook Inlet include southern Kamishak Bay from Douglas River to Bruin Bay, including the shoreline between Bruin Bay and Ursus Cove, a shoal 12 km southeast of Bruin Bay (3,921 in January 2005), and the mouth of Iniskin Bay. Kamishak Bay is also important as a staging area for large numbers of sea ducks of several species (SDJV 2007).

Scoters. Cook Inlet is an important molting area for surf and white-winged scoters, particularly in Tuxedni and Chinitna Bays. Summer surveys there estimated 11,900 surf scoters and 4,970 white-winged scoters during 1994-1996 (Bennett 1996). Summer boat surveys in 1993 estimated 49,077 scoters (mixed species) in lower Cook Inlet, and 29,408 were estimated in eastern lower Cook Inlet during the winter of 1994 (Agler et al. 1995). The Cook Inlet lowlands are also an important breeding area for scoters, primarily surfs but also small numbers of white-winged scoters. The 2000 estimate for breeding scoters for the Kenai/Susitna stratum was 3,089 birds (William I. Butler, USFWS, unpublished data). Wintering flocks in Kachemak Bay, and likely other habitats as well, contain a high

proportion of black scoters. Migratory and non-breeding black scoters also occur in large numbers in Kamishak Bay (SDJV 2007).

Shorebirds. Study results show Cook Inlet to be extremely important to both migrant and winter resident shorebirds, supporting major portions of the population of one of North America's most (Western Sandpiper) and least (Rock Sandpiper [see below]) abundant species. Twenty-eight species of shorebirds have been recorded using Cook Inlet, ranging from all being present during spring to a single species present during winter. The annual pattern of use is characterized by the sudden occurrence and rapid increase in numbers of birds during early May and their abrupt departure in mid to late May. During this period, totals frequently exceed 150,000 birds per day. As many as 3 million western sandpipers and 500,000 dunlin migrate along the coast of the Gulf of Alaska each spring and stop en route at sites along the southcentral Alaska coast, especially the Copper River delta and embayments along the west side of Cook Inlet. While many observations concern areas in lower Cook Inlet and point to major use during some years, spring surveys have revealed several tens of thousands of shorebirds using both unvegetated and vegetated intertidal habitats from Redoubt Bay north to upper Knik Arm. It is estimated that 20-47% of the Pacific flyway population of Western Sandpipers (which numbers 2-3 million) used Cook Inlet embayments, especially southern Redoubt Bay. Cook Inlet also supports between 11-21% of the Pacific flyway population of Dunlin. The Western Hemisphere Shorebird Reserve Network (WHSRN) has identified Kachemak Bay as a Site of International Importance because it supports more than 100,000 shorebirds annually. Several areas in Kachemak Bay were added to the WHSRN in 2016. More information can be found at http://www.whsrn.org/site-profile/kachemak-bay.

Pribilof Rock Sandpiper (*Calidris ptilocnemis ptilocnemis*). Cook Inlet supports what may be the entire population (about 20,000 individuals) of the nominate race of the Pribilof Rock Sandpiper. This nominate subspecies breeds on four isolated islands in the Bering Sea, and the entire population appears to spend the winter in upper Cook Inlet feeding on clams in the intertidal mudflats. Between 1997 and 2012, about 8,000 Rock Sandpipers were counted during an average survey in the upper Cook Inlet during the winter months. The average of each winter season's highest single-day count was over 13,000 Rock Sandpipers. International criteria, used to assess the conservation importance of particular wetland sites to shorebirds, not only place Cook Inlet at the highest level of recognition, but afford similar recognition to several individual embayments therein, including Kachemak Bay, southern Redoubt Bay, Susitna Flats, Trading Bay, and Tuxedni Bay. The mouths of the Kasilof and Kenai rivers are periodically used during the winter months by Rock Sandpipers.

Seabirds. See Figure D-11 for a regional summary Seabird Population Map. The Alaskan Seabird Colony Catalog is an automated database that contains the distributions of breeding seabirds and the relative size of all the colonies in Alaska. The data reports indicating estimated species composition and numbers for seabird colonies of Cook Inlet are summarized from the catalog. The maps display colony locations.

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/.

There are over 150 documented seabird nesting colonies in the Cook Inlet Subarea. The colonies range in size from tens of birds to tens of thousands of birds. The largest colony is at Chisik and Duck Islands in middle western Cook Inlet, with over 60,000 seabirds. The greatest densities of seabird colonies are located along the outer Kenai Peninsula Coast. Seabirds are generally present at the colonies from late April through August.

Raptors. The Cook Inlet Subarea has more than 300 known bald eagle nests and likely many more undocumented nests. Additionally, due to the rich marine resources available along the coast, it hosts many non-territorial bald eagles during all months of the year. Peregrine falcons, while less widely distributed, are likely found in association with many of the larger seabird colonies throughout the area.

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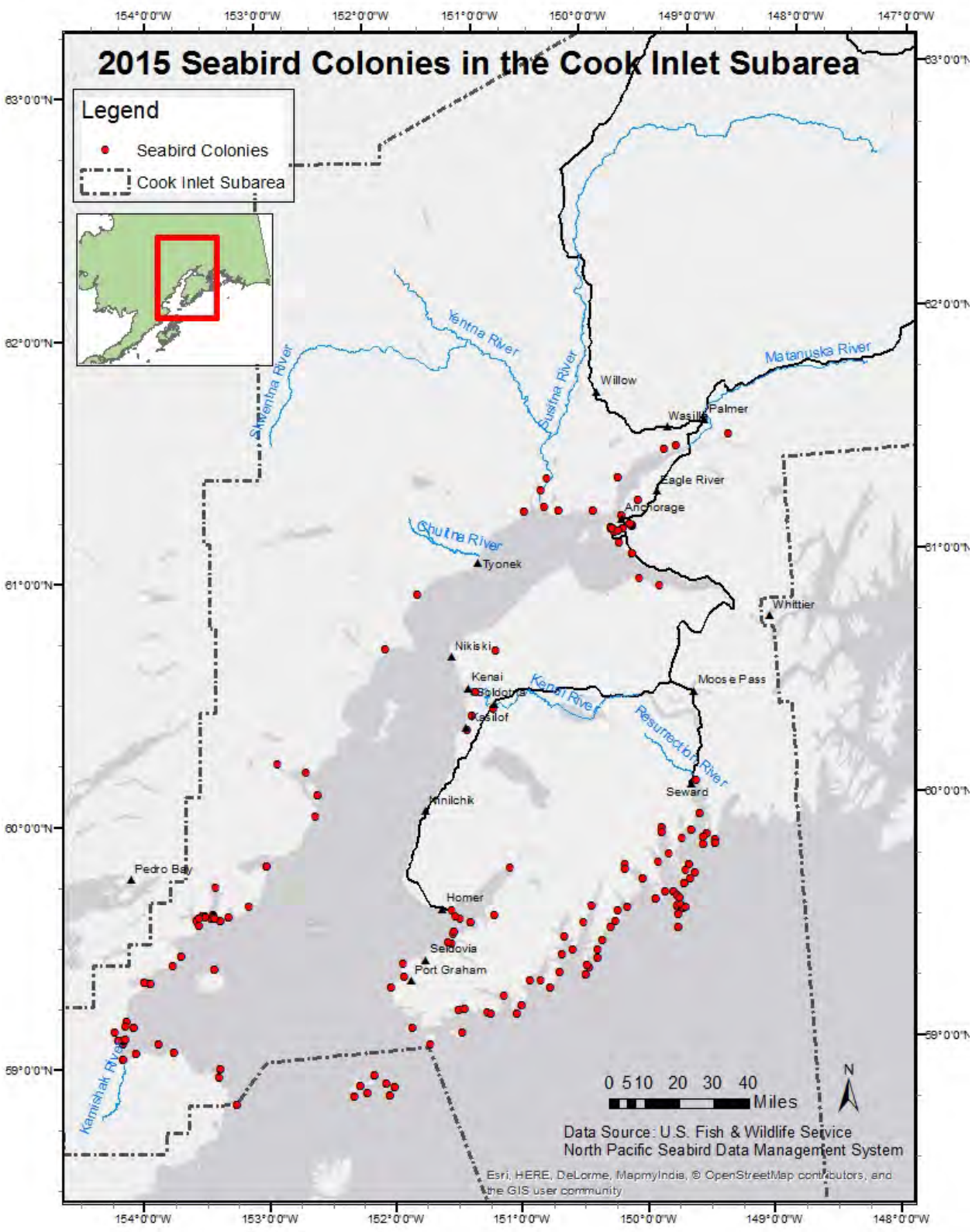


Figure D-11 – 2015 Seabird Colonies in the Cook Inlet Subarea.

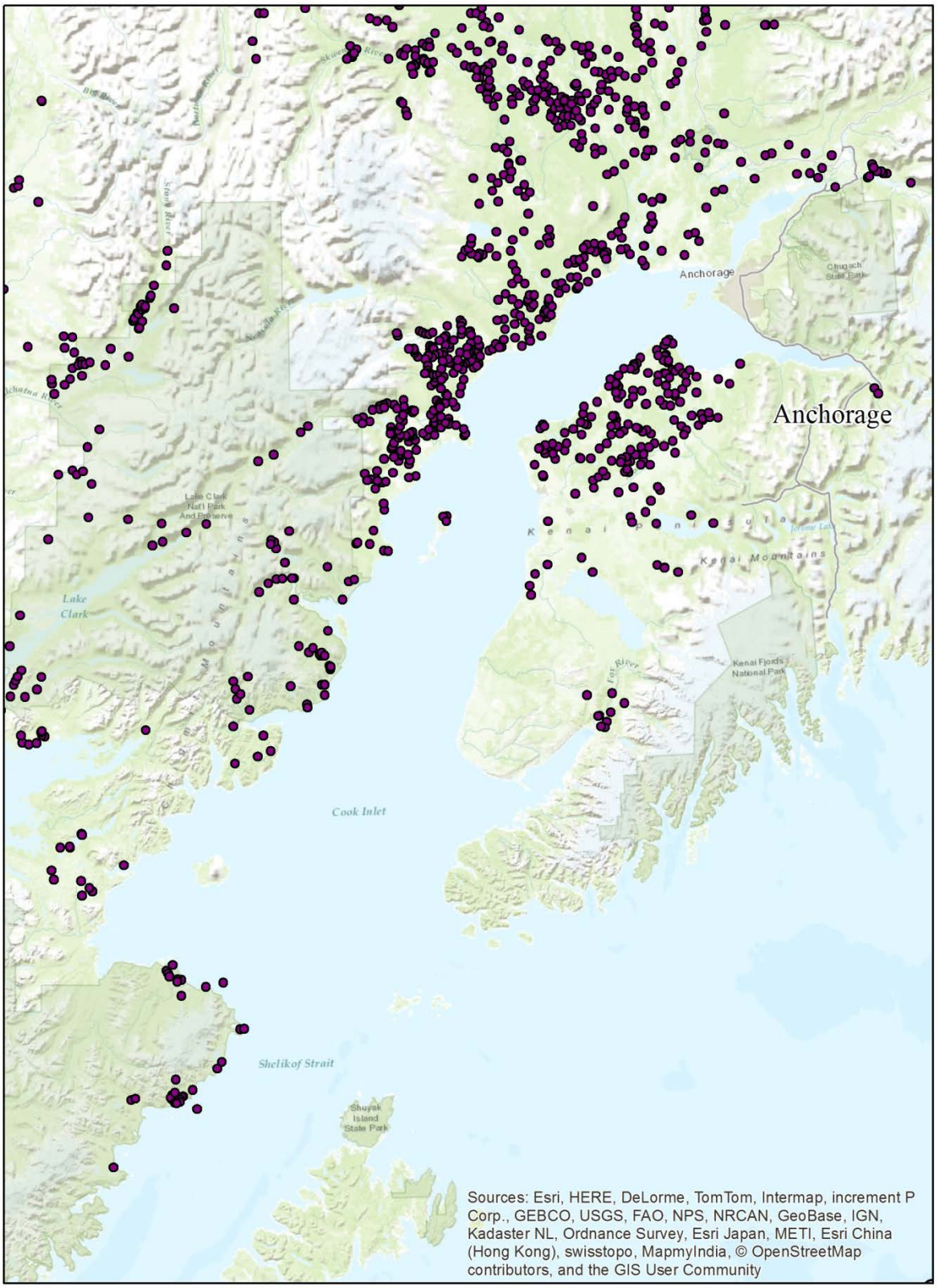


Figure D-12 – Point data from Trumpeter Swan survey (Conant et al. 2007). Each mark consists of a single swan, a pair or a single or pair with cygnets.

(f) MARINE MAMMALS

Harbor seals. This species is found in nearly all nearshore marine habitats throughout the subarea and may be found during spring and summer in some rivers and lakes. Harbor seals are usually found in close proximity to coastal and nearby island shorelines. Commonly used haulout area substrates include offshore rocks and reefs, sandbars, beaches of remote islands, mainland beaches backed by cliffs, glacial ice at the head of bays, and floating sea ice. Pupping appears to take place at all locations where harbor seals haulout.

In Cook Inlet, seals are year-round residents moving into the upper inlet in summer, coinciding with movements of anadromous fish, such as eulachon and salmon. Seals have been observed in the Susitna River and are believed to enter other Cook Inlet rivers. In some winters, heavy sea ice may influence distribution in the northern areas of Cook Inlet. Harbor seals may use the ice edge to haulout and are typically not found within areas of extensive, thick ice cover. In lower Cook Inlet, particularly high-density haulout concentration areas are found on Yukon Island and the Bradley-Fox River Flats within Kachemak Bay. Sand bars exposed at low tide north and south of Kalgin Island are important haulout locations. Seals are present year-round along the western shore of Cook Inlet and Kamishak Bay where major haulout areas include Gull Island, the area between the mouths of Oil Bay and Iniskin Bay, Augustine Island, No Name Reef, Nordyke Island, Juma Reef, Douglas River Reefs, and Shaw Island (see Figures D-13 and D-14).

Steller sea lion. The population that occurs in the Cook Inlet Subarea is part of the population segment classified in 1997 as endangered under the Endangered Species Act. Sea lions are found at haulout and rookery areas near the entrance to Cook Inlet, which include Gore Point, E. Chugach Island, Perl Island, and Elizabeth Island. Pupping occurs from late May through early July, most pups are born during June. During May through August, territorial breeding behavior occurs on the rookeries.

Steller sea lions forage in lower Cook Inlet and the Gulf of Alaska. There is designated critical habitat for this species in this area that includes terrestrial sites (rookeries and haulouts, air zones, nearshore waters associated with these sites) and aquatic foraging areas (see Figure-5). A full description of this critical habitat is found at 50 CFR 226.202. There are also special prohibitions for endangered marine mammals that apply to the western DPS of Steller sea lions. There is a special prohibition on approach of vessels within three miles (5.5 km) of rookeries west of 144 degrees West Longitude specified in 50 CFR 224.103(d). Further, there is a prohibition on approach by people on land not privately owned within one-half statutory mile (0.8 km) or within sight of those Steller sea lion rookery sites specified in this regulation, whichever is greater; and no person may approach on land not privately owned within one and one-half statutory miles (2.4 km), including the Steller sea lion rookery sites listed in paragraph (d)(1)(iii) of the aforementioned regulation, whichever is greater.

Beluga whale. The population that occurs in the Cook Inlet Subarea has been listed as depleted under the Marine Mammal Protection Act and as endangered under the Endangered Species Act. Abundance of Cook Inlet belugas has declined from an estimated 653 whales in 1994 to 347 in 1998, a 50% reduction. In 2014, the population was estimated at 340 whales. Belugas concentrate in shallow water along the mouths of rivers during spring and early summer in upper Cook Inlet, including the Susitna Delta, Eagle and Goose Bay of Knik Arm, Chickaloon Bay, and the area near the mouth of the Kenai River. These concentrations are associated with the migration of anadromous fish, including eulachon and salmon. Belugas are seldom found more than a few kilometers offshore. While belugas were commonly found in lower Cook Inlet in the past, few have been sighted there since the mid-1990s indicating a decline in distribution towards the upper regions of Cook Inlet. However, unconfirmed beluga sightings

near Anchor Point and Homer have been reported to NMFS in 2014 and 2015.

Other cetaceans. Humpback whales may occur from early spring to late fall within Cook Inlet and the Gulf of Alaska. Large numbers of humpbacks have been observed in late spring and early summer feeding near the Barren Islands, located adjacent to the southern boundary of the Cook Inlet Subarea. Within Cook Inlet, individuals and groups of humpbacks have been observed feeding near the Kenai Peninsula north and east of Elizabeth Island and in Kachemak Bay. North Pacific right whales may be present in the Gulf of Alaska. Fin whales occur occasionally within Cook Inlet, but they may be expected to occur in the Gulf of Alaska. Minke whales are found in Kachemak Bay during the summer, particularly in August. Migratory pods of killer whales are occasionally sighted in the outer portions of Kachemak Bay and in Cook Inlet. Harbor porpoises are common in bays, estuaries, tidal channels, and harbors of Kachemak Bay; they are wary and easily disturbed by boat traffic. Dall's porpoise are also present in Kachemak Bay and in other parts of lower Cook Inlet and the Gulf of Alaska.

Sea otters. This species is generally found in shallow (<40m) nearshore areas where they feed on bottom-dwelling invertebrates. Sea otters are common in Kachemak Bay with highest concentrations near Seldovia and English Bay. Rafts of otters are also commonly seen in Kamishak Bay, especially near Nordyke Island area. While the otter population of Cook Inlet is thought to be expanding in size and distribution, it is not clear whether otters will recolonize areas in upper Cook Inlet where food availability and winter sea ice may limit habitat suitability. Breeding can occur any time of year, with a peak from September-October, while pupping peaks in April, May, and early June. The Southwest Alaska DPS has been listed as threatened under the Endangered Species Act and resides on the west side of lower Cook Inlet. Critical habitat for this species is identified above.

The most recent available information for marine mammal species under NMFS's authority in Alaska can be found in the species' stock assessment reports at http://www.nmfs.noaa.gov/pr/sars/species.htm.

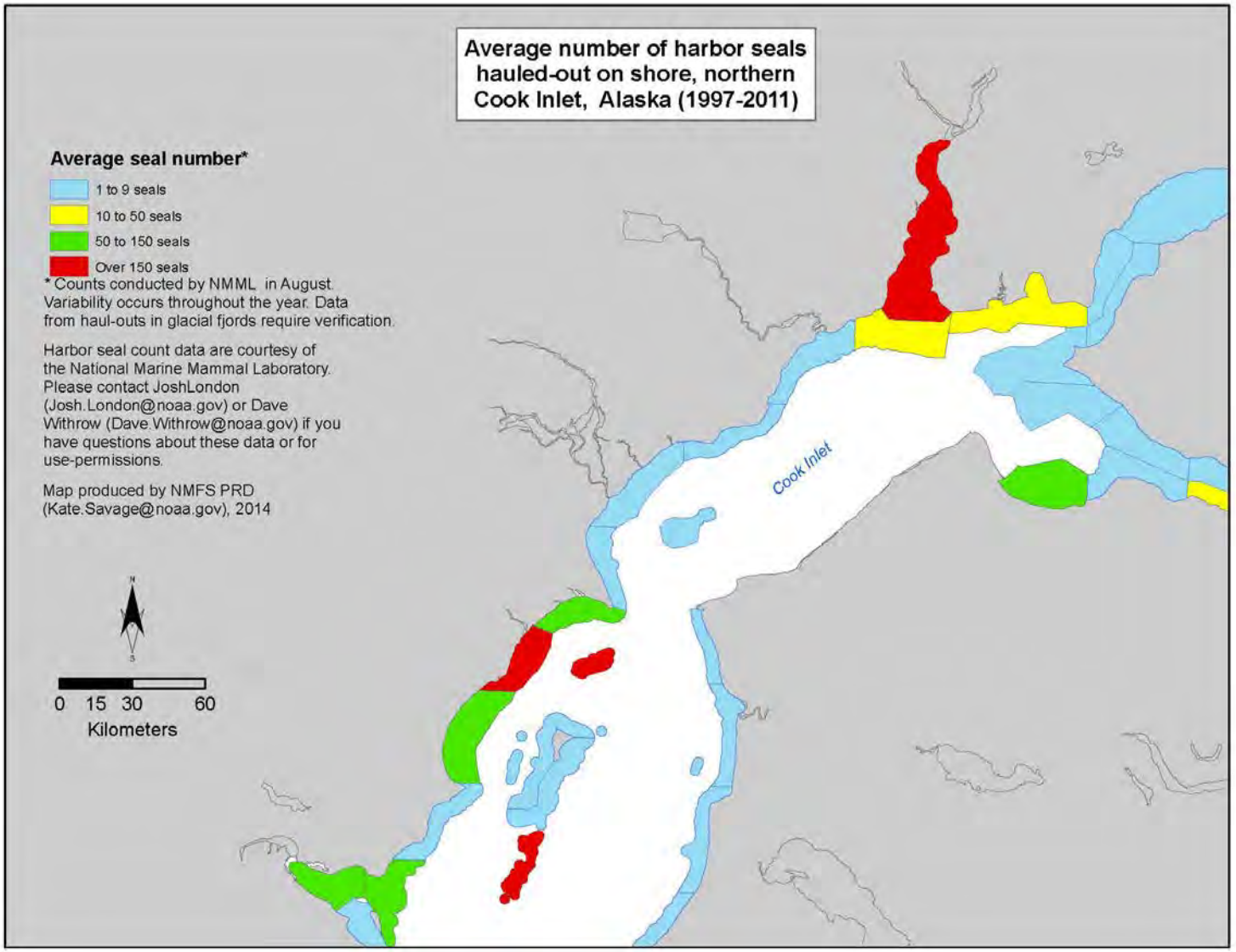


Figure D-13 – Harbor seal haulout data in upper Cook Inlet.

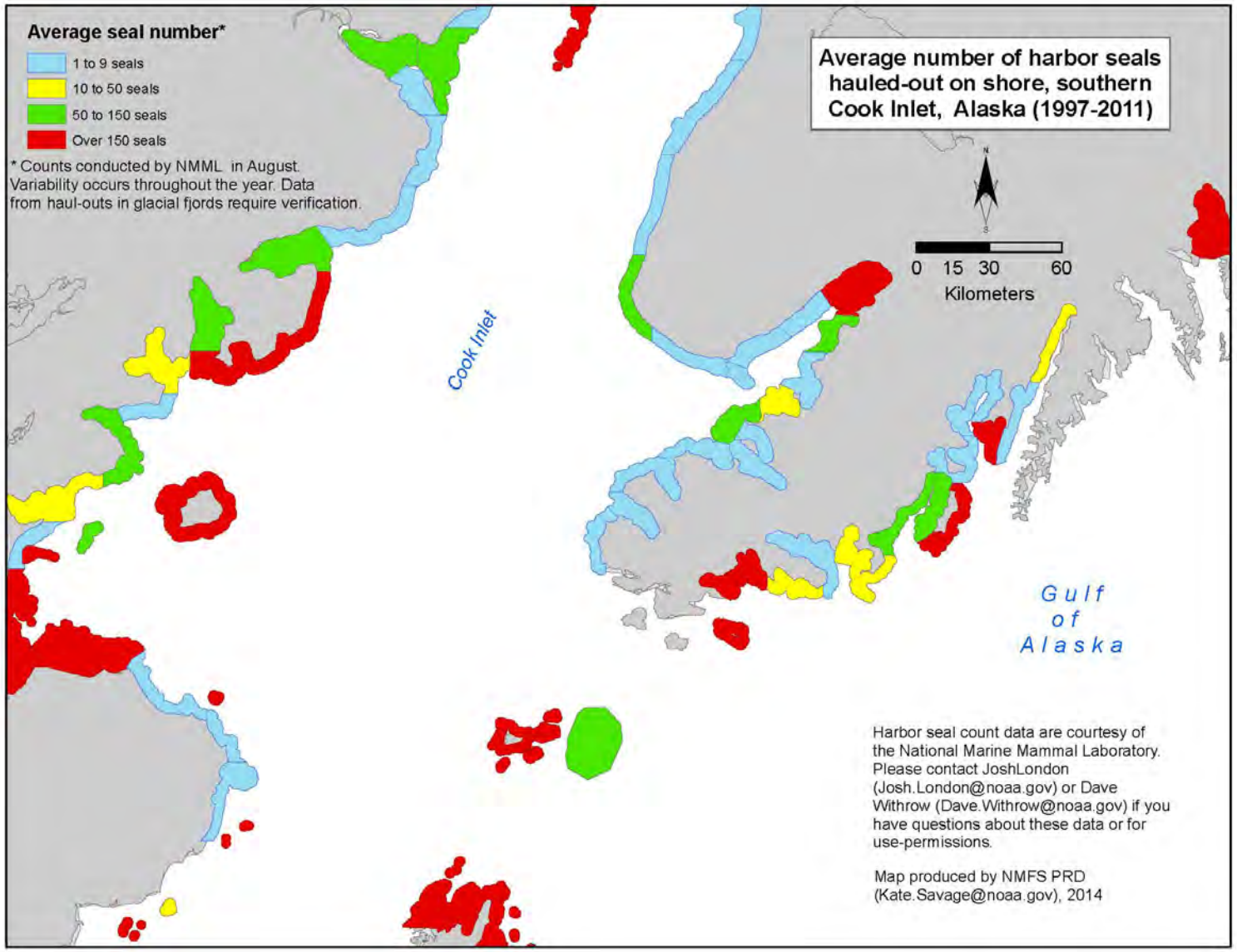


Figure D-14 – Harbor seal haulout data in lower Cook Inlet and the Gulf of Alaska.

(g) TERRESTRIAL MAMMALS

Caribou. Five caribou herds are found on the Kenai Peninsula, which was estimated at 1,059 animals in 1998. The Kenai Lowlands herd generally moves from winter concentration areas in the Moose River Flats and vicinity to the area north of the Kenai Airport for calving, which occurs during late May and early June. The herd spends the summer and autumn in this same general area. Caribou move to the Moose River Flats rutting area from October 1 to October 10 and breed there. The Kenai Mountains herd generally moves from its winter range in the small upper drainages of Big Indian Creek south to American Pass for calving. During summer and fall after the calving period caribou can be found throughout the Kenai Mountains north and west of the Sterling Highway, except that portion south of the Chickaloon River and west of Juneau Creek. The three remaining herds include the Killey River herd which is found between the Killey River and Tustumena Lake, the Twin Lakes herd north of the Killey River to Skilak Lake, and the Fox River Herd between the Fox River and Tustumena Glacier. Summer habitat is primarily moist, boggy areas where sedges predominate, while winter habitat includes aquatic vegetation, such as sedges and horsetails along lake margins and streams. Caribou often use ridge tops, frozen lakes and bogs, and other open areas for predator avoidance.

Moose. This species occurs in habitats throughout much of the Cook Inlet Subarea, ranging from aquatic and riparian floodplain to subalpine 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 shrub-dominated alpine and riparian areas, as well as forested areas. Riparian areas along the major rivers and tributary streams are particularly important in winter. Calving occurs in late May and early June, frequently in isolated marshy lowlands. Newborn calves are extremely reliant on their mothers for protection and food, and so they are particularly susceptible and sensitive to environmental perturbations during the first five months of life (June to the end of October). Around five months of age, calves are weaned around the time their mother is breeding again. The breeding season or "rut" begins in late September and is in full swing by the first week of October.

Black and brown bears. Bears are distributed throughout the Cook Inlet Subarea. During spring, bears are attracted to coastal flats to eat grass and herbaceous vegetation, moving to salmon spawning areas along streams and lakes in late summer and fall. Berries are also an important food item beginning in late July and continuing through fall. Black bears are more abundant in wooded areas, seldom venturing more than 350 yards from mature trees or tall shrubs. Important migratory areas include riparian areas and shorelines of lakes. Spring black bear concentrations occur in Redoubt Bay and Susitna Flats State Game Refuge; they are also common at the head of Kachemak Bay and along the sedge flats between the Bradley and Martin Rivers and in the Fox River valley. Spring brown bear concentrations occur in the McNeil River State Game Refuge along the coastal areas of Kamishak Bay and Redoubt Bay where both brown and black bears concentrate along salmon streams in the late summer and fall, particularly the Kustatan River. Both species of bears spend the winter in dens.

Terrestrial furbearers (wolves, fox, coyote, wolverine, lynx, marten, ermine, and squirrel). These species are prevalent throughout the subarea. In general, the breeding season for wolves, coyotes, and foxes runs from January through March, with pups/kits born February through June. Marten and ermine breeding season runs from mid to late summer and give birth the following April to May. Wolverines can breed from May through August and generally give birth to 1-4 pups between February and April. Lynx breed from mid-March to early April and can give birth from late May through early June.

Aquatic 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.

3. Vegetation

Rare plant species are identified below, as documented by the Alaska Natural Heritage Program. Figure D-15 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 in the Cook Inlet Subarea

Global Rank[1]	State Rank[2]	Scientific Name	Common Names
G1G2Q	S2Q	*Cochlearia sessilifolia*	sessileleaf scurvygrass
G2	S3	*Smelowskia pyriformis*	pearshaped smelowskia
G3	S3	*Polystichum setigerum*	Alaska hollyfern
G3	S3S4	*Ranunculus pacificus*	Pacific buttercup
G3	S3	*Rumex beringensis*	Bering Sea dock
G3G4	S3	*Draba macounii*	Macoun's draba
G3G4	S3S4	*Potamogeton subsibiricus*	Yenisei River pondweed
G4	S3	*Carex heleonastes*	Hudson Bay sedge
G4	S2	*Carex parryana*	Parry sedge, Parry's sedge
G4	S3	*Carex phaeocephala*	dunehead sedge, dunhead sedge
G4	S1	*Carex preslii*	Presl's sedge
G4	S2	*Micranthes porsildiana*	Porsild's saxifrage
G4G5	S1S2	*Agrostis clavata*	clavate bentgrass
G4G5	SU	*Festuca viviparoidea*	northern fescue
G4G5	SU	*Festuca viviparoidea ssp. krajinae*	northern fescue
G4G5	S3S4	*Isoetes occidentalis*	western quillwort
G4G5Q	S3S4	*Carex lapponica*	Lapland sedge
G5	S2S3Q	*Agoseris glauca*	pale agoseris, pale dandelion, prairie dandelio
G5	S2Q	*Arnica mollis*	hairy arnica, wooly arnica
G5	S3S4Q	*Arnica ovata*	rayless arnica, sticky leaf arnica
G5	S1S2	*Artemisia dracunculus*	false tarragon, green sagewort, silky wormwood, tarragon, wormwood
G5	S1S2	*Boechera lemmonii*	Lemmon's rockcress
G5	S1	*Boechera stricta*	Drummond's rockcress
G5	S3	*Botrychium virginianum*	botryche de Virginie, common grapefern, rattlesnake fern
G5	S3	*Carex atratiformis*	black sedge, scrabrous black sedge
G5	S1S2	*Carex bebbii*	Bebb sedge, Bebb's sedge
G5	S2S3	*Carex deflexa var. deflexa*	northern sedge
G5	S2S3	*Carex deweyana var. deweyana*	Dewey sedge
G5	S3	*Carex eburnea*	bristle-leaf sedge, bristleleaf sedge
G5	S3	*Carex interior*	inland sedge
G5	S1S2	*Catabrosa aquatica*	brookgrass, water whorl grass, water whorlgrass
G5	S3S4	*Ceratophyllum demersum*	common hornwort, coon's tail, coon's-tail, coontail, hornwort
G5	S2S3	*Chamaerhodos erecta*	little rose, little-rose
G5	S3	*Cicuta bulbifera*	bulb waterhemlock, bulblet-bearing water hemlock, bulblet-bearing water-hemlock
G5	S1S2	*Crassula aquatica*	common pigmyweed, water pygmyweed
G5	S3S4	*Cryptogramma stelleri*	fragile rockbrake, slender cliffbrake
G5	S3	*Draba incerta*	Yellowstone draba
G5	S2	*Eleocharis quinqueflora*	ew-flower spike-rush, few-flower spikerush, fewflower spikerush, fewflowered spikesedge
G5	S2S3	*Eriophorum viridicarinatum*	tassel cotton-grass, thinleaf cottonsedge
G5	S1	*Festuca occidentalis*	western fescue
G5	S3	*Glyceria striata*	fowl manna grass, fowl mannagrass

-continued-

Global	State	Scientific Name	Common Names

Rank[1]	Rank[2]		
G5	S3	*Juniperus horizontalis*	creeping juniper, creeping-cedar, genévrier horizontal, Waukegan juniper
G5	S3S4	*Lycopus uniflorus*	bugleweed, northern bugleweed, northern water-horehound, oneflower bugleweed
G5	S3	*Maianthemum stellatum*	false Solomon's seal, little false Solomon's-seal, star false Solomon's-seal, star-flower Solomon's-seal, starry false lily of the valley, starry false Solomon's seal, starry false Solomon's-seal, starry Solomon's-seal
G5	S1	*Myriophyllum farwellii*	Farwell's watermilfoil
G5	S3	*Najas flexilis*	nodding waternymph, slender naiad, wavy waternymph
G5	S2	*Pedicularis groenlandica*	bull elephant's-head, elephanthead lousewort
G5	S3	*Podagrostis humilis*	
G5	S3	*Potamogeton obtusifolius*	bluntleaf pondweed
G5	S2	*Potamogeton robbinsii*	Robbins pondweed, Robbins' pondweed
G5	S2S3	*Potentilla drummondii*	Drummond's cinquefoil
G5	S2S3	*Salix hookeriana*	dune willow
G5	S2	*Schizachne purpurascens*	false melic, false melic grass
G5	S3S4	*Stellaria umbellata*	umbellate chickweed, umbrella starwort
G5	S1S2	*Suaeda calceoliformis*	Paiuteweed, Pursh seepweed, western seepweed
G5	S1	*Trichophorum pumilum*	Rolland's bulrush
G5	S2	*Vicia americana*	American deervetch, American purple vetch, American vetch, vesce d'Amérique
G5	S3S4	*Zannichellia palustris ssp. palustris*	horned pondweed, horned poolmat, horned-pondweed
G5?	S1	*Carex sprengelii*	long-beak sedge, Sprengel sedge, Sprengel's sedge
G5?	S3	*Polypodium sibiricum*	Siberian polypody
G5?	S3S4	*Viola selkirkii*	Selkirk's violet
G5T2T4	S3	*Gentianella propinqua ssp. aleutica*	fourpart dwarf gentian
G5T3	S3	*Astragalus robbinsii var. harringtonii*	Harold's milkvetch
G5T5	S1S2	*Carex echinata ssp. echinata*	star sedge, stellate sedge
G5T5	S3	*Geum aleppicum ssp. strictum*	
G5TNR	S1S2	*Poa secunda ssp. secunda*	big bluegrass, Sandberg bluegrass, Sandberg's bluegrass
G5TNR	S3S4	*Polygonum fowleri ssp. fowleri*	Fowler's knotweed
GNR	SH	*Blysmopsis rufa*	red bulrush
GNR	S3S4Q	*Oxytropis tananensis*	
GNRTNR	S3	*Bolboschoenus maritimus subsp. paludosus*	cosmopolitan bulrush

[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.

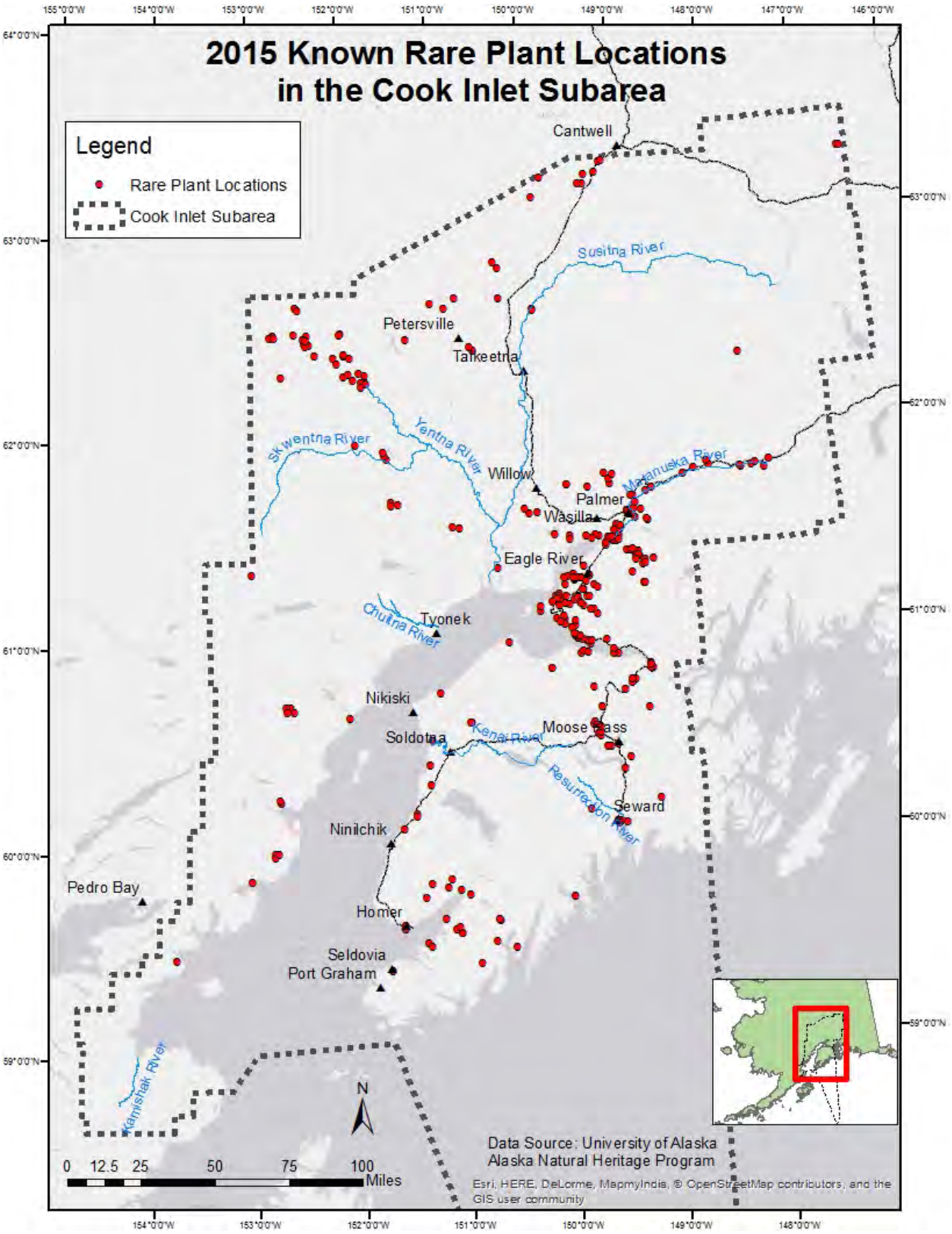


Figure D-15 – 2015 Known Rare Plant Locations in the Cook Inlet Subarea.

C. HUMAN RESOURCE USES

1. Fish Hatcheries and Associated Ocean Net Pens

Currently, five fish hatcheries are operating in the Cook Inlet Subarea (see Figure D-16). All five species of Pacific salmon, rainbow trout, Arctic char, and Arctic grayling are produced. The Cook Inlet Aquaculture Association (CIAA) operates the Trail Lakes and Tutka Bay hatcheries, which are owned by the State of Alaska, and the Port Graham and Eklutna Salmon hatcheries, which are owned by CIAA. The State of Alaska (managed by the ADF&G) operates the William Jack Hernandez Sport Fish Hatchery. The Eklutna Salmon Hatchery is operated seasonally in conjunction with the State of Alaska's William Jack Hernandez Sport Fish Hatchery. Hatchery locations are indicated below.

The hatchery activities most vulnerable to spill damage include fry rearing and release, terminal harvests, and egg takes. However, since the timing and location of these activities varies by hatchery, species, and release location, it is difficult to generalize about them, although spring and summer will tend to be the most critical periods. Hatchery managers should be contacted for specific information. For more information, see the Cook Inlet Salmon Enhancement Plan, Phase II, 2006-2025 at http://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheriesPlanning.enhance.

Hatchery, City, Phone & Operator	Species	Release Locations
HATCHERIES OPERATED BY THE STATE OF ALASKA		
William Jack Hernandez Sport Fish Hatchery Anchorage 907-269-2000 Operator: ADF&G	Chinook and coho salmon, rainbow trout, Arctic char, and Arctic grayling	Chinook: Deception Creek, Eklutna Tailrace, Ship Creek, Crooked Creek, Ninilchik River, NDFL Homer Spit, Halibut Cove, Seldovia Bay, Resurrection Bay Coho: Eklutna Tailrace, Ship Creek, NDFL Homer Spit, Resurrection Bay Others: hundreds of locations; call for information
HATCHERIES OPERATED BY PRIVATE AQUACULTURE ASSOCIATIONS		
Trail Lakes Hatchery Moose Pass 907-283-5761 Operator: CIAA	sockeye and coho salmon	Sockeye: Shell Lake, Hidden Lake, Bear Lake, Resurrection Bay, China Poot Lake, Hazel Lake, Tutka Bay Lagoon, English Bay Lakes, Port Graham, Kirschner Lake Coho: Bear Creek, Bear Lake
Tutka Bay Hatchery Homer 907-283-5761 Operator: CIAA	pink salmon	Tutka Bay Lagoon, Paint River
Port Graham Hatchery Port Graham 907-283-5761 Operator: CIAA	pink salmon	Port Graham Bay, Paint River
Eklutna Salmon Hatchery Eklutna 907-283-5761 Operator: CIAA & ADF&G	Chinook salmon*	Eklutna Tailrace

*The Chinook salmon release program at the Eklutna Salmon Hatchery is operated by ADF&G through the William Jack Hernandez Sport Fish Hatchery.

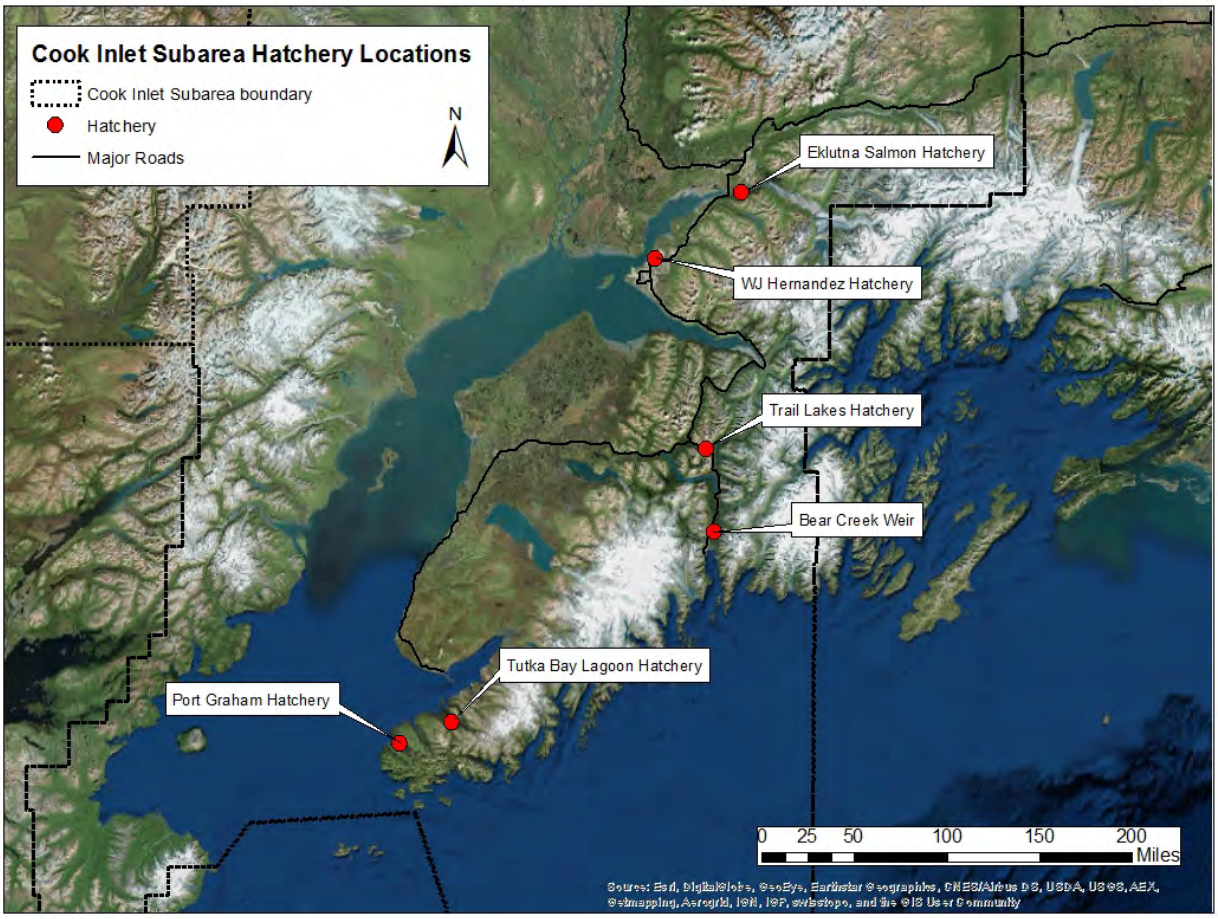


Figure D-16 – Cook Inlet Subarea Hatchery Locations.

2. Aquaculture Sites

Numerous in-water commercial aquatic farm operations, two cooperative nurseries, and one hatchery are currently located in the Cook Inlet Subarea (see Figures D-17 – D-22). The majority of the operations are located within bays and coves of Kachemak Bay including Halibut Cove (5), Jakolof Bay (4), Peterson Bay (2) and Bear Cove (2), and Little Jakolof Bay (1). There is also one land-based nursery located on the Homer Spit adjacent to Kachemak Bay and one land-based hatchery in Seward adjacent to Resurrection Bay. All the in-water operations have land leases allowing them to utilize submerged and tidal lands owned by the state for their operations.

Aquatic farm operations primarily grow Pacific oysters in deeper waters using stacks of 5-10 lantern nets or trays suspended from anchored longlines supported by buoys. Blue mussels are cultured using mussel socks suspended from rafts. Often the rafts are surrounded with a panel net enclosure for predator exclusion. Other incidental species growing in oyster gear are cultured, including mussels, macroalgae, and sea urchins. Operations may also use some intertidal areas for hardening aquatic farm product and defouling culture gear. Culture gear typically extends down the water column to depths of 10 to 30 ft, depending on the type of gear and equipment and environmental conditions. For some deeper water areas, operators choose to extend their culture gear down to 60 ft prior to harvesting, as a corrective measure to compensate for warmer temperatures and to minimize bacterial growth. Intertidal gear is typically sitting on the bottom substrate.

The land-based nursery, Kachemak Shellfish Mariculture Association (KMSA) Remote Setting Facility, in Homer operates as a seed distribution facility that rears small oysters or spat for use by aquatic farmers along with production of algae for oyster food. The facility also acts as a processor and sells adult oysters. The facility uses a saltwater well as a water source. The land-based hatchery, Alutiiq Pride Shellfish Hatchery (APSH), located in Seward propagates adult geoducks and rears the progeny along with oyster spat. APSH also houses the Marine Technical Center (MTC) that cultivates other invertebrate species used for research studies, such as red and blue king crab, sea cucumber, abalone, scallops, littleneck clams, and cockle. The Seward hatchery has four sources of salt water: 8-in pipeline extending to a depth of 250 ft, a saltwater well, a connection to the primary intake line for the MTC that comes from the University Sea Life Center, and a backup line from APSH.

The number of aquatic farm operations in this subarea has been stable for many years and future expansion is limited due to existing uses and space constraints. With interest in new species and diversification of commercial aquatic farm products, production of blue mussels and macroalgae (i.e., kelp) may expand in the next few years.

Aquatic farm products at all stages of development are vulnerable to spills year-round, as shellfish and aquatic plants are continuously submerged in the water column and are contained in predator exclusion culture gear. Harvest timing varies. Contact the current operator to determine actual product and onsite gear. Operation details, locations, and contact information are provided below, or they can be accessed at http://www.adfg.alaska.gov/index.cfm?adfg=fishingaquaticfarming.aquaticfarminfo. Also see http://www.asgdc.state.ak.us/maps/cplans/cook/ci3aqua.pdf.

Three departments in the state oversee different operations. Contact information for these agencies is:

Alaska Department of Fish and Game (permits and transports) – Mariculture Coordinator
Juneau: (907) 465-6150

Alaska Department of Environmental Conservation (harvests and product testing and shipping) – Anchorage: (907) 269-7638

Alaska Department of Natural Resources (leases) – Anchorage: (907) 269-8546

2015 Aquatic Farms in the Cook Inlet Subarea

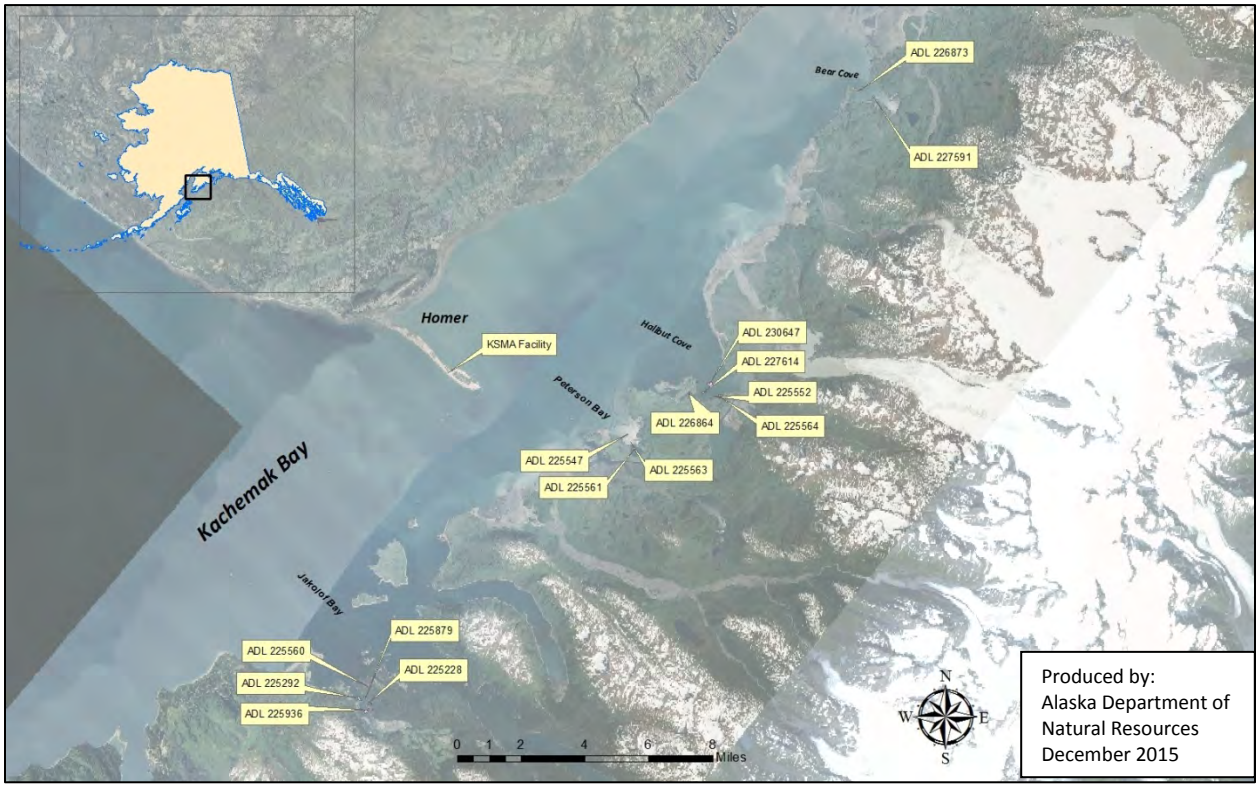


Figure D-17 – Homer/Kachemak Bay 2015 Aquatic Farms.

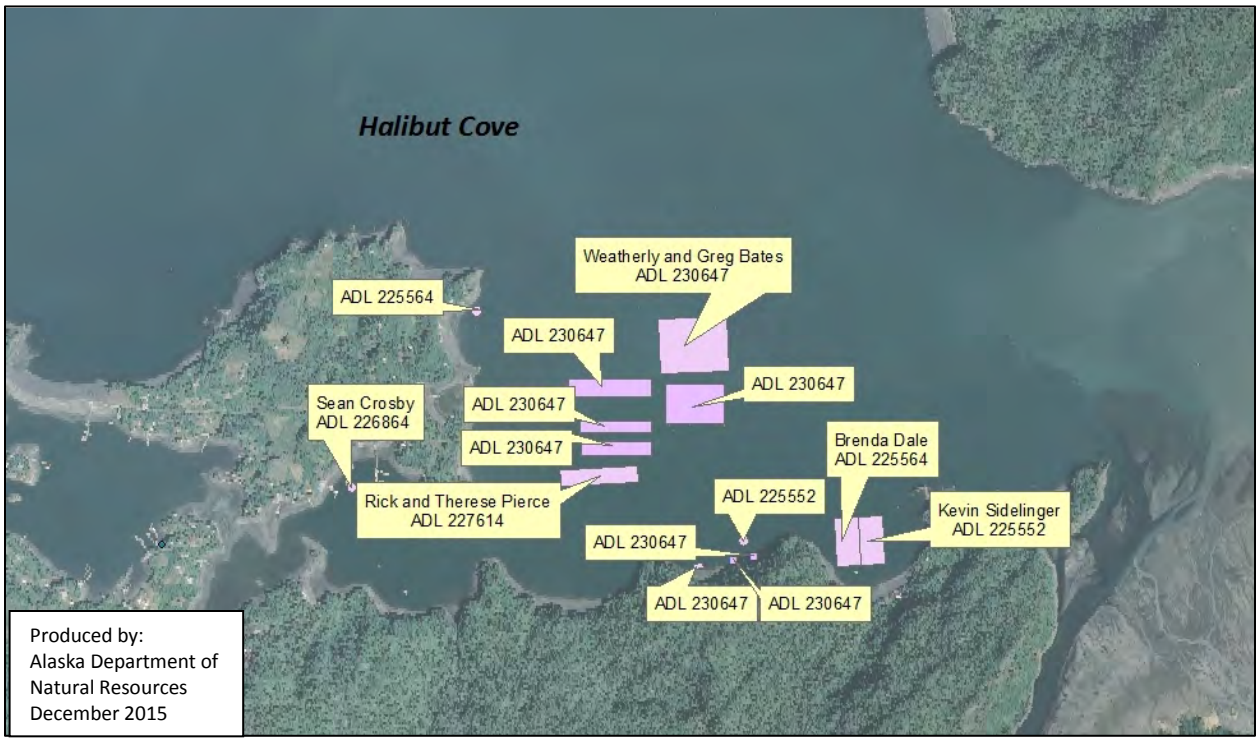


Figure D-18 – Halibut Cove 2015 Aquatic Farms.

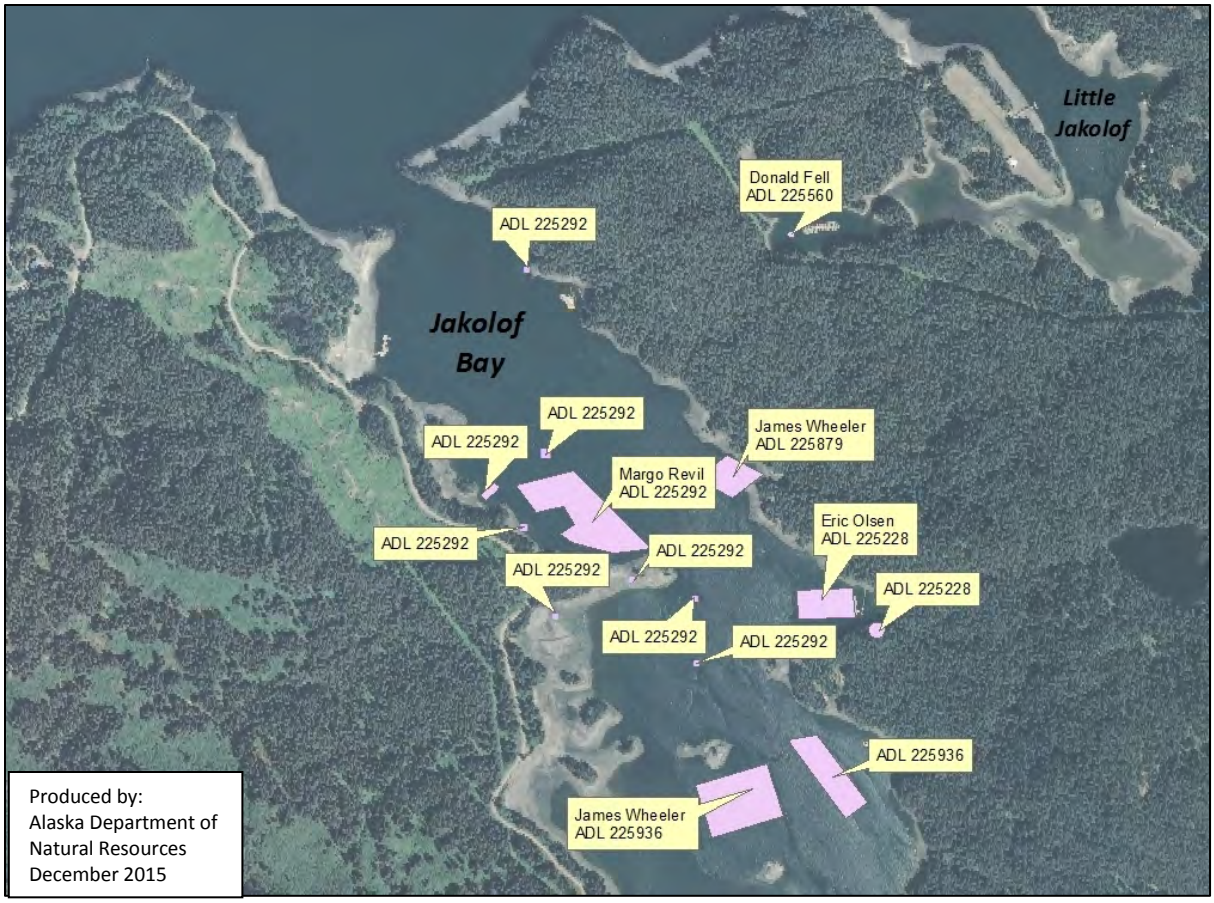


Figure D-19 – Jakalof Bay 2015 Aquatic Farms.

Figure D-20 – Bear Cove 2015 Aquatic Farms.

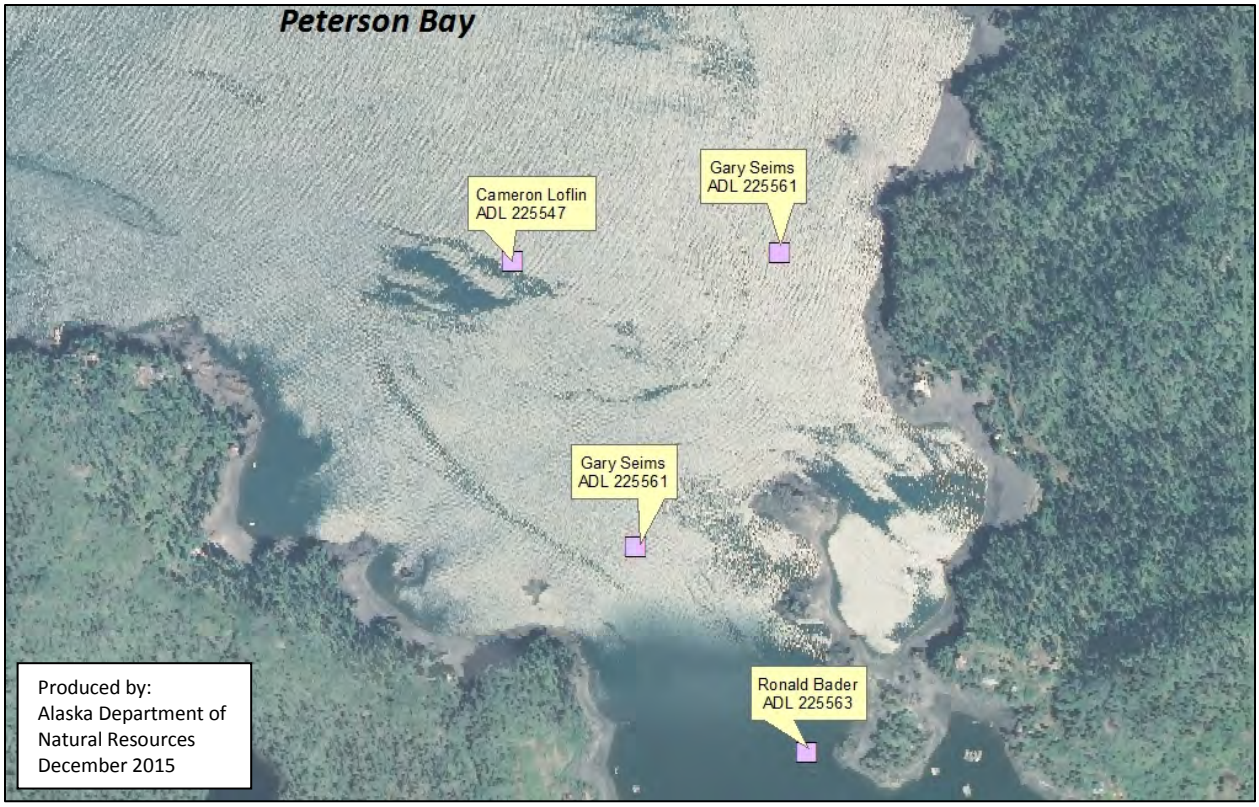


Figure D-21 – Peterson Bay 2015 Aquatic Farms.

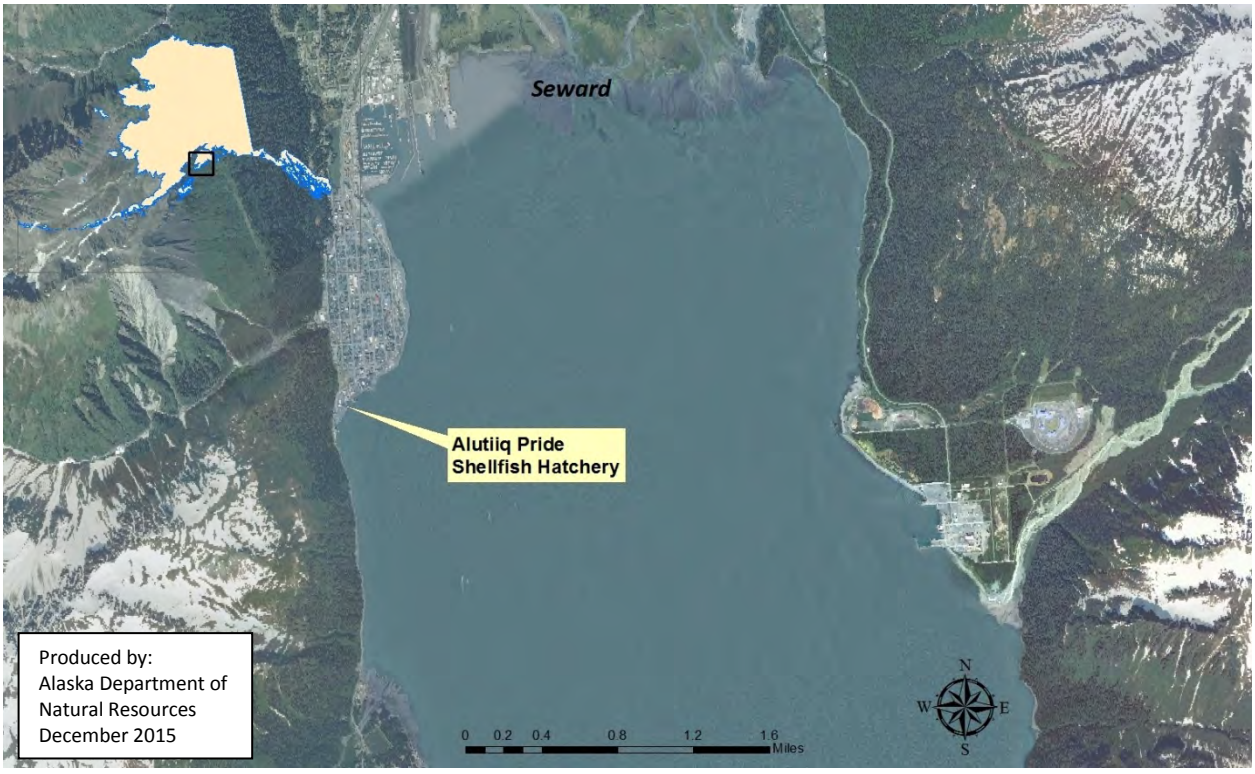


Figure D-22 – Seward/Resurrection Bay 2015 Aquatic Farms.

AQUATIC FARMS IN COOK INLET CONTINGENCY PLAN SUBAREA (as of 12/4/2015)

Contact	DNR ADL Number	ADF&G Permit No.	Site Type	Site Name	Location Description	No. Parcels	Primary Phone	Culture Area	Gear Used	Species Approved
Ronald J. Bader	225563	1991-101-AF-SC	Aquatic Farm	Peterson Bay	Peterson Bay, approx. 5 mi. SW of Homer	3	(907)345-1864 or (907)350-1436	Suspended, Other	Buoys, longlines, lantern nets, hardening racks, with cages, mussel collection lines and socks	Pacific Oyster, Blue Mussel
Weatherly and Greg Bates	230647	2009-101-AF-SC	Aquatic Farm	Halibut Cove (oysters)	Halibut Cove, Kachemak Bay	8	(907)299-2451	Suspended, Intertidal	Longlines (20 - 400 ft) on Parcel 2, lantern nets, wire-meshed trays, vexar mesh bags, grow-out raft (1 - 20 ft x 20 ft) on Parcels 1, 6, and 8, seed collectors (extruded plastic mesh), mussel sock line or droppers, predator exclusion netting panel enclosure surrounding raft, hardening racks, anchor system, buoys (A3), work rafts (4 - 16 ft x 20 ft) on Parcels 1 and 6, work rafts (10 - 40 ft x 40 ft) on Parcels 3-5	Pacific Oyster, Blue Mussel, Green Sea Urchin, Sugar Kelp
Sean Crosby	226864	1996-14-NU-SC	Nursery	Halibut Cove KSGC Nursery	Halibut Cove, Kachemak Bay	1	(907)235-1935 or (907)299-1932	Nursery	Powered floating upwelling nursery system (FLUPSY), associated floats and support structures integral to operation of the FLUPSY, anchorage systems securing the facility on its site	Pacific Oyster
Sean Crosby	Not Required	2012-101-NU-SC	Nursery	KSMA Remote Setting Nursery	on the Homer Spit	1	(907)235-1935 or (07) 299-1932	Other	Head tanks (2 - 4' x 4'), algae tanks (4 - 5' x 4'), setting tanks (3- sized?), and carboyls for algae	Pacific Oyster
Brenda Dale	225564	1991-104-AF-SC	Aquatic Farm	Halibut Cove	Halibut Cove / Kachemak Bay	2	(907)398-4938	Suspended, Other	Buoys, longlines, anchoring systems, lantern nets, mussel socks, mussel collectors, hardening racks, work raft	Pacific Oyster, Blue Mussel
Donald Fell	225560	1991-109-AF-SC	Aquatic Farm	Little Jakolof Bay	W side of Little Jakolof Bay	2	(907)235-7771	Suspended, Other	Lantern nets, oyster trays, suspended culture raft, hardening racks, work shed on raft, anchoring system, Dark Sea trays, spat collectors, mussel socks, scallop collectors	Pacific Oyster, Blue Mussel, Pink Scallop
Jeff J. Hetrick	Not Required	1992-01-HA-SC	Hatchery	Alutiiq Pride Shellfish Hatchery	Seward IMS Facility	1	(907)224-5181 or (07) 362-2378	Hatchery	Hatchery facility contains tanks and equipment for spawning, rearing and algae production	Pacific Oyster, Blue Mussel, Geoduck, Littleneck Clam, Purple-Hinged Rock Scallop, Cockle, Pacific Razor Clam, Butter Clam, Blue King Crab, Red King Crab

-continued-

Contact	DNR ADL Number	ADF&G Permit No.	Site Type	Site Name	Location Description	No. Parcels	Primary Phone	Culture Area	Gear Used	Species Approved
Sarah Lambe	226873	1996-15-AF-SC	Aquatic Farm	Bear Cove	Bear Cove, 13 miles from Homer (KB)	1	(907)399-5272	Suspended	Lantern nets, longlines, buoys, work raft, anchoring system	Pacific Oyster, Blue Mussel
Cameron D. Loflin	225547	1991-113-AF-SC	Aquatic Farm	Peterson Bay	Peterson Bay, 5 mi SW of Homer (KB)	2	(801)423-1412	Suspended, Other	lantern nets, longlines, buoys, mussel socks, Hardening racks, anchoring system	Pacific Oyster, Blue Mussel
Eric D. Olsen	225228	1991-21A-AF-SC	Aquatic Farm	Jakolof Bay	NE shore of Jakolof Bay, approx. 10 mi from Seldovia, Kachemak Bay (KB)	2	(907)299-1657	Suspended, Other	Oysters and mussel rafts, anchoring system with anchor marking buoys, lantern nets, Mexican trays, mussel socks, mussel collectors, work raft, storage/work raft	Pacific Oyster, Blue Mussel
Rick and Therese Pierce	227614	2000-08-AF-SC	Aquatic Farm	Halibut Cove	Halibut Cove, East shore Ismailof Island, ~10.8 mi SE of Homer (KB)	1	(907)399-4006	Suspended	Buoys, longlines, lantern nets, anchors	Pacific Oyster, Blue Mussel
Margo Reveil	225292	1991-22A-AF-SC	Aquatic Farm	Jakolof Bay	Jakolof Bay, 12 mi from Seldovia (KB)	11	(907)299-3351	Suspended, Other	Lantern nets, longlines, floats, web beds, mussel spat collector lines, dark Sea trays, Mexican trays, scallop and sea cucumber spat collector bags, anchoring systems, anchor lines, anchors, rafts, mussel spat collector lines, hardening bags, hardening racks	Pacific Oyster, Blue Mussel, Littleneck Clam, Purple-Hinged Rock Scallop, Pink Scallop, Spiny Scallop, Green Sea Urchin, Ribbon Kelp, Sugar Kelp, Bull Kelp, Red Ribbon, Red Sea Urchin, Three-Ribbed Kelp
Steven M.Rykaczewski	227591	2000-10-AF-SC	Aquatic Farm	Bear Cove	Bear Cove, within Kachemak Bay in approx.16 nautical miles northeast of Homer (KB)	1	(907)235-2401 or (907)299-2295	Suspended	Longlines, lantern nets, work raft (10 ft x 20 ft), anchoring system - with anchor marker buoys.	Pacific Oyster
Gary A. Seims	225561	1991-116-AF-SC	Aquatic Farm	Peterson Bay	Peterson Bay, approx. 5mi SW of Homer, AK (KB)	2	(907)235-7156	Suspended, Other	Lantern nets, longlines, buoys, anchoring systems, mussel socks, work raft harvesting vessel, hardening racks	Pacific Oyster, Blue Mussel, Ribbon Kelp, Sugar Kelp, Bull Kelp, Nori, Sea Lettuce
Kevin Sidelinger	225552	1991-117-AF-SC	Aquatic Farm	Halibut Cove	SC portion Halibut Cove, 1.5 mi. from village of Halibut Cove	2	(907)296-2217	Suspended, Other	Floatation buoys, longlines, , lantern net anchoring systems	Pacific Oyster
James Wheeler	225879	1992-24-AF-SC	Aquatic Farm	Jakolof Bay	One mile inside Jakolof Bay	4	(207)553-0693	Suspended, Other	Buoys, longlines (16), Lantern nets, tray systems, vexar bags, hardening racks, anchoring systems, work raft	Pacific Oyster

3. Cultural Heritage and Historic Properties

The Cook Inlet Subarea contains a multitude of known and unidentified historic properties. These may include National Historic Landmarks, burial sites, village sites, and other National Register 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.

4. Subsistence and Personal Use Harvests

Subsistence-related uses of natural resources play an important role in the economy and culture of many communities in the Cook Inlet 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 made all decisions regarding the subsistence management of fish and wildlife resources and harvest allocation, with the exception of marine mammals, migratory birds, and halibut. In 1990, however, the federal government became responsible for assuring a federal subsistence priority on federal public lands and waters and in 1999 on federal reserved waters. The Federal Subsistence Board adopts subsistence regulations that are administered by various federal agencies on federal public lands. State regulations still apply on all lands, and the State is still the manager of fish and wildlife on all lands and waters in Alaska. As a consequence, the number of agencies involved in regulating subsistence uses has increased. Therefore, in the event of a spill, more extensive coordination will be required in order to address subsistence resources. Regulations regarding subsistence harvest can also be expected to undergo 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 the USFWS at https://www.doi.gov/subsistence.

High use subsistence fishing areas within the Cook Inlet Subarea are Port Graham, Nanwalek, Tyonek, and Seldovia (see Figure D-23). 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 267-2362. Additionally, local communities should be contacted for more specific information on the locations and seasons of subsistence harvests. Contacts for potentially-affected communities are identified in the *Response Section, Part One*.

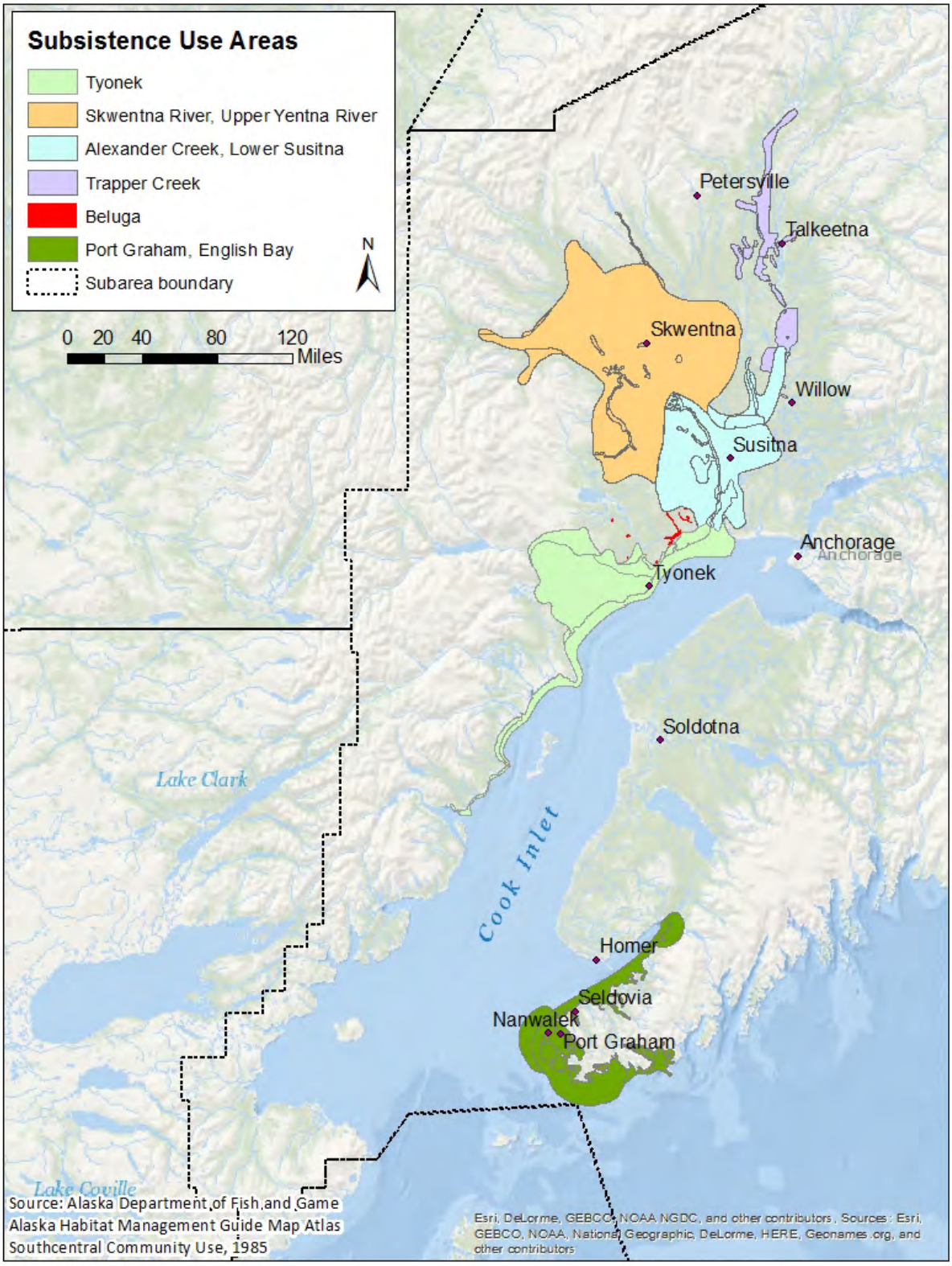


Figure D-23 – Subsistence Use Areas within the Cook Inlet Subarea.

COOK INLET PERSONAL USE HARVESTS*

Salmon dip net fisheries	
Kenai River	July 10 – July 31
Kasilof River	July 10 – August 7
Fish Creek	July 25 – August 5
China Poot Creek	July 1 – August 7
Coho salmon set net fisheries	
Southern district	August 16 – September 15
Salmon set net fishery	
Kasilof River	June 15 – June 24
Herring fishery	
Northern and Central districts	April 1 – May 31
All other districts	All year (mostly spring)
Smelt fishery	
In salt water	April 1 – May 31
In fresh water	April 1 – June 15
Shrimp fishery	All year
Dungeness crab fishery	No open season
King crab fishery	No open season
Tanner crab fishery	
Lower inlet	January 15 – December 15
Kachemak Bay	January 15 – March 15, July 15 – December 15
Clam fishery	All year

*****All personal use fisheries may be opened or closed by emergency order if the ADF&G ascertains that conditions warrant such actions. Also, harvest regulations and seasons can change from year to year. The dates given above indicate periods when fisheries are commonly, but not always, open.

5. Commercial Fishing

The following table provides seasonal information on the major commercial fisheries. All fishing seasons are subject to emergency openings and closures, and most seasons are only open for a portion of the time specified in the regulations. Also, fishing regulations and seasons can change from year to year. Specific information on which species are currently being harvested may be obtained from the ADF&G's Division of Commercial Fisheries in Anchorage.

Maps of key commercial fishing areas are available in the previously referenced ADF&G publications, the Alaska Habitat Management Guide Reference Maps, Southcentral Region, Vol. 1 and 2 and the Alaska Habitat Management Guide, Southcentral Region Map Atlas. See http://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercial.main for additional information by area or fishery. Commercial fishing in the federal waters of the Cook Inlet and the Gulf of Alaska are managed under the Fishery Management Plan for Groundfish of the Gulf of Alaska at http://www.npfmc.org/wpcontent/PDFdocuments/fmp/GOA/GOAfmp.pdf. Information on current fishery activity in federal waters (3nm to 200nm off Alaska) can be found on the NOAA fisheries webpage at http://alaskafisheries.noaa.gov/ or by calling NMFS Sustainable Fisheries Division at 907-586-7519 (also see Figure D-24).

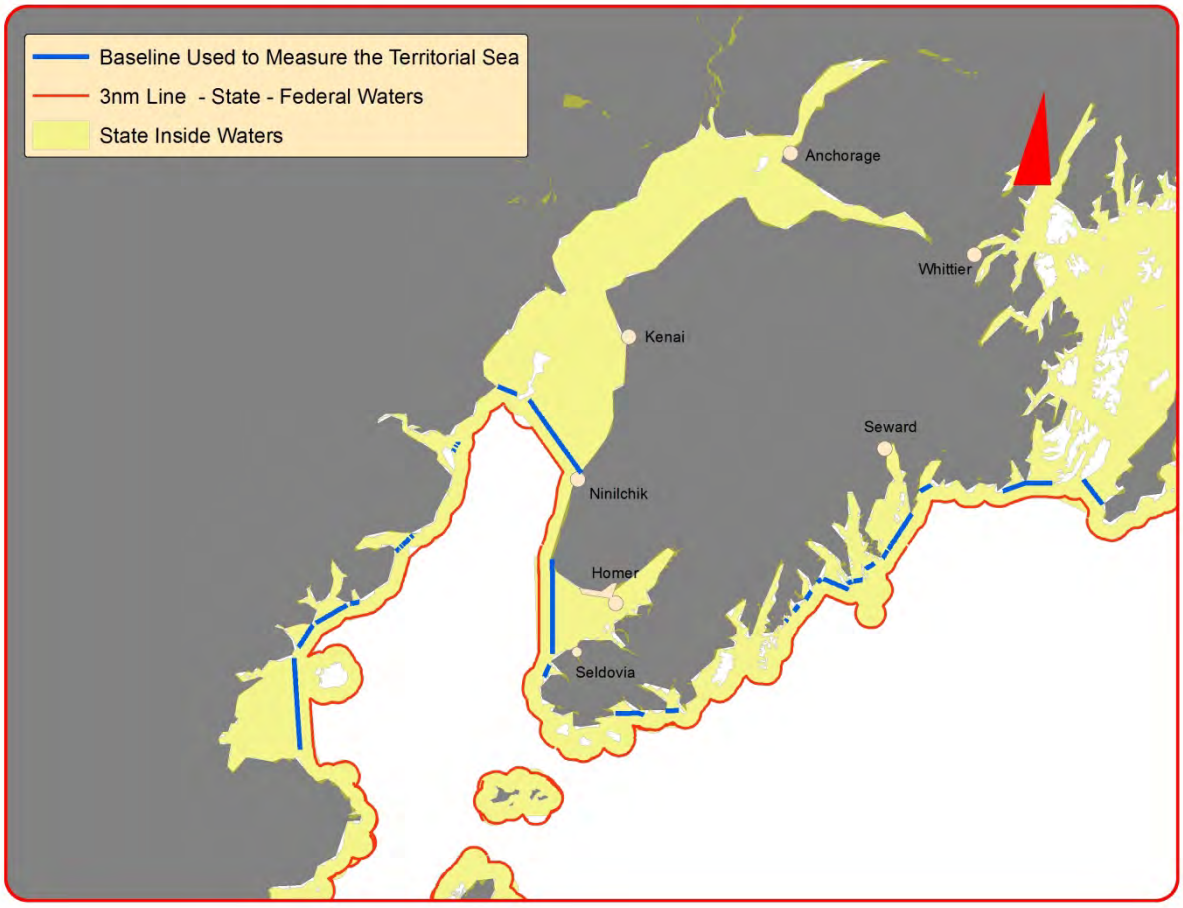


Figure D-24 – State and Federal Waters in the Cook Inlet Subarea.

Economically speaking, the salmon fishery is the most important commercial harvest activity. The upper Cook Inlet sockeye drift net fishery generally brings the greatest cash return. Set net and pink salmon seine harvests are economically significant as well. The lower Cook Inlet halibut fishery is also productive.

The following groups can be contacted with requests for specific information on location and timing of fish as well as local current conditions. Although providing such information is not the primary function of these organizations, the individual members will be quite knowledgeable about environmental conditions and may share information.

Cook Inlet Seiners Inc.
Homer
235-2656

Kenai Peninsula Fishermen's Association
Soldotna
262-2492 / 262-2898

United Cook Inlet Drift Association
Kenai
260-9436 / FAX: 260-9438

North Pacific Fisheries Association
Homer
399-6296

Northern District Setnetters
Anchorage
243-3668

Cook Inlet Fishermens Fund
Ninilchik
252-2752

Clams are harvested commercially in Kachemak Bay (Littleneck clams or steamers [*Luecoma staminea]* and Butter clams [*Saxidomas staminea]*) and in Tuxedni Bay near Polly Creek (razor clams [*Siliqua patula]*). Beaches that have been approved for the commercial harvest of shellfish include: Polly Creek (Cook Inlet), Crescent River (Cook Inlet), Chugachik Island (Kachemak Bay), Halibut Cove Lagoon (Kachemak Bay), Jakolof Bay (Kachemak Bay), Kasitsna Bay (Kachemak Bay), and Tutka Bay (Kachemak Bay).

COOK INLET GENERAL COMERCIAL FISHERIES TIMING

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
SALMON												
LCI purse seine						■	■	■	■			
UCI drift gillnet							■	■				
UCI set gillnet						■	■	■				
LCI set gillnet							■	■	■			
HERRING												
UCI sac roe					■							
LCI sac roe				■	■							
Food and bait	NO OPEN SEASON											
EULACHON SMELT												
Lower Susitna River					■	■						
HALIBUT[1]				■	■	■	■	■	■	■		
GROUNDFISH												
Rockfish[2]							■	■	■	■	■	■
Lingcod[2]							■	■	■	■	■	■
Sablefish[2]								■	■	■	■	■
Pacific cod[3]	■	■	■	■	■	■	■	■	■	■	■	■
Pollock										■	■	■
CRAB	NO OPEN SEASON											
SHRIMP	NO OPEN SEASON											
SCALLOP												
Kamishak Bay[2]									■	■		
RAZOR CLAMS												
UCI west side only[4]						■	■	■				
HARDSHELL CLAMS												
Kamishak Bay					■	■	■	■	■			
	JAN	**FEB**	**MAR**	**APR**	**MAY**	**JUNE**	**JULY**	**AUG**	**SEPT**	**OCT**	**NOV**	**DEC**

Notes: UCI = Upper Cook Inlet (waters north of the latitude of Anchor Point); LCI = Lower Cook Inlet (waters west of the longitude of Cape Fairfield, north of the latitude of Cape Douglas, and south of the latitude of Anchor Point).

[1] Fishery timing determined by the International Pacific Halibut Commission every year.

[2] Fishery closed when Guideline Harvest Level is reached.

[3] Parallel or state fishery generally lasts all year (including all gear types).

[4] No set season; managed by total allowable harvest.

6. Sport Fishing and Hunting

Sport fishing and hunting activities are significant throughout the Cook Inlet Subarea throughout the year. Seasons and harvest regulations vary depending on the species and area and may be changed from year to year. Contact the ADF&G for current seasons within the area of concern. See http://www.adfg.alaska.gov/index.cfm?adfg=fishingSport.main for more information.

7. Recreational Sites and Facilities

(a) Alaska Department of Natural Resources - State Parks, Picnic Areas, and Campgrounds: Name & Nearest Community

- Chugach State Park, Anchorage
- Anchor River State Recreation Area, Anchor Point
- Anchor River State Recreation Site, Anchor Point
- Stariski State Recreation Site, Anchor Point
- Big Lake North State Recreation Site, Big Lake
- Big Lake South State Recreation Site, Big Lake
- Rocky Lake State Recreation Site, Big Lake
- Kachemak Bay State Park and Wilderness Park, Homer
- Bernice Lake State Recreation Site, Kenai
- Captain Cook State Recreation Area, Nikiski
- Deep Creek State Recreation Area, Ninilchik
- Ninilchik State Recreation Area, Ninilchik
- Bonnie Lake State Recreation Site, Palmer
- Finger Lake State Recreation Site, Palmer
- Kepler-Bradley Lakes State Recreation Area, Palmer
- King Mountain State Recreation Site, Palmer
- Long Lake State Recreation Site, Palmer
- Matanuska Glacier State Recreation Site, Palmer
- Moose Creek State Recreation Site, Palmer
- Summit Lake State Recreation Site, Palmer
- Wolf Lake State Recreation Site, Palmer
- Caines Head State Recreation Area, Seward
- Driftwood Bay State Marine Park, Seward
- Horsehoe Bay State Marine Park, Seward
- Safety Cove State Marine Park, Seward
- Sandspit Point State Marine Park, Seward
- Sunny Cove State Marine Park, Seward
- Clam Gulch State Recreation Area, Soldotna
- Crooked Creek State Recreation Site, Soldotna
- Johnson Lake State Recreation Area, Soldotna
- Kasilof River State Recreation Site, Soldotna
- Kenai River Special Management Area, Sterling
- Denali State Park, Talkeetna
- Montana Creek State Recreation Site, Talkeetna
- Independence Mine State Historical Park, Wasilla
- Little Susitna River Public Use Facility, Wasilla
- Nancy Lake State Recreation Area, Willow

- Nancy Lake State Recreation Site, Willow
- Willow Creek State Recreation Area, Willow
- McNeil River State Game Sanctuary Campground

See http://dnr.alaska.gov/parks/ for more information.

(b) FEDERAL *(Also see the list of sites for Kenai Fjords National Park below.)*

National Park Service: Name & Nearest Community

- Exit Glacier Campground/Visitor Center, Seward
- Kenai Fjords Visitor Center, Seward

U.S. Fish and Wildlife Service: Name & Nearest Community

- Hidden Lake Campground, Cooper Landing
- Lower Skilak Campground, Cooper Landing
- Russian River Ferry Campground, Cooper Landing
- Upper Skilak Lake Campground, Cooper Landing
- Jim's Landing Campground, Soldotna
- Kenai Wildlife Refuge Visitor Center, Soldotna
- Swanson River Campground, Sterling
- Watson Lake Campground, Sterling

U.S. Forest Service: Name & Nearest Community

- Quartz Creek Campground, Cooper Landing
- Russian River Campground, Cooper Landing
- Begich Boggs Visitor Center, Girdwood
- Bertha Creek Campground, Girdwood
- Black Bear Campground, Girdwood
- Granite Creek Campground, Girdwood
- Tenderfoot Campground, Girdwood
- Williwaw Campground, Girdwood
- Tern Lake Campground, Moose Pass
- Trail River, Moose Pass
- Cooper Creek Campground, Seward
- Crescent Creek Campground, Seward
- Porcupine Campground, Seward
- Primrose Campground, Seward
- Ptarmigan Campground, Seward
- Schooner Bend Campground, Seward

(c) Public Use Cabins: These are available from multiple different agencies and groups. See the following websites for more information.

- ADNR: http://dnr.alaska.gov/parks/cabins/index.htm
- BLM: http://www.blm.gov/ak/st/en/prog/recreation/activities/pub_cabins.html
- Eagle River Nature Center: http://www.ernc.org/river-yurt.html

- NPS: http://www.nps.gov/anch/cabins.htm
- USFS: http://www.fs.usda.gov/activity/chugach/recreation/camping-cabins/?recid=4832&actid=101
- USFWS: http://www.fws.gov/refuge/Kenai/cabin.html

(d) Public Anchorages and Moorings:

(Also see the list of sites for Kenai Fjords National Park below.)

- Mouth of the Kenai River
- Mouth of the Kasilof River
- Mouth of Deep Creek
- Kachemak Bay behind the spit
- Halibut Cove
- Sadie Cove
- Tutka Bay
- Kasitsna Bay
- Jakolof Bay
- Port Graham
- Port Chatham

ALASKA STATE PARKS
Alaska Department of Natural Resources
Division of Parks and Outdoor Recreation

Alaska State Parks in the Cook Inlet Region (maps and charts)

1. Anchorage
2. Homer (Kenai Peninsula)
3. Kenai (Kenai Peninsula)
4. Palmer (Matanuska Valley)
5. Seward (Kenai Peninsula)
6. Soldotna (Kenai Peninsula)
7. Sterling (Kenai Peninsula)
8. Wasilla (Susitna Valley)

Chart Key

CS = Camp sites	**W** = Water, drinkable	**C** = Cabins
CL = Camping limit	**S** = Picnic shelter	**D** = Daily parking fee
CF = Camping fee	**Tr** = Trails	**F** = Fishing
P = Picnic sites	**H** = Historical feature	***** = Tent camping only
T = Toilet	**B** = Boat launch	

SRA = State Recreation Area
SRS = State Recreation Site
SHP = State Historical Park
SHS = State Historic Site
SMA = Special Management Area

SP = State Park
SMP = State Marine Park
SWP = State Wilderness Park
TH = Trailhead

DU = Day Use
GU = Group Use
CG = Campground
BL = Boat Launch

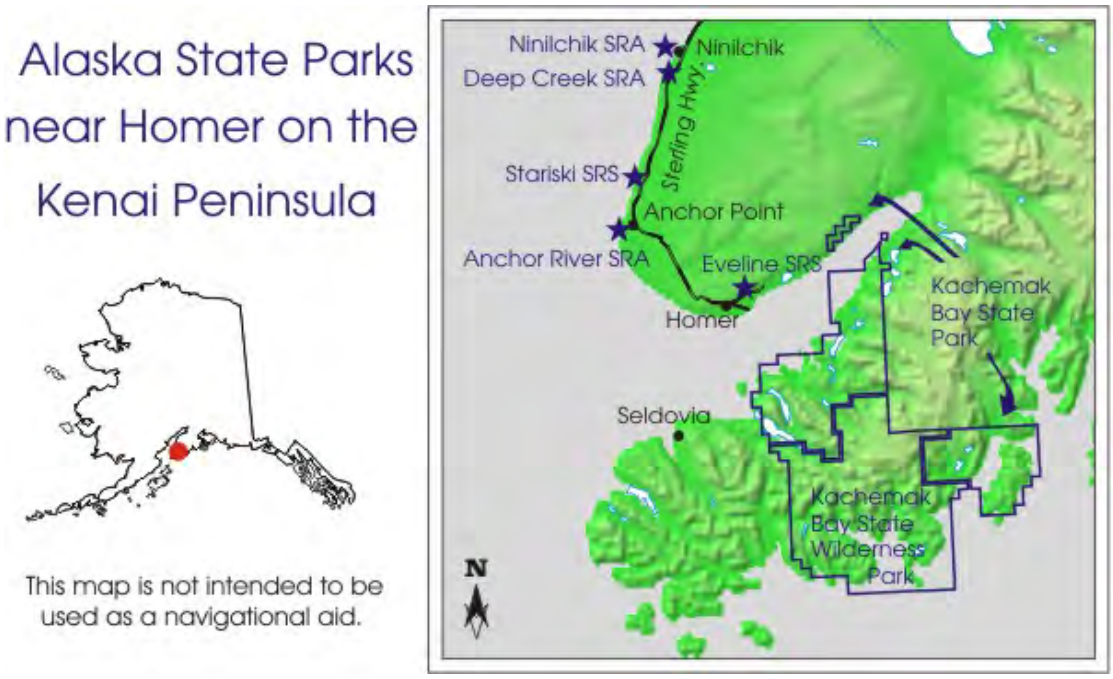
For further information, go to http://dnr.alaska.gov/parks/ or call 269-8700 (Anchorage Office). Park maps can be found online at http://dnr.alaska.gov/parks/aspunits/index.htm.

Chugach State Park near Anchorage

This map is not intended to be used as a navigational aid.

Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Chugach SP	495,204														
- *Bird Creek CG*		27	7	CF	4	T[1]	W	S	Tr[1]					F	101.2 Seward Hwy.
- *Bird Creek CG Overflow*		20[1]	7	CF	20	T[1]	W		Tr[1]					F[1]	101.2 Seward Hwy.
- *Bird Point DU*						T[1]	W[1]		Tr[1]						96.1 Seward Hwy.
- *Bird Ridge TH*									Tr						102.2 Seward Hwy.
- *Eagle River CG*[2]		50[1]	4	CF	12	T[1]	W[1]	S	Tr				D	F	12.6 Glenn Hwy.
- *Eagle River Greenbelt*						T[1]			Tr				D	F	Eagle River Loop Rd.
- *Eagle R. Nature Center*[3]						T[1]	W[1]		Tr[1]	H[1]		C	D		12 Eagle River Rd.
- *Eklutna Lake CG/GU*		50	15	CF	32[1]	T[1]	W[1]	S[1]	Tr[1]			C[1]	D	F	26.5 Glenn Hwy.
- *Glen Alps TH/Viewpoint*						T[1]			Tr[1]				D		Upper Huffman
- *McHugh Creek DU*					15[1]	T[1]	W[1]		Tr						111 Seward Hwy.
- *North Fork Eagle Riv.*						T[1]			Tr					F	7.5 Eagle River Rd.
- *Prospect Heights TH*						T[1]			Tr				D		Up O'Malley/Prospect
- *Thunderbird Falls TH*						T			Tr						25.5 Glenn Hwy.
- *Turnagain Arm Trail*									Tr						106-115 Seward Hwy.
- *Upper Huffman TH*					8	T[1]			Tr				D		Upper Huffman
Potter House SHS	0.5				1	T[1]				H[1]					115 Seward Hwy.

[1] Facilities are ADA accessible
[2] Sanitary dump station
[3] Annual passes not accepted

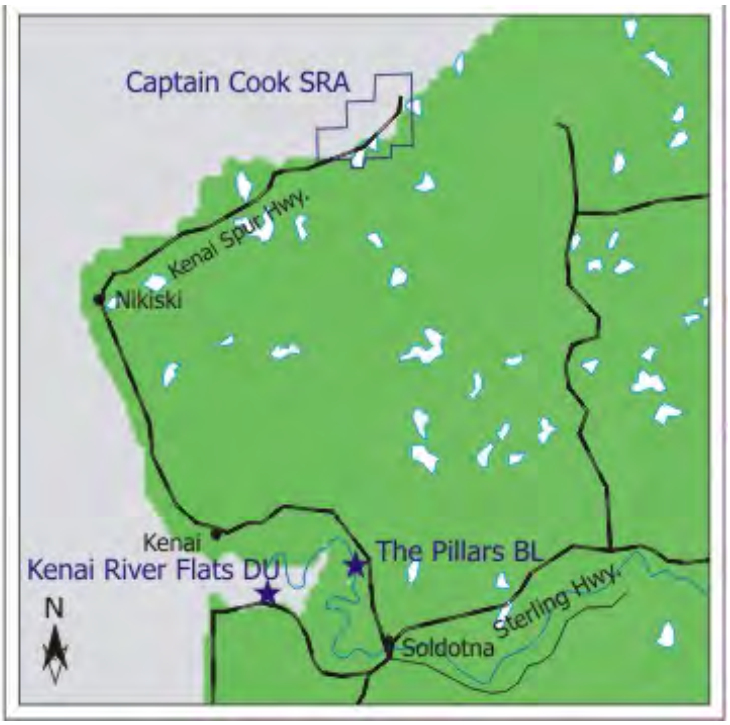


Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Anchor River SRA	228								Tr						
- *Coho CG*		27	15	CF		T							D	F	157 Sterling Hwy.
- *Halibut CG*		21[1]	15	CF	2[1]	T[1]	W[1]			H			D	F	157 Sterling Hwy.
- *Silverking CG*		35	15	CF		T[1]							D	F	157 Sterling Hwy.
- *Slidehole CG*		44[1]	7	CF	2[1]	T[1]	W[1]	S[1]					D	F	157 Sterling Hwy.
- *Steelhead CG*		34	15	CF		T[1]							D	F	157 Sterling Hwy.
Deep Creek SRA	172														
- *Deep Creek CG*		164	15	CF		T[1]	W[1]				B		D	F	138 Sterling Hwy.
- *Deep Creek North CG*		25[1]	15	CF		T[1]	W[1]						D	F[1]	137.3 Sterling Hwy.
- *Deep Creek South DU*					4[1]	T[1]							D	F	137.4 Sterling Hwy.
Kachemak Bay SP/SWP	370,399	8	15			T[1]			Tr			C[1]		F	No road access
Ninilchik SRA	93														
- *Ninilchik Beach CG*		35	15	CF		T[1]	W				B			F	135.5 Sterling Hwy.
- *Ninilchik River CG*		43	15	CF	2[1]	T[1]	W[1]	S[1]						F	135.2 Sterling Hwy.
- *Ninilchik Overlook*		25[1]	15	CF	2[1]	T[1]	W[1]						D	F	135.3 Sterling Hwy.
- *Ninilchik View CG*[2]		14	7	CF		T[1]	W								135.9 Sterling Hwy.
Stariski SRS	60	13	15	CF		T[1]	W	S							151 Sterling Hwy.

[1] Facilities are ADA accessible
[2] Sanitary dump station

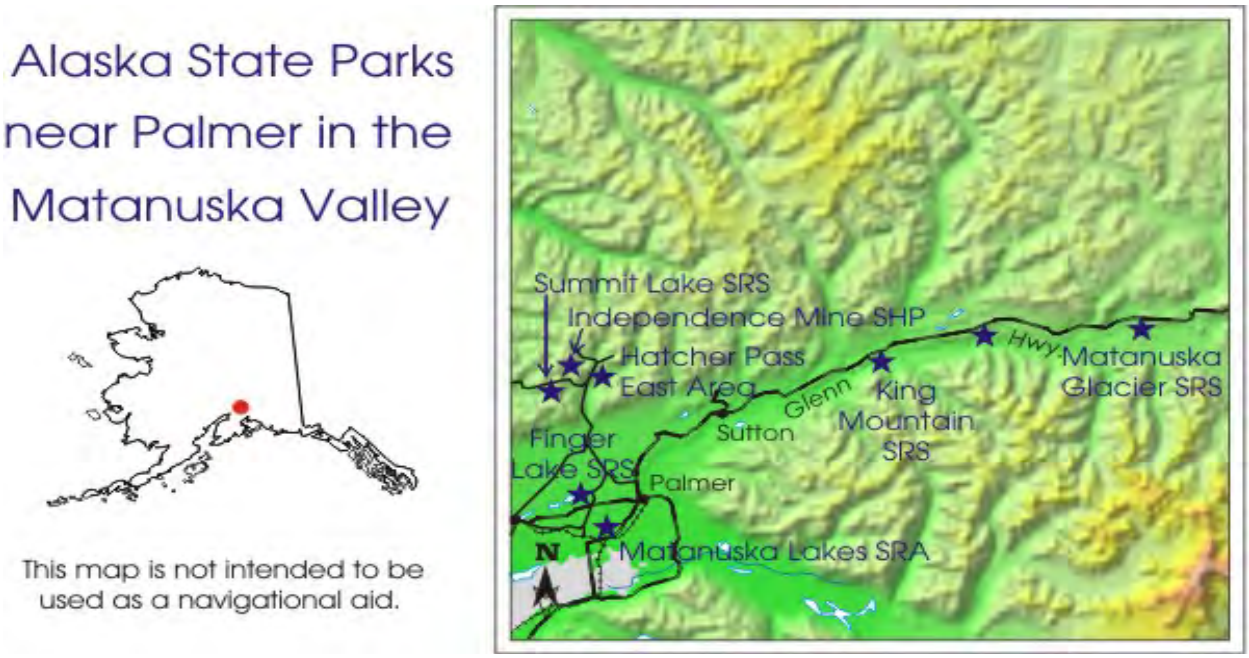
Alaska State Parks near Kenai on the Kenai Peninsula

This map is not intended to be used as a navigational aid.



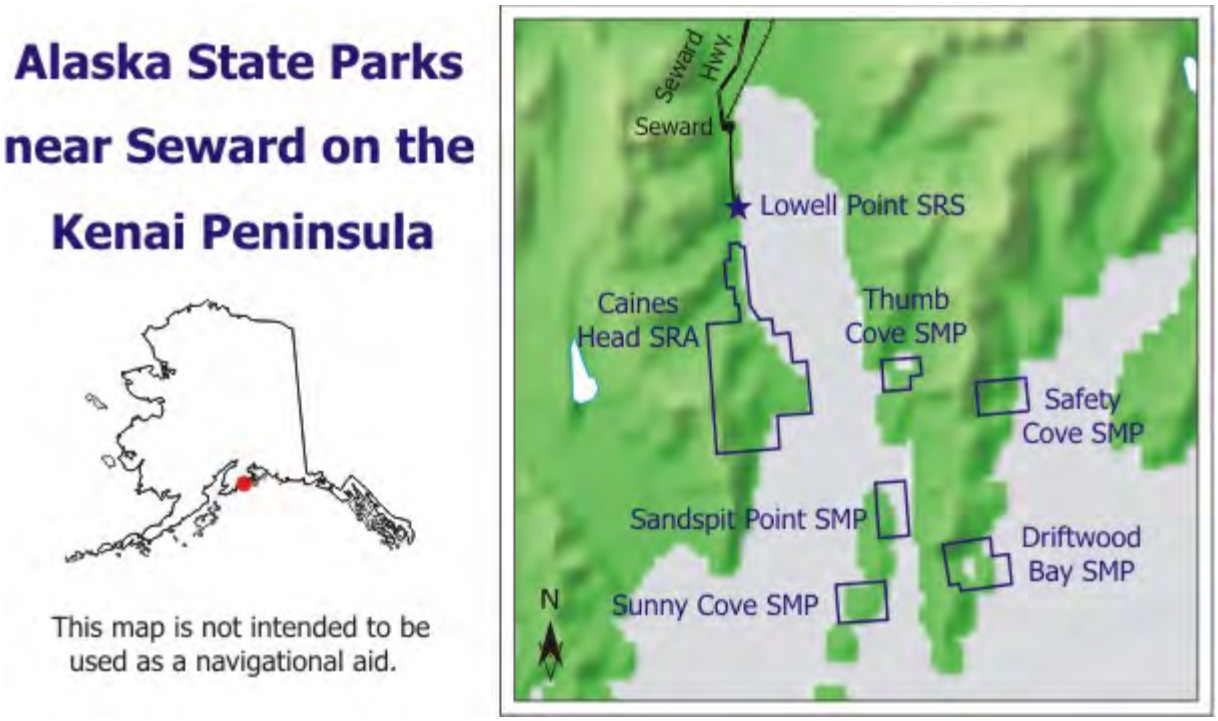
Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Captain Cook SRA	3,466														
- *Bishop Creek DU*					4	T	W[1]		Tr					F	36 Kenai Spur Hwy.
- *Discovery CG*		52	15	CF		T	W		Tr					F	39 Kenai Spur Hwy.
- *Discovery DU*					6	T									39 Kenai Spur Hwy.
- *Stormy Lake Beach*						T	W[1]							F	36.5 Kenai Spur Hwy.
- *Stormy Lake BL*					1	T	W[1]				B			F	37.9 Kenai Spur Hwy.
- *Stormy Lake DU*					4	T	W[1]	S[1]						F	36.9 Kenai Spur Hwy.
- *Swanson Riv. Landing*					1	T								F	38.5 Kenai Spur Hwy.
Kenai River SMA															
- *Kenai River Flats DU*	832					T								F	Kalifornsky Beach Rd.
- *The Pillars BL*[2]	16					T[1]	W[1]				B[1]		D		Kenai Spur Hwy.

[1] Facilities are ADA accessible
[2] Annual passes not accepted



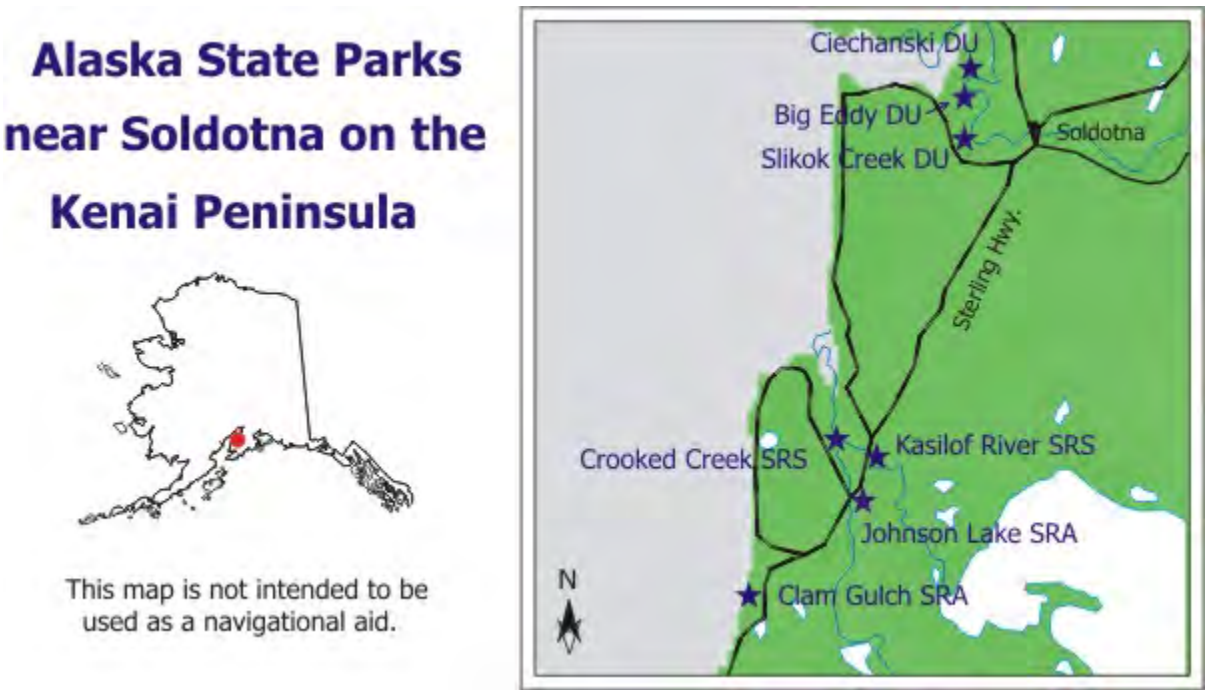
Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Finger Lake SRS	69	41	7	CF	10	T[1]	W				B		D	F	0.7 Bogard Rd.
Hatcher Pass East Area	75,000								Tr						Hatcher Pass Rd.
Independence Mine SHP	761				10	T[1]	W		Tr[1]	H[1]			D		17.3 Hatcher Pass Rd.
Kepler-Bradley Lks SRA	346														
- *Canoe Lake*						T[1]			Tr					F	38 Glenn Hwy.
- *Irene Lake*									Tr					F	38 Glenn Hwy.
- *Long Lake*						T[1]			Tr					F	38 Glenn Hwy.
- *Matanuska Lake*					10[1]	T[1]	W[1]		Tr[1]					F[1]	36.4 Glenn Hwy.
King Mountain SRS	20	22	15	CF	2	T	W	S							76 Glenn Hwy.
Long Lake SRS	480	9	15			T					B			F	85.3 Glenn Hwy.
Matanuska Glacier SRS	229	12	15	CF		T[1]	W[1]		Tr						101 Glenn Hwy.
Summit Lake SRS	360								Tr						19.2 Hatcher Pass Rd.

[1] Facilities are ADA accessible



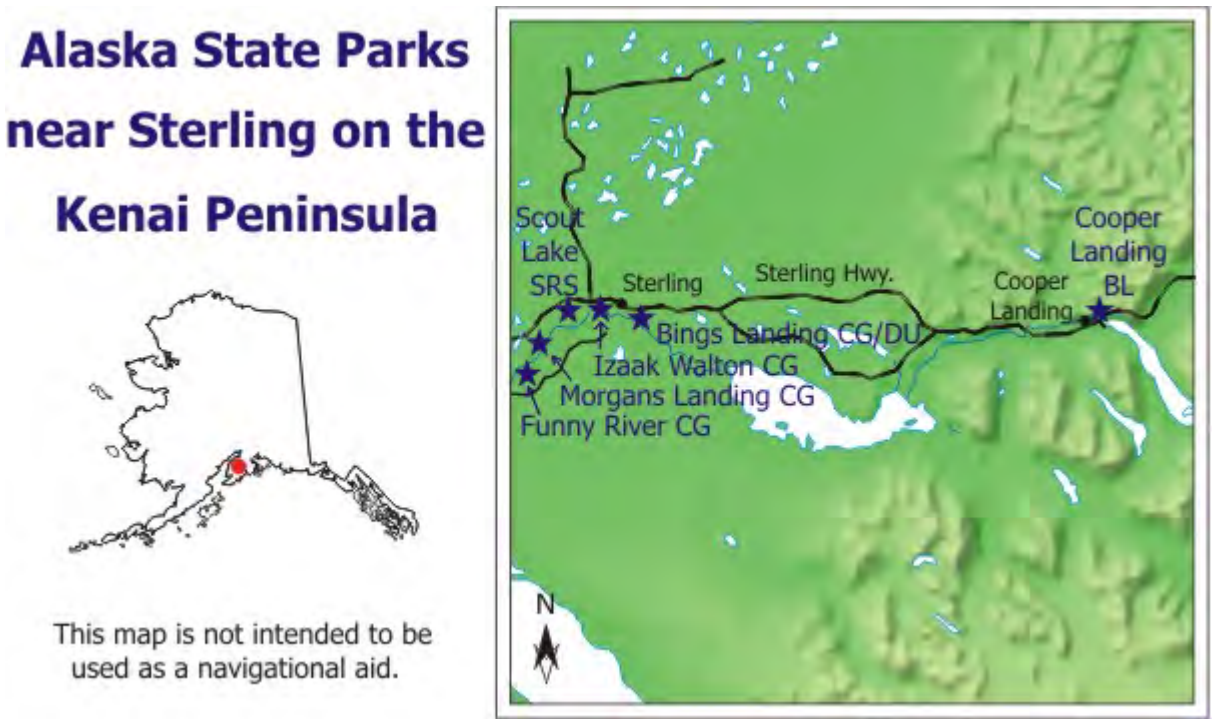
Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Caines Head SRA	5,961	4	15		4	T		S	Tr	H		C		F	No road access
Driftwood Bay SMP	1,480	Undeveloped												F	No road access
Lowell Point SRS	19					T[1]			Tr					F	2 Lowell Point Road
Safety Cove SMP	960	Undeveloped												F	No road access
Sandspit Point SMP	560	Undeveloped												F	No road access
Sunny Cove SMP	960	Undeveloped												F	No road access
Thumb Cove SMP	720	3				T[1]			Tr			C[1]		F	No road access

[1] Facilities are ADA accessible



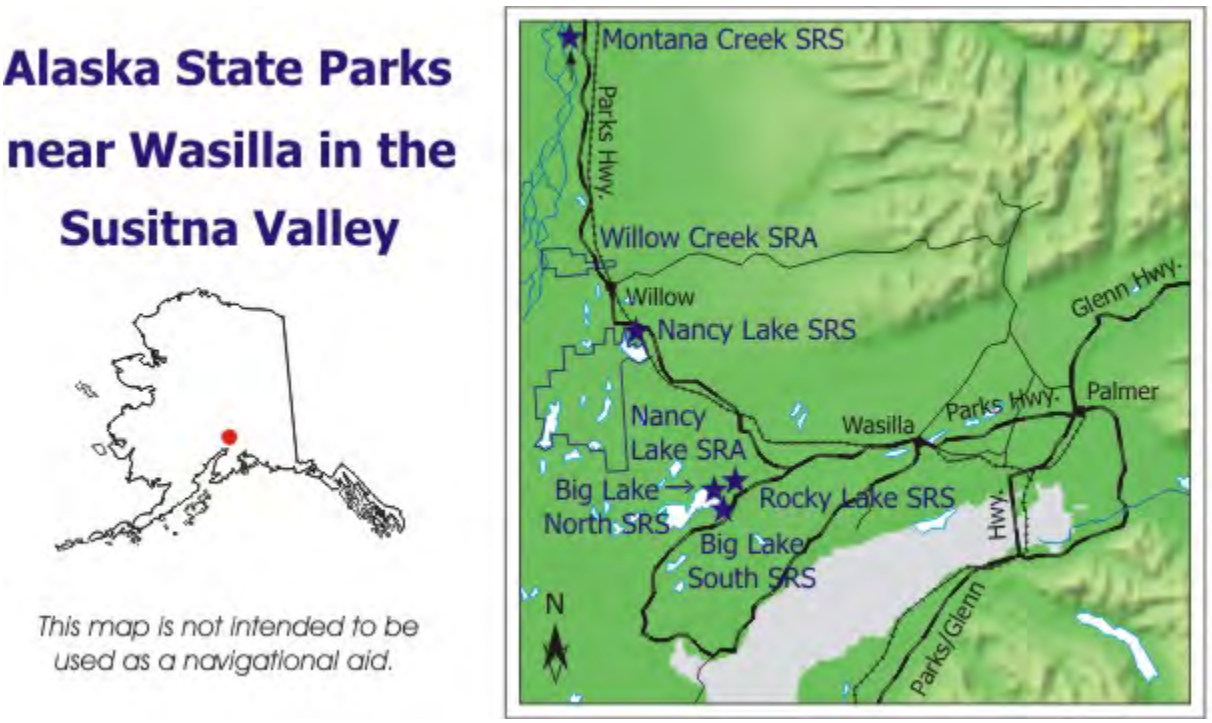
Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Clam Gulch SRA	495	116	15	CF		T[1]	W[1]	S[1]					D	F	117 Sterling Hwy.
Crooked Creek SRS	105	79[1]	7	CF	30[1]	T	W		Tr				D	F[1]	Coho Loop Rd.
Johnson Lake SRA	332	50	15	CF	25	T[1]	W[1]	S[1]			B			F	110 Sterling Hwy.
Kasilof River SRS	30	10	15	CF		T[1]	W		Tr		B		D	F	109.5 Sterling Hwy.
Kenai River SMA															
- *Big Eddy DU*	16					T[1]								F	River mile 15.5
- *Ciechanski DU*	34					T[1]								F	River mile 16.5
- *Slikok Creek DU*	40				5	T[1]								F	Kalifornsky Beach Rd.

[1] Facilities are ADA accessible



Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Kenai River SMA															
- *Bings Landing CG/DU*	126	37[1]	7	CF	6	T[1]	W[1]	S[1]	Tr		B		D	F[1]	79 Sterling Hwy.
- *Cooper Landing BL*	421					T[1]	W[1]				B[1]		D		47.8 Sterling Hwy.
- *Funny River CG*	336	10	7	CF		T	W							F	10 Funny River Rd.
- *Izaak Walton CG*	8	26[1]	7	CF	4	T[1]	W[1]				B			F	81 Sterling Hwy.
- *Morgans Landing CG*	279	42[1]	7	CF	4	T[1]	W[1]		Tr				D	F	85 Sterling Hwy.
Scout Lake SRS	164				10	T	W	S	Tr				D	F	85 Sterling Hwy.

[1] Facilities are ADA accessible



Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Big Lake North SRS	19	60	7	CF	24[1]	T[1]	W[1]	S[1]			B		D	F	5 N. Big Lake Rd.
Big Lake South SRS	22	20	7	CF	10	T[1]	W				B		D	F	5.2 S Big Lake Rd.
Nancy Lake SRA	22,685											C			67.2 Parks Hwy.
- *Canoe System TH*						T			Tr				D	F	4.8 Nancy Lk. Pkwy.
- *South Rolly Lake CG*		98	15	CF	20	T	W		Tr		B		D	F	6.5 Nancy Lk. Pkwy.
- *Winter TH*						T			Tr				D		2.2 Nancy Lk. Pkwy.
Nancy Lake SRS	36	30	15	CF	30	T	W	S			B			F	66.5 Parks Hwy.
Rocky Lake SRS	49	10	7	CF		T	W				B			F	3.5 Big Lake Rd.
Willow Creek SRA	3,583	140	5	CF		T[1]	W[1]		Tr[1]				D	F	70.8 Parks Hwy.

[1] Facilities are ADA accessible

KENAI FJORDS NATIONAL PARK: SENSITIVE RECREATION SITES DATA

Site Name	Use	Latitude (N)	Longitude (W)
Seward Visitor Center	Visitor Contact	60°07'05"	149°26'15"
Aialik Bay Ranger Station	Visitor Contact	59°51'00"	149°39'30"
Aialik Bay Public Use Cabin	Public Use Cabin	59°53'15"	149°39'15"
Holgate Public Use Cabin	Public Use Cabin	59°49'50"	149°46'15"
Delight Public Use Cabin	Public Use Cabin	59°32'43"	150°20'09"
North Arm Public Use Cabin	Public Use Cabin	59°33'45"	150°31'20"
Bulldog Cove	Campsite	59°53'55"	149°34'15"
North Porcupine	Landing	59°52'32"	149°34'59"
Porcupine Cove	Campsite	59°51'40"	149°35'05"
Three Hole Point	Campsite	59°46'10"	149°38'45"
Bear Cove	Campsite	59°47'30"	149°36'50"
South Tooth Cove	Campsite	59°48'29"	149°38'31"
Tooth Cove	Campsite	59°49'05"	149°38'35"
North Tooth Cove	Campsite	59°50'00"	149°38'20"
South Coleman Bay	Campsite	59°51'18"	149°39'28"
Abra Cove	Campsite	59°53'50"	149°38'45"
Aialik Head	Landing	59°56'40"	149°40'59"
Pederson Lagoon Spit	Campsite	59°49'50"	149°48'00"
Quicksand Cove	Campsite	59°47'15"	149°46'05"
McMullen Cove	Campsite	59°45'50"	149°45'55"
Verdant Cove	Campsite	59°42'00"	149°44'00"
NW East Morraine	Campsite	59°44'35"	149°52'10"
Northeastern Glacier	Campsite	59°47'30"	150°01'00"
Redstone Glacier	Campsite	59°49'00"	150°02'00"
NW Otter Cove North	Campsite	59°43'50"	149°58'10"
NW Otter Cove South	Campsite	59°41'10"	149°56'40"
Paguna East	Landing	59°38'15"	150°02'28"
Paguna Head	Landing	59°41'32"	150°07'58"
Paguna West	Landing	59°39'27"	150°06'20"
Taroka East	Landing	59°37'22"	150°08'15"
Taroka West	Landing	59°37'10"	150°09'45"
Cloudy Mountain Spit	Landing	59°35'20"	150°06'40"
Thunder Bay	Landing	59°34'48"	150°10'17"
Chance Cove	Landing	59°34'48"	150°18'45"
Delight Spit	Campsite	59°34'48"	150°20'39"
South Desire Creek	Landing	59°34'48"	150°18'31"
Desire Creek	Campsite	59°34'50"	150°18'16"
Delusion Creek	Campsite	59°38'25"	150°16'29
Upper McCarthy Fjord	Campsite	59°44'17"	150°12'50"
Dinglestadt Glacier	Campsite	59°39'13"	150°18'16"
James Lagoon	Campsite	59°33'39"	150°24'20"
Ariadne Cove	Campsite	59°28'27"	150°30'14"
Surprise Bay South	Landing	59°29'15"	150°29'15"
Palisade Lagoon	Campsite	59°31'45"	150°28'33"
Surprise Bay West	Campsite	59°30'20"	150°29'40"
Quartz Bay	Campsite	59°31'17"	150°31'07"
North Arm Cabin Site	Landing	59°33'45"	150°31'20"
North Arm Storm Mountain	Landing	59°35'55"	150°32'38"

Site Name	Use	Latitude (N)	Longitude (W)
Shelter Cove	Campsite	59°30'20"	150°38'09"
Shelter Cove South	Landing	59°30'00"	150°35'35"
Yalik Bay	Campsite	59°28'20"	150°39'12"
Agnes Cove	Anchorage	59°46'15"	149°34'00"
Paradise Cove	Anchorage	59°45'40"	149°35'00"
Three Hole Bay	Anchorage	59°47'00"	149°36'30"
Coleman Bay	Anchorage	59°51'45"	149°38'00"
Quicksand Cove	Anchorage	59°47'00"	149°46'30"
Verdant Cove	Anchorage	59°42'00"	149°44'50"
Northwestern Lagoon	Anchorage	59°39'38"	149°45'55"
Thunder Bay	Anchorage	59°39'08"	149°48'49"
McArthur Pass North Bay	Anchorage	59°41'50"	149°46'50"
Moonlight Bay	Anchorage	59°46'30"	149°56'45"
Midnight Cove	Anchorage	59°30'45"	150°11'00"
Desire Creek	Anchorage	59°38'32"	150°21'10"
Surprise Bay	Anchorage	59°29'15"	150°29'15"
Quartz Bay	Anchorage	59°31'00"	150°31'30"
Pilot Harbor	Anchorage	59°35'00"	150°30'00"
Shelter Cove	Anchorage	59°31'20"	150°38'09"
Fire Cove	Anchorage	59°39'38"	149°45'55"
Taz Basin	Anchorage	59°39'08"	149°48'49"
Crater Bay	Anchorage	59°41'50"	149°46'50"

Park Contact: Jeff Troutman, Chief, Resource Management Division, Kenai Fjords National Park, 907-224-3175

8. Commercial Tourism

The organizations listed below can be contacted with requests for specific information on location and timing of recreation and tourism activities. Although providing such information is not the primary function of these organizations, the individual members will be quite knowledgeable about environmental conditions and may share information.

For additional information, contact the following:

Alaska Division of Tourism	(907) 465-2012
Alaska State Chamber of Commerce	(907) 586-2323
Alaska Native Tourism Council	(907) 274-5400
Alaska Wilderness Recreation & Tourism Association	(907) 463-3038

9. Marinas and Ports

Consult the *Resources Section* of this plan.

10. 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 Cook Inlet 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, 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.

11. Logging Facilities

There are no tidewater logging operations in Cook Inlet at this time.

For information concerning upland timber harvesting, contact:

ADNR, Division of Forestry
Kenai/Kodiak Area Forester
(907) 262-4124 (Soldotna)

12. 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/.

13. Air Quality

In 1970, Congress designated the former Tuxedni National Wildlife Refuge (NWR) (now part of the Alaska Maritime NWR) as a wilderness area, declaring that the area should remain undeveloped and "unimpaired" for future generations.

In 1977, Congress acknowledged the uniqueness of the Tuxedni Wilderness by designating it as a Class I air quality area. As a wilderness area, it is afforded special protection under the Clean Air Act. Congress gave the USFWS, as the Federal Land Manager of Tuxedni Wilderness, the responsibility to protect the air quality and air quality related values (AQRVs) of the area from man-made air pollution. For additional information, visit http://www.fws.gov/refuges/airquality/ARIS/TUXE/Index.html.

SENSITIVE AREAS: PART FIVE – LAND MANAGEMENT

A. LAND MANAGEMENT DESIGNATIONS

1. Access to Lands

Land ownership must be determined, and landowners or managers should be 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. Applicable local borough governments are often the best source of private land ownership records.

2. State

The State of Alaska owns the majority of tide and submerged lands within the state. Tideland means those lands which are periodically covered by tidal waters between the elevation of mean high and mean low tides. Submerged lands means those lands covered by tidal waters between the line of mean low water and seaward to a distance of three geographic miles.

State Game Refuges, Sanctuaries, Ranges, and Critical Habitats. The Alaska State Legislature has classified certain areas as being essential to fish and wildlife populations and public uses of these resources. These areas are designated as a game refuge, critical habitat area, game sanctuary, or wildlife range. Management of these essential areas is the joint responsibility of the ADF&G and ADNR. Both agencies may require permits for land and water use access or activities. Legislation pertaining to these lands and legal descriptions of area boundaries may be found in Alaska Statutes Title 16, Chapter 20. Maps of area boundaries can be found in the ADF&G publication, State of Alaska Game Refuges, Critical Habitat Areas and Game Sanctuaries, June 2012; however, the most current maps and downloadable GIS files can be found at http://www.adfg.alaska.gov/index.cfm?adfg=conservationareas.locator.

Several of these areas exist in the Cook Inlet Subarea and are listed below, along with a brief summary of their biological and public use values.

McNeil River State Game Sanctuary was established in 1967 to protect concentrations of brown bears which gather to feed on migrating salmon in July and August at McNeil River. Wildlife viewing is popular, and ADF&G maintains a camp at McNeil Cove whose staff accompany bear viewers.

McNeil River State Game Refuge was created in January 1993, adjacent to the northern boundary of the McNeil River State Game Sanctuary and protects migrating salmon and bear feeding at Chenik Creek.

Kachemak Bay State Critical Habitat Area was established in 1974 to protect the rich marine habitat which supports numerous fish, shellfish, and marine mammals. Tens of thousands of waterfowl, shorebirds, and seabirds are present in the spring, summer, and fall. Many also overwinter in the area. The bay supports commercial and sport fishing, subsistence marine mammal hunting and fishing, and aquatic farming, as well as provides many boat and shore based recreational opportunities.

Fox River Flats State Critical Habitat Area was established in 1972 and serves as a resting and feeding area for thousands of migrating waterfowl and shorebirds during the spring and fall. The area is popular for waterfowl hunting in the fall.

Anchor River/Fritz Creek State Critical Habitat Area was established in 1985 and protects one of the few major moose overwintering areas on the southern Kenai Peninsula. The area also provides opportunities for hunting, fishing, wildlife viewing, and winter sports.

Clam Gulch Critical Habitat Area was established in 1976 to protect dense beds of razor clams. The area provides opportunities for clam digging and commercial and sport fishing.

Kalgin Island State Critical Habitat Area was established in 1972 to protect habitat used by migrating waterfowl and shorebirds during the spring and fall.

Redoubt Bay State Critical Habitat Area was established in 1989 to protect migrating and nesting waterfowl populations during the spring, summer, and fall. Tule white-fronted geese and trumpeter swans are species of special concern. Guided sport fishing and wildlife viewing occur in the summer, and waterfowl hunting occurs in the fall.

Willow Mountain State Critical Habitat Area was established in 1989 to protect exceptional fish and wildlife habitat, especially post-rut moose concentration areas, and to provide opportunities for hunting, trapping, and dispersed recreation.

Trading Bay State Game Refuge was established in 1976 to protect habitat used by large numbers of waterfowl migrating through in the spring and fall and nesting in the summer. The area is used for moose calving in the spring, as a spring and fall feeding area for bears, and as a salmon spawning and rearing area. The area is also used for hunting, especially waterfowl, and commercial and sport fishing. This area is of critical importance for subsistence waterfowl and moose hunting by Tyonek residents.

Susitna Flats State Game Refuge was established in 1976 to protect areas used by spring and fall concentrations of migrating shorebirds and waterfowl and summer populations of nesting waterfowl. The refuge also encompasses moose calving areas, spring and fall bear feeding areas, and salmon spawning and rearing areas. The area is popular for hunting, especially waterfowl hunting in the fall, wildlife viewing, and fishing. This area is also important for marine mammal feeding and resting, and it is used by beluga whales and harbor seals.

Goose Bay State Game Refuge was established in 1975 to protect the wetlands used as a spring and fall stopover for migrating waterfowl. The refuge is popular for waterfowl hunting in the fall.

Palmer Hay Flats State Game Refuge was established in 1975 and expanded in 1985 to protect dense spring and fall concentrations of migrating waterfowl. The area also provides moose habitat and salmon spawning and rearing areas. Sport fishing, hunting, and wildlife viewing are popular.

Anchorage Coastal Wildlife Refuge was originally established in 1971 and was expanded and re-named in 1988 to protect large and diverse bird populations. Peak numbers occur during the spring migration and include waterfowl and shorebirds. Migratory waterfowl and shorebirds also use the refuge during fall migration, and smaller numbers nest and rear young in Potter Marsh and along the base of the coastal bluff. The area is extremely popular for wildlife viewing.

Homer Airport Critical Habitat Area was created in 1996 and includes a portion of the Beluga Wetlands lying between the Homer Airport and Beluga Lake. This area is important habitat for migratory waterfowl as well as nesting and feeding habitat for shorebirds, swans, terns, raptors, and song birds. This area also protects a critical overwintering area for moose.

Matanuska Valley Moose Range was created in 1984 to maintain, improve, and enhance moose populations and habitat and other wildlife resources of the area, as well as to perpetuate public multiple use of the area.

3. Federal

Chugach National Forest is the nation's second largest National Forest at 5.38 million acres, which extends from the Kenai Peninsula for 200 miles to the Bering Glacier. Sport, subsistence, and commercial fishing; hunting; sightseeing; outdoor recreation; boating; hiking; and wildlife habitat are some of the primary uses of the forest.

Katmai National Park and Preserve encompasses about 120 miles of the lower Cook Inlet coast between Kamishak River and Sukoi Bay on Cape Douglas within the Cook Inlet Subarea; the park continues south of the subarea boundary. The endangered Steller sea lion hauls out just north of Cape Douglas. Shaw Island serves as a significant seabird colony and harbor seal haulout location. Most of the park's coast is designated wilderness. The park is known for its brown bears, sport fishing, volcanoes, and scenery. The coastal area has become increasingly popular for wilderness bear viewing and photography.

Kenai Fjords National Park features the Harding Icefield and a glacier-carved shoreline along the Gulf of Alaska. Moose, black bear, mountain goats, Steller sea lions, harbor seals, killer whales, many species of whales, porpoises, sea otters, and thousands of sea birds inhabit the park and its surrounding waters. There is designated critical habitat for the Steller sea lion in this area. The park is about 670,000 acres in size. Tour boat excursions, sport fishing, sailing, wilderness sea kayaking, hiking, and photography are popular activities.

Lake Clark National Park and Preserve is set along western Cook Inlet where the Alaska Range and the Aleutian Range meet; the 1.2 million acre area includes 50-mile long Lake Clark. Glaciers, two active volcanoes, waterfalls, and jagged peaks provide an array of scenery. An important sockeye salmon spawning ground, the area is habitat for brown and black bear, caribou, moose, Dall sheep, and trout. River running, hiking, and other outdoor recreation are available in the park and preserve. The coastal area has become increasingly popular for wilderness bear viewing and photography, particularly near Silver Salmon Creek and Chinitna Bay.

Alaska Maritime NWR, Gulf of Alaska Unit, encompasses approximately 10% of the refuge's landmass, including some of the islands, rocks, and forelands along the coast of the Gulf of Alaska. The entire Alaska Maritime NWR (established in 1980) 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 and west to the end of the Aleutian Islands. About 75% of Alaska's marine birds (15 to 30 million of 55 species) use the refuge. The Alaska Maritime NWR also is home to thousands of sea lions, seals, walrus, and sea otters. It includes designated critical habitat for the Steller sea lion. Wildlife viewing, photography, and backpacking are primary uses of the refuge.

Chisik Island is managed by the Alaska Maritime NWR. The island is 10.5 kilometers in length and is located at the mouth of Tuxedni Bay. Chisik and Duck islands support the largest black-legged kittiwake and horned puffin colonies in northern Cook Inlet. Chisik is protected with Wilderness status and has a Class I Air Quality designation. Response efforts on Chisik Island must be conducted in direct consultation with the USFWS.

Barren Islands are located about equidistant between the southern tip of the Kenai Peninsula and Kodiak Island. There are seven sizeable islands that comprise the group. The largest colonies of storm-petrels, murres, puffins, and kittiwakes in Cook Inlet are located throughout the Barren Islands. These islands provide both cliff-face habitat for ledge-nesting murres and kittiwakes, as well as burrow-nesting habitat for puffins and storm-petrels. There is designated critical habitat for Steller sea lions at the Barren Islands, and there are special prohibitions that apply to the approach of Steller sea lion rookeries at the Barren Islands by people on land and in vessels (see above). While officially part of the Kodiak Subarea, the Barren Islands also are discussed here, given their proximity to the entrance to Cook Inlet, because some responders may look for information on these islands in the Cook Inlet Subarea Contingency Plan, and because they were discussed in previous versions of this document.

Kenai National Wildlife Refuge, located on the Kenai Peninsula, contains nearly 2 million acres, including 1.35 million acres designated as Wilderness. The spawning areas within the refuge support approximately 40% of the Cook Inlet commercial fishing industry, and the refuge is underlain with important oil and gas resources. From tidal marsh to alpine ridge, various natural habitats support a wide variety of wildlife, including wolves, moose, Dall sheep, mountain goat, caribou, coyotes, brown/grizzly bear, black bear, trumpeter swans, lynx, wolverine, beaver, many other small mammals, and 146 species of resident and migratory birds. Four species of salmon spawn here, and the refuge also supports many resident fish.

Kachemak Bay National Estuarine Research Reserve is one of 28 areas in the National Estuarine Research Reserve System that is protected for long-term research, water-quality monitoring, education, and coastal stewardship. Daily management and oversight of this reserve is provided by the University of Alaska Anchorage, Alaska Center for Conservation. For more information, including the reserve boundaries, see http://nerrs.noaa.gov/reserves/kachemak-bay.html.

B. 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 website at http://sdms.ak.blm.gov/isdms/imf.jsp?site=sdms and click on the Generalized Land Status layer.

The ADNR hosts a mapping application that provides interactive access to State of Alaska land records. Although source documents remain the official record, the Alaska Mapper can provide information on land ownership and use at http://dnr.alaska.gov/MapAK/.

Cook Inlet Subarea Land Management Map Links:

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap1of6.pdf

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap2of6.pdf

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap3of6.pdf

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap4of6.pdf

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap5of6.pdf

http://www.asgdc.state.ak.us/maps/cplans/cook/CookMap6of6.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 Cook Inlet 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
Akumwarvik Bay Islands	59.0450	-154.1706	Pigeon Guillemot			2
			Glaucous-winged Gull	Breeding	58	56
			Black Oystercatcher	Breeding		2
			Glaucous-winged Gull	Breeding		67
			Pigeon Guillemot	Breeding		2
Akumwarvik Head	59.0711	-154.0675	Double-crested Cormorant	Breeding	24	14
			Glaucous-winged Gull			175
			Double-crested Cormorant	Breeding	24	
			Pigeon Guillemot	Unspecified		
			Glaucous-winged Gull	Breeding		175
Amakdedulia Cove	59.2014	-154.1462	Double-crested Cormorant	Breeding	254	145
			Glaucous-winged Gull			6
			Tufted Puffin	Unspecified		
			Double-crested Cormorant	Breeding	254	
			Glaucous-winged Gull	Unspecified		6
Amakdedulia Islands	59.1833	-154.1522	Glaucous-winged Gull	Unspecified		
			Black Oystercatcher	Unspecified		
APU Gravel Pit	61.1865	-149.8000	Bonaparte's Gull	Breeding		4
			Herring Gull	Not Applicable	0	0
			Mew Gull	Breeding		10
			Arctic Tern	Not Applicable		
Barwell Island	59.8592	-149.2769	Red-faced Cormorant	Breeding	100	
			Glaucous-winged Gull	Breeding	400	
			Tufted Puffin	Breeding	600	

			Pelagic Cormorant	Breeding	40	
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Breeding	80	
			Common Murre	Breeding	17600	
			Black-legged Kittiwake	Breeding		2800
Bear Glacier Point	59.8847	-149.5522	Horned Puffin	Breeding	50	
Beautiful Island	59.5106	-150.5603	Glaucous-winged Gull	Breeding	6	
			Pelagic Cormorant	Breeding	16	
Beehive Island	59.6186	-149.6094	Unidentified Murre	Breeding		94
			Common Murre	Breeding		
			Thick-billed Murre	Breeding		
			Tufted Puffin	Breeding	11000	
			Horned Puffin	Breeding		6
			Glaucous-winged Gull	Breeding		2
			Black-legged Kittiwake	Breeding	4608	
Black Bay	59.5400	-150.1808	Tufted Puffin	Breeding	140	
			Pelagic Cormorant	Breeding	14	
			Horned Puffin	Breeding	60	
Bragaw Gravel Pit	61.1823	-149.8042	Mew Gull	Breeding		2
			Bonaparte's Gull	Not Applicable	0	0
			Herring Gull	Breeding		2
			Arctic Tern	Not Applicable	0	0
Brown Mountain	59.3350	-150.8594	Glaucous-winged Gull	Breeding	40	
			Tufted Puffin	Breeding	20	
Bruin Bay Islands	59.3611	-154.0008	Black Oystercatcher	Breeding and Roosting		20
			Horned Puffin	Breeding and Roosting		75
			Pigeon Guillemot	Breeding and Roosting		40
			Glaucous-winged Gull	Breeding and Roosting		300
			Tufted Puffin	Breeding and Roosting		25
Burr Point	59.4182	-153.4256	Glaucous-winged Gull	Breeding	140	
			Tufted Puffin	Breeding and Roosting		375
			Black Oystercatcher	Breeding and Roosting		10
			Pigeon Guillemot	Breeding and Roosting		15
			Horned Puffin	Breeding and Roosting		425
Caines Head	59.9831	-149.3872	Pigeon Guillemot	Breeding		

			Horned Puffin	Breeding		8
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Double-crested Cormorant	Unspecified		
			Glaucous-winged Gull	Unspecified		
Callisto Head	59.9182	-149.4654	Double-crested Cormorant	Breeding		
			Tufted Puffin	Breeding		
			Pigeon Guillemot	Breeding		
			Glaucous-winged Gull	Breeding		
			Horned Puffin	Breeding	30	
Campbell / Klatt Bog	61.1197	-149.9245	Mew Gull	Breeding		4
			Herring Gull	Not Applicable	0	0
Cape Douglas	58.8559	-153.2543	Red-faced Cormorant	Breeding		4
			Black-legged Kittiwake	Breeding and Roosting		65
			Pelagic Cormorant	Unspecified		
			Tufted Puffin	Breeding		30
			Pigeon Guillemot	Breeding		2
			Horned Puffin	Breeding		8
			Black Oystercatcher	Breeding		2
			Glaucous-winged Gull	Breeding and Roosting		25
Cape Resurrection	59.8719	-149.2764	Common Murre	Breeding	4300	
			Glaucous-winged Gull	Breeding	400	
			Black-legged Kittiwake	Breeding	5840	
			Tufted Puffin	Breeding	40	
			Horned Puffin	Breeding	160	
Carl Island	58.8833	-152.3167	Red-faced Cormorant	Breeding	20	
			Tufted Puffin	Breeding and Roosting	1000	
			Horned Puffin	Breeding and Roosting	40	
Chat Island	59.7000	-149.5606	Fork-tailed Storm-petrel	Unspecified		
			Red-faced Cormorant	Breeding	24	
			Common Murre	Breeding		14
			Black Oystercatcher	Breeding		2
			Pelagic Cormorant	Breeding	2	
			Double-crested Cormorant	Breeding and Roosting		17
			Tufted Puffin	Breeding		70
			Black-legged Kittiwake	Breeding and Roosting		67
			Horned Puffin	Breeding		76

			Glaucous-winged Gull	Breeding and Roosting		286
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Cheval Island	59.7758	-149.5067	Pelagic Cormorant	Breeding	20	
			Glaucous-winged Gull	Breeding	140	
			Red-faced Cormorant	Breeding	100	
			Tufted Puffin	Breeding	140	
			Double-crested Cormorant	Breeding	36	
			Horned Puffin	Breeding	210	
Chisik & Duck Is.	60.1308	-152.5608	Black-legged Kittiwake	Breeding		28000
			Horned Puffin	Breeding		6000
			Glaucous-winged Gull	Breeding		2000
			Double-crested Cormorant	Unspecified		500
			Parakeet Auklet	Unspecified	6	
			Pelagic Cormorant	Unspecified		25
			Pigeon Guillemot	Breeding and Roosting		
			Tufted Puffin	Breeding and Roosting		875
			Common Murre	Breeding and Roosting		22500
			Common Eider	Unspecified	250	
			Black Oystercatcher	Unspecified	6	
Chiswell Island	59.6008	-149.5611	Common Murre	Breeding		
			Unidentified Murre	Breeding		396
			Thick-billed Murre	Breeding		
			Fork-tailed Storm-petrel	Unspecified		
			Double-crested Cormorant	Breeding	12	
			Tufted Puffin	Breeding		836
			Glaucous-winged Gull	Breeding		247
			Red-faced Cormorant	Breeding	16	
			Horned Puffin	Breeding		14
			Parakeet Auklet	Breeding		2
			Pelagic Cormorant	Breeding	12	
			Black-legged Kittiwake	Breeding	4022	
Cohen Island	59.5391	-151.4707	Black Oystercatcher	Breeding	2	
Cohoe River	60.3792	-151.2925	Arctic Tern	Breeding		150
			Aleutian Tern	Breeding	8	
Connors Lake	61.1658	-149.9294	Mew Gull	Breeding		26
			Herring Gull	Not Applicable	0	0

			Bonaparte's Gull	Not Applicable	0	0
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Arctic Tern	Not Applicable	0	0
			Mew Gull	Breeding		30
Contact Point	59.3578	-153.9561	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Red-faced Cormorant	Breeding and Roosting		60
			Horned Puffin	Breeding and Roosting		12
			Pigeon Guillemot	Breeding and Roosting		24
			Tufted Puffin	Breeding and Roosting		6
			Pelagic Cormorant	Breeding and Roosting		200
			Double-crested Cormorant	Breeding and Roosting		250
			Common Murre	Unspecified		500
DeLong Lake	61.1634	-149.9594	Mew Gull	Breeding		6
			Arctic Tern	Not Applicable	0	0
			Bonaparte's Gull	Breeding		3
			Herring Gull	Not Applicable	0	0
Delta Island	61.2814	-150.5514	Glaucous-winged X Herring Gull Hybrid	Breeding	300	
			Glaucous-winged Gull	Breeding	400	
Dick 2	59.2068	-151.1907	Glaucous-winged Gull	Breeding	20	
			Black-legged Kittiwake	Breeding	800	
			Tufted Puffin	Breeding	60	
			Pelagic Cormorant	Breeding	100	
Douglas River Islands	59.0744	-153.7575	Horned Puffin	Breeding and Roosting		4
			Tufted Puffin	Unspecified		
			Pigeon Guillemot	Breeding and Roosting		4
			Double-crested Cormorant	Breeding and Roosting		100
			Glaucous-winged Gull	Breeding	80	
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding	140	
Dry Bay	59.6739	-153.1443	Glaucous-winged Gull	Breeding	24	
Duck Flats & Coffee Point	61.4900	-149.4806	Mew Gull	Breeding		1200
			Herring Gull	Breeding	60	
			Arctic Tern	Breeding		30

East Aialik Peninsula	59.7539	-149.5411	Horned Puffin	Breeding	150	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
East Amatuli Island	58.9157	-151.9905	Northern Fulmar	Breeding	120	
			Pigeon Guillemot	Breeding	300	
			Fork-tailed Storm-petrel	Breeding	130000	
			Pelagic Cormorant	Breeding	80	
			Black-legged Kittiwake	Breeding	18300	
			Leach's Storm-petrel	Breeding		
			Horned Puffin	Breeding	1720	
			Red-faced Cormorant	Breeding	100	
			Glaucous-winged Gull	Breeding	600	
			Tufted Puffin	Breeding	74000	
			Black Oystercatcher	Breeding	30	
			Ancient Murrelet	Breeding	700	
			Common Murre	Breeding		35777
			Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		30
East Arm	59.5619	-150.4036	Glaucous-winged Gull	Breeding	120	
East Arm North	59.6306	-150.3294	Glaucous-winged Gull	Breeding	40	
			Arctic Tern	Breeding	6	
East Chugach Island	59.1336	-151.4319	Tufted Puffin	Breeding	20	
			Glaucous-winged Gull	Breeding	40	
Elizabeth Island	59.1600	-151.8311	Red-faced Cormorant	Breeding		
			Tufted Puffin	Breeding	20	
			Pelagic Cormorant	Breeding		
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding	60	
Entrance Rock	59.6258	-153.4572	Black Oystercatcher	Breeding and Roosting		6
			Glaucous-winged Gull	Breeding	10	
Flat Island	59.3289	-151.9939	Tufted Puffin	Breeding and Roosting	3752	
			Pigeon Guillemot	Breeding and Roosting	22	
			Horned Puffin	Breeding and Roosting	4	
Fortification Bluff	59.4323	-153.7654	Pigeon Guillemot	Breeding and Roosting		12
			Glaucous-winged Gull	Breeding and Roosting		125
Fox River Flats	59.8056	-150.9814	Arctic Tern	Breeding	16	
Goose Bay Marsh	61.3858	-149.8969	Mew Gull	Breeding		45

			Arctic Tern	Breeding		12
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Arctic Tern	Breeding		8
			Mew Gull	Breeding	32	
Goose Lake	61.1950	-149.8169	Mew Gull	Breeding		23
			Herring Gull	Not Applicable	0	0
			Arctic Tern	Not Applicable	0	0
			Bonaparte's Gull	Not Applicable	0	0
			Mew Gull	Breeding	22	
Gore Point	59.1986	-150.9767	Tufted Puffin	Breeding	100	
			Pelagic Cormorant	Breeding	60	
			Glaucous-winged Gull	Breeding	50	
Granite Island	59.6419	-149.8010	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		500
			Red-faced Cormorant	Breeding	400	
			Black-legged Kittiwake	Breeding and Roosting		261
			Glaucous-winged Gull	Breeding and Roosting		1455
			Pelagic Cormorant	Breeding	8	
			Horned Puffin	Breeding		93
			Common Murre	Breeding		20
			Tufted Puffin	Breeding		14
			Black Oystercatcher	Breeding		3
			Pigeon Guillemot	Breeding		4
Grass Island	59.4986	-151.4903	Black-legged Kittiwake	Breeding	14	
Grewingk Glacier	59.6112	-151.1250	Arctic Tern	Breeding	60	
			Glaucous-winged Gull	Breeding	100	
			Mew Gull	Breeding	40	
Gull Island	59.5844	-151.3264	Unidentified Murre	Unspecified		
			Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Common Murre	Breeding and Roosting		5075
			Black-legged Kittiwake	Breeding	11368	
			Tufted Puffin	Breeding		28
			Horned Puffin	Unspecified		
			Red-faced Cormorant	Breeding	30	
			Pelagic Cormorant	Breeding	222	

			Thick-billed Murre	Unspecified		
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Double-crested Cormorant	Unspecified		
			Glaucous-winged Gull	Breeding and Roosting		713
			Pigeon Guillemot	Breeding		19
Gull Island (2)	59.8411	-152.9883	Black Oystercatcher	Unspecified		4
			Horned Puffin	Breeding		80
			Tufted Puffin	Breeding and Roosting		900
			Pelagic Cormorant	Breeding	2	
			Pigeon Guillemot	Breeding and Roosting		20
			Glaucous-winged Gull	Breeding	664	
			Common Eider	Breeding	4	
Gull Rock	60.9664	-149.7642	Glaucous-winged Gull	Breeding		28
Harbor Island	59.6697	-149.6536	Fork-tailed Storm-petrel	Unspecified		
			Pigeon Guillemot	Breeding		36
			Tufted Puffin	Breeding		268
			Rhinoceros Auklet	Breeding		7
			Horned Puffin	Breeding		513
			Common Murre	Breeding		2
			Glaucous-winged Gull	Breeding and Roosting		637
			Pelagic Cormorant	Breeding and Roosting		7
			Black-legged Kittiwake	Breeding and Roosting		334
			Double-crested Cormorant	Breeding and Roosting		15
Harrington Point	59.4560	-150.4979	Horned Puffin	Breeding	10	
			Pelagic Cormorant	Breeding	30	
Harris Bay Island	59.7731	-150.0422	Glaucous-winged Gull	Breeding	40	
			Mew Gull	Breeding	60	
			Arctic Tern	Breeding	80	
Headquarters Lake	60.4636	-151.0644	Mew Gull	Breeding		50
			Mew Gull	Breeding	30	
			Glaucous-winged Gull	Breeding		20
Heather Meadows	61.1778	-149.8864	Mew Gull	Breeding		86
			Arctic Tern	Not Applicable	0	0
			Bonaparte's Gull	Not Applicable	0	0
			Herring Gull	Not Applicable	0	0
			Mew Gull	Breeding		92

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Hesketh Island: Upper Cook Inlet	59.5075	-151.5143	Pigeon Guillemot	Breeding		20
			Horned Puffin	Breeding	4	
Hive Island	59.8839	-149.3730	Glaucous-winged Gull	Breeding	100	
			Common Murre	Breeding	40	
			Horned Puffin	Breeding	100	
			Red-faced Cormorant	Breeding	40	
			Tufted Puffin	Breeding	270	
			Pelagic Cormorant	Breeding	20	
			Double-crested Cormorant	Breeding	10	
Homer Airport	59.6372	-151.4738	Aleutian Tern	Breeding		105
Homer Deepwater Dock	59.6025	-151.4131	Black-legged Kittiwake	Breeding	38	
Homer Spit	59.6150	-151.4475	Common Eider	Breeding	20	
Hood Lake	61.1786	-149.9600	Arctic Tern	Not Applicable	0	0
			Herring Gull	Not Applicable	0	0
			Bonaparte's Gull	Not Applicable	0	0
			Mew Gull	Breeding		176
Hoof Point	59.4158	-150.3014	Pelagic Cormorant	Breeding	172	
			Tufted Puffin	Breeding and Roosting	1210	
			Glaucous-winged Gull	Breeding	170	
			Horned Puffin	Breeding and Roosting	1040	
			Red-faced Cormorant	Breeding	100	
Hope	60.9323	-149.6000	Glaucous-winged Gull	Breeding	300	
Iliamna Point	60.0431	-152.5811	Glaucous-winged Gull	Unspecified		15
Iniskin Island	59.6256	-153.4236	Glaucous-winged Gull	Breeding	438	
			Pelagic Cormorant	Breeding	2	
			Common Eider	Breeding	6	
			Tufted Puffin	Breeding	942	
			Black Oystercatcher	Breeding	4	
			Pigeon Guillemot	Breeding and Roosting		8
			Double-crested Cormorant	Breeding	98	
			Horned Puffin	Breeding	8	
Jim/Swan Lakes	61.5376	-148.9134	Mew Gull	Breeding		5

			Arctic Tern	Breeding		2
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Kalifonsky	60.4367	-151.2500	Aleutian Tern	Breeding and Roosting		24
			Arctic Tern	Unspecified		10
			Mew Gull	Unspecified		15
Kamishak Islands	59.1103	-153.8819	Glaucous-winged Gull	Unspecified		300
			Black Oystercatcher	Unspecified		2
			Horned Puffin	Breeding	2	
			Tufted Puffin	Breeding	38	
			Pigeon Guillemot	Breeding	2	
Kenai Bridge	60.5339	-151.2039	Arctic Tern	Breeding and Roosting		12
			Mew Gull	Breeding and Roosting		16
			Aleutian Tern	Breeding and Roosting		30
Knoll Head	59.6381	-153.5186	Glaucous-winged Gull	Breeding	86	
			Tufted Puffin	Unspecified		15
			Black Oystercatcher	Breeding and Roosting		6
			Horned Puffin	Unspecified		40
			Pigeon Guillemot	Unspecified		10
			Black Oystercatcher	Unspecified		2
			Tufted Puffin	Breeding and Roosting		6
			Glaucous-winged Gull	Breeding	8	
			Pigeon Guillemot	Breeding and Roosting		10
			Pelagic Cormorant	Breeding	88	
			Double-crested Cormorant	Breeding	26	
			Horned Puffin	Breeding and Roosting		10
Lone Rock	59.5753	-149.6217	Horned Puffin	Breeding	40	
			Tufted Puffin	Breeding	80	
			Northern Fulmar	Breeding	14	
			Glaucous-winged Gull	Breeding		115
Matushka Island	59.6097	-149.6283	Tufted Puffin	Breeding		1061
			Black Oystercatcher	Breeding		2
			Pigeon Guillemot	Breeding		3
			Double-crested Cormorant	Breeding	2	
			Fork-tailed Storm-petrel	Breeding		
			Pelagic Cormorant	Breeding	12	
			Horned Puffin	Breeding		395

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Red-faced Cormorant	Breeding	26	
			Parakeet Auklet	Breeding		105
			Glaucous-winged Gull	Breeding and Roosting		853
			Common Murre	Breeding		
			Thick-billed Murre	Breeding		
			Unidentified Murre	Breeding		1044
			Rhinoceros Auklet	Breeding	1200	
			Black-legged Kittiwake	Breeding		920
McNeil Cove	59.1256	-154.2092	Double-crested Cormorant	Breeding	16	0
			Glaucous-winged Gull			4
			Double-crested Cormorant	Breeding	16	
			Horned Puffin	Unspecified		
			Glaucous-winged Gull	Breeding		4
			Pigeon Guillemot	Unspecified		
McNeil Head	59.1230	-154.1713	Glaucous-winged Gull	Breeding	24	
			Double-crested Cormorant	Breeding	30	
			Tufted Puffin			18
			Horned Puffin			4
			Glaucous-winged Gull	Breeding	24	21
			Double-crested Cormorant	Breeding	30	20
McNeil Islet	59.1264	-154.1558	Glaucous-winged Gull			12
			Common Murre			2200
			Common Murre	Breeding		1000
Middle Nuka	59.3631	-150.6206	Glaucous-winged Gull	Breeding	170	
			Tufted Puffin	Breeding	10	
			Double-crested Cormorant	Breeding	10	
Mushroom Islets	59.6433	-153.4381	Tufted Puffin	Breeding and Roosting	76	
			Black Oystercatcher	Breeding and Roosting		4
			Common Eider	Breeding	6	
			Glaucous-winged Gull	Breeding	48	
Mushroom Rock	59.1094	-154.1722	Double-crested Cormorant	Unspecified		
			Glaucous-winged Gull	Unspecified		
			Tufted Puffin	Unspecified		
Natoa Island	59.6433	-149.6019	Common Murre	Breeding		
			Unidentified Murre	Breeding		540

			Thick-billed Murre	Breeding		
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Fork-tailed Storm-petrel	Unspecified		
			Glaucous-winged Gull	Breeding and Roosting		1452
			Parakeet Auklet	Breeding		25
			Tufted Puffin	Breeding		88
			Horned Puffin	Breeding		302
			Pelagic Cormorant	Breeding	24	
			Black-legged Kittiwake	Breeding		310
Neck Triangle	59.5631	-150.1375	Pelagic Cormorant	Breeding	20	
			Red-faced Cormorant	Breeding	40	
Nord Island	58.9667	-152.1500	Glaucous-winged Gull	Unspecified		
			Common Murre	Breeding		16423
			Ancient Murrelet	Unspecified		2
			Red-faced Cormorant	Unspecified		40
			Pigeon Guillemot	Unspecified		8
			Horned Puffin	Breeding	400	
			Tufted Puffin	Breeding	2000	
			Parakeet Auklet	Breeding	500	
			Black-legged Kittiwake	Breeding	28000	
			Black Oystercatcher	Breeding		
Nordyke Islands	59.1772	-154.0872	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		
			Common Eider	Unspecified		197
			Glaucous-winged Gull	Breeding and Roosting		886
			Horned Puffin	Unspecified		2
			Pigeon Guillemot	Breeding		18
			Tufted Puffin	Breeding		288
			Black Oystercatcher	Breeding		8
			Double-crested Cormorant	Roosting		6
			Horned Puffin			2
			Pigeon Guillemot			18
			Tufted Puffin	Breeding	200	288
			Glaucous-winged Gull	Breeding		886
North Douglas Point	58.9704	-153.4012	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		

			Glaucous-winged Gull	Unspecified		40
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Horned Puffin	Breeding		28
North Head	59.6264	-153.5544	Horned Puffin	Unspecified		15
			Glaucous-winged Gull	Breeding	12	
			Pelagic Cormorant	Breeding	26	
			Pigeon Guillemot	Unspecified		10
			Black Oystercatcher	Breeding		6
Northwestern Lagoon	59.7319	-149.8961	Arctic Tern	Breeding	150	
			Pigeon Guillemot	Breeding		100
			Glaucous-winged Gull	Breeding	170	
			Mew Gull	Breeding	90	
Nw Glacier Island	59.7911	-150.0378	Glaucous-winged Gull	Breeding	16	
Oas	61.1781	-149.9719	Bonaparte's Gull	Not Applicable	0	0
			Mew Gull	Breeding		20
			Arctic Tern	Breeding		20
			Herring Gull	Not Applicable	0	0
Oil Reef	59.6286	-153.3064	Unidentified Cormorant (Genus Phalacrocorax)	Unspecified	8	
			Tufted Puffin	Breeding and Roosting		15
			Pigeon Guillemot	Breeding and Roosting		10
			Pelagic Cormorant	Breeding	20	
			Double-crested Cormorant	Breeding	12	
			Glaucous-winged Gull	Breeding	10	
			Horned Puffin	Breeding and Roosting		6
Otter Lake	61.2908	-149.7336	Bonaparte's Gull	Breeding		5
			Arctic Tern	Breeding		2
			Herring Gull	Not Applicable		0
			Mew Gull	Breeding		24
			Mew Gull	Breeding	24	
			Arctic Tern	Breeding	2	
Outer Island	59.3500	-150.4067	Glaucous-winged Gull	Breeding	940	
			Black-legged Kittiwake	Breeding	1060	
			Horned Puffin	Breeding and Roosting	900	
			Red-faced Cormorant	Breeding	50	
			Fork-tailed Storm-petrel	Breeding and Roosting		

			Pelagic Cormorant	Breeding	120	
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Breeding and Roosting	4680	
Paint River	59.1577	-154.2368	Glaucous-winged Gull	Breeding	36	
			Glaucous-winged Gull	Breeding	36	41
Palmer Hay and Duck Flats	61.5055	-149.3754	Bonaparte's Gull	Breeding		6
			Arctic Tern	Breeding		45
			Mew Gull	Breeding		1289
Passage Island: Port Graham	59.3696	-151.8856	Tufted Puffin	Breeding	26	
			Pigeon Guillemot	Breeding		24
Perl Island	59.0903	-151.6942	Tufted Puffin	Breeding	20	
Pilot Rock	59.7433	-149.4661	Glaucous-winged Gull	Breeding	20	
			Horned Puffin	Breeding	30	
			Tufted Puffin	Breeding	10	
Point Posibshi: Kenai Peninsula	59.4245	-151.8875	Tufted Puffin	Breeding	20	
Pomeroy Island	59.6172	-153.3733	Pigeon Guillemot	Breeding and Roosting		43
			Common Eider	Breeding	4	
			Tufted Puffin	Breeding and Roosting		500
			Horned Puffin	Breeding and Roosting		10
			Black Oystercatcher	Breeding and Roosting		6
			Glaucous-winged Gull	Breeding	116	
Port Of Anchorage	61.2303	-149.8897	Herring Gull	Breeding		4
			Arctic Tern	Breeding		8
			Mew Gull	Breeding		210
			Bonaparte's Gull	Not Applicable	0	0
			Arctic Tern	Breeding	6	
			Mew Gull	Breeding	146	
			Herring Gull	Breeding	4	
Postmark Bog	61.1817	-149.9897	Mew Gull	Breeding		20
			Arctic Tern	Not Applicable	0	0
			Bonaparte's Gull	Not Applicable	0	0
			Herring Gull	Not Applicable	0	0
Potter Marsh	61.0733	-149.8169	Mew Gull	Breeding	260	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Arctic Tern	Breeding	14	
			Herring Gull	Breeding	2	
			Herring Gull	Breeding		2
			Mew Gull	Breeding		260
			Arctic Tern	Breeding		15
			Bonaparte's Gull	Not Applicable	0	0
			Glaucous-winged X Herring Gull Hybrid	Breeding		
Rabbit Island	59.3761	-150.3750	Horned Puffin	Breeding and Roosting	30	
			Pelagic Cormorant	Breeding	4	
Redoubt Bay	60.7214	-151.9564	Mew Gull	Unspecified		
			Arctic Tern	Unspecified		
Rocky Bay Island	59.2311	-151.3992	Tufted Puffin	Breeding	1600	
			Pelagic Cormorant	Breeding	46	
			Glaucous-winged Gull	Breeding	20	
Rocky Cove	59.4697	-153.7036	Red-faced Cormorant	Breeding	30	
			Glaucous-winged Gull	Breeding and Roosting		24
			Pelagic Cormorant	Breeding and Roosting		75
			Tufted Puffin	Breeding and Roosting		6
			Double-crested Cormorant	Breeding	32	
			Pigeon Guillemot	Breeding		15
			Horned Puffin	Breeding and Roosting		50
Rugged Island	59.8561	-149.3800	Pigeon Guillemot	Breeding		
			Red-faced Cormorant	Breeding		
			Black-legged Kittiwake	Breeding		
			Double-crested Cormorant	Breeding		
			Glaucous-winged Gull	Breeding	100	
			Pelagic Cormorant	Breeding	20	
			Tufted Puffin	Breeding	10	
			Common Murre	Breeding	400	
			Horned Puffin	Breeding	260	
Rusty Mountain	60.2600	-152.8883	Glaucous-winged Gull	Unspecified		18
S.E. Nuka Island	59.3017	-150.7003	Red-faced Cormorant	Breeding	50	
			Pelagic Cormorant	Breeding	40	
			Glaucous-winged Gull	Breeding	50	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Scott Island	59.6375	-153.4322	Tufted Puffin	Breeding and Roosting	46	
			Black Oystercatcher	Breeding and Roosting		6
			Pigeon Guillemot	Breeding and Roosting		15
			Horned Puffin	Breeding and Roosting		15
Seal Rocks	59.5203	-149.6256	Red-faced Cormorant	Breeding	30	
			Northern Fulmar	Breeding		2
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding	4	
			Tufted Puffin	Breeding		171
			Double-crested Cormorant	Breeding		3
			Black-legged Kittiwake	Breeding and Roosting		85
			Glaucous-winged Gull	Breeding		34
			Horned Puffin	Breeding		10
Seward	60.1236	-149.3975	Mew Gull	Breeding	14	
			Arctic Tern	Breeding	26	
Shadura Lake Island	60.7025	-151.0175	Glaucous-winged X Herring Gull Hybrid	Breeding and Roosting		275
			Herring Gull	Breeding and Roosting		200
Shaw Island	59.0042	-153.3850	Common Eider	Breeding		34
			Ancient Murrelet	Unspecified		
			Glaucous-winged Gull	Breeding		3600
			Tufted Puffin	Breeding		105
			Pelagic Cormorant	Unspecified		
			Black Oystercatcher	Breeding		47
			Red-faced Cormorant	Unspecified		
			Pigeon Guillemot	Breeding		19
			Horned Puffin	Breeding		190
Slate Island	59.9147	-149.7144	Mew Gull	Breeding	30	
			Black Oystercatcher	Breeding	10	
			Horned Puffin	Breeding	110	
			Pigeon Guillemot	Breeding	100	
South Head	59.5983	-153.5536	Pigeon Guillemot	Breeding and Roosting		15
			Double-crested Cormorant	Breeding and Roosting		25
			Horned Puffin	Breeding and Roosting		30
			Pelagic Cormorant	Breeding and Roosting		10

South Renard Island	59.8969	-149.3415	Pelagic Cormorant	Breeding	4	
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Tufted Puffin	Breeding	20	
			Horned Puffin	Breeding	50	
Squab Island	59.9356	-149.7142	Glaucous-winged X Herring Gull Hybrid	Breeding		2
			Mew Gull	Breeding	2	
			Black Oystercatcher	Breeding		2
			Horned Puffin	Breeding	10	
			Glaucous-winged Gull	Breeding	1162	
Steep Point	59.4850	-150.2561	Pelagic Cormorant	Breeding	40	
			Glaucous-winged Gull	Breeding	50	
Sud Island	58.8956	-152.2096	Black Oystercatcher	Unspecified		3
			Parakeet Auklet	Unspecified		20
			Rhinoceros Auklet	Breeding	1500	
			Tufted Puffin	Breeding	2400	
			Glaucous-winged Gull	Breeding	800	
			Pigeon Guillemot	Breeding	50	
			Pelagic Cormorant	Breeding		
			Fork-tailed Storm-petrel	Breeding	10000	
			Horned Puffin	Breeding	400	
Sugarloaf Island	58.8833	-152.0333	Unidentified Cormorant (Genus Phalacrocorax)	Breeding	50	
			Double-crested Cormorant	Breeding		
			Horned Puffin	Breeding	800	
			Red-faced Cormorant	Breeding		
			Tufted Puffin	Breeding	6000	
			Pigeon Guillemot	Breeding	30	
			Black Oystercatcher	Breeding	10	
			Pelagic Cormorant	Breeding		
			Ancient Murrelet	Breeding		
			Glaucous-winged Gull	Breeding	3400	
			Fork-tailed Storm-petrel	Breeding	10000	
			Parakeet Auklet	Unspecified		15
Surok Point	59.6168	-150.0371	Pelagic Cormorant	Breeding	140	
			Glaucous-winged Gull	Breeding	20	

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Susitna Flats: Big Island to near Beluga River	61.2664	-150.7238	Arctic Tern	Breeding		21
			Mew Gull	Breeding		2172
			Glaucous-winged Gull	Unspecified		8
			Mew Gull	Breeding		2100
			Mew Gull	Breeding		3803
			Herring Gull	Breeding		
			Glaucous-winged Gull	Breeding		
			Arctic Tern	Breeding		
			Mew Gull	Breeding		3800
			Arctic Tern	Breeding		27
			Mew Gull	Breeding		1178
			Glaucous-winged Gull	Unspecified		4
			Arctic Tern	Unspecified		27
			Mew Gull	Breeding		1200
Taroka Arm	59.6025	-150.1200	Horned Puffin	Breeding	80	
			Tufted Puffin	Breeding	50	
Taylor Bay	59.2789	-151.0758	Black-legged Kittiwake	Breeding	30	
Toadstools	59.6294	-153.5042	Tufted Puffin	Breeding and Roosting		50
Trading Bay	60.9453	-151.6728	Mew Gull	Unspecified		1000
			Arctic Tern	Unspecified		
Try Triangle	59.7923	-149.7581	Horned Puffin	Breeding	10	
Turnagain Bog	61.1844	-149.9814	Mew Gull	Breeding		40
			Bonaparte's Gull	Not Applicable	0	0
			Herring Gull	Not Applicable	0	0
			Arctic Tern	Not Applicable	0	0
Tuxedni River	60.2208	-152.6531	Glaucous-winged Gull	Breeding	30	
Twin Islands	59.6694	-149.7153	Black-legged Kittiwake	Breeding		2
			Horned Puffin	Breeding		122
Twin Rocks	59.7544	-153.4139	Glaucous-winged Gull	Breeding	104	
UAA-APU Bog	61.1902	-149.8131	Bonaparte's Gull	Not Applicable	0	0
			Herring Gull	Not Applicable	0	0
			Mew Gull	Breeding		6
			Arctic Tern	Not Applicable	0	0

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
Unnamed Bay	59.2092	-151.2169	Black-legged Kittiwake	Breeding	400	
Unnamed Chiswell A.	59.5956	-149.5847	Horned Puffin	Breeding		48
			Pelagic Cormorant	Breeding	6	
			Double-crested Cormorant	Breeding		7
			Glaucous-winged Gull	Breeding		155
			Tufted Puffin	Breeding		587
			Fork-tailed Storm-petrel	Unspecified		
			Common Murre	Breeding		
			Unidentified Murre	Breeding		320
			Thick-billed Murre	Breeding		
			Black-legged Kittiwake	Breeding		555
Unnamed Chiswell B.	59.6131	-149.5997	Unidentified Murre	Breeding		527
			Common Murre	Breeding		193
			Thick-billed Murre	Breeding		328
			Horned Puffin	Breeding		36
			Tufted Puffin	Breeding		1281
			Glaucous-winged Gull	Breeding		61
			Black-legged Kittiwake	Breeding	852	
			Pelagic Cormorant	Breeding		5
			Double-crested Cormorant	Breeding	2	
Unnamed I. E. Of Big I.	61.3503	-150.5661	Glaucous-winged X Herring Gull Hybrid	Breeding		1200
			Glaucous-winged Gull	Breeding and Roosting		2050
Unnamed I. S. Of Bell I.	61.3986	-150.5092	Glaucous-winged Gull	Breeding and Roosting		175
Ushagat Island	58.9257	-152.2647	Double-crested Cormorant	Unspecified		
			Black Oystercatcher	Breeding and Roosting		20
			Pelagic Cormorant	Unspecified		
			Unidentified Cormorant (Genus Phalacrocorax)	Unspecified		200
			Glaucous-winged Gull	Unspecified		240
			Red-faced Cormorant	Unspecified		
			Parakeet Auklet	Unspecified		10
			Pigeon Guillemot	Unspecified		100
			Horned Puffin	Breeding	500	
			Tufted Puffin	Breeding	400	

Vert Island	59.6314	-153.4403	Pigeon Guillemot	Breeding and Roosting		4
Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
			Glaucous-winged Gull	Breeding	392	
			Tufted Puffin	Breeding and Roosting		125
			Black Oystercatcher	Breeding and Roosting		2
			Common Eider	Breeding	14	
West Amatuli Island	58.9333	-152.0500	Common Murre	Unspecified		10
			Parakeet Auklet	Unspecified		120
			Tufted Puffin	Breeding	50000	
			Black Oystercatcher	Breeding	20	
			Red-faced Cormorant	Breeding	300	
			Glaucous-winged Gull	Breeding	2000	
			Fork-tailed Storm-petrel	Breeding		
			Double-crested Cormorant	Breeding		
			Pelagic Cormorant	Breeding	1200	
			Horned Puffin	Breeding	1600	
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding		
Westdahl Cove Island	59.3314	-150.7722	Horned Puffin	Breeding	40	
White Gull Island	59.6175	-153.5722	Black Oystercatcher	Unspecified	2	
			Tufted Puffin	Breeding and Roosting		300
			Horned Puffin	Breeding and Roosting		12
			Pigeon Guillemot	Breeding and Roosting		4
			Pelagic Cormorant	Breeding	8	
			Glaucous-winged Gull	Breeding	284	
Wildcat Pass	59.3850	-150.3978	Pelagic Cormorant	Breeding	40	
			Tufted Puffin	Breeding and Roosting	30	
			Horned Puffin	Breeding and Roosting	30	
Windy Bay	59.2275	-151.4469	Black-legged Kittiwake	Breeding	30	
			Tufted Puffin	Breeding	80	
			Glaucous-winged Gull	Breeding	340	
10 Section	59.2347	-150.9403	Red-faced Cormorant	Breeding		
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding	400	
			Double-crested Cormorant	Breeding		
			Pelagic Cormorant	Breeding		

Name	Latitude	Longitude	Species Common Name	Site Use	No. Breeding Individuals	Total No. Individuals
16-21 Island	59.6531	-149.6272	Glaucous-winged Gull	Breeding		84
			Tufted Puffin	Breeding		51
			Common Murre	Breeding		10
			Parakeet Auklet	Breeding		12
			Horned Puffin	Breeding		172
			Black-legged Kittiwake	Breeding		4
			Red-faced Cormorant	Breeding and Roosting		4
			Unidentified Cormorant (Genus Phalacrocorax)	Breeding and Roosting		51
			Pigeon Guillemot	Breeding		4
17 Cove	59.8262	-149.6682	Horned Puffin	Breeding	10	
28 Section	59.4486	-150.2969	Tufted Puffin	Breeding and Roosting	150	
			Pelagic Cormorant	Breeding	10	
300 Island	59.7194	-149.5058	Glaucous-winged Gull	Breeding	70	
			Tufted Puffin	Breeding	500	
			Horned Puffin	Breeding	60	
35 Point	59.4372	-150.5958	Glaucous-winged Gull	Breeding	30	
			Red-faced Cormorant	Breeding	10	
60 Foot Rock	59.5497	-151.4639	Red-faced Cormorant	Breeding	2	
			Tufted Puffin	Breeding		2
			Pelagic Cormorant	Breeding	12	
			Common Murre	Breeding and Roosting		190
			Black-legged Kittiwake	Breeding	602	
			Glaucous-winged Gull	Breeding and Roosting		80
			Pigeon Guillemot	Breeding		3