

**PRINCE WILLIAM SOUND
SUBAREA CONTINGENCY PLAN**

**SENSITIVE AREAS
SECTION**

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SENSITIVE AREAS: INTRODUCTION

This section is intended for use by the On-Scene Coordinators (OSCs) 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 information should be available from on-scene resource experts when they become engaged in the response. This information is geared toward early response. If appropriate, natural resources trustees may be conducting natural resource damage assessment (NRDA) activities in conjunction with response activities. Information regarding NRDA activities should be directed to the natural resources trustees or to their appointed NRDA Liaison.

Often, the most detailed, up-to-date biological and resource use information will come from people who live and work in the impacted area. People from the local community are 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 Contingency 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 locations) include:

- *ARRT Oil Dispersant Guidelines for Alaska* (see *Unified Plan* Annex F, Appendix 1)
- *In Situ Burning Guidelines for Alaska* (see *Unified Plan* Annex F, Appendix 2)
- *Wildlife Protection Guidelines for Alaska* (see *Unified Plan* Annex G, Appendix 1)
- *Alaska Implementation Guidelines for Federal OSCs for the Programmatic Agreement on Protection of Historic Properties during Emergency Response under the National Oil and Hazardous Substances Pollution Contingency Plan Protection of Historic Properties* (see *Unified Plan* Annex M)

In addition, Federal OSCs in Alaska are working in cooperation with the U.S. Department of the Interior and the National Marine Fisheries Service to ensure response activities conducted meet Endangered Species Act requirements, in accordance with the 2001 *Inter-Agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the Federal Water Pollution Control Act National Oil and Hazardous Substances Pollution Contingency Plan* (see *Unified Plan* Annex K).

In addition, Annex N of the *Unified Plan* includes *Shoreline Cleanup and Assessment Guidelines*, which provide helpful information on cleanup options by shoreline type.

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

This section and the guidelines in the *Unified Plan* are also intended for use by facility/vessel operators in developing industry oil spill prevention and contingency plans. 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 the subarea contingency plan.

The definition of sensitive resources and their geographic locations requires use of field observations and data available from published and non-published materials or through additional field work. Identifying relative priorities among resources and resource uses takes considerable coordination and discussion among resource management agencies. With the limited time and funds available for subarea contingency plan development (there are ten such plans covering the state of Alaska), not all the detailed information about every possible resource at risk is included. Future updates to this document will continue to add information relevant to response activities.

The Prince William Sound Environmental Sensitivity Index (ESI) maps provide a concise summary of coastal resources that are at risk if an oil spill occurs. At-risk resources include biological resources (i.e., birds, fish, and marine mammals), sensitive shorelines (i.e., marshes and tidal flats), and human-use resources (i.e., mariculture facilities and parks). ESI maps can assist planners and responders in identifying vulnerable locations, establishing protection priorities, and developing cleanup strategies. The PWS ESI maps were created by NOAA working with state and federal government agencies and industry. The ESI maps are available online at:

<http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#Alaska>

or at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html#pws>.

In addition, a substantial effort to develop and refine a sensitive areas database has been undertaken by Alyeska Pipeline Service Company (Alyeska). This information has undergone extensive federal and state agency review and is incorporated, by reference, into this section (with the permission of Alyeska). The Alyeska information is available on a data disk, termed the Graphical Resource Database, as part of the Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan, Part 3, Supplemental Information Document (SID) #3, Section 2, and is not duplicated herein. How do agency people access this?

Many of the maps presented in this section are available online at:

<http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

Suggestions, comments, and more current information are requested. Please contact either:

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SENSITIVE AREAS: PART ONE – INFORMATION SOURCES

Agency	Resources	Point of Contact
FISH AND WILDLIFE AND HABITAT RESOURCES		
Alaska Department of Fish and Game	fish, shellfish, birds, terrestrial mammals, marine mammals	Division of Habitat Anchorage 907-267-2342
U.S. Department of the Interior	migratory birds, sea otters, walrus, polar bears, 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	Species protected by the Endangered Species Act and Marine Mammal Protection Act including sea lions, seals, whales, and listed anadromous fish in marine waters	Protected Resources Division Anchorage 907-586-7235
U.S. Department of Commerce, National Marine Fisheries Service	essential fish habitat	Habitat Conservation Division Anchorage 907-271-5006
U.S. Department of Commerce, National Marine Fisheries Service	effects of oil on fisheries resources, hydrocarbon chemistry, dispersants	Alaska Fisheries Science Center Auke Bay Laboratory 907-789-6000
U.S. Department of Agriculture	national forest lands	Chugach National Forest Anchorage 907-743-9521
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

Agency	Resources	Point of Contact
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 Anchorage 907-743-9521
Chugach Alaska Corporation	archaeological/historical sites on Native Corporation lands	Contact available?
SHORELINE TYPES		
U.S. Department of Commerce, National Oceanic & Atmospheric Administration	shoreline types, environmental sensitivity index maps	Scientific Support Coordinator Anchorage 907-428-4160 or 907-428-4143
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 907-267-2342
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 Anchorage 907-743-9521
U.S. Department of Defense	military installations and reservations	Alaska Command Anchorage 907-552-3944

Agency	Resources	Point of Contact
Local Governments: –Cordova –Valdez –Whittier –Chugach Alaska Corporation	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	Commercial Fisheries Division Anchorage 907- 267-2105
Alaska Department of Natural Resources	tideland leases	Division of Mining, Land, and Water Anchorage 907-269-8565
Alaska Department of Environmental Conservation	seafood processing	Division of Environmental Health Juneau 907-269-7644
U.S. Department of Commerce National Marine Fisheries Service	fishing permits, seasons	Sustainable Fisheries Division Juneau 907-586-7228
SUBSISTENCE, PERSONAL, AND SPORT USES		
Alaska Department of Fish and Game	subsistence and personal uses statewide and navigable waters, sport hunting and fishing	Sport Fish Division Anchorage 907-267-2218
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 907-586-7235

Agency	Resources	Point of Contact
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 Habitat Anchorage 907-267-2342
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
U.S. Department of Agriculture	campgrounds, cabins, recreation areas, trails, within the national forest system	Chugach National Forest Anchorage 907-743-9521
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 Habitat Anchorage 907-267-2342
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 907-271-6700

SENSITIVE AREAS: PART TWO - AREAS OF ENVIRONMENTAL CONCERN

A. BACKGROUND/CRITERIA

The following relative priority listing was developed by the Sensitive Areas Work Group, with representatives from state and federal agencies and the private sector. The list identifies priorities for resources by 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 On-Scene Coordinators for protecting 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; human food source disruption
- mortality -- wildlife, fish, other organisms (how many potentially killed in relation to abundance)
- animal displacement and sensitivity to displacement
- aesthetic degradation
- habitat availability and rarity
- sublethal 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, and/or other legal designation
- persistent concentration of oil or hazardous substances
- reproduction rate or re-colonizing potential
- relative importance to ecosystem
- potential for physical contact with spill--pathway of oil or hazardous substances
- resource sensitivity to response countermeasures

B. AREAS OF MAJOR CONCERN

Threatened or Endangered and Protected Species Habitat
Steller's Eider Wintering Areas
Steller Sea Lion Rookeries, Haulouts, and Critical Habitat
Humpback and Fin Whale Foraging Areas
Shoreline Geomorphology - Coastal Habitat Types:
River deltas
Marshes
Eelgrass Beds
Sheltered Tidal Flats
Sheltered Rocky Shores
Identified sand lance habitat
Sea Otter Concentration Areas (> 20)
Harbor Seal Haulout Areas (> 10)
Large Seabird Colonies (> 5,000)
Seabird Feeding Concentration Areas
Pigeon Guillemot Nesting and Immediate Nearshore Feeding Areas
Waterfowl and Shorebird Spring, Fall, or Winter Concentration Areas
Eagle Nest Sites
Anadromous Fish Streams: > 25,000 pink or chum spawners
> 5,000 coho salmon
> 1,000 sockeye spawners
Intertidal Salmon Spawning Areas
Large Freshwater Fish Systems
Herring Spawning Area
Land Management Designations
Federal: Wilderness
Wild and Scenic Rivers
National Natural Landmarks
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 Areas (including, but not limited to, setnet sites, aquaculture sites, hatcheries, etc.)
High Use Recreational Areas

C. AREAS OF MODERATE CONCERN

Species of Concern Habitat (Possible Threatened or Endangered)
Shoreline Geomorphology - Coastal Habitat Types:
Gravel Beaches
Mixed Sand & Gravel Beaches

Exposed Tidal Flats
 RIPRAP
 Coarse Grained Sand Beaches
 Sea Otter General Distribution Areas (< 20)
 Foraging/Transit Habitat for Minke Whales, Killer Whales, Dall's Porpoise, and Harbor Porpoise
 Harbor Seal Haulouts (5-10)
 Seabird Colonies (1,000 - 5,000)
 Waterfowl and Shorebird Nesting or Molting Concentration Areas
 Anadromous Fish Streams: 500 - 25,000 pink or chum spawners
 1,000 - 5,000 coho spawners
 50 - 1,000 sockeye spawners
 Moderately Sized Freshwater Fish Systems
 Clam Beds
 Bear Spring Concentration Areas
 Sitka Deer Coastal Feeding Concentration Areas
 Caribou Migration Routes
 Other Subsistence Harvest Areas
 Other Commercial Harvest Areas
 Other Recreational Use Areas
 Land Management Designations
 Federal: National Parks
 National Wildlife Refuges
 Research Natural Areas
 Native Allotments
 State: State Parks
 Cultural Resources/Archaeological Sites
 National Register Eligible Sites (Other Than Village Sites)
 Sites Adjacent To Shorelines

D. AREAS OF LESSER CONCERN

Coastal Geomorphology - Coastal Habitat Types:
 Fine-grained Sand Beaches
 Exposed Wave-cut Platforms
 Exposed Rocky Shores
 Harbor Seal Haulouts (< 5)
 Seabird Colonies (< 1,000)
 Raptor Feeding Areas
 Waterfowl and Shorebird General Distribution Areas
 Bear Fall Concentration Areas
 Anadromous Fish Streams: < 1,000 coho spawners
 < 500 pink or chum spawners
 < 50 sockeye spawners
 General Freshwater Fish Habitat
 Land Management Designations
 Federal: Public Lands
 National Forests
 National Preserves
 State: General Public Lands

NOTE: Chinook salmon occur in relatively small numbers in association with sockeye salmon, therefore, prioritization is based on the number of sockeye spawners.

E. AREAS OF LOCAL CONCERN

Some areas within the **Prince William Sound 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 have been identified as Areas Meriting Special Attention, Important Use Areas, Special Use Areas, or Sensitive Areas through the City of Cordova Coastal Management Program, Eyak Lake AMSA Cooperative Management Plan (Cordova), Valdez Coastal Management Program, or Whittier Coastal Management Plan. They are summarized below and outlined on the accompanying maps.

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
1. Eyak Lake	Important watershed area. Concern for protection of water quality. Presence of a variety of aquatic plants. Site provides habitat and breeding grounds for wildlife, birds (proximity to major bird migration routes) and fish. Area used for commercial, sport and subsistence fishing. Area used for recreational and scenic purposes.	Eyak Corporation, State
2. Keystone Canyon	Area used for recreational, scenic and transportation purposes. Historical value.	State
3. Mineral Creek Canyon	Site is an aquifer recharge area. Presence of historic sites. Area used for recreational and scenic purposes.	State
4. Robe Lake	System supports salmon, char and Dolly Varden; provides spawning and rearing habitat. Area provides habitat for waterfowl and marsh nesting birds as well as feeding grounds for brown/grizzly bears.	State

DESIGNATED AREA	REASONS FOR DESIGNATION	LAND OWNERSHIP/ VILLAGES TO CONTACT
5. Shotgun Cove/Emerald Bay Subdivision	Human use (harbor). Unique and vulnerable geologic and topographic features. Offers recreational opportunities.	(Tidelands) State (Upland areas) Chugach Alaska Corporation, City of Whittier, Federal, U.S. Forest Service, State
6. Valdez Duck Flats/Mineral Creek Islands	Highly productive biological area. Provides habitat for a variety of waterfowl, small mammals and marine mammals. Site is an important feeding area for migrating waterbirds during spring and fall.	City of Valdez, private, State
7. Whittier Port and Harbor	Port development. Offers recreational opportunities.	State (Public lands) Alaska Department of Natural Resources, Alaska Railroad, City of Whittier, U.S. Department of the Army Chugach Alaska Corporation (Native corporate lands)

SENSITIVE AREAS: PART THREE - RESOURCE SENSITIVITY

The following sensitivity tables were developed by the State and Federal Natural Resources Trustees with legislative responsibility for management and protection of these resources. This includes the following agencies: National Marine Fisheries Service, U.S. Fish and Wildlife Service, National Park Service, Bureau of Land Management, Alaska Department of Fish and Game, and Alaska Department of Natural Resources. This information is a summary derived from recent field studies, research reports, long-term monitoring, stakeholder input, and local knowledge. Periods and/or conditions when resources are of varying levels of concern (low, medium, high) with respect to affects from an oil spill are noted in the following tables. Susceptibility for each group of animals is year around unless otherwise noted in the Seasonal Sensitivity row that is added for the appropriate animal groups.

SHORELINE GEOMORPHOLOGY

CATEGORY	LOW	MEDIUM	HIGH
COASTAL HABITAT TYPES	Fine-Grained Sand Beaches Exposed Wave-cut Platforms Exposed Rocky Shores	Gravel Beaches Mixed Sand & Gravel Beaches Exposed Tidal Flats Coarse Grained Sand Beaches Rip Rap Structures	Marshes Eelgrass Beds 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			<p>Whales: Fin, Blue, Humpback, Sei, North Pacific right, Sperm</p> <p>Pinnipeds: Steller sea lion (Western DPS)</p> <p>Birds: Short-tailed albatross</p>
THREATENED SPECIES			<p>Birds: Steller's eider</p>
SPECIES OF CONCERN		<p>Birds: Harlequin duck, Black scoter, Barrow's goldeneye, Yellow-billed loon, Pelagic cormorant, Northern goshawk, Marbled murrelet, Kittlitz's murrelet, peregrine falcon, Olive-sided flycatcher</p> <p>Mammals: North American lynx, Montague tundra vole, Harbor seal</p> <p>Plants: <i>Draba yukonensis</i></p>	

SEA OTTERS

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

Sea Otter 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 (ON HAULOUTS)	< 5	5 - 10	> 10
HUMAN HARVEST	June 1 – Aug 31	Sept 1 - Sept 30	Oct 1 - May 31

Harbor Seal 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
HUMAN HARVEST	year around	April 1 - May 31	Sept 1 - March 31

Stellar Sea Lion Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 10	10-100	> 100
SEASONAL SUSCEPTIBILITY	May 16 - Aug 14	April 15 - May 15 Aug 15 - Oct 31	Nov 1 - April 14

Loon and Grebe Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Spring Migration					■							
Fall Migration								■	■	■		
Winter Concentrations	■	■	■	■							■	■

WATERFOWL
(Ducks and geese)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 100	100 - 1,000	> 1,000
SEASONAL SUSCEPTIBILITY	Nov 1 - Jan 31 ⁵	Feb 1 - April 14 May 16 - Aug 14	April 15 - May 15 Aug 15 - Oct 31
SPECIES DIVERSITY	1 - 3	4 - 6	> 6
HUMAN HARVEST	June 1 - Aug 31	Dec 1 - Dec 31	Jan 1 - May 31 Sept 1 - Nov 30

5. In Areas of Local Concern, (e.g., Valdez Duck Flats) where waterfowl concentrate during the winter, their susceptibility would be high.

Waterfowl Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Spring Migration					■							
Nesting/Rearing					■	■	■					
Fall Migration								■	■	■		
Winter Concentrations	■	■	■	■							■	■

MIGRATING SHOREBIRDS
(Sandpipers, surfbirds, dunlins, and plovers)

CATEGORY	LOW	MEDIUM	HIGH
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ABUNDANCE	< 100	100 - 1,000	> 1,000
SEASONAL SUSCEPTIBILITY	Nov 1 - Jan 31 May 16 - Aug 14	Feb 1 - April 14	April 15 - May 15 Aug 15 - Oct 31
SPECIES DIVERSITY	1	2-4	> 4

Shorebirds Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Spring Migration												
Fall Migration												

COLONIAL SEABIRDS
(Cormorants, Murres, Auklets, Puffins, Kittiwakes, Gulls, and Terns)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 1000	1000 - 5000	> 5000
SEASONAL SUSCEPTIBILITY	Oct 1 - Jan 31	Feb 1 - March 31	April 1 - Sept 30
SPECIES DIVERSITY	1 - 3	4 - 6	> 6
HUMAN HARVEST ⁷	June 1 - April 19		April 20 - May 31

- 7. Some species such as the common murre become more abundant in winter months.
- 8. Seabird eggs utilized by Native communities.

Seabirds Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
On Colonies												
Feeding near colonies												

OTHER SEABIRDS
(Pigeon guillemots, Murrelets, and others?)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 10	10-20	> 20
SEASONAL SUSCEPTIBILITY	Nov 1 - Jan 31	Feb 1 - March 31	April 1 - Oct 31
SPECIES DIVERSITY	1	2-3	>3

Seabirds Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
On Colonies												
Feeding near colonies												

RAPTORS
(generally Bald eagles)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 1 nest/3 coastal miles	1 nest/1 to 3 coastal miles	> 1 nest/coastal mile

Raptors (generally eagles) Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Nesting/Rearing												
Present near coast												

HERRING (including capelin/hooligan)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE (Biomass in Tons)	< 500	500 - 5,000	> 5,000
SEASONAL SUSCEPTIBILITY	Oct 1 - Feb 28	March 1 - March 31	April 1 - Sept 30
HUMAN HARVEST	Jan 1 - Feb 28	June 1 - Dec 31	March 1 - May 31

Herring Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Spawning												
Present nearshore												

SALMON (including hatchery fish)

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 500 spawners (pink & chum) < 50 spawners (sockeye) < 1,000 spawners (coho)	500 - 25,000 (pink & chum) 50 - 1,000 (sockeye) 1,000 - 5,000 (coho)	> 25,000 (pink & chum) > 1,000 (sockeye) > 5,000 (coho)
SEASONAL SUSCEPTIBILITY	Dec 1 - Jan 31	Feb 1 - April 30 Nov 1 - Nov 30	May 1 - Oct 31
SPECIES DIVERSITY	2 or less	2 - 4	4 and greater
HUMAN HARVEST		Oct 10 - May 15	May 15 - Oct 10

Salmon (including hatchery fish) Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults nearshore												
Spawning in streams												
Spawning intertidally												
Eggs/young development												
Smolt outmigration												
Adults return - interior												

FRESHWATER FISH SPECIES

GRAYLING

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	<50,000	50,000-100,000	>100,000
SEASONAL SUSCEPTIBILITY	Nov 1 - March 31	June 1 - Oct 31	April 1 - May 31
HUMAN HARVEST	Nov 1 - March 31	Oct 1 - Oct 31	April 1 - Sept 30

Grayling Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults Near Shore												
Spawning in Streams												
Eggs/young Development												

DOLLY VARDEN

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	<20	20 – 50	>50
SEASONAL SUSCEPTIBILITY	Dec 1 - Feb 28	June 1 - Aug 31	March 1 - May 31 Sept 1 - Nov 30
HUMAN HARVEST	Jan 1 - Feb 28	June 1 - Aug 31 Nov 1 - Dec 31	March 1 - May 31 Sept 1 - Oct 31

Dolly Varden Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults Near Shore												
Spawning in Streams												
Eggs/young Development												

CUTTHROAT TROUT

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	<20	20 - 50	>50
SEASONAL SUSCEPTIBILITY	Dec 1 - Feb 28	June 1 - Aug 31	March 1 - May 31 Sept 1 - Nov 30
HUMAN HARVEST	Jan 1 - Feb 28	June 1 - Aug 31 Nov 1 - Dec 31	March 1 - May 30 Sept 1 - Oct 31

Cutthroat Trout Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults Near Shore				■	■	■	■	■	■	■		
Spawning in Streams				■		■						
Eggs/young Development				■	■	■	■					

RAINBOW/ STEELHEAD TROUT

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 500	500 - 2,000	> 2,000
SEASONAL SUSCEPTIBILITY	Oct 16 - Nov 30	Dec 1 - Feb 28	March 1 - Oct 15
HUMAN HARVEST	Oct 16 - Nov 30	Dec 1 - Feb 28	March 1 - Oct 15

Rainbow/Steelhead Trout Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults Near Shore				■	■	■	■	■	■	■		
Spawning in Streams				■	■	■	■					
Eggs/young Development				■	■	■	■					

LAKE TROUT

CATEGORY	LOW	MEDIUM	HIGH
ABUNDANCE	< 3,000	3,000 - 6,000	> 6,000
SEASONAL SUSCEPTIBILITY	May 1 - May 31 Nov 1 - Nov 30	Dec 1 - April 30 June 1 - Aug 31	Sept 1 - Oct 31
HUMAN HARVEST	Oct 1 - Nov 30	Dec 1 - May 31 July 1 - Aug 31	June 1 - June 30 Sept 1 - Sept 30

Lake Trout Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Adults Near Shore					■	■	■		■	■	■	
Spawning in Streams									■	■	■	
Eggs/young Development	■	■	■						■	■	■	■

CLAMS and OTHER MARINE INVERTEBRATES (CHITONS)

CATEGORY	LOW	MEDIUM	HIGH
HUMAN HARVEST		June 1 - Aug 31	Sept 1 - May 31

Clams and Other Marine Invertebrates (Chitons) Critical Life Periods

	J	F	M	A	M	J	J	A	S	O	N	D
Spawning							[REDACTED]					
Planktonic Larvae							[REDACTED]					

LAND MANAGEMENT DESIGNATIONS

CATEGORY	LOW	MEDIUM	HIGH
FEDERAL LANDS	Public Lands National Forest Preserves	National Parks Wildlife Refuges	Wild & Scenic Rivers Green Island Research Natural Area Copper River Delta National Natural Landmarks Wilderness Areas
STATE LANDS	Public Lands ¹	State Parks	Critical Habitats Refuges

¹ Includes submerged lands out to 3 miles, and historic bays and inlets

CULTURAL RESOURCES/ARCHAEOLOGICAL SITES

CATEGORY	LOW	MEDIUM	HIGH
CULTURAL AND ARCHAEOLOGICAL SITES	Cultural Resources that do not meet National Register criteria	National Register eligible sites (excluding villages 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

A. INTRODUCTION

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

For coastal information, see the Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (Tanker Plan) (November 2002) by the Prince William Sound Response Planning Group, and Part 3, Supplemental Information Document (SID) #3, Section 2, which contain background information and data descriptions, including:

- (1) Salmon and other Anadromous Fish
- (2) Pacific Herring
- (3) Halibut and Groundfish
- (4) Crabs and Shrimp
- (5) Other Intertidal/Subtidal Invertebrates (Mussels, Clams, Oysters)
- (6) Birds (Water-Related, Shorebirds, Seabirds, Raptors)
- (7) Marine Mammals (Cetaceans, Pinnipeds, Sea Otters)
- (8) Terrestrial Mammals
- (9) Threatened and Endangered Species
- (10) Commercial Fisheries
- (11) Sport Fisheries
- (12) Human Use of Wildlife Resources
- (13) Subsistence Utilization of Fish and Wildlife Resources

The Prince William Sound Environmental Sensitivity Index (ESI) maps provide a concise summary of coastal resources that are at risk if an oil spill occurs. At-risk resources include sensitive shorelines, biological resources, and human-use resources as listed below:

- Shoreline Habitats
 - Exposed rocky shores
 - Exposed wave-cut platforms in bedrock
 - Fine- to medium-grained sand beaches
 - Mixed sand and gravel beaches
 - Gravel beaches
 - Riprap
 - Exposed tidal flats
 - Sheltered rocky shores
 - Sheltered rocky rubble slopes
 - Sheltered tidal flats
 - Salt- and brackish-water marshes
- Sensitive Biological Resources
 - Threatened and Endangered species
 - Birds
 - Diving birds
 - Gulls and terns
 - Alcid and pelagic birds
 - Raptors

- Shorebirds
 - Waterfowl
 - Nesting sites
- Fish
- Anadromous streams
- Invertebrates
- Marine Mammals
 - Pinnipeds
 - Whales
 - Sea Otters
- Human Use Features
 - Airports
 - Aquaculture sites
 - Hatcheries
 - Marinas and anchorages

The PWS ESI maps are available online at: <http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html#Alaska>

The Tanker Plan's automated Graphical Resource Database (November 2004) currently consists of the following data layers:

- | | |
|---|-------------------------------------|
| --Aerial Photo Locations | --Geographic Response Strategies |
| --Aquaculture Sites | --Salmon Collection & Release Sites |
| --Commercial Fishing Areas-Salmon | --Communities |
| --Community Sensitive Sites | --Bald Eagle Nest Sites |
| --Equipment Storage Sites | --Harbor Seal Sites |
| --Historic Harbor Seal Sites | --Harbor Seal Areas |
| --Herring Spawning Areas | --Hatchery Sites |
| --Marine Features | --Marsh Shoreline |
| --Recreation/Tourism Areas | --Research Areas |
| --Salmon Streams--all | --Salmon Index Streams |
| --Sea Lion Sites | --Sea Otter Concentration Areas |
| --Seabird Colonies | --Sheltered Tidal Flats |
| --Small Boat Harbors | --Subsistence Areas |
| --Waterfowl Concentration Areas | --Whales |
| --Shoreline Cleanup Assessment Team | --Land Features |
| --Eelgrass Bed Locations | --Valdez Marine Terminal |
| --Port Valdez Sensitive Area Tactical Guide | |
| --200 Foot Topographic Contours | --NOAA Charts |
| --Narrow Rivers | --Wide Rivers and Lakes |
| --Tidal Flats | --Land |
| --Shoreline | --Chugach National Forest Shoreline |

The Graphical Resource Database also covers the Copper River Delta and coastal resources from the eastern Kenai Peninsula coast to Shelikof Strait, including Kodiak.

See the Environmental Atlas of the Trans Alaska Pipeline System (May 2002), by Alyeska Pipeline Service Company (Alyeska Atlas). The Alyeska Atlas, normally accessible by APSC employees electronically, has a hard copy version consisting of 25 maps covering the length of the Trans-Alaska Pipeline System (TAPS) and brief narratives about mammals, birds and fish found along the TAPS corridor. Each map has an overlay with the following types of information identified:

- (1) Recreation Sites/Areas
- (2) Scenic Areas
- (3) Special Areas
- (4) Subsistence Use Areas
- (5) Wildlife Areas (bears, bison, caribou, sheep, fox, wolf, grouse, moose, otter, raptor, swan, waterfowl, whale)
- (6) Fish Hatchery
- (7) Fish Stream (Anadromous, Non-anadromous, Overwinter)
- (8) Site, Den or Nest
- (9) Direction of View, Migration, Movement or Distribution
- (10) Oil Spill Containment Site

B. HABITAT TYPES

Shoreline habitats have been defined and ranked according to Environmental Sensitivity Index (ESI) standards produced by the National Oceanic and Atmospheric Administration (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>. NOAA has an online ESI Data Viewer to access these maps at <http://response.restoration.noaa.gov/maps-and-spatial-data/environmental-sensitivity-index-esi-maps.html>

1. Benthic Habitats

Oil vulnerability is lower in benthic (near bottom) areas than in the intertidal zone since contamination by floating slicks is unlikely. Sensitivity is derived from the species which use the habitat. Benthic habitats have not been traditionally classed by ESI rankings, but are treated more like living resources which vary with season and location. Benthic habitats include: submerged aquatic vegetation beds, large beds of kelp, worm reefs, coral reefs.

2. Shoreline Habitats

Habitats (estuarine, large lacustrine and riverine) ranked from least (#1) to most (#10) sensitive (see the following table) are described below:

ESI #1--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 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--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--Medium permeability substrate: substrate is permeable with oil penetration up to 25 cm,

slope is 5 to 15 degrees, rate of sediment mobility is high with accumulation of up to 20 cm of sediments in a single tidal cycle, sediments are soft with low trafficability, low densities of infauna.

ESI #5--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 percent is gravel, slope between 8 and 15 degrees, sediment mobility is high during storms, sediments are soft with low trafficability, low populations infauna and epifauna except at lowest intertidal levels.

ESI #6--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 trafficability 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 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 trafficability, high infaunal densities.

ESI #8--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 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 trafficability, infaunal densities are high.

ESI #10--Vegetated wetlands: marshes and swamps with various types of emergent herbaceous grasses and woody vegetation over flat mud to sand substrate—highly organic mud is common.

Alaska ShoreZone Coastal Habitat Mapping. An on-going coastal habitat mapping effort is producing an online database, digital maps, and color aerial imagery and videos of the coastline in the subarea. This geo-referenced data set collected at low tide includes coastal geomorphology and biological habitat for some intertidal and shallow subtidal areas.

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 (basic maps, topos, and satellite images). Also, habitat maps can be generated online for attributes such as Oil Residency Index, ESI, and sensitive biota (e.g., eelgrass).

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Alaska Regional Office hosts the Alaska ShoreZone web portal at:<http://alaskafisheries.noaa.gov/shorezone/>

The Nature Conservancy, an Alaska ShoreZone partner, also hosts an informative online website which has links to ShoreZone information. It can be accessed at: <http://www.shorezone.org>.

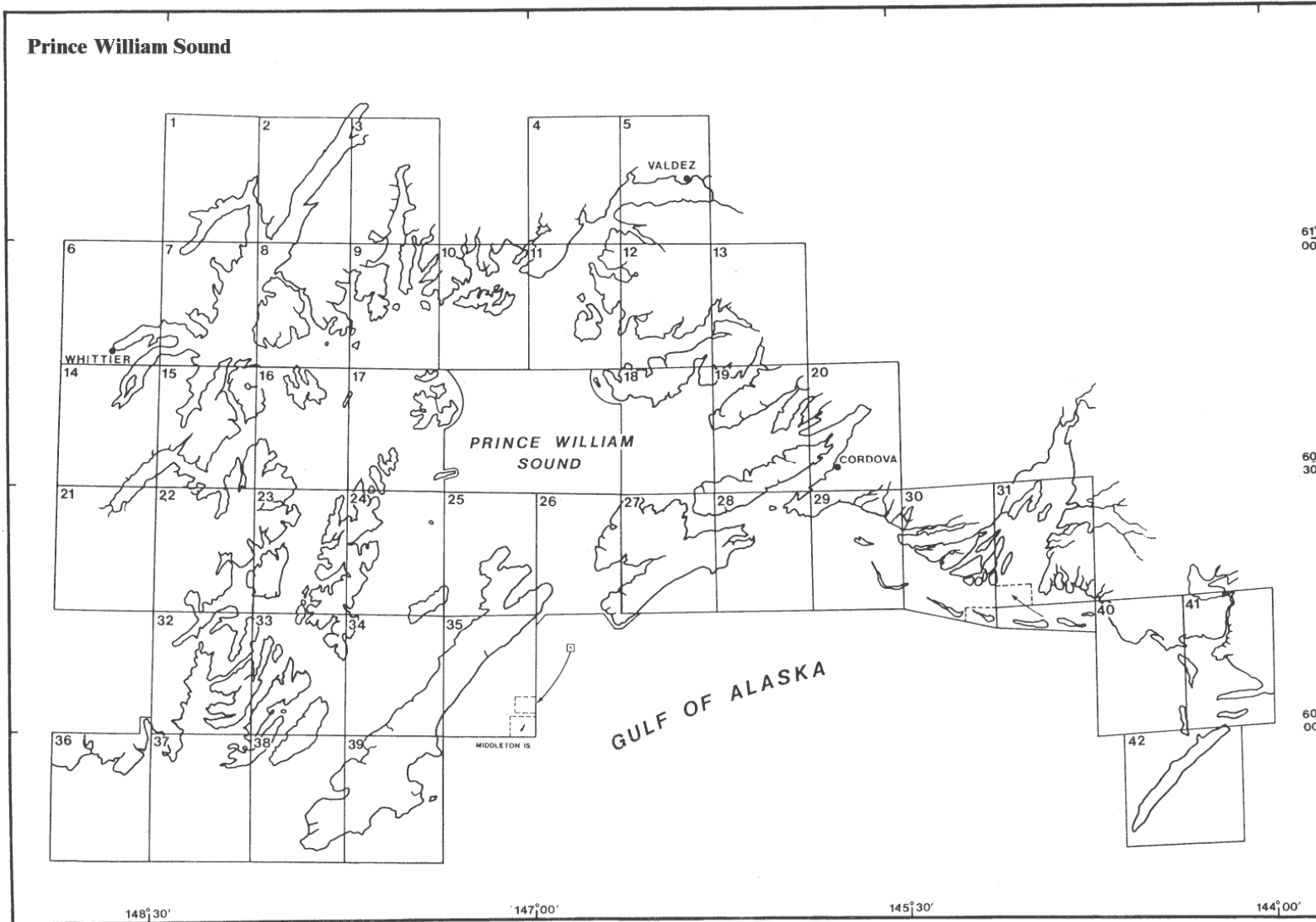
3. Upland Habitats

At this time, no uplands or wetlands classifications directly related to sensitivity to oil spills has been identified. A general wetlands classification has been developed by the U.S. Fish and Wildlife Service, National Wetlands Inventory, in Anchorage. Considerable mapping of wetlands has been completed, some of which are available in a Geographic Information System database (see the following figure). Updated map data is being placed on the National Wetlands Inventory Internet web site at: <http://wetlands.fws.gov/>. View a copy of the wetlands status map here: <http://www.asgdc.state.ak.us/maps/cplans/base/wetlands99.pdf>

ESI HABITAT RANKING

ESI NO.	ESTUARINE (marine)	LACUSTRINE (lake)	RIVERINE (large rivers)
1 A	Exposed rocky cliffs	Exposed rocky cliffs	Exposed rocky banks
1 B	Exposed sea walls	Exposed sea walls	Exposed sea walls
2	Exposed wave-cut platforms	Shelving bedrock shores	Rocky shoals; bedrock ledges
3	Fine- to medium-grained sand beaches	Eroding scarps in unconsolidated sediments	Exposed, eroding banks in unconsolidated sediments
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
6 A	Gravel beaches	Gravel beaches	Gravel bars and gently sloping banks
6 B	Riprap	Riprap	Riprap
7	Exposed tidal flats	Exposed flats	Not present
8 A	Sheltered rocky shores	Sheltered scarps in bedrock	Vegetated, steeply sloping bluffs
8 B	Sheltered sea walls	Sheltered sea walls	Sheltered sea walls
9	Sheltered tidal flats	Sheltered vegetated low banks	Vegetated low banks
10 A	Saltwater marshes		
10 B		Freshwater marshes	Freshwater marshes
10 C		Freshwater swamps	Freshwater swamps

“Environmental Sensitivity Index Guidelines” (October 1995) NOAA Technical Memorandum NOS ORCA 92



Environmental Sensitivity Index Map Atlas Index

C. BIOLOGICAL RESOURCES

1. Threatened and Endangered Species

Federally listed threatened and endangered species are protected under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). If response strategies are proposed in locations where migratory birds and/or marine mammals listed as threatened and/or endangered are (or may be) present, the Federal On-Scene Coordinator will need to immediately consult with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service (as appropriate) regarding the proposed strategies, in accordance with the Endangered Species Act Memorandum of Understanding (see the *Unified Plan*, Annex K). The northern right whale, humpback whale, blue whale, and short-tailed albatross are also on the State of Alaska’s endangered species list. The following species^a and critical habitat occur in this subarea:

Endangered Species Act of 1973 Protected Species and Critical Habitat			
Listed species	Stock	Latin Name	Status
Blue whale*		<i>Balaenoptera musculus</i>	Endangered
Bowhead whale*		<i>Balaena mysticetus</i>	Endangered
Fin whale*		<i>Balaenoptera physalus</i>	Endangered
Humpback whale*		<i>Megaptera novaeangliae</i>	Endangered
North Pacific right whale*		<i>Eubalaena japonica</i>	Endangered
North Pacific gray whale		<i>Eschrichtius robustus</i>	Endangered
Sei whale*		<i>Balaenoptera borealis</i>	Endangered
Sperm whale*		<i>Physeter macrocephalus</i>	Endangered
Steller sea lion*	Western population	<i>Eumetopias jubatus</i>	Endangered
Leatherback sea turtle*		<i>Dermochelys coriacea</i>	Endangered
Short-tailed albatross**		<i>Diomedea albatrus</i>	Endangered
Steller’s eider**		<i>Polysticta stelleri</i>	Threatened
Designated Critical Habitat			
Species Group	General Reference Area		
Whales*	No critical habitat has been designated for the above referenced whales in PWS.		
Steller’s eider**	No critical habitat has been designated for the above referenced birds in PWS.		

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

Steller sea lion*	Most of PWS and around Middleton Island and Cape St. Elias (50 CFR Part 226.12)
Pacific Salmon*	No critical habitat has been designated for salmon species in Alaskan waters.

* Managed by the National Marine Fisheries Service

** Managed by the U.S. Fish and Wildlife Service

The Alaskan bald and golden eagles, though not on the endangered species list, are fully protected (including their nests and nest trees) under the Bald Eagle Protection Act of 1940 and the Migratory Bird Treaty Act. Spill response activities that could affect these species should be coordinated with the U.S. Fish and Wildlife Service.

While the National Marine Fisheries Service has determined the Eastern North Pacific gray whale is no longer a threatened or endangered species, monitoring of the species has continued since the 1994 delisting. In addition, the critically endangered Western Pacific gray whale may be present offshore of Prince William Sound.

The eastern distinct population segment (DPS) of Steller sea lions was removed from the List of Endangered and Threatened Wildlife by NOAA in 2013. This population overlaps with the western DPS in the Prince William Sound Region; however, this subarea is west of the longitudinal separation of the two populations, and is considered habitat for the western DPS of Steller sea lions, which is listed as endangered.

All marine mammals, whether or not they are on the endangered species list, are protected by the Marine Mammal Protection Act of 1972. Any spill response activities, which could affect marine mammals, should be coordinated with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, as appropriate.

For updated information on the internet:

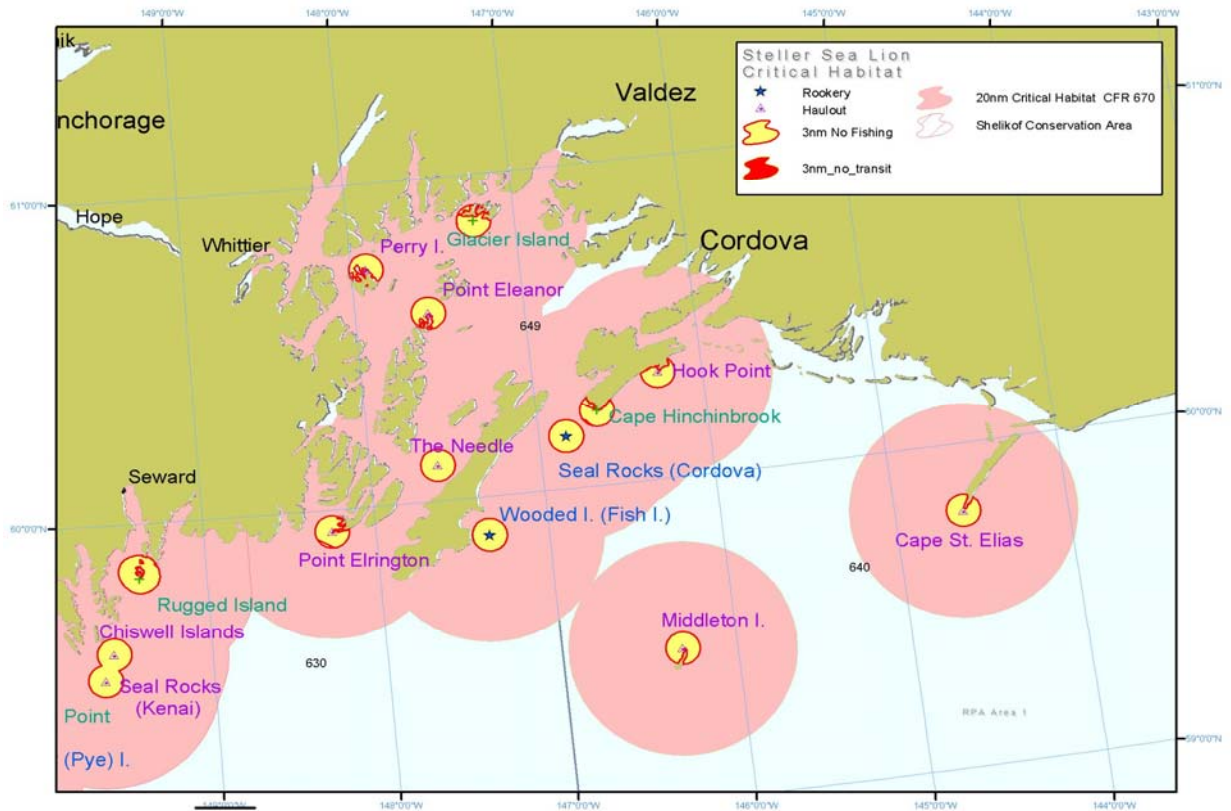
U.S. Fish and Wildlife Service National Threatened and Endangered Species web site:
<http://endangered.fws.gov/>

U.S. Fish and Wildlife Service Regional Threatened and Endangered Species web site:
<http://alaska.fws.gov/fisheries/endangered/index.htm>

The National Marine Fisheries Service Regional Threatened and Endangered Species website:
http://www.fakr.noaa.gov/protectedresources/esa/ak_specieslst.pdf

Alaska Department of Fish and Game Threatened and Endangered Species web site:
<http://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.akendangered>

Stellar Sea Lion Critical Habitat in Prince William Sound
(source: National Marine Fisheries Service)



2. Fish and Wildlife

(a) Fish

The Prince William Sound subarea is rich in biological resources. In addition to supporting a sizeable commercial fishing industry, the area is utilized by subsistence users, hunters and sport fishermen. Many islands in the Sound provide habitat for freshwater fish and provide anadromous spawning habitat. The National Marine Fisheries Service has classified all waters of Prince William Sound as essential fish habitat for: walleye pollock, Pacific cod, yellowfin sole, rock sole, flathead sole, arrowtooth flounder, sablefish, sculpin spp., pink salmon, chum salmon, Chinook salmon, and sockeye salmon.

Fin Fish

The waters of the Prince William Sound subarea are among the most productive in the world. Major freshwater systems of the region include the Copper River, Resurrection River, Bering River, and Eshamy River. Many of the nearshore waters along the Tatitlek Narrows have been designated as sensitive biological resources for fish. Most of the flowing waters and many of the lakes support populations of anadromous or resident species of fish. Lagoons and estuarine areas are important rearing and overwintering areas for anadromous fish. River deltas are particularly important areas for fish throughout the year. Shallow lakes, oxbows, and seasonally flooded wetlands connected to streams or rivers may support fish during the summer but may freeze to the bottom in winter. If the depth of the water exceeds that of the seasonal ice thickness, fish may be

found in a particular waterbody year-round. Deep lakes and rivers, and spring-fed stream systems serve as overwintering areas for fish in the Prince William Sound subarea.

Arctic Grayling spawn in May and June, typically in unsilted rapid-runoff streams and lake inlets and outlets; fry emerge by early June. Grayling commonly overwinter in deep, large rivers or lakes, or in smaller streams if adequate water quality and flow exists throughout the winter. No indigenous stocks of Arctic grayling occur in the Prince William Sound Management Area. ADF&G stocked 8 lakes with Arctic grayling along the Copper River Highway between Cordova and the Million Dollar Bridge since 1984 and in Thompson Lake near Valdez. Thompson Lake is the only site in Prince William Sound that Arctic grayling are presently being stocked. The annual average harvest from 1990-1999 is 202 arctic grayling.

Arctic Char/Dolly Varden are widely distributed throughout the Prince William Sound Subarea. Fish return to freshwater spawning and overwintering areas from July through December. Char spawn from August through November; fry emerge in April and May. Dolly Varden spawn from September to October and may live to 18 years. Most Dolly Varden live under 10 years. Char typically overwinter in lakes. The Robe River drainage is the assumed main overwintering site for various spawning stocks in the Valdez Arm. Migration of anadromous char from overwintering areas to marine feeding areas occurs from April to June. Important areas for Arctic char/Dolly Varden include Montague Island, Round Island, Controller Bay, Knight Island, Martin River Slough, Jackpot Bay, Cochrane Bay, Hawkins Island, Long Bay, Bering River and Resurrection River drainage. Montague and Knight Islands support rearing Dolly Varden. Eyak River provides important habitat for Dolly Varden.

Rainbow/Steelhead Trout occur in the Prince William Sound subarea. Rainbow trout (resident) are found in Copper River, on Round Island, and in Robe Lake. Steelhead (anadromous) are found in the Copper River Delta. Rainbow trout generally spawn during May and June, and fry emerge a few weeks to four months later. Steelhead spawn between mid April to June, and fry emerge during mid summer. Steelhead do not necessarily die after spawning. Many of these salmonids? will move slowly back to the ocean where, after at least one year, they may return to freshwater to spawn again. The annual harvest for rainbow trout between 1990-1999 in the PWS area is 474 fish. In 1999, the Board of Fisheries designated the Copper River Special Management Area. This designates all fresh waters south of Miles Glacier, east of Copper River (excluding the Clear Creek drainage), and west of Cape Suckling as catch and release, using only unbaited, single-hook, artificial lures in the area year-round.

Eulachon return in small numbers to PWS glacial streams to spawn. Eulachon are broadcast spawners, spawning in April or May. Females lay between 17,000-60,000 eggs. Most die after spawning. Spawning eulachon provide a feeding feast for bears, eagles, killer whales, beluga whales, seals, sea lions, gulls, and humans. Fish are used by the Tlinglet for oil and food. There are less than 6 eulachon spawning systems in Prince William Sound Management Area (PWSMA), including the Copper and Martin Rivers, and Alaganik and Ibeck sloughs.

Cutthroat Trout inhabit coastal areas from Prince William Sound south. PWS is the most northern and western extreme range for this species, making the Sound population small in size and distribution. They spawn in late April to early June, females producing from 750-1,200 eggs per pound of body weight. Many occur in streams, lakes, bogs, ponds and at sea. Life span varies depending on area, with lake residents living to 19 years, stream residents to 5 years, and sea-run to 10 years. Cutthroat trout are very sensitive to environmental change, pollution and introduced species. Rainbow trout often hybridize with cutthroat trout when they occur in the same area. Hawkins Island has an important spawning stream for cutthroat trout. Jackpot Bay supports several species of anadromous fish including cutthroat trout, Dolly Varden, and sockeye

salmon. Controller Bay supports cutthroat trout. The highest population of cutthroat trout in western Prince William Sound occurs in the Eshamy Bay system. Cutthroat trout rearing occurs on Knight Island. Eshamy Creek drainage and Green Island Creek were closed by emergency order No. 2-CT-6-02-92 in 1992 during the spawning season. A similar order was released in 1993. The Natural Resources Damage Assessment program collected information following the Exxon Valdez oil spill, which indicated that cutthroat trout in the oil-impacted area had reduced survival and growth. The annual sport fish harvest from 1990-1999 has averaged 614 fish. Sport harvest of cutthroat trout in 1999 for the PWSMA was 449 fish, which was 29% below the ten-year average. The three major harvest areas for sport fishing in PWS include: Eshamy drainage, Eyak drainage, and other Cordova road-accessible streams.

Chinook, coho, sockeye, pink, and chum salmon occur within the Prince William Sound Region. Adult salmon are present in freshwater from mid-March through early October, depending on the species of salmon and the stream system. Salmon eggs incubate in the stream gravels over the winter; fry emerge from stream gravels from mid March through early June. Chinook, sockeye, and coho fry remain in fresh water from one to four years before migrating to sea. Chum and pink salmon fry migrate to the sea shortly after emerging from the gravel. In 1990, Alaska outlawed the farming of salmon to protect native stocks from hybridization, pollution, disease and competition for food. The 1999 commercial salmon fishing harvest in Prince William Sound of 50.3 million fish is the highest in recorded history. Attachment two of this document provides average salmon escapement or average peak index counts for salmon streams in the Prince William Sound area.

Pink Salmon occur in over 200 streams in the Prince William Sound area that produce natural runs of pink salmon. Four hatcheries produce pink salmon for the PWSMA. Important wild pink salmon spawning streams are located in the Port Gravina area, while Sahlin Lagoon provides rearing habitat. Pink salmon utilize Montague Island. Nellie Martin River and Knight Island are major spawning areas for pink salmon. The Resurrection Bay pink salmon fishery is supported by natural pink salmon stocks that spawn in five streams at the head of the bay. Pink salmon spawn in the intertidal areas of most anadromous streams in the Sound, including the Cape Suckling area. The Copper River drainage supports pink salmon. The sport catch of 132,858 pink salmon in 1999 was the highest recorded since recording began in 1990. The 1999 Prince William Sound commercial harvest included 45 million pink salmon.

Sockeye Salmon- Sockeye salmon are found in select streams in the Prince William Sound area. In systems with lakes, juveniles usually spend one to three years in fresh water before migrating to the ocean in the spring as smolts. Sockeye salmon return to their natal stream to spawn after spending one to four years in the ocean. In mid-July to early October, sockeye run to Eshamy Lake to spawn, and they are present in the Eshamy Bay system in large numbers. Sockeye spawn in the Campbell River and associated systems leading into Controller Bay. Knight Island provides spawning and rearing habitat for sockeye salmon. Jackpot Bay also contains sockeye salmon. While in fresh water, juvenile sockeye salmon feed mainly upon zooplankton (such as ostracods, cladocerans, and copepods), benthic amphipods, and insects. Sockeye salmon continue to feed upon zooplankton (such as copepods, euphausiids, ostracods, and crustacean larvae) in the ocean, but also prey upon larval and small adult fishes (such as sand lance), and occasionally squid. Aboriginal people considered sockeye salmon to be an important food source and either ate them fresh or dried them for winter use. Sockeye salmon support one of the most important commercial fisheries on the Pacific coast of North America, are increasingly sought after in recreational fisheries, and remain an important mainstay of many subsistence users. The Copper River is world renowned for the production of Copper River sockeye (red) salmon and this river is a major commercial fishery. Historically the major recreational fisheries in PWS for sockeye have occurred at Eshamy, Cordova, Valdez, and Coghill. Sockeye fisheries at Coghill and

Eshamy have rebuilt from several years of poor returns. The average recreational harvest of sockeye salmon between 1990 to 1999 in the PWSMA was 6,116, with a harvest of 10,666 sockeye in 1999. From 1990 to 1999, there has been an increase of 163% in sockeye salmon recreationally harvested. According to the Prince William Sound Management Area 1999 Annual Finfish Management Report, 2 million sockeye were commercially harvested in the Sound in 1999.

Chum salmon are present through the Sound area and fry feed on small insects in streams and estuaries before forming into schools in salt water where their diet usually consists of zooplankton. Chum do not have a period of freshwater residence after emergence of the fry as do chinook, coho, and sockeye salmon. They are similar to pink salmon in this respect, except that chum fry do not move out into the ocean in the spring as quickly as pink fry. Significant chum salmon systems include Montague Island, Nellie Martin River, and Controller Bay. Sport fishers generally capture chum salmon incidental to fishing for other Pacific salmon in either fresh or salt water. Statewide sport harvest usually totals fewer than 25,000 chums. After entering fresh water, chums are most often prepared as a smoked product. In the last few years an average of 11 million chum salmon, worth over \$32 million, have been caught in Alaska. Most chum are caught by purse seines and drift gillnets, but fishwheels and set gillnets harvest a portion of the catch. In many areas they have been harvested incidental to the catch of pink salmon. The development of markets for fresh and frozen chum in Japan and northern Europe has increased their demand, especially in the last decade. The Alaska Department of Fish and Game has built several hatcheries primarily for chum salmon products. In recent years the chum salmon returning to Wally Norenberg hatchery on Esther Island have been targeted by sport anglers. On average, 1,724 chum salmon were harvested annually by sport anglers in the PWSMA from 1990 to 1999, with an average of 54% harvested in the Valdez Arm. Chum salmon natural and enhanced returns to Prince William Sound set a record in 1999. The commercial harvest of chum salmon in 1999 for the Prince William Sound area totalled 2.99 million.

Chinook Salmon is Alaska's state fish and is one of the most important sport and commercial fish native to the Pacific coast of North America. It is the largest of all Pacific salmon, with weights of individual fish commonly exceeding 30 pounds. Unlike other salmon species, Chinook salmon rear in inshore marine waters and are, therefore, available to commercial and sport fishers all year. This also makes them vulnerable to inshore marine pollutants year round. Juvenile Chinook in fresh water feed on plankton, then later eat insects. In the ocean, they eat a variety of organisms including herring, pilchard, sandlance, squid, and crustaceans. Catches of Chinook salmon in Southeast Alaska are regulated by quotas set under the Pacific Salmon Treaty. Resurrection Bay does not support any natural Chinook salmon returns; however, hatchery-produced fish supports the sport fishery in and near Resurrection Bay. Major waterways in the Copper River area contributing to the fisheries include Martin River, Eyak River, Mountain Slough, and Strawberry Channel. Areas closed to sport Chinook fishing include: Eccles Creek, Eyak Lake, Clear Creek upriver of the Carbon Mountain Bridge, and Hartney Creek (all near Cordova); all freshwater drainages of Valdez Arm except for a portion of Robe River and Solomon Gulch Creek; and all waters within 300 feet of a weir or fish ladder (Hoffman and Miller 2000). There is a major commercial and sport fishery for Chinook salmon in the Copper River Valley. The mean sport fishing harvest for chinook salmon in PWSMA from 1990 to 1999 is 1,417, while the average catch for that same period is 2,119. Sixty three thousand four hundred Chinook salmon were commercially harvested in 1999 in Prince William Sound.

Coho Salmon are extremely adaptable and occur in nearly all accessible bodies of fresh water—from large transboundary watersheds to small tributaries throughout Prince William Sound. Coho salmon enter spawning streams from July to November, usually during periods of high runoff. Run timing has evolved to reflect the requirements of specific stocks. The coho salmon

is a premier sport fish and is taken in fresh and salt water from July to September. The streams in the Cape Suckling and Copper River Delta areas contain coho salmon. Nellie Martin River is a major spawning area for coho. Spawning and rearing of coho occurs on Knight Island, and in the Campbell River and associated systems leading into Controller Bay. Areas closed to sport coho fishing include: Eccles Creek, Eyak Lake, Clear Creek upriver of the Carbon Mountain Bridge, and Hartney Creek (all near Cordova); all freshwater drainages of Valdez Arm except for a portion of Robe River and Solomon Gulch Creek; and all waters within 300 feet of a weir or fish ladder. Since 1990, the annual average coho salmon sport harvest in PWSMA has doubled. Popular sport fishing areas for coho salmon include the Valdez Arm, with 68% of the harvest in 1999, along the Cordova road system, and in Whittier. Eyak River is the most popular fishing area for coho along the Cordova road system accounting for 56% of the Cordova area harvest in 1999. The estimated sport fishing harvest in the PWSMA for coho salmon during 1999 was 53,089. The Copper River is a major commercial fishery for coho salmon. Commercial fisherman harvested 244,700 coho salmon in 1999 from Prince William Sound waters.

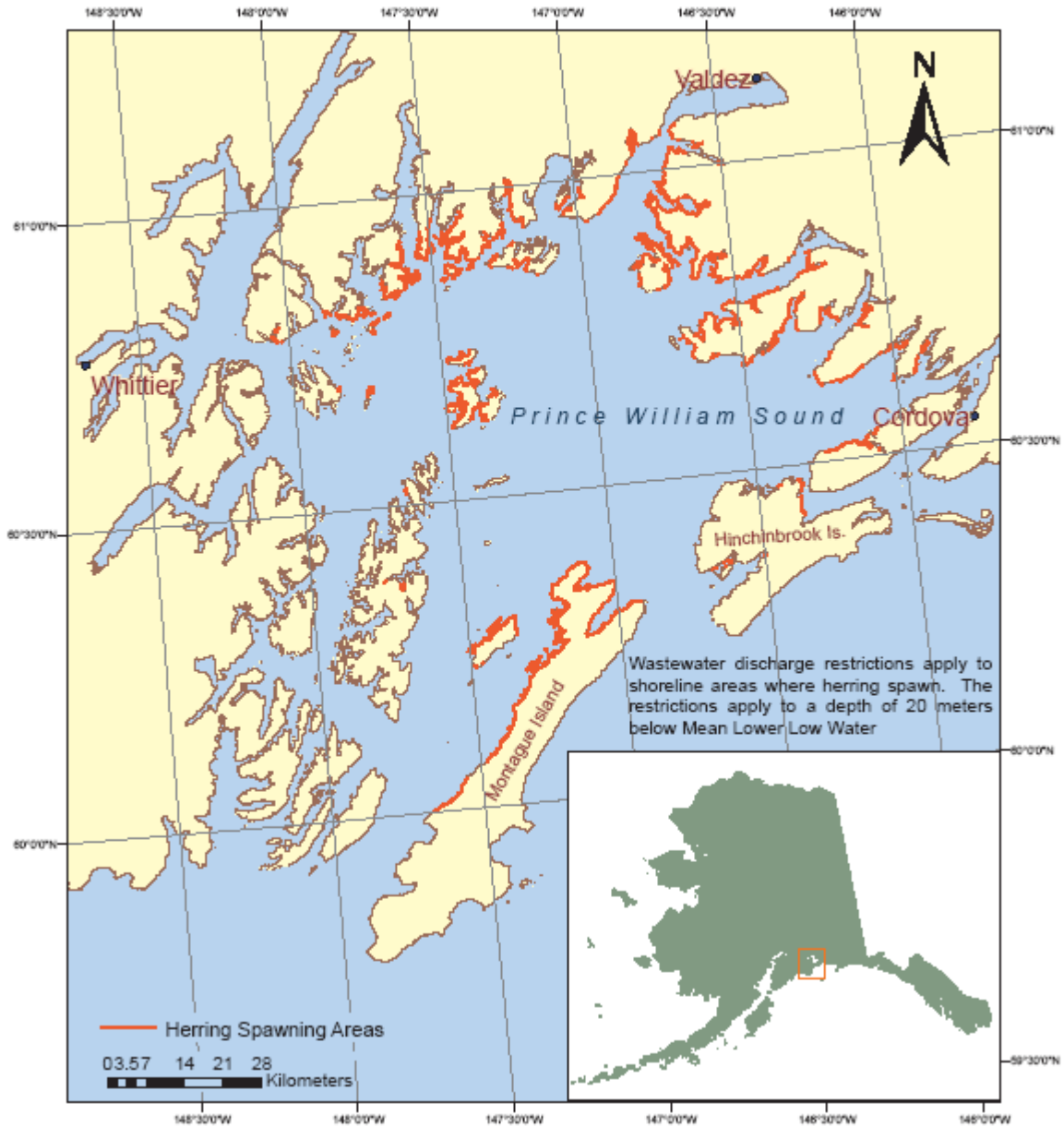
Pacific Herring are critically important in the Prince William Sound food web as many seabirds, fish and marine mammals rely on them as prey. Wide distribution of herring occurs from 50 to 100 meter depths and they aggregate in large schools for spawning in April in nearshore subtidal and intertidal areas. Herring biomass has ranged from 20,000 to well over 100,000 tons in the Sound. Spawning of Pacific herring occurs from late April to mid June. A major spawning area for herring extends from Stockdale Harbor around to Rocky Bay. Spawning also occurs in Sheep Bay, north side of Story Island, west sides of Naked Island, and Hells Hole in Port Gravina. Spawning occurs in intertidal and subtidal areas. Kelp or eelgrass is typically the preferred spawning substrates. Rearing juvenile herring are found at the mouth of St. Matthew's Bay in Sheep and Simpson Bays and at Knowles Head. At Jackpot and Whale Bays, major juvenile herring nurseries occur. A rich supply of nutrients at the Hinchinbrook Entrance supports spawning in May. The Tatilek Narrows support a major Pacific herring spawning area in the southern half of the Narrows, down into the mouth of Port Fidalgo. Pacific herring spawn on the north side of Fairmount Island. Overwintering grounds link Montague and Green Islands and are also found in Zaikof Bay and off Montague Point. Port Gravina holds a major over-wintering population.

Capelin are infrequently harvested, but are nevertheless important forage fish for higher trophic predators such as seabirds and marine mammals because of their high oil content. Capelin spawn on sandy to small gravel beaches. They typically spawn from May through July, but they are inconsistent in timing, location, and numbers from year to year. Capelin are infrequently repeat spawners. Much of their life history in the Prince William Sound area is unknown, but they are known to spawn at the Hinchinbrook Entrance and their larvae is known to increase in Chenega Bay in August.

Pacific Halibut are found through out the Prince William Sound area and are important for commercial, sport, and subsistence fishing. They spawn in deep water from 600 to 1,500 feet from November to January. The fertilized eggs hatch in about 15 days. Older halibut spend winters in? deep water along the continental shelf. In summer, adult halibut move to shallow coastal waters with depths from 90 to 900 feet. Halibut are able to eat a large variety of fishes (cod, turbot, pollock) plus some invertebrates such as crab and shrimp. Sometimes halibut leave the ocean bottom to feed on pelagic fish such as sand lance and herring. Halibut and their fisheries are managed under an international treaty, the Halibut Convention of 1982 and the 1979 Protocol. The International Pacific Halibut Commission was formed to assure

Herring Spawning Areas Prince William Sound, Alaska

Alaska Department of Environmental Conservation, November 2005



Not for Navigational purposes, map for identification of the herring spawning areas only

Data source: Alaska Department of Fish and Game, Commercial Fisheries Division

the optimal sustained yield of North Pacific halibut resources. In waters of the United States, halibut are governed under the Magnuson-Stevens Fishery Conservation and Management Act and the responsibility for allocation of the catch quota among fisheries falls to the North Pacific Fishery Management Council. The State of Alaska does not have direct management authority over halibut and halibut fisheries off Alaska. The average annual recreational harvest of Pacific halibut from 1990-1999 in the PWSMA was 21,210 halibut. Catch and harvest of halibut in PWS has increased dramatically. The average increase per year is 17% for recreational fishing. In 1983, the harvest of halibut was estimated at 3,493 and in 1999, the halibut harvest had risen to 27,600. As in the past, the majority of PWS halibut harvest (41%) in 1999 occurred from anglers out of Valdez.

Lingcod typically inhabit nearshore rocky reefs from 30 to 330 feet in depth. Lingcod is an increasingly popular recreational fish.

Groundfish. The following species are found through out Prince William Sound: arrowtooth flounder, flathead sole, Pacific cod, rock sole, sculpin, walleye pollock, and yellowfin sole. Pollock spawn in Hinchinbrook Entrance in April and May and their larvae may be susceptible to oil contamination at that time. Cod spawn in late winter or early spring and due to their abundance, they are extremely important to the ocean's food web. Yellowfin sole juveniles stay in the nearshore area for 3 to 5 years.

Other Forage Fish. Numerous species of fish inhabit nearshore areas and these populations are often dominated by sand lance and rainbow smelt which might comprise 40% of the nearshore fish by number. Sand lance is one of the most important forage fish in the Prince William Sound subarea. Rainbow smelt is also an important subsistence food (to several thousand pounds per community).

SHELLFISH

Dungeness Crabs are found from the intertidal region to a depth of 230 m. Dungeness crabs 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 to adults, but they generally occupy shallower depths than adults. Juvenile crabs can be very abundant in the intertidal zone, but also occur in shallow subtidal areas. Survival of young crabs is greatest in habitats such as intertidal zones and eelgrass beds, where they can gain refuge from predators. Two areas of major Dungeness crab concentrations occur at the Orca Inlet District and the Copper River District. Dungeness crab harvesting was closed in 1999 by the Board of Fisheries and in 2000, the Board of Fisheries closed Dungeness crab fishing throughout Prince William Sound.

King Crab. Three species of king crab are located in Prince William Sound: red, blue, and brown. Red king crab larvae generally exhibit a diel movement being most abundant in the upper water column during the day and deeper at night. Young of the year crab occur depths of 50 m or less. They are solitary and need high relief habitat or coarse substrate such as boulders, cobble, shell hash, and living substrates such as bryozoans and stalked ascidians. Between the ages of two and four years, there is a decreasing reliance on habitat and a tendency for the crab to form pods consisting of thousands of crabs. Podding generally continues until four years of age (about 6.5 cm), when the crab move to deeper water and join adults in the spring migration to shallow water for spawning. Adult red king crabs occur to a depth of 365 m; preferred habitat for reproduction is water less than 90 m. Red king crabs are sparsely distributed throughout Prince William Sound with historic concentrations occurring in eastern Prince William Sound and

Hinchinbrook Entrance. Blue king crabs are located in the Port Wells-Harriman Fjord area with small isolated populations associated with glacial fjords in western Prince William Sound. Brown king crabs occur at depths of 300-800 meters and are found in central and western PWS. They move into waters of less than 10 fathoms from about mid-February to June 1 to mate and molt. In response to shellfish survey findings of depressed stocks, emergency orders were issued to close the king crab fishery in Prince William Sound from 1990-1999.

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 develop is unknown, although it has been estimated at only 12 to 14 days. After settling to the bottom, Tanner crabs are widely distributed at depths up to 473 m. emales are known to form high density mating aggregations consisting of hundreds of crabs per mound. The mounds likely form in the same general location each year, but the location of the mounds is largely undocumented. Important rearing habitat occurs around the north end of Montague and the north end of Green Island as well as south between Montague and Green Islands. Emergency orders were issued to close the Tanner crab fishery in PWS from 1990-1999 due to shellfish survey findings of depressed stocks. In 1999, the BOF closed the tanner crab fishery in the PWSMA.

Weathervane scallops occur in the Prince William Sound area. Weathervane scallops are found on sand, gravel, and rock bottoms from 50-200 m. Generally, weathervane scallops are sexually mature at age 3 or 4 and are of commercially harvestable size at 6 to 8 years. Scallops are found in beds (areas of abundant numbers), and are dioecious, having separate sexes. Spawning occurs in June and July where the spermatozoa and ova are released into the water. In approximately one month hatching occurs and the larvae drift with the tides and currents. After two or three weeks the larvae will have gained shell weight, settled to the bottom, and attached to seaweed. Within four to eight weeks after settling, the juvenile will develop the ability to swim for locomotion. At this time, the juvenile scallop is approximately 3/8 of an inch in diameter and will take on the adult form. Scallops may live to age 18 and they feed by filtering microscopic plankton from the water. They have been commercially harvested throughout Alaska on a sporadic basis due to overharvesting scallop beds. Recent legislation has authorized bivalve farming in Alaska.

Shrimp. Pandalid shrimp (northern pink shrimp, humpy/flexed shrimp, spot shrimp/prawn, coonstripe shrimp, and sidestripe/giant red shrimp) are distributed throughout most major bays and certain nearshore and offshore areas in Prince William Sound. Spots and coonstripes are generally associated with rock piles, coral, and debris-covered bottoms, whereas pinks, sidestripes, and humpies typically occur over muddy bottom. Pink shrimp occur over the widest depth range (10-800 fathoms) while humpies and coonstripes usually inhabit shallower waters (3-200 fathoms). Spot shrimp seem to be caught in the greatest concentrations around 60 fathoms, but range from 2 to 250 fathoms. Sidestripes are typically found from 25 to 350 fathoms, but most concentrations occur in waters deeper than 40 fathoms. Most shrimp migrate seasonally from deep to shallow waters. Pandalid shrimp will eat a wide variety of items such as worms, diatoms, detritus (dead organic material), algae, and various invertebrates. Shrimp are an important part of the ocean food chain and are often the diet of large predator fish such as Pacific cod, walleye pollock, flounders, and salmon. Fisheries for shrimp have occurred in the Prince William Sound area with limited harvest occurring in western PWS. Pink shrimp generally comprise more than 80 percent of trawl landings. The major pot shrimp fisheries occur in Cook Inlet, Prince William Sound, and Southeast Alaska and usually total less than 500,000 pounds annually. Spot shrimp are the primary species caught in Prince William Sound and the waters of Southeast Alaska. During the 1999 Board of Fisheries Meeting, the Board reduced the number of pots allowed to no more than 5 pots per person with a maximum of 5 per vessel and defined the

season from April 15 to September 15 to help reduce harvest of egg-bearing females. Starting in 2001, a permit is required to harvest shrimp in Prince William Sound.

Razor clams live in surf-swept and somewhat protected sand beaches of the open ocean throughout Prince William Sound. They are found from approximately 4 feet above the mean low water level down to depths of 30 fathoms. Razor clams subsist on minute plants and animal life (plankton) filtered from the surrounding seawater. Razor clams concentrations are found in the Copper River Delta/Controller Bay area. Commercial harvest of razor clams in Prince William Sound has occurred since 1916 in the Cordova area. Annual production levels have fluctuated greatly reaching approximately 600,000 pounds in Cordova. The 1964 earthquake adversely affected razor clam populations in the Cordova area.

Pacific Little Neck Clams are commercially harvested throughout Prince William Sound.

Blue mussels are found throughout the Prince William Sound area and are densely packed around Port Gavina, LaTouche Island's Sleepy Bay, and Evans Island's Shelter Bay.

Essential Fish Habitat (EFH)

In 1996, Congress added new habitat provisions to the Magnuson-Stevens Fishery Conservation and Management Act, the federal law that governs U.S. marine fisheries management. Under the Magnuson-Stevens Act, each fishery management plan must describe and identify EFH, and identify other actions to encourage the conservation and enhancement of EFH. Federal agencies must consult with the National Marine Fisheries Service on any action they authorize, fund, or undertake that may adversely affect EFH, and the National Marine Fisheries Service must provide conservation recommendations to the federal and state agencies regarding any action that would adversely affect EFH. Reference information for EFH in the subarea, as identified by the National Marine Fisheries Service, can be found on their interactive mapping Internet site:

<http://www.fakr.noaa.gov/maps/>

An additional EFH resource is their interactive mapping internet site:

<http://www.habitat.noaa.gov/protection/efh/habitatmapper.html>

(b) Birds

Important Bird Habitats/Communities

Important Bird Area (IBA). The marine waters of Prince William Sound have been designated as a globally significant Important Bird Area by Audubon, as the U.S. Partner for BirdLife International. Important Bird Areas, or IBAs, are sites that provide essential habitat for one or more species of birds, including sites for breeding, wintering, and/or migrating birds. PWS is an IBA for the following species: Kittlitz's murrelet, pelagic cormorant, black scoter, marbled murrelet, Barrow's goldeneye, and harlequin duck.

More than 220 species of birds are found in the Prince William Sound region. Large numbers of waterfowl, seabirds, and shorebirds are found in Prince William Sound and the Copper River Delta during spring and fall migrations, with populations peaking during April and May. During spring bird migrations, some species concentrate in flocks of thousands, others in flocks of

hundreds of thousands. Many birds also breed in the region during the summer and overwinter in sheltered areas. . The more common water bird species for the region include common loon, yellow-billed loon, red-throated loon, , , double-crested cormorant, pelagic cormorant, great blue heron, Canada goose, green-winged teal, Barrow's goldeneye, northern fulmer, harlequin duck, long-tailed duck , white-winged scoter, surf scoter, black scoter, common merganser, red-breasted merganser, common murre, thick-billed murre, pigeon guillemot, marbled murrelet, Kittlitz's murrelet, ancient murrelet, horned puffin, and tufted puffin. A complete list of birds vulnerable to oiling impacts in the PWS subarea can be found in the Unified Plan: Annex G – Wildlife Protection Guidelines, Appendix 2 Species of Concern by Subarea: Migratory Birds.

Surfbirds. Tens of thousands of surfbirds are attracted to the herring roe in Rocky Bay from early March to mid-April. North Montague Island is also a migratory stopover for post-breeding surfbirds, rock sandpiper, and black turnstones numbering in the thousands. Seventy percent of the world's surfbird populations use Montague Island as their staging area as they prepare to migrate to inland alpine tundra.

Waterfowl. One third of the southwestern Sound harlequin duck population is found along Green and Channel islands. The eastern Sound population of harlequin duck is concentrated in Olsen Bay, Hell's Hole, and Sheep Bay. Harlequin ducks nest around Constantine Harbor. Wintering areas for harlequin duck and scoters include Harriman Fjord and Barry Arm. Eshamy Bay supports harlequin ducks wintering in the nearshore marine zone and they nest and brood on fast moving streams in the area. Harlequin ducks molt and winter in the Tatitlek Narrows. An important waterfowl migratory stopover has been designated on Patton Bay. Both Heather and Columbia bays have been identified as an important resource area for waterfowl.

Seabirds. 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 4-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 USGS Alaska Science Center and can be found at:

<http://alaska.usgs.gov/science/biology/nppsd/index.php>

See the following link for a regional summary Seabird Population Map.
<http://www.asgdc.state.ak.us/maps/cplans/pws/pws3seabird.pdf>

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 Colony Register is maintained by the U.S. Fish and Wildlife Service, Division of Migratory Bird Management, in Anchorage.

For updated information see the internet at:

http://axiom.seabirds.net/maps/js/seabirds.php?app=north_pacific&v=rand

In the southwest portion of Prince William Sound, almost two-thirds of the pigeon guillemot population resides with colonies on Evans Island. Tufted puffins have a large colony at Point Elrington and horned puffin, Arctic tern, black-legged kittiwake, pelagic and red-faced cormorant, common murre, and glaucous-winged gull also have colonies at Point Elrington. Glaucous-winged gulls are attracted to the herring roe in Rocky Bay in large numbers. The highest nesting densities of pigeon guillemot (1/4 of colonies nesting) in the Sound occur on Naked Island. One of the primary locations for marbled murrelet in the Sound is on Naked Island. Large congregations of seabirds including double-breasted and pelagic cormorant, glaucous-winged gull, pigeon guillemot, and tufted and horned puffin occur on the west side of Hinchinbrook Island in May.

Kittlitz's murrelet numbers have dropped dramatically over the last decade throughout Prince William Sound. The Kittlitz's murrelet population, found almost exclusively in Alaska, feeds and nests throughout PWS, but primarily occurs in glacial fjords. Fjords with high concentrations are Harriman and College fjords and Glacier and Heather Bays, with smaller numbers in Blackstone Bay and Port Nellie Juan. Marbled murrelets also nest and feed throughout PWS, particularly in areas with large old-growth trees. A smaller portion of the PWS marbled murrelet population nest on the ground in cliff crevices. Large numbers of tufted puffins, horned puffins and pigeon guillemot have been counted in this area. Marbled murrelets are known to nest at the north end of Green Island and there is a high density in foraging areas near Needle and Seal islands.

Glaucous-winged gull, mew gull, black-legged kittiwake, and Arctic tern occur and breed in PWS. Skilled birdwatchers can also spot the Aleutian tern and the Caspian tern. Parasitic jaegers often pursue gulls, terns, and kittiwakes making them disgorge their catch.

Every June, black-legged kittiwake are found at Knowles Head. Boswell Rock and Pinnacle Rock host a major kittiwake colonies. There are documented seabird colonies in 12 areas of Harriman Fjord and Barry Arm. Species within the colonies include pigeon guillemot, black-legged kittiwake, black oystercatcher, Arctic tern, and mew and glaucous-winged gull. Arctic terns and glaucous-winged gulls are present at Unakwik Reef. Arctic tern and glaucous-winged gulls breed on Danger Island. Porpoise Rocks contain large colonies of black-legged kittiwakes as well as common murre and tufted puffin and smaller colonies of glaucous-winged gull and horned puffin. Arctic tern, tufted puffin, and pigeon guillemot all nest around Constantine Harbor.

Areas identified as important for seabirds include Surprise Inlet, Patton Bay, and Serpentine Cove. The major seabird species on Patton Bay in descending order of abundance: tufted puffin, fork-tailed storm-petrel, black-legged kittiwake, Leach's storm petrel, glaucous-winged gull, three species of cormorant, pigeon guillemot, common murre, parakeet auklet, and horned puffin.

Shorebirds-The Sound's shorelines provide a varied assortment of invertebrates for shorebirds to feed on. Common shorebirds include the black oystercatcher, black turnstone, fork-tailed storm-petrel, surfbird, semipalmated plover, greater yellowlegs, spotted sandpiper, wandering tattler, common snipe, and least sandpiper. Black turnstones are attracted to the herring roe in Rocky Bay. More information can be found in Appendix 5 of the Alaska Shorebird Conservation Plan (2008) which identifies important areas for PWS. A copy of the plan can be found at:

<http://www.fws.gov/alaska/mbsp/mbm/shorebirds/plans.htm>

Black oystercatchers with their brilliant 3-inch long bills, bright orange eyes, and pale pink legs are common around Growler Island. Biologists estimate the world population at a mere 10,000 of which about 1,000 may live in Prince William Sound, occupying gradually sloping rocky spits left by the Pleistocene glaciers. Here, the black oystercatchers slowly stalk the tides in and out feeding on blue mussels and other invertebrates while nearby their young are hidden in the tall beach grasses from predators like bald eagles, ravens, and river otters. Black oystercatchers feed on urchins, crabs, and mussels in the Unakwik area. High densities of breeding black oystercatchers occur on Green, Little Green, and Channel islands and hundreds of black oystercatchers over-winter on Green Island, Stockdale Harbor, and Port Chalmers. Two Moon Bay in Port Fidalgo, Bligh Island, and Sheep Bay are considered prime habitat for oystercatchers. Black oystercatchers breed on Danger Island, and the shores of Prince of Wales Passages are considered important habitat. They are known to nest around Constantine Harbor.

Middleton Island supports about 700 breeding birds. PWS is home to at least 500 breeding oystercatchers with the largest concentrations in Harriman Fjord and along the coasts of Montague and Green Islands. The above areas alone comprise between 45-72% of the estimated global population.

PWS supports oystercatchers in winter, principally in Constantine Harbor on Hinchinbrook Island, and around Green Island east to the northern portion of Montague Island including Zaikof Bay and Port Chalmers.

Additional information can be found in the Black Oystercatcher Conservation Action Plan (2007). The plan can be found at:

http://www.whsrn.org/shorebirds/conservation_plans.html

Orca Inlet is a staging ground for hundreds of thousands of birds including dunlin, western sandpiper, least sandpiper, and dowitcher as they travel to their breeding grounds. In early May, the tidal flats of the Copper River Delta come alive with the activity of hundreds of thousands of shorebirds. As many as 5 million shorebirds rest and feed on the Copper River Delta during spring migration.

Passerines-The upland mosaic of PWS habitats provide nesting, resting, and feeding areas for a variety of birds including the rufous hummingbird, belted kingfisher, violet-green swallow, tree swallow, Steller's jay, black-billed magpie, common raven, northwestern crow, chestnut-backed chickadee, brown creeper, dipper, winter wren, varied thrush, hermit thrush, Swainson's thrush, golden-crowned kinglet, orange-crowned warbler, yellow warbler, Wilson's warbler, pine grosbeak, common redpoll, pine siskin, savannah sparrow, dark-eyed junco, golden-crowned sparrow, fox sparrow, Lincoln's sparrow, and song sparrow. Northwestern crows nest in the spruce copses around Growler Island and feed in the adjacent intertidal zones where one can watch them rolling over or shoving rocks aside with their bills as they seek worms and other invertebrates.

Raptors known to inhabit Prince William Sound include bald eagles and Peale's peregrine falcon. The breeding population of raptors in Prince William Sound is placed at 2,256 out of a North American population estimated between 71,000-96,000. Feeding habits of the bald eagle include preying on a wide variety of fish captured during flight. They also feed on carrion. Bald eagles concentrate at freshwater inlets of Eshamy Bay for the spawning sockeye salmon returning. There are approximately 1,638 eagle nests in the Prince William Sound area. 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 Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918. Spill response activities that could affect these species should be coordinated with the U.S. Fish and Wildlife Service.

(c) Marine Mammals

Harbor seals, Steller sea lions, sea otters, gray whales, fin whales, sei whales, minke whales, humpback whales, beluga whales, sperm whales Cuvier's beaked whales, killer whales, Dall's and harbor porpoises, Pacific white-sided dolphins may be present in the Sound. The Marine Mammal Protection Act of 1972 protects all marine mammals. Any spill response activities, that may affect marine mammals, should be coordinated with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service. Several species of endangered baleen whales migrate through the area and stop to feed in the Sound in the spring and summer. Large Steller sea lion rookeries are located on Seal Rocks and Wooded Island, and major haulouts are found on Pt. Elrington, the Needle, and Cape St. Elias. Several harbor seal haulouts are scattered throughout the Sound and near the mouth of the Copper River. Dense concentrations of marine organisms occur in the Sound, including all five species of Pacific salmon, herring, crab, shrimp, clams, mussels and a variety of intertidal organisms, which attract the populations of marine mammals. Local kelp and eelgrass beds are critical components of the marine ecosystem supporting marine mammals.

Killer Whales. Killer whales are commonly observed throughout Prince William Sound and inhabit both near-shore and mid-Strait areas with some preference for the southwestern section of the Sound. Approximately 300 individuals have been documented in this region. Sightings have been made throughout the year with peak occurrence between April and September. Two ecotypes exist in the area—resident pods (i.e., fish eaters) and transient groups (i.e., marine

mammals eaters). Specifically, resident killer whales follow and feed on salmon through Montague Strait and into areas within the Sound. Around Green Island transient killer whales have been reported to forage regularly on harbor seals. Transient killer whales also hunt harbor seals in Icy Bay and are known to hunt Dall's porpoises and harbor porpoises in the Knight Island Passage area. Attacks by transient killer whales on sea lions at the Needle have also been reported. Attacks by this top predator on marine mammals can occur throughout the Sound. In addition to the resident killer whale pods of PWS, two resident killer whale pods well-known from Southeast Alaska have been documented in the Sound. Superpods consisting of both PWS residents and Southeast Alaska residents have been observed in both July and August. All life processes occur in this area (e.g., feeding, mating, calving).

Humpback Whales. Prince William Sound represents a major feeding ground for the North Pacific humpback whale with site fidelity by whales documented for this regions. Peak numbers of humpback whales occur in PWS between early summer and late fall. Sightings, however, have been reported every month of the year. This species occupies both near-shore and mid-channel habitats. Humpback whales feed regularly in the Green Island area in July and August in groups of up to 30 individuals. Humpback whales also forage in the Southwest Passage and Knight Island Passage; the Knight Island Passage area represents a major migration corridor for humpbacks during the summer. Feeding bouts have also been reported in the Hinchinbrook Entrance area in July and August.

Gray Whales are not regularly found in Prince William Sound. They are alone among baleen whales in feeding predominantly on infaunal invertebrates. Gray whales are the only baleen whales that are mainly bottom feeders. They apparently feed by lying on their sides and sucking up sediment from the sea floor. The estimated daily consumption of an adult gray whale is about 2,600 pounds (1,200 kg). In the approximately five months spent in Alaska waters, one whale eats about 396,000 pounds (180,000 kg) of amphipod crustaceans. In 1948 the International Convention for the Regulation of Whaling banned all hunting of gray whales except by aboriginal people and by contracting governments when the meat and products are for aboriginal use. Eastern North Pacific gray whales have recovered slightly and their world population is now estimated at about 21,000. Western North Pacific gray whales are thought to number approximately 135 individuals and may rarely occur in the waters offshore of Prince William Sound.

Dall's Porpoise. Dall's porpoise are found throughout Prince William Sound primarily in mid-channel areas and occasionally in near-shore habitats. Year-round occurrence has been documented with seasonal peaks in spring and summer.

Harbor Porpoise. Harbor porpoise are also known to inhabit the waters of Prince William Sound. This species prefers near-shore habitats and has been documented during every month of the year in this region.

Harbor Seals are found in nearshore waters throughout the Prince William Sound Region. An estimated 12,300 inhabit the Sound and Copper River Delta (including Kayak Island) during their molting season in August. Harbor seals tend to aggregate in estuaries and protected waters, where they exhibit strong site fidelity. Habitats used for haulouts include cobble and sand beaches, tidal mud flats, sand bars, offshore rocks and reefs, and ice (frozen heads of bays and on floating ice in fjords). Harbor seals enter lakes and rivers on a seasonal basis most likely in search of prey. Known seal haulouts occur throughout the Prince William Sound area. Major haulout locations include: Fairmount Island, Applegate Rocks, Schooner Rocks, Icy Bay, Port Chalmers, Canoe Passage near Hawkins Island, Iktua Rocks, Danger Island, Agnes Island, Barry

Arm, Surprise Inlet, Nuchek, Little Smith Island, Big Smith Island, the northwest tip of Evans Island, the southwestern tip of LaTouche, Olsen Bay, Gravina Rocks, Gravina Island, Stockdale Harbor, Strawberry Channel, Egg Island Channel, Islands around the Copper River entrance into the Gulf of Alaska, Rocky Bay, Controller Bay, Kayak Island, Green and Little Green Islands, Seal and Channel Islands. Other haulouts include: off Lone Island, Story Island, and Perry Island.

Haulouts are used for pupping, molting, and resting, and may be used year-round; peak haulout use occurs during June through early October. Pupping occurs between late May and early July; most pups are born during the first three weeks of June and require about 3 weeks to wean. Molting occurs between late July to mid September. Portions of the marine waters of Port Etches have been designated as a sensitive biological resource for harbor seals. Ice calved from tidewater glaciers also provide resting areas for seals, with aggregations mapped near the Harriman, Surprise, Meares, Tiger, Nellie Juan, Yale, Blackstone, Harvard, Barry, and Chenega Glaciers. Surprise Inlet and Barry Arm are an important biological resource for seals. Columbia Bay has one of the highest harbor seal densities in the Sound with over 700 seals counted on the ice. Ice in the bay provides floating platforms for resting during pupping in early summer and molting in late summer through early fall. The Copper River, as it enters the Sound, provides a wealth of resources for harbor seals which aggregate there in large numbers, particularly at peak abundance in August. The few dozen haulouts in this region are estimated to host almost 7,000 individuals during the August molting season (see map below).

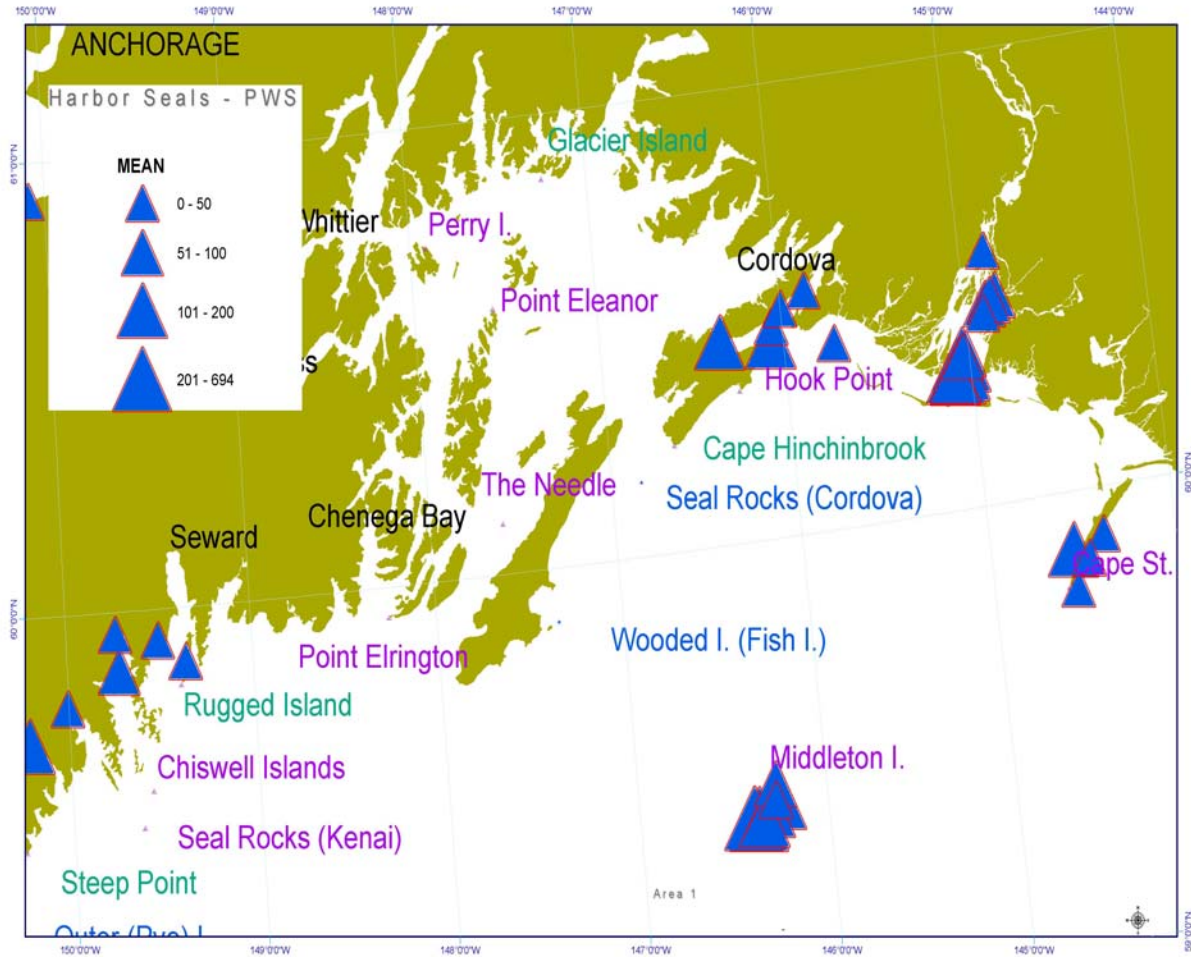
Sea Otters are estimated at 10,000 to 20,000 individuals occupying Prince William Sound with 90% of the world population residing in the near shore, coastal waters of Alaska. Extensive studies in Prince William Sound indicate that the recovery process may be constrained by oil spill residual effects. Food items preferred by the sea otters include crustaceans and mollusks, but they also eat fish and octopus. Sea otters often use stones to help crack shells of food items and frequently roll to clean their fur in the water. This is necessary to keep thermoregulation at an optimum since sea otters lack an insulating layer of fat (blubber) and they rely solely on their fur for insulation. Sea otters require ¼ of their weight in food daily and often bring up 40 to 50 pounds of whole shellfish per day to meet this requirement. The northwest coast of Montague Island provides excellent habitat for sea otters. High sea otter concentrations are found in Port Gravina, Sheep Bay, Simpson Bay, and around Surprise Glacier. Sea otters pup near the northeast end of Evans Island, and overwinter on the west side of LaTouche Island. Orca Inlet has one of the highest reported sea otter densities in the world. The nearshore waters and shoreline of Port Etches have been designated as concentration areas for sea otters. A high concentration of sea otters has been documented in Barry Arm. The Chugach National Forest has documented large numbers of sea otters around Wooden Island. Strong populations of forage fish and invertebrates in Tatitlek Narrows support large populations of sea otters. High concentrations of sea otters are also found in the Bligh and Busby islands. Sea otters utilize the shallow exposed waters in the lower half of Unakwik Inlet where greater benthic biomass exists. Eshamy Bay provides protected sea otter pupping areas and has been designated as a concentration area for sea otters. For more about sea otters: <http://www.r7.fws.gov/fisheries/mmm/seaotters/otters.htm>

Steller Sea Lion populations within Prince William Sound consist of both the Western Distinct Population Segment (WDPS) and Eastern Distinct Population Segment (EDPS). The WDPS has been listed as endangered by the Endangered Species Act since 1997. The EDPS was removed from the Endangered Species Act list in 2013. During May through August, territorial breeding behavior occurs on the rookeries. Pupping occurs from late May to early July; most pups are born during June. Steller sea lions use the Needle, Point Elrington, Glacier Island, Perry Island, and the Pleiades Islands as year-round haulouts. Steller Sea Lion rookeries in Prince William

Sound are Seal Rocks, Wooded Island, and the Chiswell Islands. The National Marine Fisheries Service has designated these rookeries as critical habitat for this endangered species. Patton Bay and the surrounding islands provide Steller sea lions with access to dense concentrations of forage fish. Fish Island has been used as a haulout of Steller sea lions since the 1970s. A major haulout located at Kayak Island in the Gulf of Alaska has approximately 144 individuals. Please see map below for further Steller sea lion critical habitat delineations.

Harbor Seals in Prince William Sound

(source: National Marine Fisheries Service)



(d) Terrestrial Mammals

Several species of large terrestrial mammals are abundant throughout the Prince William Sound area. Brown and black bear, moose, Sitka black-tailed deer, Dall sheep, and mountain goats are common throughout the Prince William Sound Region.

Sitka black-tailed deer were introduced throughout Prince William Sound between 1916 and 1923. During summer, deer generally feed on herbaceous vegetation and the green leaves of shrubs. During winter, they are restricted to evergreen forbs and woody browse. When snow is not a problem, evergreen forbs such as bunchberry and trailing bramble are preferred. During periods of deep snow, woody browse such as blueberry, yellow cedar, hemlock, and arboreal lichens are used. Woody browse alone, however, is not an adequate diet and deer rapidly deplete their energy reserves when restricted to such forage. Islands known to have concentrations of deer include Elrington, Montague, Bligh, Hawkins, Port Gravina, Mummy, Hinchinbrook, LaTouch, and Evans. The Prince William Sound population is estimated from 8,000 to 12,000 individuals and one estimate states that between 70% and 75% of the deer population in the Sound resides on Hawkins, Hinchinbrook, and Montague islands.

Moose occur in habitats throughout much of the Prince William Sound region, ranging from aquatic and riparian floodplains to sub-alpine willow-dominated areas. Sedge meadows, ponds and lakes with extensive aquatic vegetation, riparian and subalpine willow stands, and forested areas provide important summer habitat for moose. Important winter habitat includes shrub-dominated alpine and riparian areas, and forested areas. During fall and winter, moose consume large quantities of willow, birch, and aspen twigs. In some areas, moose actually establish a "hedge" or browse line 6 to 8 feet above the ground by clipping most of the terminal shoots of favored food species. Spring is the time of grazing as well as browsing. Moose eat a variety of foods, particularly sedges, equisetum (horsetail), pond weeds, and grasses. During summer, moose feed on vegetation in shallow ponds, forbs, and the leaves of birch, willow, and aspen. Riparian areas along the major rivers and tributary streams are particularly important during winter. Calving occurs in late May and early June, frequently in isolated marshy lowlands. Moose concentrations along the Copper River drainage are apparent

Brown Bears are distributed throughout Prince William Sound, with the exception of Middleton Island and small islands throughout the Sound. The population on Montague Island is recovering from over-harvesting in the 1970s and early 1980s. Bear concentrations may be found along rivers when spawning salmon are present. Brown bears consume a wide variety of foods including: berries, grasses, sedges, horsetails, cow parsnips, fish, ground squirrels, carrion, and roots of many kinds of plants. In some parts of Alaska, brown bears have been shown to be capable predators of newborn moose and caribou, also killing adults and domestic animals. Brown bears enter dens beginning in late October, with most bears denning by mid December. Bears emerge from their dens as early as mid March, depending on weather conditions. No census has been completed in Prince William Sound for population numbers, but population densities on the adjacent Copper River delta reportedly varies from 1 per 3.3 square miles to 4.6 square miles. Brown bears are abundant at the head of Port Gravina. Brown bears are very numerous in the Nellie Martin River area due to the abundance of pink and silver spawning salmon. Bears concentrate at the freshwater inlets of Eshamy Bay for the spawning pink and sockeye salmon returning from the sea. East of the line from Point Freemantle out Montague Strait is brown habitat. Both black and brown bears visit tidal flats in the spring to graze on the grass and sedge communities. This occurs from mid-late April through late June. Use of intertidal areas decreases during mid-summer, although individuals will visit to dig clams or

scavenge beached carcasses. Once the salmon return to streams in August, bears concentrate along the streams near tidewater to feed. In eastern PWS, brown bears mostly keep black bears away from streams. Brown bears will stay near salmon streams until the runs play out, sometimes into October

Black Bears are found throughout the Prince William Sound area with the exception of Montague, Hinchinbrook, Hawkins, Kayak, and Middleton islands, and several other small islands in Prince William Sound. The black bear is omnivorous, and they consume freshly sprouted green vegetation, carrion, fresh kills of young moose and deer, and berries. In western PWS, black bears feed on salmon during August and then head for berry country, usually in the higher elevations. They measure about 26 inches at the shoulder and about 60 inches from nose to tail. Male black bears weigh around 200 pounds in spring and about 20% more in fall before denning. Three color phases of black bear occur in Alaska; jet black, brown (or cinnamon), and blue. The blue color bears, or glacier bears, occur in a restricted coastal belt from Prince William Sound to the northern fringes of southeast Alaska. Black bears lack a prominent shoulder hump and usually have a conspicuous patch of white on their chests. Reported densities of black bears in Prince William Sound range from 2.5 bears per square mile to 8 to 10 per square mile.

Furbearers. Beavers, coyotes, red foxes, lynx, martin, mink, muskrats, land otters, and wolverines are all present in the Prince William Sound area. Historical information on population status is mostly anecdotal. ADF&G sealing monitors harvests of beavers, lynx, land otters, and wolverines. Lynx are relatively scarce in the area. It is suggested by C. Rhode that coyotes are relatively new to the area and did not become a dominant canine until 1938. Marten densities are variable, and excessive trapping is thought to result in low numbers in the Copper and Bering river areas.

In the Prince William Sound area, beaver, mink, and river otter are common inhabitants of aquatic and riparian floodplain and wetland areas, including marshes, ponds, lakes, streams, and rivers. Mink are considered to be common to abundant through the Sound area. They prey on a variety of animals and feed on anything they can capture and kill. They are adapted to capture aquatic and terrestrial prey including mammals, fish, birds, amphibians, crustaceans, and insects. Fish are their main food item. River otters are considered to be common to abundant in the Prince William Sound area. Diet of the river otters consist of fish, crustaceans, amphibians, insects, birds, and mammals. Fish compose the majority of the river otter's diet. High concentrations of river otters occur in the Blich and Busby islands due to the high quality intertidal and subtidal biota.

Wolves and Foxes are found throughout Prince William Sound, however they have not become established on the major islands where deer would be adequate prey. Wolves are carnivores, and in most of mainland Alaska moose and/or caribou are their primary food, with Dall sheep being important in limited areas. In Southeast Alaska, Sitka black-tailed deer, mountain goats, and beaver are the most important sources of food. During summer, small mammals including voles, lemmings, ground squirrels, snowshoe hares, beaver, and occasionally birds and fish are supplements in the diet. The rate at which wolves kill large mammals varies with prey availability and environmental conditions. A current Alaska Department of Fish and Game report for the Prince William Sound and north Gulf Coast area suggests a stable wolf population of 50-65 wolves in 8 packsolves and foxes select den sites where unfrozen, well-drained soils occur (e.g., dunes, river banks, and moraines). Wolves may initiate den construction in mid-April with pups being born from mid May through early June. Dens may be occupied until August. Red foxes have a reproductive pattern similar to that of wolves. They are relatively scarce in the

Prince William Sound area. The last significant harvest of red fox was in 1972 in Unit 6C and the fox is thought to have been displaced as coyote populations increased.

3. Vegetation

Rare plant species are identified below, as documented by the Alaska Natural Heritage Program. The map on the following page identifies the general locations of these rare plants. For more information, check the web site at: <http://aknhp.uaa.alaska.edu/botany/rare-plants-species-lists/>

RARE PLANTS KNOWN FROM THE PRINCE WILLIAM SOUND SUBAREA

Global Rank	State Rank	Scientific Name	Common name
G1G2	S1	<i>Arabis codyi</i>	
G1G2Q	S1	<i>Isoetes truncata</i>	TRUNCATE QUILLWORT
G1G2Q	S1S2	<i>Cochlearia sessilifolia</i>	
G1Q	S1	<i>Cryptantha shackletteana</i>	SHACKLETTES' CATSEYE
G1Q	S1	<i>Draba kananaskis</i>	TUNDRA WHITLOW-GRASS
G2G3	S2S3	<i>Douglasia alaskana</i>	ALASKA ROCK-JASMINE
G3	S1S2	<i>Lesquerella calderi</i>	CALDER'S BLADDER-POD
G3	S2	<i>Lupinus kuschei</i>	YUKON LUPINE
G3	S2	<i>Poa laxiflora</i>	LOOSE-FLOWERED BLUEGRASS
G3	S2S3	<i>Douglasia arctica</i>	MACKENZIE RIVER DOUGLASIA
G3	S2S3	<i>Oxytropis huddelsonii</i>	
G3	S2S3	<i>Phacelia mollis</i>	MACBRIDE PHACELIA
G3	S3	<i>Aphragmus eschscholtzianus</i>	
G3	S3	<i>Douglasia gormanii</i>	GORMAN'S DOUGLASIA
G3	S3	<i>Draba ruaxes</i>	RAINIER WHITLOW-GRASS
G3	S3	<i>Montia bostockii</i>	BOSTOCK'S MINER'S-LETTUCE
G3	S3	<i>Platanthera chorisiana</i>	CHORISO BOG-ORCHID
G3	S3	<i>Romanzoffia unalascensis</i>	UNALASKA MIST-MAID
G3	S3	<i>Rumex beringensis</i>	
G3	S3	<i>Stellaria alaskana</i>	ALASKA STARWORT
G3	S3	<i>Thlaspi arcticum</i>	ARCTIC PENNYCRESS
G3?	S2	<i>Phyllospadix serrulatus</i>	SERRULATE SURF-GRASS
G3G4	S1S2	<i>Draba porsildii</i>	PORSILD'S WHITLOW-GRASS
G3G4	S3	<i>Papaver alboroseum</i>	PALE POPPY
G3G4	S3S4	<i>Draba stenopetala</i>	ANADYR WHITLOW-GRASS
G3G4Q	S3S4	<i>Atriplex alaskensis</i>	ALASKA ORACHE
G3G4Q	S3S4	<i>Castilleja annua</i>	ANNUAL INDIAN-PAINTBRUSH
G3Q	S3	<i>Taraxacum carneocoloratum</i>	PINK-FLOWER DANDELION
G4	S1	<i>Carex adelostoma</i>	A SEDGE
G4	S1	<i>Carex laxa</i>	
G4	S1	<i>Carex sychnocephala</i>	MANY-HEADED SEDGE
G4	S2	<i>Carex heleonastes</i>	HUDSON BAY SEDGE
G4	S3	<i>Asplenium trichomanes-ramosum</i>	GREEN SPLEENWORT
G4	S3	<i>Colpodium vahlianum</i>	
G4	S3S4	<i>Festuca brevissima</i>	
G4	S4	<i>Erysimum pallasii</i>	PALLAS WALLFLOWER
G4?	S2	<i>Carex holostoma</i>	
G4G5	S2	<i>Lonicera involucrata</i>	
G4Q	S3	<i>Pedicularis macrodonta</i>	BIGTOOTH LOUSEWORT
G4T2T3Q	S2?	<i>Phlox richardsonii ssp richardsonii</i>	RICHARDSON'S PHLOX
G?	S2S3	<i>Elymus calderi</i>	
G4T3	S2?	<i>Draba lonchocarpa var vestita</i>	
G5	S1	<i>Agoseris glauca</i>	PALE FALSE-DANDELION
G5	S1	<i>Draba densifolia</i>	DENSE-LEAF WHITLOW-GRASS
G5	S1	<i>Viola sempervirens</i>	REDWOODS VIOLET

Global Rank	State Rank	Scientific Name	Common name
G5	S1S2	<i>Juniperus horizontalis</i>	
G5	S2	<i>Agrostis thurberiana</i>	THURBER BENTGRASS
G5	S2	<i>Ceratophyllum demersum</i>	COMMON HORNWORT
G5	S2	<i>Salix hookeriana</i>	HOOKE WILLOW
G5	S3	<i>Zannichellia palustris</i>	HORNED PONDWEED
G5	S3S4	<i>Malaxis monophyllos</i>	WHITE ADDER'S-TONGUE
G5	S3S4	<i>Minuartia dawsonensis</i>	
G5T2Q	S2	<i>Arnica lessingii ssp norbergii</i>	NORBERG ARNICA
G5T2T3Q	S2S3	<i>Smelowskia calycina var porsildii</i>	
G5T2T4Q	S2	<i>Dodecatheon pulchellum</i>	
		<i>ssp alaskanum</i>	ALASKAN PRETTY SHOOTING-STAR
G5T3	S3	<i>Astragalus harringtonii</i>	
G5T3Q	S3	<i>Carex lenticularis var dolia</i>	GOOSE-GRASS SEDGE
G5T3T4	S2	<i>Saxifraga nelsoniana ssp porsildiana</i>	HEART-LEAF SAXIFRAGE
G5T4Q	S2	<i>Trisetum sibiricum ssp litorale</i>	SIBERIAN FALSE-OATS
G5T5	S1	<i>Poa douglasii ssp macrantha</i>	

Species Ranks used by the Alaska Natural Heritage Program

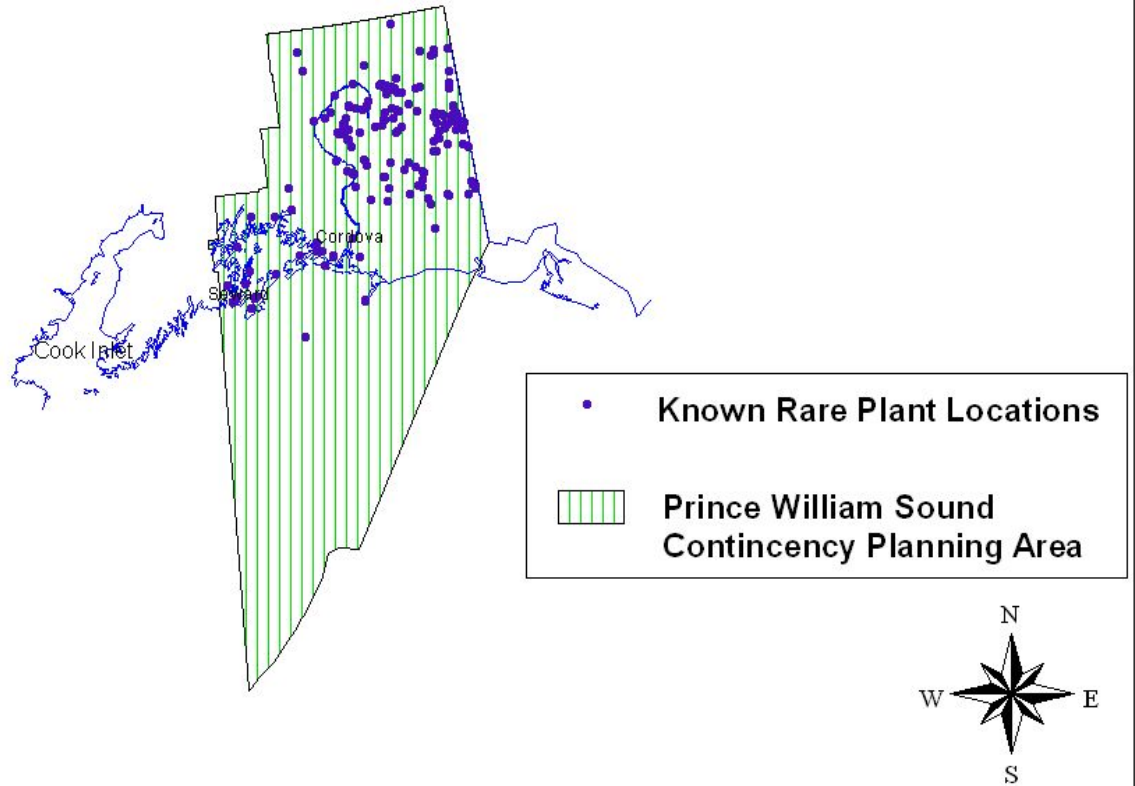
Species Global Rankings

- G1: Critically imperiled globally (5 or fewer occurrences)
- G2: Imperiled globally (6-20 occurrences)
- G3: Rare or Uncommon globally (20-100 occurrences)
- G4: Apparently secure globally, but cause for long-term concern (>100 occurrences)
- G5: Demonstrably secure globally
- G#G# Rank of species uncertain, best described as a range between two ranks
- G#Q Taxonomically questionable
- G? Unranked
- G#T# Global rank of species and global rank of the described variety or subspecies

Species State Rankings

- S1: Critically imperiled in state (5 or fewer occurrences)
- S2: Imperiled in state (6-20 occurrences)
- S3: Rare or Uncommon in state (20-100 occurrences)
- S4: Apparently secure in state, but cause for long-term concern (>100 occurrences)
- S5: Demonstrably secure in state
- S#S# Rank of species uncertain, best described as a range between two ranks

Rare Plants Known from the Prince William Sound Planning Area



To view the map from the ARRT website, please go to the DNR Prevention and Emergency Response Subarea Plan Maps website located at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

D. HUMAN RESOURCE USES

1. Fish Hatcheries and Associated Ocean Net Pens

All five species of Pacific salmon are produced in hatcheries in the subarea. In recent years, hatchery production has accounted for the majority of the commercial salmon harvest in the Sound. Direct telephone communication with all but the Solomon Gulch and Gulkana hatcheries is difficult or impossible. The easiest means of notifying the remote hatcheries is via the PWSAC office in Cordova listed below.

The hatchery activities most vulnerable to spill damage include fry rearing and release, terminal harvests, and egg takes. However, since the timing of these activities varies by hatchery and species, it is difficult to generalize about what occurs when, although spring and summer will tend to be the most critical times. Hatchery managers should be contacted for specific information.

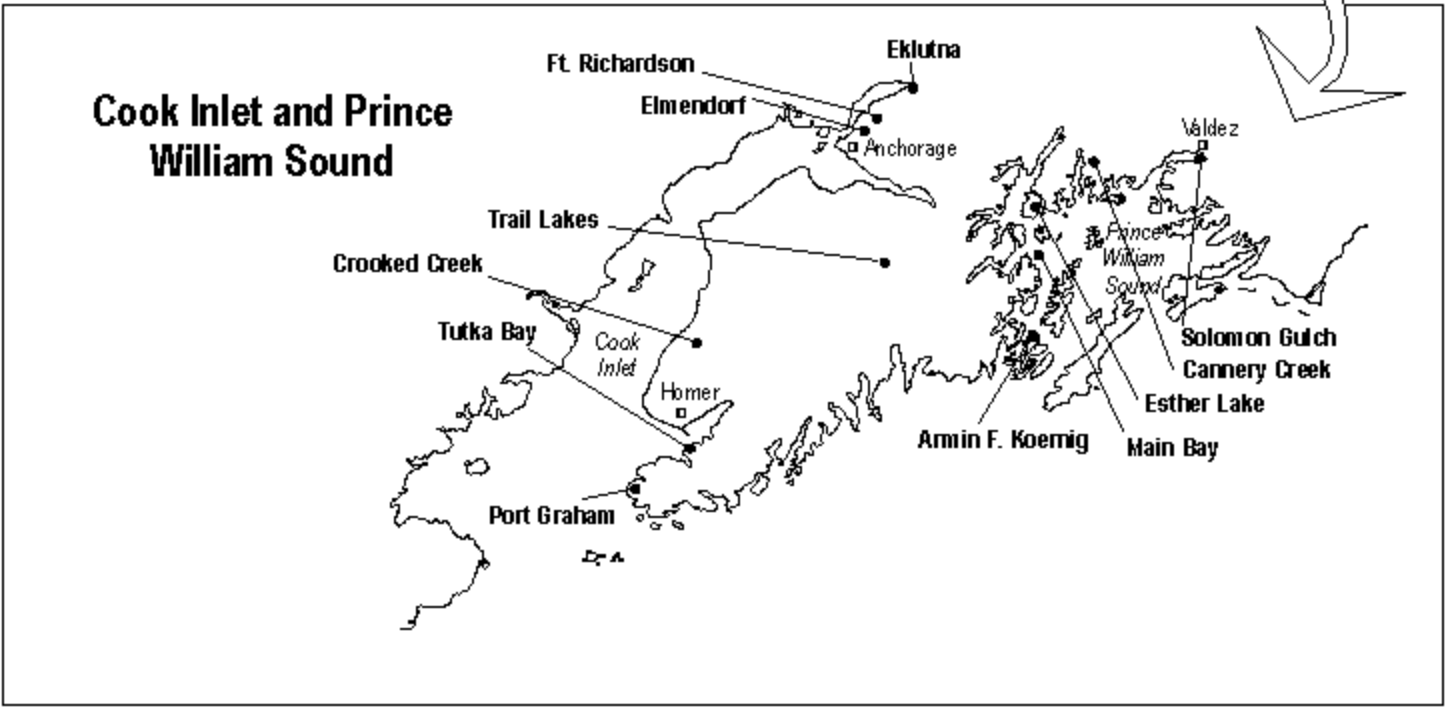
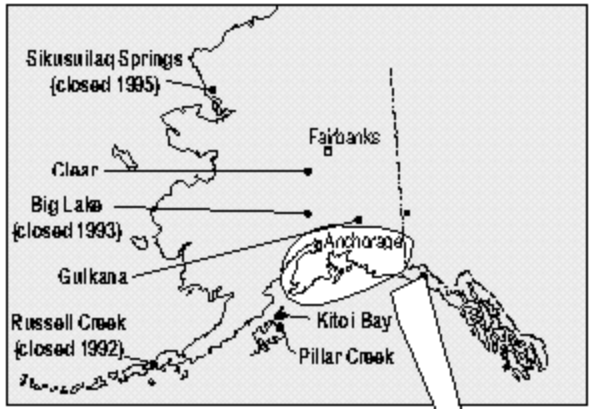
Currently, there is remote release of chum salmon to Port Chalmers on north Montague Island originating from the WN Hatchery. Main Bay Hatchery releases coho to Solf Lake. There is a remote release of coho salmon to Whittier, Chenega, and Cordova from the WN Hatchery.

For additional information on hatcheries in Prince William Sound contact the Alaska Department of Fish and Game in Juneau.

Fish Hatcheries

<u>Operator, Hatchery, City, Phone</u>	<u>Species</u>
Prince William Sound Aquaculture Assoc.: Main Bay Hatchery, Cordova 835-4193	sockeye
Cannery Creek Hatchery, Whittier 424-7511	pink
Gulkana Facilities, Glennallen 822-5141	sockeye
AFK Hatchery, Cordova 573-5136	pink
WN Hatchery, Cordova 265-9618	pink, chum, coho,
Valdez Fisheries Development Assoc.: Solomon Gulch Hatchery, Valdez 835-1329	pink and coho

Locations of Hatcheries in Prince William Sound, Interior, and Southcentral Alaska



2. Aquaculture Sites

Commercial aquatic farms are currently raising Pacific oysters in Prince William Sound. The number of applications for aquatic farm permits is on the rise and the number of farms may increase significantly in the near future. The locations of the current shellfish farms granted permits are shown in the following figure.

Aquatic farms are vulnerable to spill damage on a year-round basis since the shellfish are suspended from anchored gear and are submerged continuously in the water column. Harvest takes place year round. For more information see the following map at: <http://www.asgdc.state.ak.us/maps/cplans/pws/pws3aqua.pdf>

insert aquafarm map here

<http://www.asgdc.state.ak.us/maps/cplans/pws/pws3aqua.pdf>

Prince William Sound Active Aquatic Farms
(Alaska Department of Natural Resources)

Map Code	Company	Contact	City	Telephone
ADL 225239	Aquabionics, INC/New Wave Seafoods	Jack Van Hying	Prince William Sound/Perry Island	479-2476
ADL 225257	Dojer LTD	Gerald Protzman	Prince William Sound/Fairmont Cove	472-2319
ADL 225295	Pristine Products	David Sczawinski	Prince William Sound/Wells Passage	255-2340
ADL 225296	Pristine Products	David Sczawinski	Prince William Sound/Eaglek Bay	255-2340
ADL 225865	Tatitlek Mariculture Project	Tatitlek IRA Council	Prince William Sound/Tatitlek Narrows	424-3777
ADL 226332	C.C. Oyster Company	David Chipman	Prince William Sound/Windy Bay	
ADL 226577	Pristine Products	David Sczawinski	Prince William Sound/Squaw Bay	255-2340
ADL 226846	Eagle Shellfish Farm	James Aguiar	Prince William Sound/Simpson Bay	424-3482
ADL 226874	Windy Bay Oyster Company	John Wiese	Prince William Sound/Windy Bay	424-7754
ADL 227611	McClure Bay Oyster Farm	William Kelley	Prince William Sound/McClure Bay	

Insert aqua farm map for Blue Fiord and McCLure Bay here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSbluefiordmclurebay.pdf>

Insert aqua farm map of Fairmont Bay here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSfairmont.pdf>

Insert aqua farm map of Perry Island here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSperryisland.pdf>

Insert aqua farm map of Simpson and Windy Bays here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSsimpsonwindybays.pdf>

Insert aqua farm map of Squaw Bay here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSsquawbay.pdf>

Insert aqua farm map of Tatitlek here

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWStatitlek.pdf>

3. Historic Properties

The subarea contains a multitude of known and unidentified archaeological and historic sites. These sites are not identified here, in order to protect them from scavenging. Oil spills and hazardous substance releases may result in direct and/or indirect impacts to those historic properties. On-Scene Coordinators are responsible for ensuring that response actions take the protection of historic properties into account and that the statutory requirements for protecting them are met. Annex M of the *Unified Plan* outlines Federal On-Scene Coordinator responsibilities for protecting historic properties and provides an expedited process for compliance with Section 106 of the National Historic Preservation Act during the emergency phase of a response. The Alaska Department of Natural Resources State Historic Preservation Office should be contacted at 907-269-8721 for information on archeological and historic sites.

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 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 management of fish and wildlife resources and harvest opportunities. In 1990, however, Federal agencies became responsible for assuring a federal subsistence priority on Federal public lands, 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 continue to apply to State and private lands. As a consequence, the number of agencies involved in regulating subsistence uses has increased. Therefore, in the event of a spill, extensive coordination will be required in order to address subsistence resources. Regulations regarding subsistence harvest can also be expected to undergo further regular modification. Current information on harvest regulations can be obtained from the Alaska Department of Fish and Game (<http://www.subsistence.adfg.state.ak.us/>) or the U.S. Fish and Wildlife Service Office of Subsistence (<http://Alaska.fws.gov/asm/index.htm>).

Subsistence uses in the area are extensive and vary by season, resource, and village. Some information about subsistence uses is community-sensitive. Contacts for potentially affected communities are identified in the Response Section, Part One.

5. Commercial Fishing

The following chart provides general information on the timing of major commercial fisheries in the subarea. It must be remembered, however, that all fishing seasons are subject to emergency openings and closures and that many seasons are only open for a portion of the times 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 Alaska Department of Fish and Game, Commercial Fisheries Division in Anchorage.

Maps of key commercial fishing areas are available in the following Alaska Department of Fish and Game publications: the Alaska Habitat Management Guide Reference Maps, Southcentral Region, Vols. 1 and 2 and the Alaska Habitat Management Guide, Southcentral Region Map Atlas. For more information see: <http://www.cf.adfg.state.ak.us/>

Economically speaking, the salmon fishery is the most important commercial harvest activity. Pink salmon, produced in large part by the Prince William Sound hatcheries, are the mainstay of the industry, although the Copper River sockeye gill net fishery is also very productive. Copper River sockeye are also the first major salmon run of the season, starting in mid-May. The herring fishery has historically been economically significant, but the stocks have been depressed and the fishery has been closed since 1990. Recent commercial production within the pink salmon and herring fisheries in Prince William Sound have been poor.

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

Cordova District Fishermen United
Cordova
424-3447
FAX 424-3430

Prince William Sound Aquaculture Corporation
Cordova
424-7511

Valdez Fisheries Development Association
Valdez
835-1329

Cordova Aquatic Marketing Association
Cordova
424-3458

Alaska Shellfish Grower's Association
Anchorage
248-7709

COMMERCIAL FISHERIES TIMING												
PRINCE WILLIAM SOUND												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SALMON												
seine net						■	■	■	■			
gill net					■	■	■	■	■	■		
set net						■	■	■	■			
HERRING												
sac roe				■	■							
roe-on-kelp				■	■							
Bait	■								■	■	■	■
HALIBUT				■	■	■	■	■	■			
SABLEFISH				■	■	■	■	■				
CRAB												
Dungeness	■	■	■	■	■	■	■	■	■	■	■	■
Brown king	■	■	■							■	■	■
SHRIMP												
pots	■	■	■	■	■	■	■	■	■	■	■	■
trawls	■	■	■	■	■	■	■	■	■	■	■	■
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

6. Sport Fishing and Hunting

Sport fishing and hunting occurs at a wide variety of locations in the subarea throughout the year. Seasons and harvest regulations vary depending on the species and the area, and may be changed from year to year. Contact the Alaska Department of Fish and Game for current seasons within the area of the spill. For more information see <http://www.sf.adfg.state.ak.us/>

7. Recreational Sites and Facilities

(see also Part 4.A, Land Management Designations)

(a) State Parks, Picnic Areas, and Campgrounds Name, Nearest Community

Bettles Bay State Marine Park, Whittier
Blueberry State Recreation Site, Valdez
Boswell Bay State Marine Park, Cordova
Canoe Passage State Marine Park, Cordova
Decision Point State Marine Park, Whittier
Dry Creek State Recreation Site, Glennallen
Eagle Trail State Recreation Site, Tok
Entry Cove State Marine Park, Whittier
Granite Bay State Marine Park, Whittier
Horseshoe Bay State Marine Park, Chenega Bay
Jack Bay State Marine Park, Valdez
Kayak Island State Marine Park, Cordova
Lake Louise State Recreation Area, Glennallen
Liberty Falls State Recreation Site, Chitina
Little Nelchina State Recreation Site, Glennallen
Little Tonsina State Recreation Site, Copper Center
Moon Lake State Recreation Site, Tok
Porcupine Creek State Recreation Site, Tok
Sawmill Bay State Marine Park, Valdez
Shoup Bay State Marine Park, Valdez
South Esther Island State Marine Park, Whittier
Squirrel Creek State Recreation Site, Copper Center
Surprise Cove State Marine Park, Whittier
Tok River State Recreation Site, Tok
Tolsona Creek State Recreation Site, Glennallen
Worthington Glacier State Recreation Site, Valdez
Zeigler Cove State Marine Park, Whittier

For more information see: <http://www.dnr.state.ak.us/parks/>.

Bureau of Land Management: Name, Nearest Community

Alaska Public Lands Information Center, Tok
Tangle Lakes Campground, Paxson
Tangle River Campground, Paxson
Paxson Lake Wayside, Paxson
Paxson Lake Campground, Paxson
Sourdough Campground, Glenallen

U.S. Forest Service: Name, Nearest Community

Alaganik Bridge, Cordova
Alaganik Slough, Cordova
Cabin Lake, Cordova
Childs Glacier, Cordova

(b) Public Use Cabins (U.S. Forest Service):

Pigot Bay, Whittier
Shrode Lake, Whittier
Coghill Lake, College Fiord
Harrison Lagoon, Port Wells
Paulson Bay, Whittier
South Culross Passage, Whittier
San Juan Bay, Montague Island
Barber, Montague Island
Port Chalmers, Montague Island
Beach River, Montague Island
Nellie Martin River, Montague Island
Caribou Creek, Green Island
Double Bay, Hinchinbrook Island
Hook Point, Hinchinbrook Island
Shelter Bay, Hinchinbrook Island
Martin Lake, Copper River Delta
Softuk Bar, Copper River Delta
Pete Dahl, Copper River Delta
Tiedeman Slough, Copper River Delta
McKinley Trail, Copper River Delta
McKinley Lake, Copper River Delta
Power Creek, Cordova
Jack Bay, Valdez

For more information see: <http://www.nps.gov/aplic/cabins>
<http://www.fs.fed.us/recreation/reservations/>

(c) Public Anchorages and Moorings:

West Twin Bay, Perry Island
South Bay, Perry Island
Esther Bay, Perry Island
Head of Eaglek Bay, Perry Island
Deep Water Bay, Port Nellie Juan
Derickson Bay, Port Nellie Juan
Long Bay, Culross Passage
Picturesque Cove, Culross Passage
Applegate Island, Culross Passage
Goose Bay, Culross Passage
Shotgun Cove, Passage Canal
Jackson Hole, Glacier Island
Jackson Cove, Glacier Island
Jackpot Bay, Dangerous Passage
Marsha Bay, Dangerous Passage
Paddy Bay, Dangerous Passage
Granite Bay, Dangerous Passage
Ewam Bay, Dangerous Passage
Masked Bay, Dangerous Passage

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

Alaska State Parks in the Prince William Sound Region (maps and charts)

1. Cordova (SE Prince William Sound)
2. Valdez (NE Prince William Sound)
3. Whittier (NW Prince William Sound)

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	** = Annual passes not accepted
/a = Facilities are ADA accessible		*** = Sanitary dump station

SRA = State Recreation Area	SP = State Park	DU = Day Use
SRS = State Recreation Site	SMP = State Marine Park	GU = Group Use
SHP = State Historical Park	SWP = State Wilderness Park	CG = Campground
SHS = State Historic Site	TH = Trailhead	BL = Boat Launch

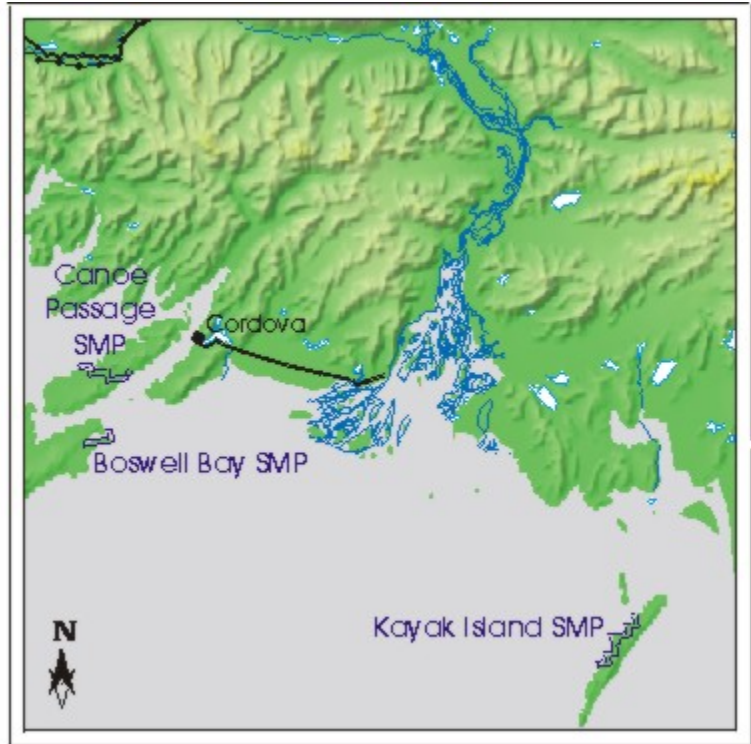
For further information: <http://www.dnr.state.ak.us/parks/>
or call 269-8700 (Anchorage Office)

To access maps and charts: <http://www.dnr.state.ak.us/parks/aspbro/statemap.htm>

Alaska State Parks near Cordova in SE Prince William Sound



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

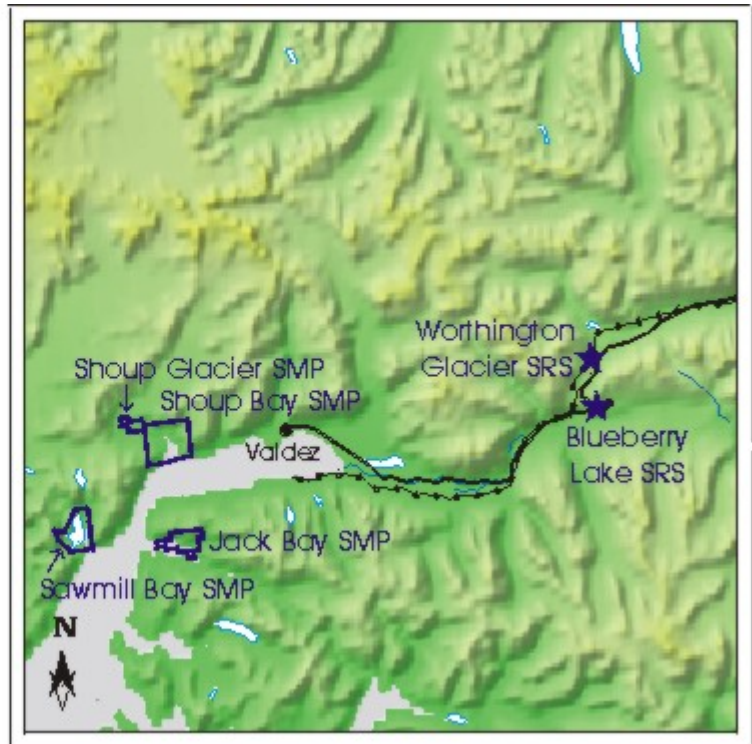


Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Boswell Bay SMP	799	■	■	■						■	■	■	■	F	No road access
Canoe Passage SMP	2,735	■	■	■						■	■	■	■	F	No road access
Kayak Island SMP	1,437	■	■	■						■	■	■	■	F	No road access

Alaska State Parks
near Valdez in NE
Prince William Sound



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

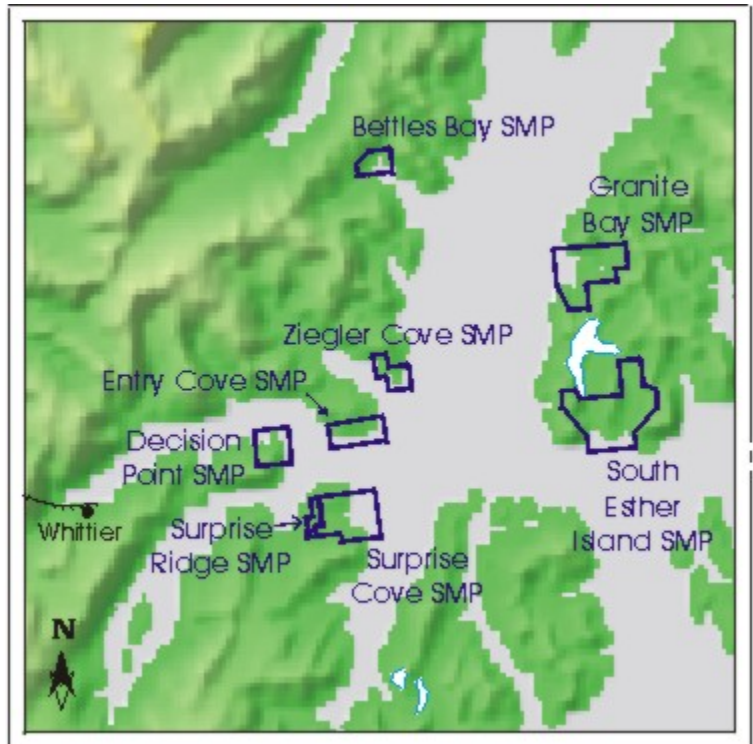


Park Unit	Acres	CS	CL	CF	P	T	W	S	Tr	H	B	C	D	F	Location
Blueberry Lake SRS	192	15	15	CF		T/a	W		Tr					F	23 Richardson Hwy.
Jack Bay SMP	811	3				T								F	No road access
Sawmill Bay SMP	2,320	3				T								F	No road access
Shoup Bay SMP	4,560	2				T/a			Tr			C/a		F	No road access
Shoup Glacier SMP	640					Undeveloped									No road access
Worthington Glacier SRS	113					T			Tr						28.7 Richardson Hwy.

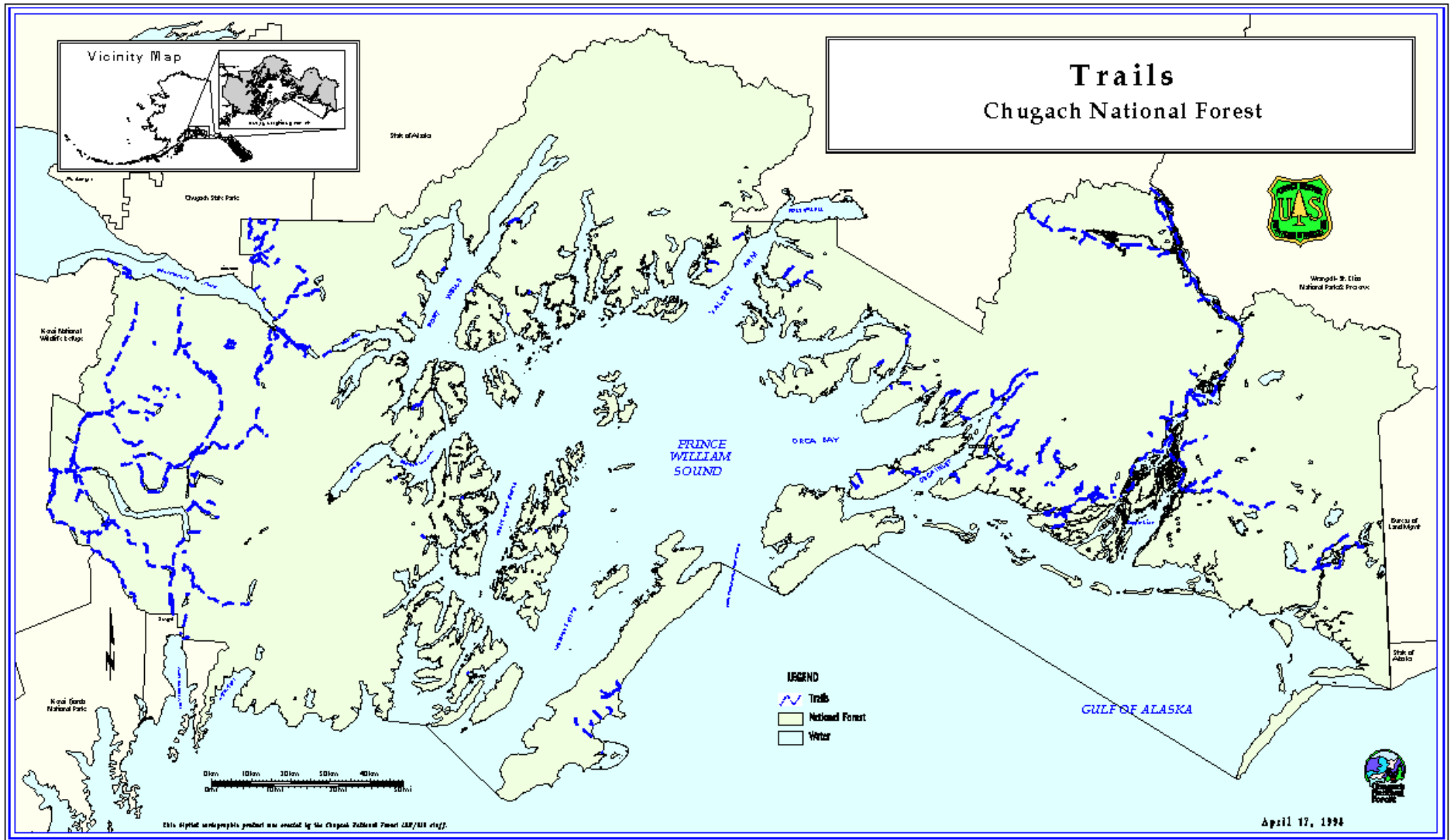
Alaska State Parks near Whittier in NW Prince William Sound



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
Bettles Bay SMP	680				Undeveloped									F	No road access
Decision Point SMP	460	4				T								F	No road access
Entry Cove SMP	370				Undeveloped									F	No road access
Granite Bay SMP	2,105				Undeveloped									F	No road access
South Esther Island SMP	3,360	2				T			Tr					F	No road access
Surprise Cove SMP	2,280	6				T			Tr					F	No road access
Surprise Ridge SMP	240								Tr						No road access
Ziegler Cove SMP	720				Undeveloped									F	No road access



8. Commercial Tourism

Tour boat, cruise ship, and ferry boat routes and stops
Small boat and kayak use areas
Road and rail routes and nodes at Whittier, Valdez, and Glennallen
Commercial airport access at Valdez and Cordova

Key locations of interest:

Growler Island
Harriman Fjord
Shoup Bay
Blackstone Bay
College Fjord

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

For additional information contact:

Alaska Office of Tourism Development	465-2012
Alaska State Chamber of Commerce	586-2323
Alaska Native Tourism Council	274-5400
Alaska Wilderness Recreation & Tourism Assoc.	463-3038

See also: <http://www.travelalaska.com>

9. Marinas and Ports

(See Resources Section)

10. Fish Processing

The following table identifies fish processors, canneries, and shellfish processors operating in Prince William Sound and provides the general location in which they operate and how to contact them. The list excludes fishing vessels and shellfish harvesters.

Cordova:

Saint Elias Ocean Products, Inc.
Cordova 424-7171

Cannery Row Fish Co.
424-5920

Great Pacific Seafoods, Inc.
424-5481

Norquest Seafoods, Inc.
424-5930

Whittier:

Anchor Services Unlimited
472-2354

Great Pacific Seafoods, Inc.
472-2400

Prince William Sound Aquaculture
424-7511

Fairmount Island Seafoods
472-2319

Prince William Sound Aquaculture
424-7511

F/V Wave Maker
982-2670

Copper River Delta Smokery
424-7111

Valdez:

Eyak Packing Co.
424-5300

Alaska Pride Smoked Salmon, Inc.
835-5361

North Pacific Processors
424-7111

Big Dipper Seafoods, Inc.
835-5989

Ocean Beauty Seafoods, Inc.
424-7171

Nautilus Foods, Inc
835-4227

F/V Aquarius
424-3385

Sea Hawk Seafoods
835-4837

Solomon Gulch Hatchery
835-4874

Peter Pan Seafoods, Inc.
835-2080

11. Logging Facilities

The following organizations can be contacted with requests for specific information on location and timing of logging activities. Although the primary function of these organizations is not to provide such information, the individual members will be quite knowledgeable about environmental conditions and will often be willing to share information.

Koncor Forest Products
Anchorage
562-3335
FAX 562-0599

Alaska Forest Association
Ketchikan
225-6114

Current Log Transfer Facilities (LTFs) are:

Location
Port Graham
Orca Inlet
Orca Bay
Afognak Island, Discover Bay
Afognak Island, Kazakof Bay
Cordova

Operator
Bureau of Indian Affairs
Eyak Corp.
Eyak Corp.
Koncor Forest Products
Koncor Forest Products
Eyak Corp.

Permits expired, suspended, or not issued:

Marmot Bay	Afognak Native Corp.
Nelson Bay	Eyak Corp.
Windy Bay	ITT Rayonier
Kachemak Bay	Kenai Pacific Lumber Co.
Port Chatham	Seward Forest Products
Koyuktolik Bay	English Bay Corp.
Montague Island, McCloud Harbor	Chugach Alaska Corp./Koncor Forest Products
Two Moon Bay	Tatitlek Native Corp.
Resurrection Bay	Seward Forest Products
Fish Bay	Tatitlek Native Corp.

12. Water Intake and Use

See Attachment One for a list of water intake/use permits generated from a database maintained by the Alaska Department of Environmental Conservation. The list shows “type A” water users, which are those systems serving 25 or more persons using the system for 6 or more months of the year.

SENSITIVE AREAS: PART FIVE – LAND MANAGEMENT

A. LAND MANAGEMENT DESIGNATIONS

1. Access to Lands

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

2. State

Tanana Valley State Forest The Tanana Valley State Forest was first designated in 1983 and currently contains 1,822,100 acres. Its area extends from north of Fairbanks to north of Tetlin Junction and closely follows the Tanana River on the north. The Forest's area encompasses or is adjacent to many bodies of water including the Tanana, Healy and Robertson Rivers; Lakes George and Mansfield; Fish, Sand Healy and Wolf Lakes; and George, Sand, Mansfield, Fortymile and Billy Creeks.

State Game Refuges, Habitats, Sanctuaries. The Alaska State Legislature has classified certain areas as being essential to wildlife and fisheries resources. These areas are designated as either a game refuge, critical habitat area, or game sanctuary. Management of these essential areas is the joint responsibility of the Department of Fish and Game and Department of Natural Resources. Legislation pertaining to these lands may be found in Alaska Statutes Title 16, Chapter 20. Legal descriptions of area boundaries can be found in Alaska Department of Fish and Game's publication, State of Alaska Game Refuges, Critical Habitat Areas and Game Sanctuaries (1991) or on their website at <http://www.adfg.alaska.gov/index.cfm?adfg=protectedareas.locator>. (See Part D.7, Recreational Sites and Facilities, for State Parks information.)

Copper River Delta State Critical Habitat Area was established in 1978 to protect habitat crucial to perpetuation of fish and wildlife (especially waterfowl and shorebirds). The Area includes all public land, tideland, submerged land, and water covering the Copper River Delta from the mouth of Orca Inlet to Palm Point. This area is the largest contiguous Pacific coast wetland and is among the most productive and critical shorebird habitats in Alaska. The Copper River Delta is a feeding and resting area for more than 20 million shorebirds, which pass through on their spring migration. Among the migrants are nearly the entire Pacific coast population of dunlins and western sandpipers. During the spring and summer, the area also supports the entire U.S. nesting population of dusky Canada geese and a substantial number of trumpeter swans. The area is also popular for wildlife viewing, hunting and fishing.

For more information see the Cooper River Delta State Critical Habitat Area webpage at <http://www.adfg.alaska.gov/index.cfm?adfg=copperriverdelta.main>.

State Marine Parks. The Alaska State Legislature has classified certain areas as State Marine Parks (see Part 4.D.7, Recreational Sites and Facilities).

3. Federal

Chugach National Forest, is the nation's second largest national forest at 5.6 million acres, stretching 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 Chugach. Additional information may be found on the website: <http://www.fs.fed.us/r10/chugach/>.

Research Natural Areas are set aside on the Chugach National Forest to allow ecological processes to prevail with minimal human intervention and to provide opportunities for research to increase understanding of natural ecosystem processes and sustainability. Areas include:

- Green Island
- Kenai Lake/Black Mountain
- Wolverine Glacier
- Olsen Creek
- Copper Sands

Wrangell-Saint Elias National Park and Preserve was established in 1980. The 13 million acre Park and Preserve abuts the border and Canada's Kluane National Park--together they have been designated on the World Heritage List as outstanding natural areas. The area contains the North American continent's largest assemblage of glaciers and its greatest collection of mountain peaks over 16,000 feet in elevation. The Malaspina Glacier is larger than the state of Rhode Island. Mount Saint Elias, at 18,008 feet, is the second highest peak in the United States. Wilderness backpacking, fishing, and hunting; car camping; river running; cross-country skiing, and mountain climbing are principal uses. The Dall sheep population is considered one of the finest in the world. Additional information may be found on the website: <http://www.nps.gov/wrst/index.htm>

Wild and Scenic Rivers. The upper Delta River and West and Middle Forks of the Gulkana River are nationally designated as Wild and Scenic Rivers and are managed by the Bureau of Land Management. The lower Nellie Juan River is proposed for Wild status by the U.S. Forest Service.

Alaska Maritime National Wildlife Refuge. The Gulf of Alaska Unit of the Refuge includes some of the islands, rocks, and forelands along the coast of the Gulf of Alaska. Alaska Maritime consists of over 2,400 islands, headlands, rocks, islets, spires, and reefs along the Alaskan coast, stretching from Southeast Alaska to Cape Lisburne on the Chukchi Sea. The Refuge is synonymous with seabirds. About 75 percent of Alaska's marine birds (15 to 30 million of 55 species) use the Refuge. The Refuge is also home to thousands of sea lions, seals, walrus, and sea otters. Wildlife viewing, photography, and backpacking are primary uses of the Refuge. The Refuge was established in 1980. Additional information may be found on the website: <http://www.fws.gov/alaska/nwr/akmar/index.htm>

LAND MANAGEMENT MAPS

The Alaska Department of Natural Resources, under agreement with the Alaska Department of Environmental Conservation, produced digital base and land management maps for each of the subareas using their ARC-INFO based Geographic Information System. 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 at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

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

Generalized Land Status layer.

Chugach Alaska Corporation also maintains a website providing on-line access to land status for their corporate holdings: <http://www.chugach-ak.com/landsmain.html>

Prince William Sound Land Management Map Links:

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

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSmap1of4.pdf>

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSmap2of4.pdf>

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSmap3of4.pdf>

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWSmap4of4.pdf>

Insert land management index map here

Insert land management designations map here--page 1 of 4

Insert land management designations map here--page 2 of 4

Insert land management designations map here--page 3 of 4

Insert land management designations map here--page 4 of 4

SENSITIVE AREAS: ATTACHMENT ONE

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Water Intake/Use

The following table was generated by the Alaska Department of Environmental Conservation, Drinking Water and Water Treatment Section. The list shows “type A” water users, which are those systems serving 25 or more persons using the system for 6 or more months of the year. The table includes permitted water use facilities by index number, source (groundwater, surface water, purchased water), facility name, and facility location. Additional information about facility owners can be obtained from the Drinking Water and Water Treatment Section at 465-5300.

For the table, please note the following codes:

GW = Groundwater

GWP = Purchased Groundwater

SW = Surface Water

SWP = Purchased Surface Water

GU = Groundwater Under the District Influence of Surface Water

<u>Name of System</u>	<u>Location</u>	<u>State ID No.</u>	<u>Source</u>
Acres Bar	Valdez	298909	
Ahtna Office Bldg.	Glennallen	294200	
Airport Depot Diner	Cordova	292275	GW
AK Dept. Fish & Game	Glennallen	291423	
AK Bible College	Glennallen	292099	GW
Aleutian Village	Valdez	298608	GW
Bartlett Ferry Terminal	Valdez	291910	
Bishop Water Supply	Glennallen	291499	GW
Blackburn Place Apartments	Glennallen	291261	GW
Brown Bear Roadhouse	Glennallen	291334	
Chitina Fire Well #2	Chitina	292738	GW
Chitina Saloon	Chitina	291651	
City of Valdez Glacier CG	Valdez	298200	GW
Copper Basin Assembly of God	Glennallen	291473	GW
Cordova City Water	Cordova	293205	SW
CRNA Copper Center	Copper Center	291685	
CRNA Office Complex	Copper Center	292608	GW
Cross Road Medical Center	Glennallen	291512	GW
CRSD Copper Center School	Glennallen	291384	GW
CRSD Glennallen Elementary	Glennallen	291392	GW
CRSD Glennallen High School	Glennallen	291407	GW
CRSD Kenny lake Elem	Glennallen	291415	
CRSD Kenny Lake High School	Glennallen	294002	GW
DOTPF Tazlina Station	Glennallen	291871	
Eagle Crest Condos	Valdez	298002	GW
FAA Cordova Well #1	Cordova	293108	
Glacier Queen M/V	Valdez	292021	
Glacier Spirit M/V	Valdez	292039	
Glennallen Heights	Glennallen	291504	GW
Grizzly Pizza	Copper Center	296802	GW
Kenny Lake Community Hall Well	Copper Center	292194	GW
Kenny Lake Community Well	Copper Center	291596	GW

Kenny Lake Fire Hall	Copper Center	292330	GW
Lake Louise Lodge	Glennallen	226622	
Last Frontier Pizza	Glennallen	292225	
Lu Lu Belle M/V	Valdez	292055	
M/V Chugach	Valdez	293231	
M/V Nautilus	Valdez	293190	
McCarthy Lodge	Glennallen	291108	SW
McKinley Bldg Water Supply	Copper Center	292186	GW
M/V Lafayette	Valdez	247678	
M/V Sea Tide	Valdez	248072	
New Caribou Hotel	Glennallen	291300	GW
PJ's Drive Inn	Copper Center	292063	
Point of View Lodge	Glennallen	224086	
PWSAC - Cannery Creek Hatchery	Cordova	293132	
PWSAC - Esther Hatchery	Cordova	293124	SW
PWSAC - Pt. San Juan Hatchery	Cordova	291758	
Ranch House	Glennallen	291245	GW
Rendevouz	Glennallen	291287	GWP
Send International of Alaska	Glennallen	292110	GW
Solomon Gulch Hatchery	Valdez	292005	
Sweet Things	Glennallen	293176	
Tailor Made Pizza	Glennallen	293253	
Tastee Freeze Glennallen	Glennallen	291342	GW
Tazlina River MHP	Glennallen	291279	GW
Tiekel River Lodge	Valdez	296307	GW
Tiekel River Lodge Campground	Valdez	291978	
Tolsona Lake Resort	Glennallen	291368	GW
Tolson Wilderness Campground	Glennallen	291431	GW
Tsaina Lodge	Valdez	296404	
Two Moon Bay Logging Camp	Cordova	292678	
Valdez Airport Terminal	Valdez	291986	GW
Valdez City Water System Main	Valdez	298103	GW
Valdez Robe River S/D Well	Valdez	291211	GW
Valdez Softball Fields	Valdez	291782	GW

Valdez Southcentral	Valdez	291229	GW
Valdez Zook Loop	Valdez	291203	GU
Whittier City Water System	Whittier	211952	SW
Wolverine Lodge	Glennallen	226478	

SENSITIVE AREAS: ATTACHMENT TWO
ALASKA DEPARTMENT OF FISH AND GAME AND NATIONAL
MARINE FISHERIES SERVICE

Harbor Seal and Steller Sea Lion Sites in Prince William Sound

NOTE: a map of the sites identified in the table may be obtained from the Alaska Department of Fish and Game office in Anchorage

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
1	A	Porpoise Rocks	51	60 19 06 N	146 41 30 W	Entire site
2	B	Bear Camp/Pt. Etches	<10	60 21 12	146 43 54	West shoreline Hinchinbrook Island just north of Port Etches
3	A	Schooner Rocks	67	60 18 24	146 54 30	Entire site
4	A	Rocky Bay	25	60 21 00	147 01 30	Offshore rocks along south shoreline east of Middle Point
5	A	Montague Point	37	60 22 12	147 04 30	Reefs off north shoreline
6	A	Stockdale Harbor	49	60 18 12	147 12 30	2 islets off southwest shoreline
7	A	Port Chalmer	109	60 14 44	147 15 08	Entire site
8	A	Channel Island	116	60 14 30	147 22 42	Entire site
9	A	Little Green Island	88	60 11 54	147 31 30	Entire site
10	A	Green Island	50	60 17 30	147 25 00	Northwest side of island; reefs off northwest shore
11	A	Applegate Rocks	154	60 21 18	147 23 30	Entire site
12	A	Seal Island	71	60 25 42	147 24 48	Entire site
13	A	Big Smith Island	78	60 31 35	147 19 30	Entire site
14	A	Little Smith Island	33	60 31 06	147 25 36	Entire site
15	A	Agnes Island	43	60 36 54	147 23 12	Entire site
16	B	Storey Island	<10	60 44 19	147 22 48	East and southeast shorelines
17	B	Northwest Bay	<10	60 33 42	147 35 54	Mid-bay islet
18	A	Disk Island	17	60 30 00	147 38 12	Entire site
19	A	Herring Bay	36	60 26 36	147 44 18	Numerous sites
20	B	Unnamed Cove	<10	60 26 42	147 38 12	Rocks in southwest part of cove
21	A	Bay of Isles	37	60 23 36	147 40 00	Numerous sites. Rocks and reefs north and east of Short Arm

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
22	B	Lower Herring Bay	< 10	60 23 01	147 47 30	Rocks in mid-bay
23	A	Squire Island	32	60 13 30	147 57 00	Numerous sites - complex of reefs, islets, tidal rocks
24	B	Gage Island	< 10	60 11 24	148 01 00	Entire site
25	B	Fleming Island	< 10	60 09 48	148 00 35	East shoreline
26	B	Jackpot Bay	< 10	60 20 24	148 12 18	North shore outer Jackpot Bay
27	A	Iktua Rocks	39	60 07 12	148 02 30	Entire site
28	A	Iktua Bay	14	60 07 00	148 00 54	Rocks in west part of bay
29	A	Prince of Wales Passage	47	60 05 00	148 04 48	Islets on east side near mid-passage
30	A	Latouche Island	39	59 56 24	148 02 30	Bedrock benches along southwest and west shoreline
31	A	Danger Island	58	59 55 30	148 04 24	Entire site and adjacent southwest tip of Latouche Island
32	A	Procession Rocks	39	60 00 30	148 16 48	Entire site; and south shoreline Bainbridge Island
33	B	Hogg Bay 1	< 10	60 04 12	148 12 24	Tidal rocks in southeast bay
		Hogg Bay 2		60 05 00	148 14 42	Northern part of outer bay
34	A	Bainbridge Passage 1	42	60 07 50	148 11 24	Rocks in central passage
		Bainbridge Passage 2		60 08 30	148 06 12	Rocks near islets in east passage
35	A	Icy Bay 1		60 11 00	148 26 30	On drift ice, Tiger Glacier
		Icy Bay 2	314	60 16 30	148 22 00	Nassau Fjord
36	B	Delenia Island	< 10	60 20 31	148 07 57	Entire site
37	A	Junction Island	83	60 23 30	147 59 36	Rocks and beaches north of island
38	A	Port Nellie Juan	41	60 28 18	148 20 30	On drift ice and base of Nellie Juan glacier
39	A	Crafton Island	40	60 29 36	147 56 30	Reefs off east, north, and west side of island
40	A	Lone Island	12	60 41 42	147 44 42	Tidal rocks off northeast tip of island

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
41	A	Dutch Group	104	60 45 30	147 48 30	Entire site
42	A	Perry Island - South	> 10	60 40 00	147 53 00	Rocks on east side of south bay
43	B	Applegate Island	< 10	60 37 06	148 09 30	Entire site
44	A	Blackstone Bay	> 10	60 40 56	148 38 36	South arm on drift ice
45	A	Harriman Fjord	> 10	60 58 30	148 26 00	Entire bay, on drift ice near glaciers
46	A	Harriman Fiord	136	61 07 30	148 09 00	North end Barry Arm
47	A	College Fiord 1	218	61 16 30	147 42 30	On drift ice and upper Harvard Arm
		College Fjord 2		61 12 48	147 41 07	On drift ice, Yale Arm
48	A	Unakwik Inlet	293	61 09 00	147 31 30	On drift ice and north end near Mears Glacier
49	A	Columbia Bay	549	61 00 00	147 04 00	On drift ice and behind glacial moraine at head of bay
50	A	Wells Bay	38	60 55 42	147 28 48	Rocks in middle of southern part of bay
51	B	Payday	< 10	60 54 18	147 30 00	Shoreline east of Unakwik Point
52	A	Olsen Island	12	60 51 42	147 34 24	Rocks on south side of island
53	A	Point Pellew 1	24	60 50 24	147 39 30	Point Pellew
		Point Pellew 2		60 51 18	147 40 24	Small islets east and north of Point Pellew
54	A	Little Axel Lind	23	60 48 24	147 40 18	Entire site
55	A	Fairmont	42	60 51 00	147 27 30	Southwest shoreline Fairmont Is.; L. Fairmont Is.; Outpost Is.
56	A	Gull Island 1	28	60 43 28	146 42 11	Rocks offshore
		Gull Island 2		60 43 02	146 40 44	North of Knowles Head - SUBSISTENCE HUNT AREA
57	A	Upper Jack Bay	> 10	61 01 27	146 34 08	Entire site
58	A	Port Fidalgo 1	> 10	60 50 24	146 15 12	Rocks on point 2 mi. north of Whalen Bay
59	B	Port Fidalgo 2	< 10	60 47 11	146 21 02	Rocks on south shoreline 1 mi. east of Irish Cove

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
60	A	Hells Hole	> 10	60 42 00	146 23 12	Entire site
61	A	Olsen Bay	80	60 43 42	146 10 48	Headland between Olsen and Parshas bays
62	A	Gravina Rocks	42	60 39 48	146 15 54	Entire site
63	A	Gravina Island	24	60 38 24	146 17 30	Entire site
64	A	Canoe Passage	51	60 31 36	146 08 06	Rocks off entrance on north side Hawkins Island
65	A	Sheep Point	12	60 36 54	146 00 24	Entire site
66	B	Hanks Island	< 10	60 36 42	145 58 48	Entire site
67	B	Sheep Bay	< 10			Southeast portion of Sheep Bay
68	A	Orca Inlet	235	60 32 30 to 60 28 00	145 51 00 to 146 06 30	Tidally submerged sandbars (use on 4 sites varied)
69	A	Hawkins Cutoff	204	60 26 12	146 19 30	Sandbar (also sea otter haulout)
70	A	North Hinchinbrook	> 20	60 28 30	146 30 00	Rocks across head of bay
71	A	Middleton Island	1714	59 24 40	146 18 30	Flat-top rocks on east and south sides of island
100	C	Tanker Island		59 52 18	147 22 30	Entire site
101	C	McCleod Harbor		59 54 00	147 48 56	Outer northwest shoreline
102	C	Sawmill Bay		60 03 00	148 01 30	Bettles Island
103	C	Whale Bay 1		60 12 03	148 10 48	Shorelines south of lat/long

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
		Whale Bay 2		60 13 48	148 13 00	Shorelines west of lat/long
104	C	Pleiades Islands		60 14 00	148 01 00	Entire site
105	C	E. Knight Is. Passage		60 19 00	147 55 00	Bays and inlets along west shore Knight Island
106	C	Rua Cove		60 21 00	147 38 22	Entire site
107	C	Kings Bay 1		60 31 36	148 36 12	Mid-bay along north shoreline
		Kings Bay 2		60 30 42	148 32 12	South shoreline
108	C	SE Culross Passage		60 36 18	148 11 24	Headland between Mink Island and Picturesque Cove
109	C	Culross Island		60 40 12	148 05 00	East shoreline Culross Island 3 mi. south of Hidden Bay
110	C	Cochrane Bay		60 44 52	148 19 34	Entire site
111	C	Passage Canal		60 48 20	148 30 00	South shoreline from Shotgun Cove to Decision Point
112	C	Pigot Bay		60 50 54	148 22 48	Inner bay
113	C	Esther Island		60 52 45	148 06 19	Southwest shoreline of Granite Bay
114	C	Perry Island/W. Twin Bay		60 43 00	147 58 24	Entire site
115	C	Fool Island		60 45 48	147 55 00	Entire site
116	C	Bald Head Chris Island		60 47 30	147 50 42	Entire site
117	C	Axel Lind Island		60 47 30	147 43 24	Entire site
118	C	Long Bay		60 57 30	147 16 00	Rocks east of Shrader Island
119	C	Peak Island		60 42 06	147 21 17	East shoreline

**Prince William Sound
Harbor Seal Sites**

Site	Type*	Site Name	N*	Latitude ¹	Longitude ¹	Specific Habitat
120	C	Naked Island		60 39 00	147 23 30	Western, southern, and eastern shorelines
121	C	Lower Jack Bay		61 01 38	146 38 30	Southwest shoreline of outer bay
122	C	Porcupine Point		60 44 36	146 42 06	Entire site
123	C	Fidalgo Bay		60 48 00	146 30 00	Entire site
124	C	Beartrap Bay 1		60 45 20	146 04 00	Bay mouth
		Beartrap Bay 2		60 44 12	146 05 12	Islets 1 mi. south of bay
125	C	Upper Sheep Bay		60 41 12	145 56 54	Entire site
126	C	Port Etches 1		60 19 05	146 35 00	South shoreline at Etches Creek
		Port Etches 2		60 17 52	146 38 23	Inlet 1 mi. east of English Bay

***NUMBER**

- N = highest average count for 1988 - 1992 molting or pupping surveys-----Sites 3-16, 51-56, and 61-65
- N = highest average count for 1991 - 1992 molting surveys-----Sites 17-21, 27-43, and 46-50
- N = maximum counts during 24 - 29 August 1991 surveys (molting)-----Sites 68-71
- N = highest recorded count-----For other sites

*** TYPE:**

- A. Significant site;10 or more animals present
- B. Minor site; usually fewer than 10 animals
- C. Historically used site or current use unknown

**Prince William Sound
Steller Sea Lion Sites**

Site

Site	Type*	Site Name	Lat./Long. ¹	Other Information
1	B	Middleton Island	59 28 19 N/ 146 18 22 W	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward
2	B	Hook Point	60 20 12 / 146 15 29	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward, 100 ∇ animals observed
3	C	Cape Hinchinbrook	60 14 00 / 146 38 09	100 ∇ animals observed
4	A	Seal Rocks	60 10 00 / 146 50 00	Designated Critical Habitat: Rookery, 3000 ft. vertical and landward, 20 nm seaward, 500 ∇ pups observed
5	A	Wooded Islands	59 52 55 / 147 20 44	Designated Critical Habitat: Rookery, 3000 ft. vertical and landward, 20 nm seaward, 600 ∇ pups observed
6	B	The Needle	60 06 41 / 147 36 03	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward
7	B	Point Elrington	59 56 00 / 148 13 30	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward
8	C	Pleiades Island	60 14 25 / 148 00 30	Haulout site used during late winter/early spring, 100 ∇ animals have been observed on the site
9	B	Perry Island	60 43 32 / 147 53 15	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward
10	C	Glacier Island	60 51 14 / 147 08 29	326 animals sited 8/25/93
11	B	Point Eleanor	60 35 00 / 147 34 00	Designated Critical Habitat: Haulout, 3000 ft. vertical and landward, 20 nm seaward

¹ The latitude and longitude descriptions may differ from some National Marine Fisheries Service publications. The changes were made to more accurately identify the location of the polygons depicted on the accompanying map.

* TYPE:

- A. Rookery: Designated Critical Habitat under the Endangered Species Act
- B. Haulout: Designated Critical Habitat under the Endangered Species Act
- C. Haulout site

