

**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 the Prince William Sound Subarea. This information is specific to Prince William Sound. 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 location) 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 are conducted 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 G, Appendix 2).

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

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. This information within 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. 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 necessary to adequately complete the Sensitive Areas Section was compiled. Identifying relative priorities among resources and resource uses takes considerable coordination and discussion among resource management agencies.

Many of the maps presented in this section are available on-line through the Internet at:

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

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.

The Subarea Contingency Plan for this subarea is scheduled to be updated periodically. Much can be done in these updates to improve the data and its presentation, such as:

- Establish a continuing interagency mechanism to review, update and maintain sensitivity information and priorities.
- Fund staff/materials to compile data and prepare materials for presentation in the Subarea Contingency Plans.
- Continue to subdivide the subarea into smaller geographic sites and identify more specific sensitive seasonal biological and other resource locations.
- Expand and further detail sensitive resources and initial response tactics for the most likely spill scenarios.

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

Doug Mutter
U.S. Department of the Interior
Office of Environmental Policy
and Compliance
1689 C Street, Room 119
Anchorage, Alaska 99501
271-5011
FAX: 271-4102
email: douglas_mutter@ios.doi.gov

Mark Fink
Alaska Department of Fish and Game
Division of Sport Fish
333 Raspberry Road
Anchorage, Alaska 99518
267-2338
FAX: 267-2464
email: mark_fink@fishgame.state.ak.us

SENSITIVE AREAS: PART ONE – INITIAL CONTACTS

[see Table at end of Part One for contact information]

| Agency | Resources | Primary Contact | Alternate Contact |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------|
| FISH and WILDLIFE and HABITAT RESOURCES | | | |
| Alaska Department of Fish and Game | fish, shellfish, birds, terrestrial mammals, marine mammals | Mark Fink | Wayne Dolezal |
| U.S. Department of the Interior | migratory birds, sea otters, polar bears, walrus, endangered species, anadromous fish in freshwater, bald eagles, wetlands | Pamela Bergmann | Doug Mutter |
| U.S. Department of Commerce | sea lions, seals, whales, endangered marine species, anadromous fish in marine waters | Brad Smith | Matthew Eagleton |
| U.S. Department of Agriculture | national forest lands | Steve Zemke | Mike Novy |
| Alaska Natural Heritage Program | rare and endangered plants | Julie Michaelson | Rob Lipkin |
| CULTURAL and ARCHAEOLOGICAL SITES | | | |
| Alaska Office of History and Archaeology | historic sites, archaeological sites, national register sites | Dave McMahan | Joan Dale |
| U.S. Department of the Interior | archaeological/historical sites in park and wildlife refuge system units, public lands, Native allotments/trust lands; sunken vessels | Pamela Bergmann | Doug Mutter |
| U.S. Department of Agriculture | archaeological/historical sites on national forest lands | Steve Zemke | Mike Novy |
| Chugach Alaska Corporation | archaeological/historical sites on Native Corporation lands | John Johnson | |
| SHORELINE TYPES | | | |
| Scientific Support Coordinator | shoreline types, environmental sensitivity index maps | John Whitney | |
| LAND OWNERSHIP and CLASSIFICATIONS/DESIGNATIONS | | | |

| Agency | Resources | Primary Contact | Alternate Contact |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------|
| Alaska Department of Natural Resources | state lands, state parks and recreation areas, state forests, tidelands | Sam Means | Clark Cox |
| Alaska Department of Fish and Game | state game refuges, state critical habitats | Mark Fink | Wayne Dolezal |
| 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 | Pamela Bergmann | Doug Mutter |
| U.S. Department of Agriculture | national forests, national monuments, wild and scenic rivers, wilderness areas, research natural areas | Steve Zemke | Mike Novy |
| U.S. Department of Defense | military installations and reservations | Alaska Command | |
| Local Governments: –Cordova –Valdez –Whittier | municipal and private lands, and rights-of-way | Steve Harris Carol Smith Rick Hohnbaum | |
| Chugach Alaska Corporation | Native corporation lands (including selections) | Rick Rogers | |
| COMMERCIAL HARVEST | | | |
| Alaska Department of Fish and Game | fishing permits, seasons | Mark Fink | Wayne Dolezal |
| Alaska Department of Natural Resources | tideland leases, logging on private lands | Sam Means | Clark Cox |
| Alaska Department of Environmental Conservation | seafood processing | Manny Soares | Kimberly Stryker |
| U.S. Department of Commerce | fishing permits, seasons | Brad Smith | Matthew Eagleton |
| SUBSISTENCE, PERSONAL, AND SPORT USES | | | |
| Alaska Department of Fish and Game | subsistence and personal uses statewide and navigable waters, sport hunting and fishing | Mark Fink | Wayne Dolezal |
| U.S. Department of the Interior | subsistence uses on Federal lands and reserved waters; subsistence uses of: sea otters, walrus, polar bears, migratory birds | Pamela Bergmann | Doug Mutter |

| Agency | Resources | Primary Contact | Alternate Contact |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------|-----------------------------------|
| U.S. Department of Commerce | subsistence use of: whales, porpoises, seals, sea lions | Brad Smith | Matthew Eagleton |
| RECREATION AND TOURISM USES | | | |
| Alaska Department of Natural Resources | State parks and recreation areas, anchorages, boat launches, campgrounds, State public lands | Sam Means | Clark Cox |
| Alaska Department of Fish and Game | sport hunting and fishing | Mark Fink | Wayne Dolezal |
| Alaska Department of Commerce, Community & Economic Development | seasonal events and activities, travel, outdoor activities, local visitor bureaus, tourism industries | Alaska Division of Tourism | |
| U.S. Department of Agriculture | campgrounds, cabins, recreation areas, trails, within the national forest system | Steve Zemke | Mike Novy |
| U.S. Department of the Interior | recreation uses in park and wildlife refuge system units and Federal public lands | Pamela Bergmann | Doug Mutter |
| WATER INTAKE and USE FACILITIES | | | |
| Alaska Department of Environmental Conservation | public drinking water wells, water treatment and storage, fish processing facilities | James Weise | Suzan Hill |
| Alaska Department of Fish and Game | hatcheries, ocean net pens and release sites, aquaculture | Mark Fink | Wayne Dolezal |
| Alaska Department of Natural Resources | tidelands leases, aquaculture sites, private logging camps and log transfer facilities | Sam Means | Clark Cox |
| U.S. Coast Guard | marinas and docks, mooring buoys | Marine Safety Office, Valdez | 17 th District, Juneau |
| AREAS OF LOCAL CONCERN | | | |
| Cordova | special use locations | Steve Harris | |
| Valdez | special use locations | Carol Smith | |
| Whittier | special use locations | Rick Hohnbaum | |

| Agency | Resources | Primary Contact | Alternate Contact |
|-------------|-----------------------|-------------------------------------------|-------------------|
| Chenega | special use locations | See access information in following table | |
| Chistochina | special use locations | | |
| Chitina | special use locations | | |
| Eyak | special use locations | | |
| Gakona | special use locations | | |
| Gulkana | special use locations | | |
| Kluti-Kaah | special use locations | | |
| Mentasta | special use locations | | |
| Nothway | special use locations | | |
| Tatitlek | special use locations | | |
| Tazlina | special use locations | | |

CONTACT INFORMATION:

| Agency | Primary Contact | | Alternate Contact | |
|-------------------------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| | Name | Numbers | Name | Numbers |
| Alaska Department of Fish and Game | Mark Fink | work: 267-2338 fax: 267-2464 emer: 337-7933 email: mark_fink@fishgame.state.ak.us | Wayne Dolezal | work: 267-2333 fax: 267-2464 emer: email: wayne_dolezal@fishgame.state.ak.us |
| Alaska Department of Natural Resources | Sam Means | work: 269-8548 fax: 269-8913 emer: 333-7229 email: samm@dnr.state.ak.us | Clark Cox | work: 269-8565 fax: 269-8913 emer: 337-1009 email: clark_cox@dnr.state.ak.us |
| Alaska Department of Environmental Conservation | James Weise | work: 269-7647 fax: 269-7655 emer: email: james_weise@dec.state.ak.us | Suzan Hill | work: 269-7521 fax: 269-3990 emer: email: suzan_hill@dec.state.ak.us |
| | Manny Soares | work: 269-7640 fax: 269-7510 emer: 333-5312 email: many_soares@dec.state.ak.us | Kimberly Stryker | work: 269-7583 fax: 269-7510 emer: email: kimberly_stryker@dec.state.ak.us |
| Alaska Department of Commerce, Community and Economic Development | Alaska Division of Tourism | work: 465-2012 fax: 465-3767 emer: email: GoNorth@dced.state.ak.us | | work: fax: emer: email: |
| Alaska Natural Heritage Program | Julie Michaelson | work: 257-2782 fax: 257-2789 emer: 746-0959 email: anjam1@uaa.alaska.edu | Rob Lipkin | work: 257-2785 fax: 257-2789 emer: email: anrl@uaa.alaska.edu |

| Agency | Primary Contact | | Alternate Contact | |
|------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| | Name | Numbers | Name | Numbers |
| Alaska Office of History and Archaeology | Dave McMahan | work: 269-8723 fax: 269-8908 emer: 279-0280 email: Dave_McMahan@dnr.state.ak.us | Joan Dale | work: 269-8718 fax: 269-8908 emer: 562-4314 email: joan_dale@dnr.state.ak.us |
| U.S. Department of the Interior | Pamela Bergmann | work: 271-5011 fax: 271-4102 emer: 333-0489 email: Pamela_bergmann@ios.doi.gov | Doug Mutter | work: 271-5011 fax: 271-4102 emer: 345-7726 email: douglas_mutter@ios.doi.gov |
| U.S. Department of Commerce | Brad Smith | work: 271-5006 fax: 271-3030 emer: 248-4211 email: Brad.Smith@noaa.gov | Matthew Eagleton | work: 271-6354 fax: 271-3030 emer: 338-2822 email: Matthew.Eagleton@noaa.gov |
| U.S. Department of Agriculture | Steve Zemke | work: 743-9521 fax: 743-9480 emer: 622-6170 email: szemke@fs.fed.us | Mike Novy | work: 743-9517 fax: 743-9476 emer: 688-5251 email: mnovy@fs.fed.us |
| U.S. Department of Defense | Alaska Command | work: 552-3944 fax: 552-4855 emer: 552-3000 email: | | work: fax: emer: email: |
| U.S. Coast Guard | Marine Safety Office, Valdez | work: 835-4791 fax: 835-7207 emer: email: | 17th District, Juneau | work: 463-2065 fax: 463-2216 emer: 463-2000 email: |
| NOAA Scientific Support Coordinator | John Whitney | work: 271-3593 fax: 271-3139 emer: 440-8109 email: john.whitney@noaa.gov | | work: fax: emer: email: |

| Agency | Primary Contact | | Alternate Contact | |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| | Name | Numbers | Name | Numbers |
| Cordova | Steve Harris, Planner | work: 424-6233 fax: 424-6000 emer: email: planning@cityofcordova.net | | work: fax: emer: email: |
| Valdez | Carol Smith, Acting Director of Community and Economic Development | work: 835-4313 fax: 835-2992 emer: email: csmith@ci.valdez.ak.us | | work: fax: emer: email: |
| Whittier | Rick Hohnbaum, City Manager | work: 472-2327 fax: 472-2404 emer: email: citymanager@ci.whittier.ak.us | | work: fax: emer: email: |
| Chugach Alaska Corporation | Barney Uhart CEO | work: 261-0341 fax: emer: 223-6748 email: buhart@chugach-ak.com | Rick Rogers VP Lands | work: 261-0343 fax: emer: 223-8028 email: rrogers@chugach-ak.com |
| | | | John Johnson VP Cultural Resources | work: 261-3555 fax: emer: 229-2179 email: jjohnson@chugach-ak.com |
| Tribal Contacts | For the current tribal contact information, go to B. Resources Section, Part Three Information Directory, Native Organizations and Federally Recognized Tribes. | | | |

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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.

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 (number 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
Shoreline Geomorphology - Coastal Habitat Types:
 Marshes
 Eelgrass Beds
 Sheltered Tidal Flats
 Sheltered Rocky Shores
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
 Coarse Grained Sand Beaches
Sea Otter General Distribution Areas(< 20)

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

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SENSITIVE AREAS: PART THREE - RESOURCE SENSITIVITY

The following sensitivity tables were developed by the Sensitive Areas Work Group, with representatives from state and federal agencies and the private sector. Key references that are readily available are identified for each table and listed at the end of the tables. Time periods and/or conditions when resources are of varying levels of concern (most, medium, least) with respect to oil spill impacts are noted in the following tables.

SHORELINE GEOMORPHOLOGY

(references: 4,7)

| CATEGORY | LEAST | MEDIUM | MOST |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

(references: 8,9,10,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|--------------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| ENDANGERED SPECIES | | | Whales: Fin, Blue, Humpback, Sei, Northern right, Sperm Birds: Short-tailed albatross |
| THREATENED SPECIES | | | Pinipeds: Steller sea lion Birds: Steller's eider |
| POTENTIAL SPECIES | | Birds: Harlequin duck, Kittlitz's murrelet, Marbled murrelet, Northern goshawk, Olive-sided flycatcher, American peregrine falcon Mammals: North American lynx, Montague tundra mole, Harbor seal Plants: <i>Draba yukonensis</i> | |
| | | | |

SEA OTTERS

(references: 1,4,12)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------|-------------|--------|-------------|
| ABUNDANCE | | < 20 | > 20 |
| SUSCEPTIBILITY | | | year around |
| 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
(references: 1,4,9,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------------------|-----------------|------------------|----------------|
| ABUNDANCE (ON HAULOUTS) | < 5 | 5 - 10 | > 10 |
| SUSCEPTIBILITY | | year around | |
| 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
(references: 1,4,9,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------------------|-----------------|------------------|-------------------|
| ABUNDANCE (ON HAULOUTS) | < 15 | 15 - 30 | > 30 |
| SUSCEPTIBILITY | | year around | |
| HUMAN HARVEST | June 1 – Aug 31 | 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 |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Pupping | | | | | | ■ | ■ | | | | | |
| Molting | | | | | | | | ■ | ■ | | | |
| On Rookeries | | | | | ■ | ■ | ■ | ■ | ■ | | | |
| On Haulouts | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

WHALES and PORPOISES

(Killer and Humpback Whales, Dall and Harbor Porpoise)
(references: 9)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------|-----------------|-----------------|-----------------|
| ABUNDANCE | < 10 | 10 - 50 | > 50 |
| SUSCEPTIBILITY | Oct 1 - May 1 | Aug 1 - Sept 30 | May 1 - July 31 |
| HUMAN HARVEST | Sept 1 - June 1 | | |

Whales and Porpoises Critical Life Periods

| | J | F | M | A | M | J | J | A | S | O | N | D |
|-------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Present nearshore | | | | | | | | | | | | |
| Calving | | | | ? | | | | ? | | | | |

BEARS

(references: 1,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|-------------------------------|-----------------------------------|------------------------------------|-------------------|
| SUSCEPTIBILITY ^{1,2} | Nov 1 - April 30 | May 1 - June 30 Sept 1 - Oct 31 | July 1 - Aug 30 |
| COMMERCIAL VALUE | Nov 1 - May 31 July 1 - Aug 31 | June 1 - June 30 | Sept 1 - Oct 31 |
| HUMAN HARVEST | Nov 1 - April 15 | | April 15 - Oct 31 |

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

Bear Critical Life Periods

| | J | F | M | A | M | J | J | A | S | O | N | D |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Denning | | | | | | | | | | | | |
| Feeding in coastal areas | | | | | | | | | | | | |
| Feeding along salmon streams | | | | | | | | | | | | |

SITKA BLACK-TAILED DEER

(references: 1,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------|-----------------|--------|-------------------|
| SUSCEPTIBILITY | May 1 - Nov 15 | | Nov 15 - April 30 |
| HUMAN HARVEST | Jan 1 - July 31 | | Aug 1 - Dec 31 |

Sitka Black-Tailed Deer Critical Life Periods

| | J | F | M | A | M | J | J | A | S | O | N | D |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Fawning Period | | | | | | | | | | | | |
| Foraging along coast | | | | | | | | | | | | |

CARIBOU

(references: 1,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------|--------------------------------------|--------|------------------------------------|
| ABUNDANCE | Nov 1 - Feb 28 June 1 - July 31 | | Mar 1 - May 31 Aug 1 - Oct 31 |
| SUSCEPTIBILITY | Nov 1 - Feb 28 June 1 - July 31 | | Mar 1 - May 31 Aug 1 - Oct 31 |
| HUMAN HARVEST | April 1 - Aug 10 Sept 20 - Dec 31 | | Jan 1 - Mar 31 Aug 10 - Sept 20 |

Caribou Critical Life Periods

| | J | F | M | A | M | J | J | A | S | O | N | D |
|--------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Migrations | | | | | | | | | | | | |
| Calving | | | | | | | | | | | | |
| Wintering Concentrations | | | | | | | | | | | | |

WATERFOWL AND SHOREBIRDS

(references: 1,4,11,14)

| CATEGORY | LEAST | MEDIUM | MOST |
|-------------------|-----------------------------|-------------------------------------|--------------------------------------|
| ABUNDANCE | < 100 | 100 - 1,000 | > 1,000 |
| 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 unique locations (e.g., Valdez Duck Flats) where waterfowl concentrate during the winter, their susceptibility would be high.

Waterfowl and Shorebirds Critical Life Periods

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

SEABIRDS

(references: 1,2,4,8)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------------------|-------------------|------------------|-------------------|
| ABUNDANCE | < 1000 | 1000 - 5000 | > 5000 |
| SUSCEPTIBILITY | Nov 1 - Jan 31 | Feb 1 - March 31 | April 1 - Oct 31 |
| SPECIES DIVERSITY | 1 - 3 | 4 - 6 | > 6 |
| HUMAN HARVEST ⁷ | June 1 - April 19 | | April 20 - May 31 |

7. 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 | | | | | | | | | | | | |

RAPTORS (generally eagles)

(references: 1,4,6,8)

| CATEGORY | LEAST | MEDIUM | MOST |
|-----------------------------|--------------------------|-----------------------------|-----------------------|
| ABUNDANCE | < 1 nest/3 coastal miles | 1 nest/1 to 3 coastal miles | > 1 nest/coastal mile |
| SUSCEPTIBILITY ⁸ | | | year around |

8. Although large numbers of raptors move south during the winter; many are still present within Prince William Sound throughout the year. As a result, the susceptibility of these birds should be considered high year around.

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)

(references: 1,4)

| CATEGORY | LEAST | MEDIUM | MOST |
|--------------------------------|----------------|--------------------|-------------------|
| ABUNDANCE (Biomass in Tons) | < 500 | 500 - 5,000 | > 5,000 |
| 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)

(references: 1,3,11)

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------|
| 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) |
| 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

(references: 1,11)

GRAYLING

| CATEGORY | LEAST | MEDIUM | MOST |
|-----------------|------------------|-----------------|-------------------|
| ABUNDANCE | <50,000 | 50,000-100,000 | >100,000 |
| 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 | LEAST | MEDIUM | MOST |
|----------------|----------------|-----------------------------------|-------------------------------------|
| ABUNDANCE | <20 | 20 – 50 | >50 |
| 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 | LEAST | MEDIUM | MOST |
|----------------|----------------|-----------------------------------|-------------------------------------|
| ABUNDANCE | <20 | 20 - 50 | >50 |
| 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 TROUT

| CATEGORY | LEAST | MEDIUM | MOST |
|----------------|-----------------|----------------|------------------|
| ABUNDANCE | < 500 | 500 - 2,000 | > 2,000 |
| 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 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 | LEAST | MEDIUM | MOST |
|-----------------|----------------------------------|-------------------------------------|--------------------------------------|
| ABUNDANCE | < 3,000 | 3,000 - 6,000 | > 6,000 |
| 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)

(references: 1)

| CATEGORY | LEAST | MEDIUM | MOST |
|-----------------|--------------|-----------------|-----------------|
| SUSCEPTIBILITY | | | year around |
| 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 | | | | | | | ■ | ■ | ■ | | | |
| Planktonic Larvae | | | | | | | ■ | ■ | ■ | ■ | ■ | ■ |

LAND MANAGEMENT DESIGNATIONS

(references: 8,10,11,13,14,15)

| CATEGORY | LEAST | MEDIUM | MOST |
|-----------------|----------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 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

(references: 13,14)

| CATEGORY | LEAST | MEDIUM | MOST |
|-----------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 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 |

REFERENCES FOR TABLES

1. Alaska Habitat Management Guides Reference maps - Southcentral Region (Alaska Department of Fish and Game, Habitat Division, 1986)
2. U.S. Fish and Wildlife Service Seabird Catalog
3. An Atlas of the Catalog of Waters Important to the Spawning, Rearing and Migration of Anadromous Fish Southcentral Region (Alaska Department of Fish and Game, updated annually)
4. Environmental Sensitivity Index (ESI) Maps for Prince William Sound Alaska (RPI for NOAA)
5. National Oceanic and Atmospheric Administration Nautical Charts
6. U.S. Fish and Wildlife Service bald eagle nest site database
7. Alaska Regional Profiles - Southcentral Region (University of Alaska, Arctic Environmental Information and Data Center, 1974)
8. U.S. Fish and Wildlife Service (Catherine Berg, Teresa Woods-endangered species)
9. National Marine Fisheries Service (Brad Smith)
10. U.S. Forest Service (Ken Holbrook)
11. Alaska Department of Fish and Game (Mark Fink)
12. U.S. Fish and Wildlife Service marine mammals database
13. Alaska Department of Natural Resources (Sam Means)
14. National Park Service (Bud Rice)
15. State of Alaska Refuges, Critical Habitat Areas, and Sanctuaries (Alaska Department of Fish and Game, Habitat Division, 1991).
16. Nancy Lethcoe, Personal Communications, 1994
17. Tomrdle, L. and R.A. Miraglia. 1993. Use of Fish and Wildlife in Valdez, Prince William Sound, Alaska. Technical Paper, Division of Subsistence, Alaska Department of Fish and Game.
18. Wolfe, R.J. and C. Mishler. 1993. The Subsistence Harvest of Harbor Seal and Sea Lion by Alaska Natives in 1992. Technical Paper No. 229, Division of Subsistence, ADF&G.
19. Seitz, J., L. Tomrdle, and J.A. Fall. 1992. The Use of Fish and Wildlife in the Upper Kenai Peninsula communities of Hope, Whittier, and Cooper Landing. Technical Paper No. 219. Division of Subsistence, Alaska Department of Fish and Game.

SENSITIVE AREAS: PART FOUR - BACKGROUND INFORMATION

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 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

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 on the internet at: <http://www.asgdc.state.ak.us/maps/cplans/subareas.html>

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

Insert land management index map here

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

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

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

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

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

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

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

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

<http://www.asgdc.state.ak.us/maps/cplans/pws/PWScap4of4.pdf>

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). (See Part D.7, Recreational Sites and Facilities, for State Parks information.)

Copper River Delta State Critical Habitat Area The 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.

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 The nation's second largest national forest at 5.6 million acres, the Chugach stretches 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 Established in 1980, the 13 million acre Park and Preserve abut 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.r7.fws.gov/nwr/akmar/index.htm>

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>. Updated ESI information can also be found on the internet at: <http://response.restoration.noaa.gov/order/esiindex.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.

ShoreZone Mapping. A coastal habitat mapping effort has produced an on-line 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 intertidal and shallow subtidal areas. ESI types are cross-referenced. The information may be accessed at:

<http://www.CoastAlaska.net>

3. Upland Habitats

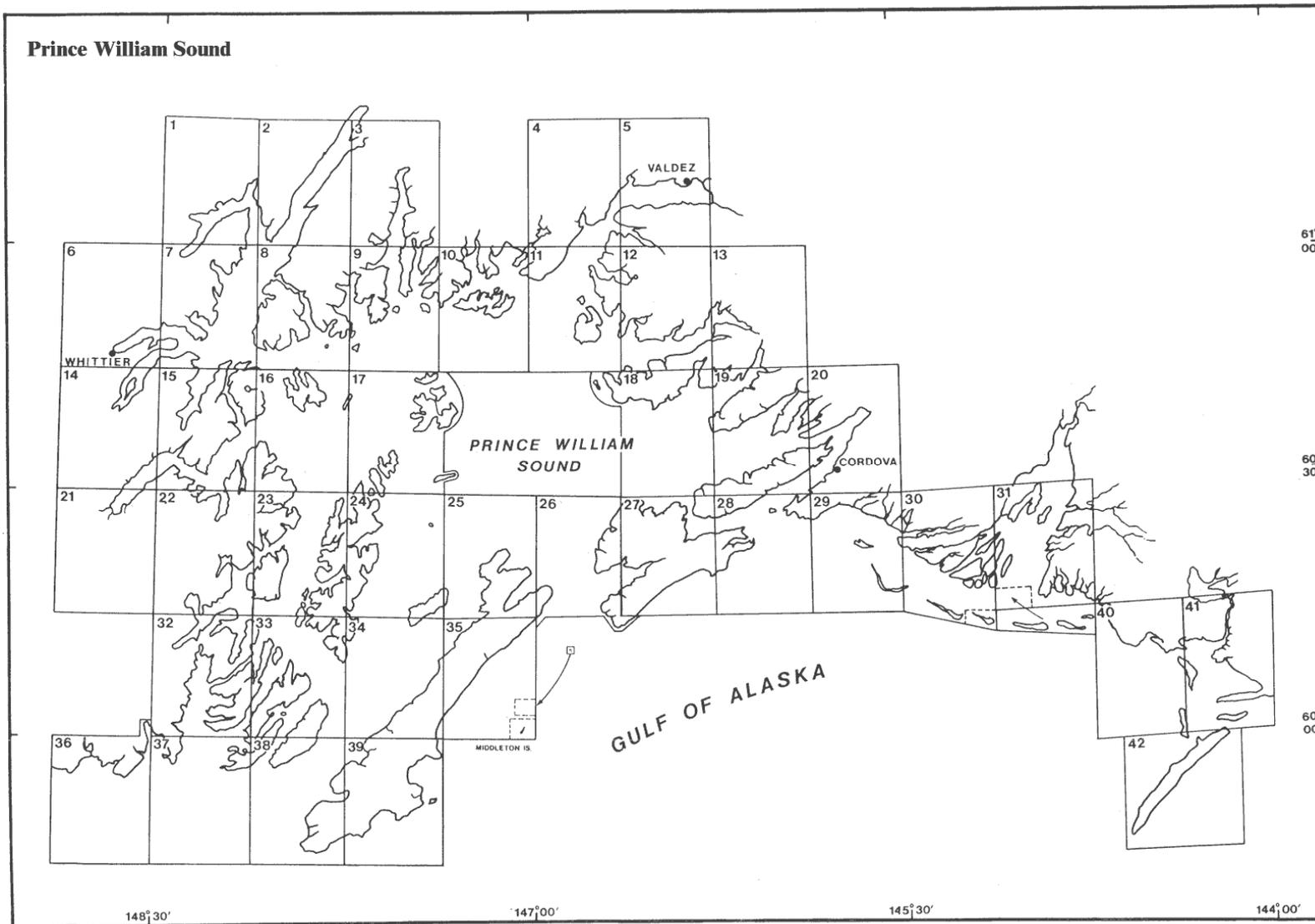
At this time, no uplands or wetlands classifications directly related to sensitivity to oil spills has been identified. A general wetlands classification has been developed by the U.S. Fish and Wildlife Service, National Wetlands Inventory, in Anchorage. Considerable mapping of wetlands has been completed, 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/>

National Wetlands Inventory
ESIC/USGS
Anchorage
786-7011

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 | Freshwater marshes |
| 10 C | Freshwater swamps | Freshwater swamps | Freshwater swamps |

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



Environmental Sensitivity Index Map Atlas Index

Insert wetlands status map here

<http://www.asgdc.state.ak.us/maps/cplans/base/wetlands99.pdf>

C. BIOLOGICAL RESOURCES

1. Fish and Wildlife

(a) Threatened and Endangered Species

Federally listed threatened and endangered species are protected under the Endangered Species Act. Spill response activities which could impact a listed species should be coordinated with the U.S. Fish and Wildlife Service and National Marine Fisheries Service. The northern right whale, humpback whale, and short-tailed albatross are also on the State of Alaska's endangered species list. Threatened and endangered species potentially present in the Prince William Sound subarea include:

Table 1: The following species^a and critical habitat occur in Alaska and have been provided protection under the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*):

| 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 |
| Northern right whale | | <i>Balaena (=Eubalaena) glacialis</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 |
| Steller sea lion | Eastern population | <i>Eumetopias jubatus</i> | Threatened |
| 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 Alaskan |
| Steller's eider | |
| Steller sea lion | Most of PWS and around Middleton Island and Cape St. Elias (50 CFR Part |
| Pacific Salmon | No critical habitat has been designated for salmon species in Alaskan waters. |

The short-tailed albatross and Steller's eider are under the jurisdiction of the U.S. Fish and Wildlife Service. All salmon species are under the jurisdiction of National Marine Fisheries Service, Northwest Regional Office, Seattle, Washington.

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

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 gray whale is no longer a threatened or endangered species, monitoring of the species has continued since the 1994 delisting. 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 the National Marine Fisheries Service.

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://www.r7.fws.gov/fisheries/endangered/listing.htm>

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

(b) 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.

FINFISH

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 (NOAA 2001). 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 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, Berring River and Resurrection River drainage. Montague and Knight Islands support rearing Dolly Varden. Eyak River provides important habitat for Dolly Varden.

Rainbow Trout and Steelhead occur in the Prince William Sound subarea. Rainbow trout 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 salmon 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 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. Small numbers of eulachon return 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 Tinglet for oil and food (ADF&G 2002). 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 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 (*Exxon Valdez Oil Spill Restoration Team 1993*). Jackpot Bay supports several species of anadromous fish including cutthroat trout, Dolly Varden, and sockeye salmon (*Exxon Valdez Oil Spill Restoration Team 1993*). 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 (Hoffman and Miller 2000). 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. 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 (*Exxon Valdez* Oil Spill Restoration Team 1993). 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 (Hoffman and Miller 2000). The 1999 Prince William Sound commercial harvest included 45 million pink salmon (ADF&G 1999b).

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 (Mickelson 1989), and they are present in the Eshamy Bay system in large numbers (Hepler et al. 1994, Reeves et al. 1997). 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 dry 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 (Hoffman and Miller 2000). Sockeye fisheries at Coghill and Eshamy have rebuilding from several years of poor return. The Coghill fishery was closed entirely in 1992, 1993 and 1994 and the seasons at Eshamy were restricted during those same years (Hoffman and Miller 2000). An increase in sockeye returns to Coghill between 1996 through 1999 met the escapement goals for that system. 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 (Hoffman and Miller 2000). From 1990 to 1999, there has been an increase of 163% in sockeye salmon recreationally harvested (Hoffman and Miller 2000). According to the Prince William Sound Management Area 1999 Annual Finfish Management Report, 2 million sockeye were commercially harvested in the Sound in 1999 (ADF&G 1999b).

Chum salmon are present through the Sound area and fry feed on small insects in the stream and estuary 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 (Hoffman and Miller 2000). 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 (Hoffman and Miller 2000). 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 (ADF&G 1999b).

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 (Hoffman and Miller 2000). Sixty three thousand four hundred chinook salmon were commercially harvested in 1999 in Prince William Sound (ADF&G 1999b).

Coho Salmon- Coho are extremely adaptable and occur in nearly all accessible bodies of fresh water-from large transboundary watersheds to small tributaries through out 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 (Miller and Stratton 2000). 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 (Hoffman and Miller 2000). The estimated sport fishing harvest in the PWSMA for coho salmon during 1999 was 53,089 (Hoffman and Miller 2000). 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 (ADF&G 1999b).

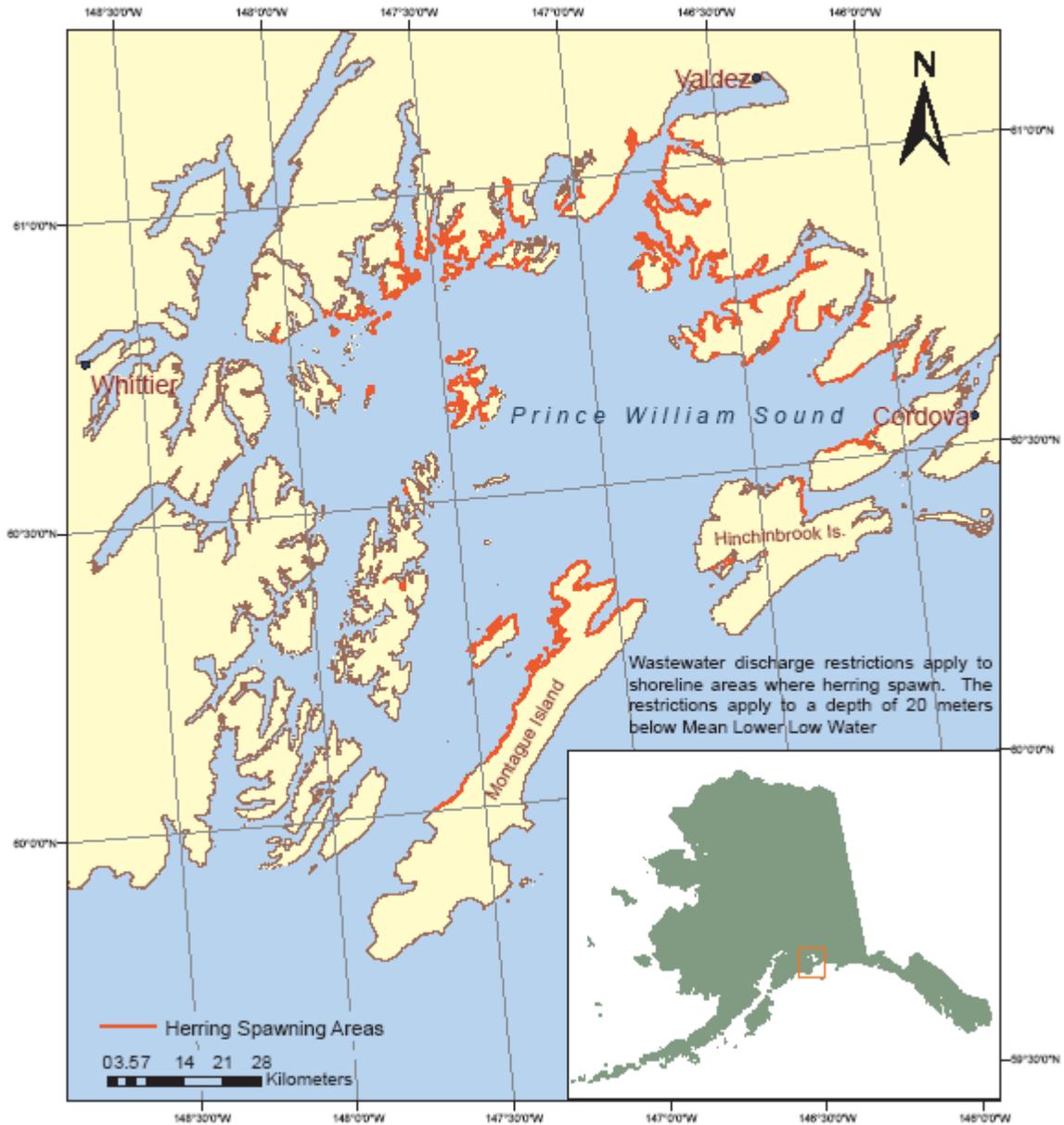
Pacific Herring are critically important in the Prince William Sound food web as many seabirds, fish and marine mammals rely on them as prey. Wide distribution of herring occurs from 50 to 100 meter depths and they aggregate in large schools for spawning in April in nearshore subtidal and intertidal 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, Hells Hole in Port Gravina (Brown and Carls 1998, Brown and Baker 1998, Willette et al. 1997). 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 (Brown and Baker 1998) and at Knowles Head (Thomas et al. 1997). At Jackpot and Whale Bays, major juvenile herring nurseries occur (Thomas et al. 1997). A rich supply of nutrients at the Hinchinbrook Entrance supports spawning in May. The Tatitlek Narrows support a major Pacific herring spawning area in the southern half of the Narrows, down into the mouth of Port Fidalgo (Brown and Baker 1998, Willette et al. 1997). Pacific herring spawn on the north side of Fairmount Island (Brown and Baker 1998). 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 (Brown et al. 1999).

Capelin. Infrequently harvested, capelin 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 (Brown et al. 1999).

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 along the 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 (ADF&G 2002). 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 (Miller & Stratton 2001). 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 (Miller and Stratton 2001).

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. Yellow fin sole juveniles stay in the nearshore area for 3 to 5 years.

Other Forage Fish - Numerous species of fish inhabit the nearshore area 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 BOF and in 2000, the BOF closed Dungeness crab fishing throughout Prince William Sound.

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 at a depth of 50 m or less. They are solitary and need high relief habitat or coarse substrate such as boulders, cobble, shell hash, and living substrates 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 (Trowbridge 1993). Brown king crabs occur at depths of 150-400 fathoms and are found in central and western PWS (Trowbridge 1993). 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 (Miller and Stratton 2001).

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. The Prince William Sound Management Area Tanner Crabs have historically been the primary shellfish resource in terms of landed weight, with 74 million pounds harvested over the last 24 years (Trowbridge 1993). Females 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 (Mickelson 1989). Emergency orders were issued to close the tanner crab fishery in PWS from 1990-1999 due to shellfish survey findings of depressed stocks (Miller and Stratton 2001). 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 25-100 fathoms (a fathom equals 6 feet). Generally weathervane scallops are sexually mature at age 3 or 4 and are of commercially harvestable size at 6 to 8 years (ADF&G 2002). 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) (ADF&G 2002). Spot shrimp seem to be caught in the greatest concentrations around 60 fathoms, but range from 2 to 250 fathoms (ADF&G 2002). 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 (Miller and Stratton 2001). 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. From 1990 through 1999, the average annual harvest of razor clams was 11,244. The majority of the PWS harvest is taken along the Cordova road system and in the Copper River Delta (Miller and Stratton 2001). In 1997, the proposal to require a permit to harvest razor clams on the Copper River Flats was approved.

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, Evans Island's Shelter Bay (Babcock 1996).

Essential Fish Habitat

Essential fish habitat in the Prince William Sound subarea, as identified by the National Marine Fisheries Service, can be found on their interactive mapping internet site:

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

(c) Birds

Important Bird Habitats/Communities

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. Many birds also breed in the region during the summer and overwinter in sheltered areas. The following list is of summer birds. During spring bird migrations, many other species pass through, some species in flocks of thousands, others in flocks of hundreds of thousands.

COMMON BIRDS: Many of our birds are water birds. They nest in a wide variety of habitats: cliffs, gravel bars in streams, peatland bogs, hollows in dead trees, rockpiles, burrows, base of tree trunks, or marsh grasses along the edges of lakes. These include common loon, yellow-billed loon, red-throated loon, horned grebe, red-necked grebe, sooty shearwater, short-tailed shearwater, red-faced cormorant, double-crested cormorant, pelagic cormorant, great blue heron, Canada goose, green-winged teal, Barrow's goldeneye, northern fulmer, harlequin duck, oldsquaw, 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. Species supported at the head of

Heather Bay include: loon, scoter, tern, murrelet, and many other species of waterfowl, shorebirds, seaducks, and seabirds, possibly drawn to the area by the upwelling of krill. The marine waters within Tatitlek Narrows have been identified as a sensitive biological resource for seabirds, waterfowl, invertebrates, and shorebirds. The north end of Montague Island is preferred feeding, nesting and staging habitat for many bird species. In May, large concentrations of seabirds feed on the dense concentration of prey fish.

Surfbirds. Tens of thousands of surfbirds are attracted to the herring roe in Rocky Bay (Norton et al. 1990). North Montague Island is also a migratory stopover for post-breeding surfbirds, rock sandpiper, and black turnstones numbering in the thousands (USFWS 2001). Seventy percent of the world's surfbird populations use Montague Island as their staging area as they prepare to migrate to inland alpine tundra (Senner and McCaffrey 1997).

Waterfowl. One third of the southwestern Sound harlequin duck population is found along Green and Channel Islands (Rosenberg and Petrula 1998). The eastern Sound population of harlequin duck is concentrated in Olsen Bay, Hell's Hole and Sheep Bay (Rosenburg and Petrula 1998). Harlequin ducks nest around Constantine Harbor (USFWS 2001). Wintering areas for harlequin duck and scoter include Harriman Fjord and Barry Arm (US Forest Service 2000). Eshamy Bay supports harlequin ducks wintering in the nearshore marine zone and they nest and brood on fast moving streams in the area (Esler et al 2000). Harlequin ducks molt and winter in the Tatitlek Narrows (*Exxon Valdez* Oil Spill Restoration Team 1993). 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-In the southwest portion of PWS, almost two-thirds of the pigeon guillemot population resides with colonies on Evans Island (Sanger and Cody 1994). Tufted puffins have a large colony at Point Elrington and horned puffin, arctic tern, black-legged kittiwake, pelagic & red-faced cormorant, common murre and glaucous-winged gull also have colonies at Point Elrington (USFWS 2001). Glaucous-winged gulls are attracted to the herring roe in Rocky Bay in large numbers (Norton et al. 1990). The highest nesting densities of pigeon guillemot (1/4 of colonies nesting) in the Sound occur on Naked Island (Sanger and Cody 1994). One of the primary locations for marbled murrelet in the Sound is on Naked Island (Kuletz et al. 1994). 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 (Scheel and Hough 1998). See the following regional summary Seabird Population Map.

The Alaskan Seabird Colony Catalog is an automated database that contains the distributions of breeding seabirds and the relative size of all the colonies in Alaska. The data reports indicating estimated species composition and numbers for seabird colonies of Prince William Sound are summarized from the catalog. The maps display colony locations. The Alaska Seabird Colony Catalog is maintained by the U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Marine and Coastal Bird Project, in Anchorage at 786-3444. For updated information see the internet at: <http://www.r7.fws.gov/mbasp/introduction.htm>

Kittlitz's murrelet numbers have dropped dramatically over the last decade through out Glacier Bay and Prince William Sound (Lance et al. 1999, Piatt et al. 2000). The remaining Kittlitz's murrelet population, found almost exclusively in Alaska, are thought to occur in four glaciated fjords, with Harriman Fjord having the highest concentration. Marbled murrelet nest around Harriman Fjord in the old growth forests or cliff crevices (Agler et al. 1998, Kendall and Agler 1998). They also nest west of Fairmount Island at the mouth of Unakwik Inlet (Agler et al. 1998, Kendall and Agler 1998) and Kittlitz's murrelet occur in the upper end of Unkwik Inlet (Day and Nigro 1999) and they are also found on Olsen Island (Kendall and Agler 1998). Large numbers of tufted puffins, horned puffins and pigeon guillemot have been counted in this area (USFWS

2001). Marbled murrelet are known to nest at the north end of Green Island and there is a high density near Needle and Seal Island.

Common gull and gull-like birds include the glaucous-winged gull, mew gull, black-legged kittiwake, and Arctic tern. Skilled birdwatchers also frequently see the black-billed Aleutian tern and the large, Caspian tern. Parasitic jaegers often pursue gulls, terns, and kittiwakes making them disgorge their catch.

Insert seabird summary map here

<http://asgdc.state.ak.us/maps/cplans/pws/pws3seabird.pdf>

Every June, black-legged kittiwake are found at Knowles Head (Brown et. al 1999). Boswell Rocks and Pinnacle rocks hosts a major kittiwake colony. 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, mew and glaucous-winged gull (USFWS 2001). Arctic terns and glaucous-winged gulls are present at Unakwik Reef (USFWS 2001). Arctic tern and glaucous-winged gulls breed on Danger Island (US Forest Service 2001). Porpoise rocks contain large colonies of black-legged kittiwakes as well as common murre and tufted puffin as well as smaller colonies of glaucous-winged gull and horned puffin. Arctic tern, tufted puffin and pigeon guillemot all nest around Constantine Harbor (USFWS 2001).

Areas identified as important for seabirds include Surprise Inlet, Patton Bay, and Serpentine Cove (NOAA 2001). 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 (Mickelson et al. 1977).

Shorebirds-The Sound's shorelines provide a varied assortment of invertebrates for shorebirds to feed on. Common shorebirds include the black oystercatcher, black turnstone, forked-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 (Norton et al. 1990).

Black oystercatchers with their brilliant 3-inch long bills, bright orange eyes, and pale pink legs are locally 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 (Mickelson 1989). High densities of breeding black oystercatchers occur on Green, Little Green, and Channel Islands and hundreds of black oystercatchers over-winter on Green Island and Stockdale Harbor and Port Chalmers (Andres and Falxa 1995, Andres 1998). Two Moon Bay in Port Fidalgo, Bligh Island, and Sheep Bay are considered prime habitat for oystercatchers (Andres 1998, US Forest Service 2000). Black oystercatchers breed on Danger Island and the shores of Prince of Wales Passages are considered important habitat (US Forest Service 2001). They are known to nest around Constantine Harbor (USFWS 2001).

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 (Isleib and Kessel 1992, Senner 1979). 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 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.

(d) Marine Mammals

Harbor seals, Steller sea lions, sea otters, gray whales, finback whales, sei whales, minke whales, humpback whales, beluga whales, Cuvier's beaked whales, killer whales, Dall and harbor porpoises, Pacific white sided porpoises are all present in the Sound (Hall 1981). The Marine Mammal Protection Act of 1972 protects all marine mammals. Any spill response activities, which could 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. A large sea lion rookery is 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 in Prince William Sound are estimated to number about 230. Little is known concerning the species number in Alaska. A single group of 500 was spotted off Middleton Island. Killer whales prey upon warm-blooded vertebrates including marine mammals, sea birds, and many species of fish. There is evidence to suggest killer whales are preying more on sea otters in certain parts of Alaska due to the decline of seals and sea lions in Alaskan waters (USFWS 2002). Resident killer whales follow and feed on salmon through the Montague Straight area. Around Green Island, transient killer whales forage regularly for harbor seals. They also attack sea lions at the Needle. Killer whales rub their bodies on the rounded stones along the northern shore of LaTouche Island. One hundred or more killer whales have been seen in lower Knight Passage in the summer months (Matkin 1994). Transient killer whales hunt harbor seals in concentration areas such as Icy Bay and they hunt Dall's porpoises and harbor porpoises in the Knight Island Passage (Matkin 1994).

Humpback Whales -An estimated 60 or more humpback whales utilize the Sound (von Ziegesar 1994). Humpback whales feed regularly in the Green Island area in July and August in groups up to 30 individuals (Mickelson 1989). Humpback whales feed in the Southwest Passage and Knight Island Passage. The Knight Island Passage is a major migration corridor for humpbacks in the summer (Mickelson 1989, von Ziegesar 1994). Humpback whales are the third most depleted whale species in the Northern Pacific. They feed in the Hinchinbrook Entrance area in July and August as well as during the winter months.

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 (ADF&G, 2002). 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. Gray whales have recovered slightly and their world population is now estimated at about 21,000. Two gray whales are harvested annually (range 0-6) in recent years by Alaska Eskimos.

Harbor Seals are found in nearshore waters throughout the Prince William Sound Region. In fact, about 5,500 inhabit the Sound and most exhibit strong site fidelity. Harbor seals tend to concentrate in estuaries and protected waters. Habitats used for haulouts include cobble and sand beaches, tidal mud flats, offshore rocks and reefs, and ice (frozen heads of bays, in fjords, etc.) when available. Harbor seals enter lakes and rivers on a seasonal basis. 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 on Hawkins, 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, Kayak Island, Green and Little Green Islands, Seal and Channel Islands (Frost and Lowry 1994, Hoover-Miller et al. 2001, NOAA 2001). Other haulouts include: off Lone Island, Story Island, Blackstone Bay, and Perry Island. Concentrated harbor seal areas are located in Controller Bay and at the outfall of the Bering River.

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. Portions of the marine waters of Port Etches have been designated as a sensitive biological resource for harbor seals (NOAA 2001). Icebergs from tidewater glaciers provide resting areas for harbor seals and they are found in Harriman Fjord and around Surprise glacier. Surprise Inlet and Barry Arm are designated as a sensitive biological resource for seals (NOAA 2001). Columbia Bay has one of the highest harbor seal densities in the Sound and the icebergs in the area provide resting areas during pupping in early summer and molting in late summer through early fall (Frost and Lowry 1994, Hoover-Miller et al. 2001). A large haulout supporting over 500 harbor seals occurs near the head of Columbia Bay (NOAA 2001). The Copper River, as it enters the Sound provides a wealth of resources for the harbor seals flocking there in large numbers. There are ten known year-round harbor seal haulouts in this region with reported counts of one haulout containing 443 individuals. Please see sensitive biological resource maps 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 (USFWS 2002). Extensive studies in Prince William Sound indicate that the recovery process may be constrained by oil spill residual effects (USFWS 2002). 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 their weight in food daily and often bring up 40 to 50 pounds of whole shellfish per day to meet this requirement (Arctic Environmental Information and Data Center 1990). The north west coast of Montague Island provides excellent habitat for sea otters (Bodkin and Udevitz 1999, Irons et. al 1988). High sea otter concentrations are found in Port Gravina, Sheep Bay, Simpson Bay and around Surprise

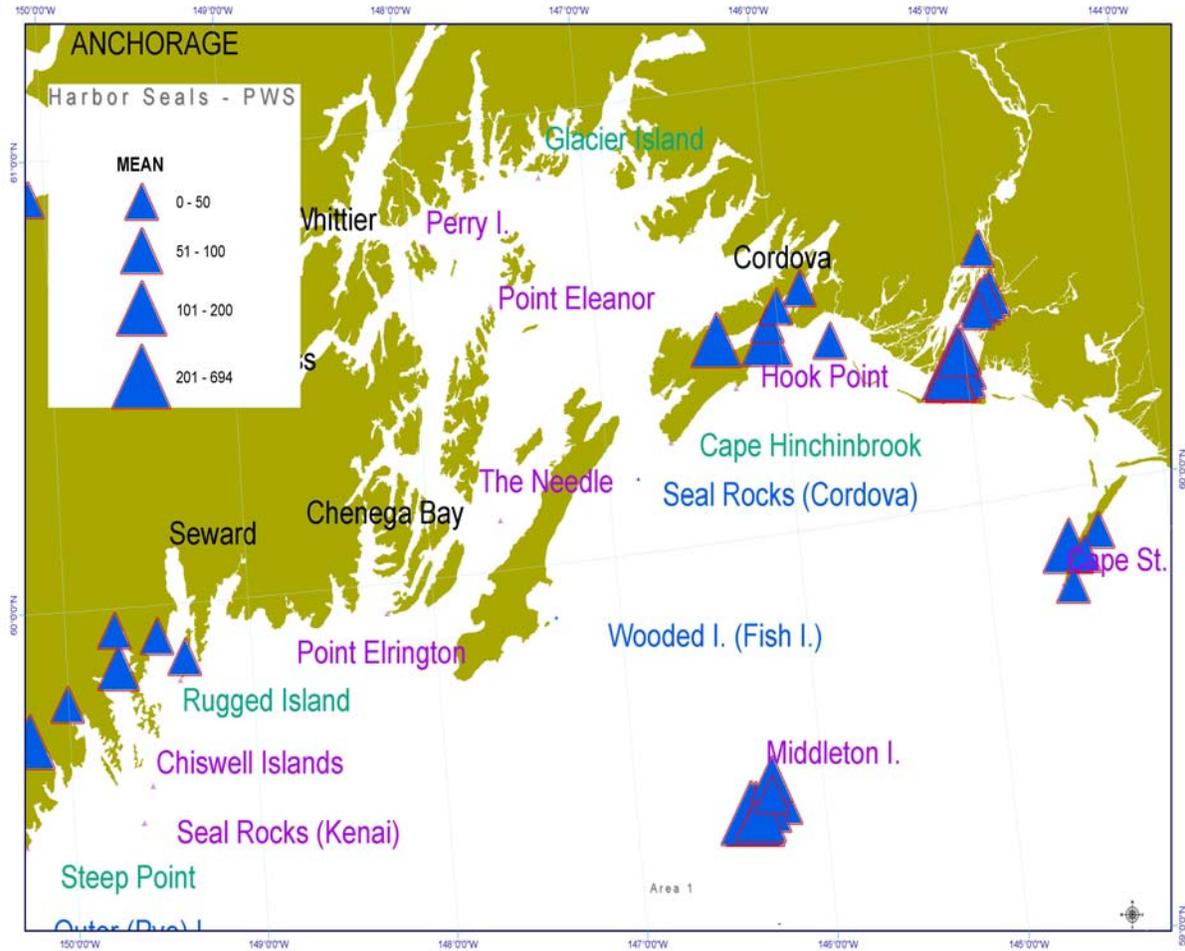
Glacier (US Forest Service 2000). Sea otters pup near the northeast end of Evans Island, and overwinter on the west side of LaTouche Island (*Exxon Valdez* Oil Spill Restoration Team 1993). Orca Inlet has one of the highest reported sea otter densities in the world. The nearshore waters and shoreline of Port Etches have been designated as concentration areas for sea otters (NOAA 2001). A high concentration of sea otters has been documented in Barry Arm (US Forest Service). The Chugach National Forest has documented large numbers of sea otters around Wooden Island (US Forest Service 2000). 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 (US Forest Service 2000, *Exxon Valdez* Oil Spill Restoration Team 1993). Sea otters utilize the shallow exposed waters in the lower half of Unakwik Inlet where greater benthic biomass exists (Irons et al. 1988). Eshamy Bay provides protected sea otter pupping areas and has been designated as a concentration area for sea otters (NOAA 2001). For more about sea otters:

<http://www.r7.fws.gov/fisheries/mmm/seaotters/otters.htm>

The Steller Sea Lion population that occurs within the Prince William Sound Region is part of the population segment classified in 1997 as endangered under the Endangered Species Act. 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 and Point Elrington, and the Pleiades Islands as year-round haulouts (Calkins and Pitcher 1982, NOAA 2001). The only two Steller sea lion rookeries in the Prince William Sound vicinity are Seal Rocks and Wooded Island. The National Marine Fisheries Service has designated both as critical habitat for the endangered species. Patton Bay and the surrounding islands provide for Steller sea lions with the dense concentrations of forage fish. Fish Island has been used as a haulout of Steller sea lions since the 1970's (Calkins and Pitcher 1982). 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.

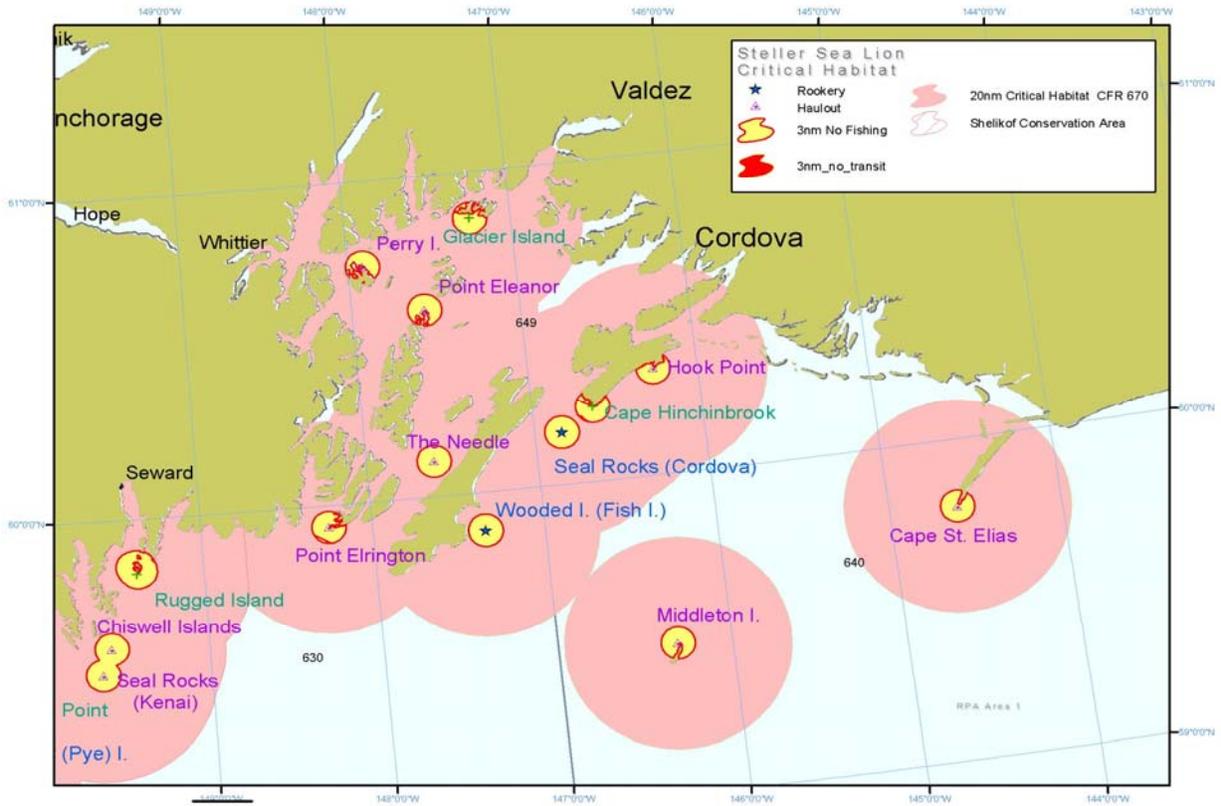
Harbor Seals in Prince William Sound

(source: National Marine Fisheries Service)



Stellar Sea Lion Critical Habitat in Prince William Sound

(source: National Marine Fisheries Service)



(e) 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 and hemlock, and arboreal lichens are used (ADF&G 2002). 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 (ADF&G 1985). 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 (Arctic Environmental Information and Data Center, 1990). Total harvest for the 1999-2000 season in the Prince William Sound and North Gulf Coast areas was 2,265 deer (ADF&G 2000c). Montague Island provided 40% of the take, while Hinchinbrook and Hawkins Islands produced 17% and 21% of the take, respectively.

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. The harvest number in the Prince William Sound and north Gulf Coast areas for 1999 totaled 86 moose (ADF&G 2000e).

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 1970's and early 1980's. 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 dened 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 (Mickelson 1989, Sundet

1994). 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. Montague, Hitchinbrook and Hawkins Islands contain brown bears. 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. Brownies will stay near salmon streams until the runs play out, sometimes into October (pers. comm. Dave Crowley 2002). Harvest data in Unit 6 indicate 48 brown bears taken in the 1999-2000 season (ADF&G 2000b).

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. Two hundred seventy-six bears were taken in the Prince William Sound and north Gulf Coast areas during the 1999-2000 season (ADF&G 2000a).

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. 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 (ADF&G files). 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 (*Exxon Valdez Oil Spill Restoration Team 1993*). 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 Bligh and Busby Islands due to the high quality intertidal and subtidal biota (Scheel et al. 1996). In the 1999-2000 season, 72 beavers and 46 otters were harvested in the Prince William Sound and north Gulf Coast management area (ADF&G 2000d).

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 (ADF&G 2002). 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 packs (ADF&G 2000f). An area harvest of 8 wolves was taken in the 1999-2000 season. Wolves 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 (Griese 1990 and 1988).

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2. 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 further information, contact the Alaska Natural Heritage Program botanist at 257-2785.

RARE PLANTS KNOWN FROM THE PRINCE WILLIAM SOUND SUBAREA

| <u>Global Rank</u> | <u>State Rank</u> | <u>Scientific Name</u> | <u>Common name</u> |
|--------------------|-------------------|---------------------------------------------------|---------------------------|
| 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 vahlium</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</i> ssp <i>richardsonii</i> | RICHARDSON'S PHLOX |
| G? | S2S3 | <i>Elymus calderi</i> | |
| G4T3 | S2? | <i>Draba lonchocarpa</i> var <i>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> | HOOKER 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</i> ssp <i>norbergii</i> | NORBERG ARNICA |
| G5T2T3Q | S2S3 | <i>Smelowskia calycina</i> var <i>porsildii</i> | |
| G5T2T4Q | S2 | <i>Dodecatheon pulchellum</i> | |
| | | ssp <i>alaskanum</i> | ALASKAN PRETTY SHOOTING-STAR |
| G5T3 | S3 | <i>Astragalus harringtonii</i> | |
| G5T3Q | S3 | <i>Carex lenticularis</i> var <i>dolia</i> | GOOSE-GRASS SEDGE |
| G5T3T4 | S2 | <i>Saxifraga nelsoniana</i> ssp <i>porsildiana</i> | HEART-LEAF SAXIFRAGE |
| G5T4Q | S2 | <i>Trisetum sibiricum</i> ssp <i>litorale</i> | SIBERIAN FALSE-OATS |
| G5T5 | S1 | <i>Poa douglasii</i> ssp <i>macrantha</i> | |

Species Ranks used by the Alaska Natural Heritage Program

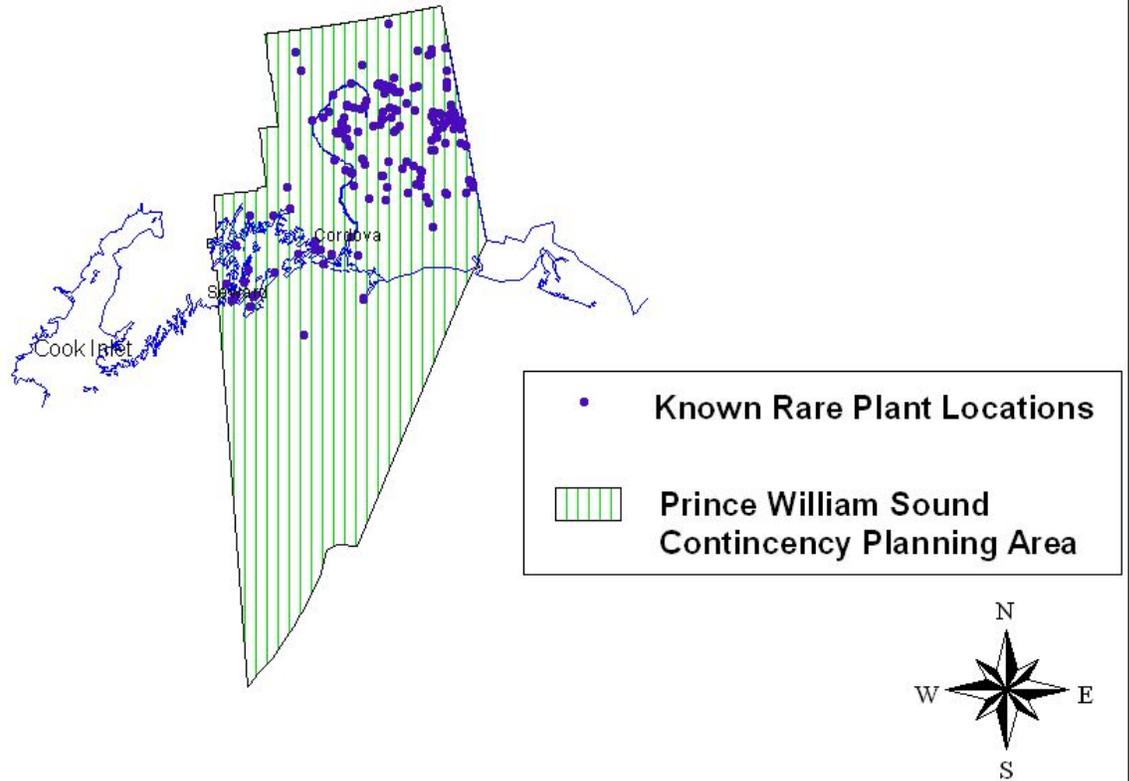
Species Global Rankings

- 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>

3. **Biologically Sensitive Areas**

The Alaska Department of Fish and Game began a project in 1996 to map some of the most environmentally sensitive areas (MESAs) for wildlife along Alaska's coast. This information is for contingency planning purposes and does not cover the complete coastline or sensitive areas that other organizations may identify. Maps entitled "Most Environmentally Sensitive Areas along the Coast of Alaska" were published by the Alaska Department of Fish & Game in 1997 and revised in 2000, and are available in hard copy and digital format from their Anchorage office at 267-2338.

These maps are also available at the DNR Prevention and Emergency Response Subarea Plan Maps website located at:

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

Each of these sensitive areas is plotted on a 1:250,000 scale U.S. Geological Survey quadrangle map. A list of the sensitive areas in the subarea and map referencing their location is provided (see the following figure and table), followed by the MESA maps.

BIOLOGICAL HOTSPOTS MAP here

http://www.asgdc.state.ak.us/maps/cplans/base/mesa_vol2.pdf

**Oil Spill Contingency Planning
Most Environmentally Sensitive Areas
along the Coast of the Prince William Sound Subarea**

54. Patton Bay (Montague Island)/Wooded Island
 - salmon concentrations
 - waterfowl and shorebird spring staging
 - seabird colonies (>16,000 birds)
 - harbor seal haulouts
 - sealion haulouts and rookeries (600 pups)
 - sea otter concentrations
 - deer feeding concentrations

55. Sheep Bay
 - salmon concentrations
 - herring spawning
 - waterfowl and shorebird spring and fall staging
 - seabird colony (100 birds)
 - harbor seal haulouts
 - sea otter concentrations

56. Seal Rocks (southwest of Hinchinbrook Island)
 - seabird colony (>50 birds)
 - sea lion haulouts and rookeries (657 pups)

57. Copper River Delta/Controller Bay
 - salmon concentrations
 - razor clam concentrations
 - waterfowl and shorebird spring and fall staging and molting
 - seabird colonies (>46,000 birds)
 - harbor seal haulouts
 - Copper River Delta State Critical Habitat Area
 - Western Hemisphere Shorebird Preserve Network

Insert MESA map 1 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/mesa54.pdf>

Insert MESA map 2 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/ mesa55a.pdf>

Insert MESA map 3 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/ mesa55b.pdf>

Insert MESA map 4 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/ mesa56.pdf>

Insert MESA map 5 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/ mesa57a.pdf>

Insert MESA map 6 of 6 here

<http://www.asgdc.state.ak.us/maps/cplans/pws/mesa57b.pdf>

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.

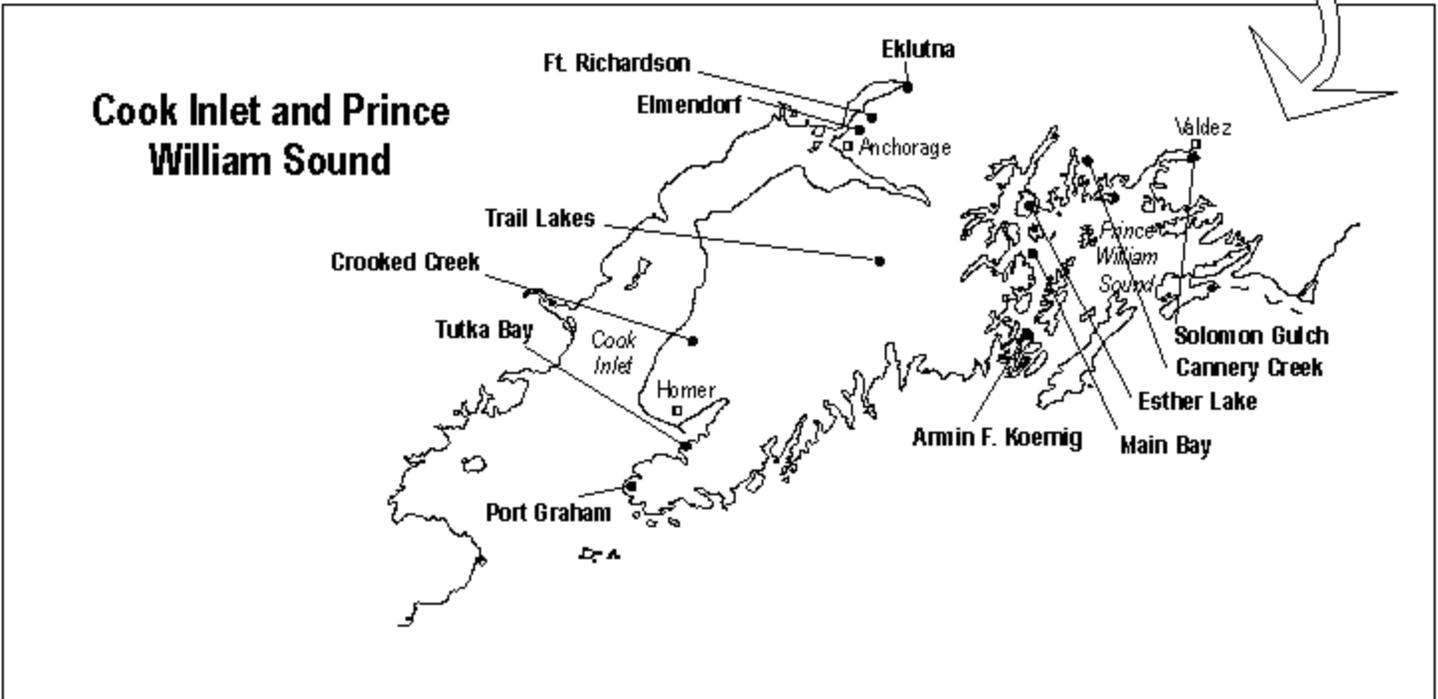
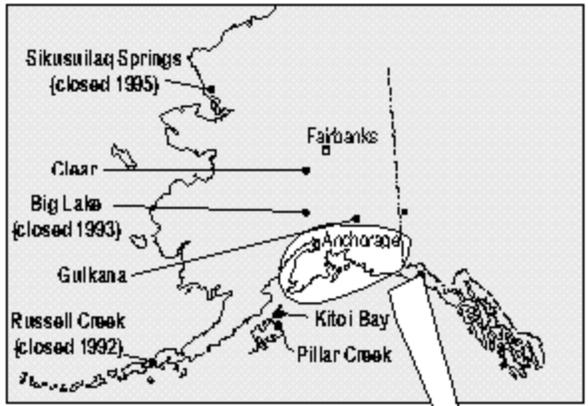
Currently, there is remote release of chum salmon to Port Chalmers on north Montague Island originating from the WN Hatchery. Main Bay Hatchery releases coho to Solf Lake. There is a remote release of coho salmon to Whittier, Chenega and Cordova from the WN Hatchery.

For additional information on hatcheries in Prince William Sound contact the Alaska Department of Fish and Game in Juneau at 465-6152.

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 contact:

Aquaculture Coordinator
Alaska Department of Fish and Game
Juneau: 465-6150 Anchorage: 267-2333

Alaska Department of Environmental Conservation
Anchorage: 269-7638

Alaska Department of Natural Resources
Anchorage: 269-8546

Or try the internet 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.

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 still apply on all lands, and the State is still the manager of fish and wildlife on all lands and waters in Alaska. As a consequence, the number of agencies involved in regulating subsistence uses has increased. Therefore, in the event of a spill, more extensive coordination will be required in order to address subsistence resources. Regulations regarding subsistence harvest can also be expected to undergo regular modification. Current information on harvest regulations can be obtained from the Alaska Department of Fish and Game, Subsistence Division at Anchorage: 267-2353 (<http://www.subsistence.adfg.state.ak.us/>); or the U.S. Fish and Wildlife Service Office of Subsistence Management at Anchorage: 786-3888 (<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.

Useful information on the Copper Basin/Upper Tanana areas can be found in the following publication:

MacMillan, Patricia O. and S.V. Cuccarese. 1988. Alaska Over-the-Horizon Backscatter Radar System: Characteristics of Contemporary Subsistence Use Patterns in the Copper River Basin and Upper Tanana Area. Vol. II, Appendices. Arctic Environmental Information and Data Center, Anchorage.

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) Parks, Picnic Areas, and Campgrounds

State: Name, Nearest Community

(see also <http://www.dnr.state.ak.us/parks/>)

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

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 the internet at: <http://www.nps.gov/aplic/cabins>

(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 |

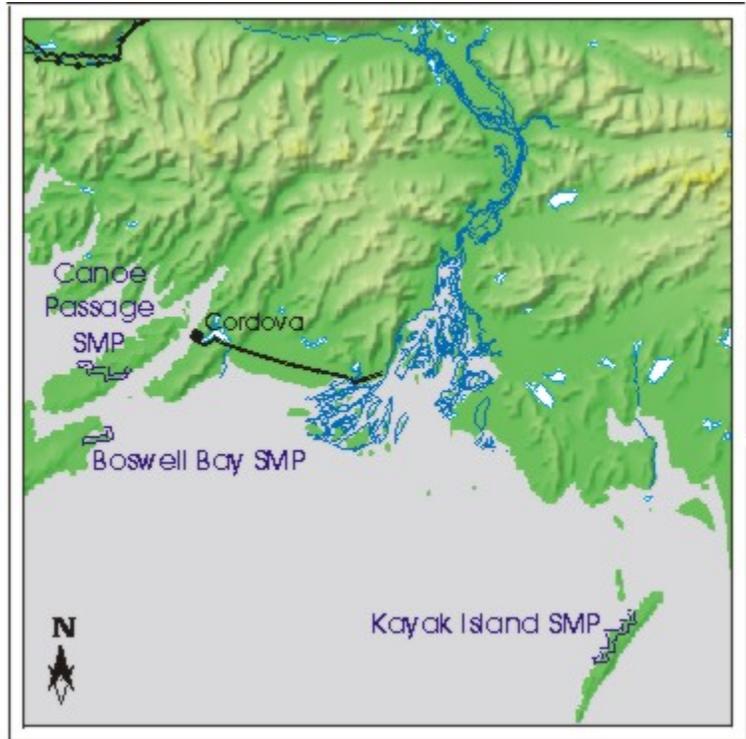
For further information: <http://www.dnr.state.ak.us/parks/>
or call 269-8700 (Anchorage Office)

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.

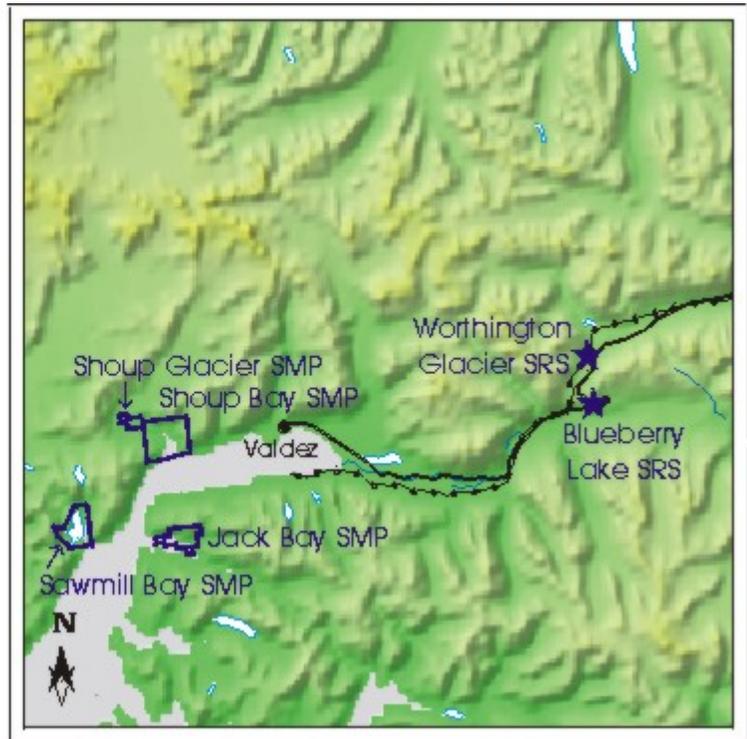


| Park Unit | Acres | CS | CL | CF | P | T | W | S | Tr | H | B | C | D | F | Location |
|-------------------|-------|----|----|----|---|---|---|---|----|---|---|---|---|---|----------------|
| Boswell Bay SMP | 799 | ■ | ■ | ■ | | | | | | ■ | ■ | ■ | ■ | F | No road access |
| Canoe Passage SMP | 2,735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

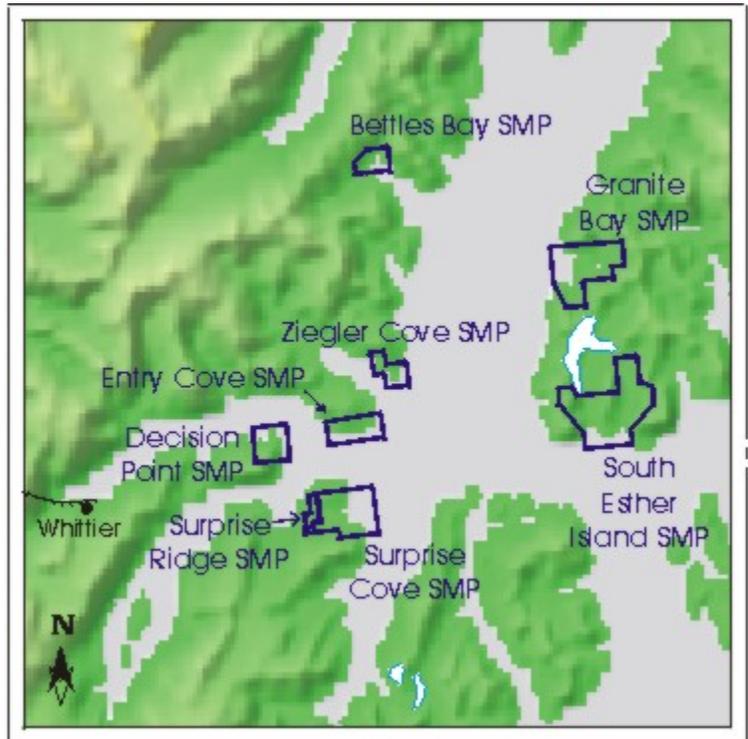


| Park Unit | Acres | CS | CL | CF | P | T | W | S | Tr | H | B | C | D | F | Location |
|-------------------------|-------|----|----|----|---|-------------|---|---|----|---|---|-----|---|---|----------------------|
| Blueberry Lake SRS | 192 | 15 | 15 | CF | | T/a | W | | Tr | | | | | F | 23 Richardson 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 | | | | | | | | F | No road access |
| Worthington Glacier SRS | 113 | | | | | T | | | Tr | | | | | F | 28.7 Richardson Hwy. |

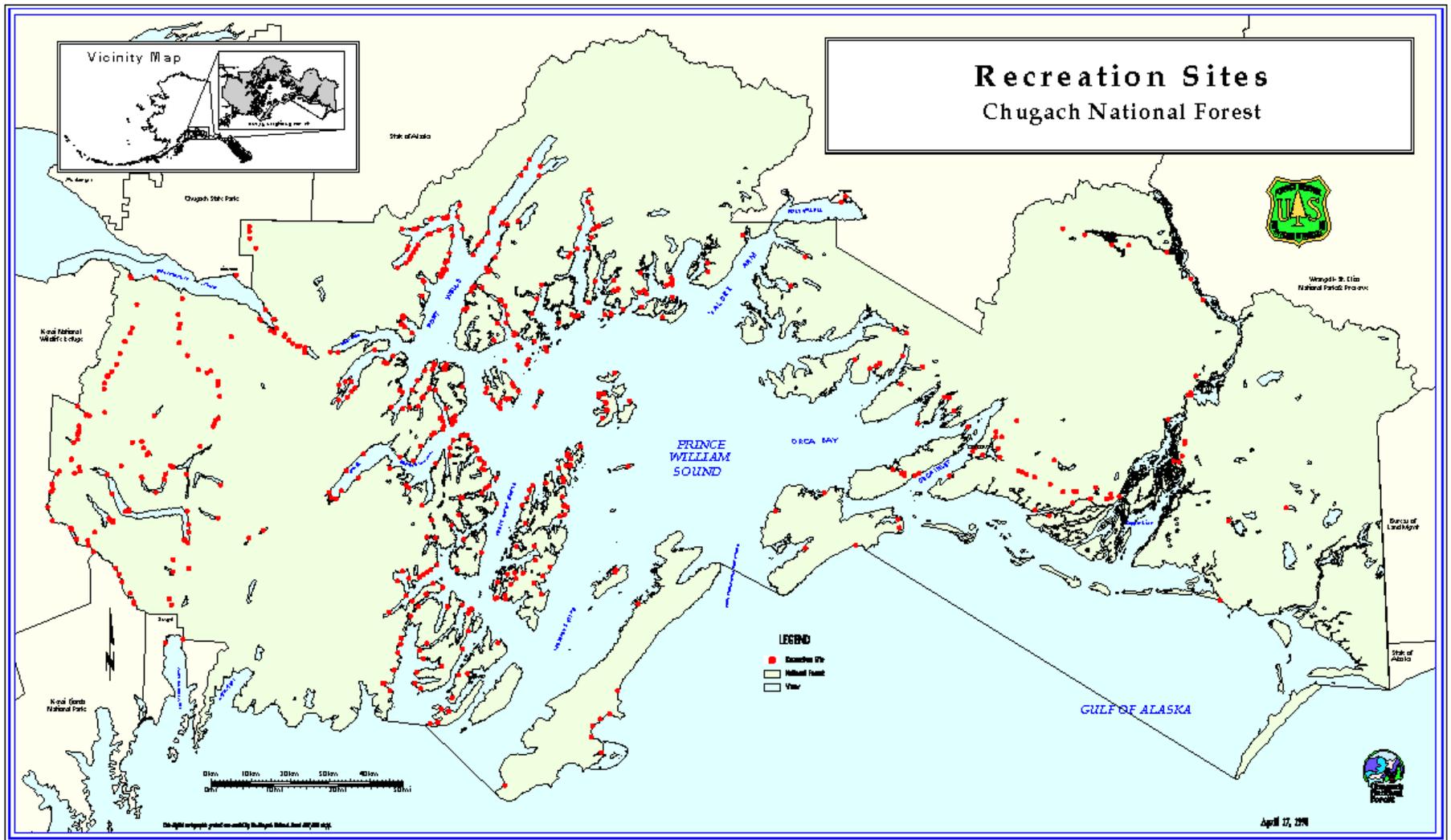
Alaska State Parks near Whittier in NW Prince William Sound

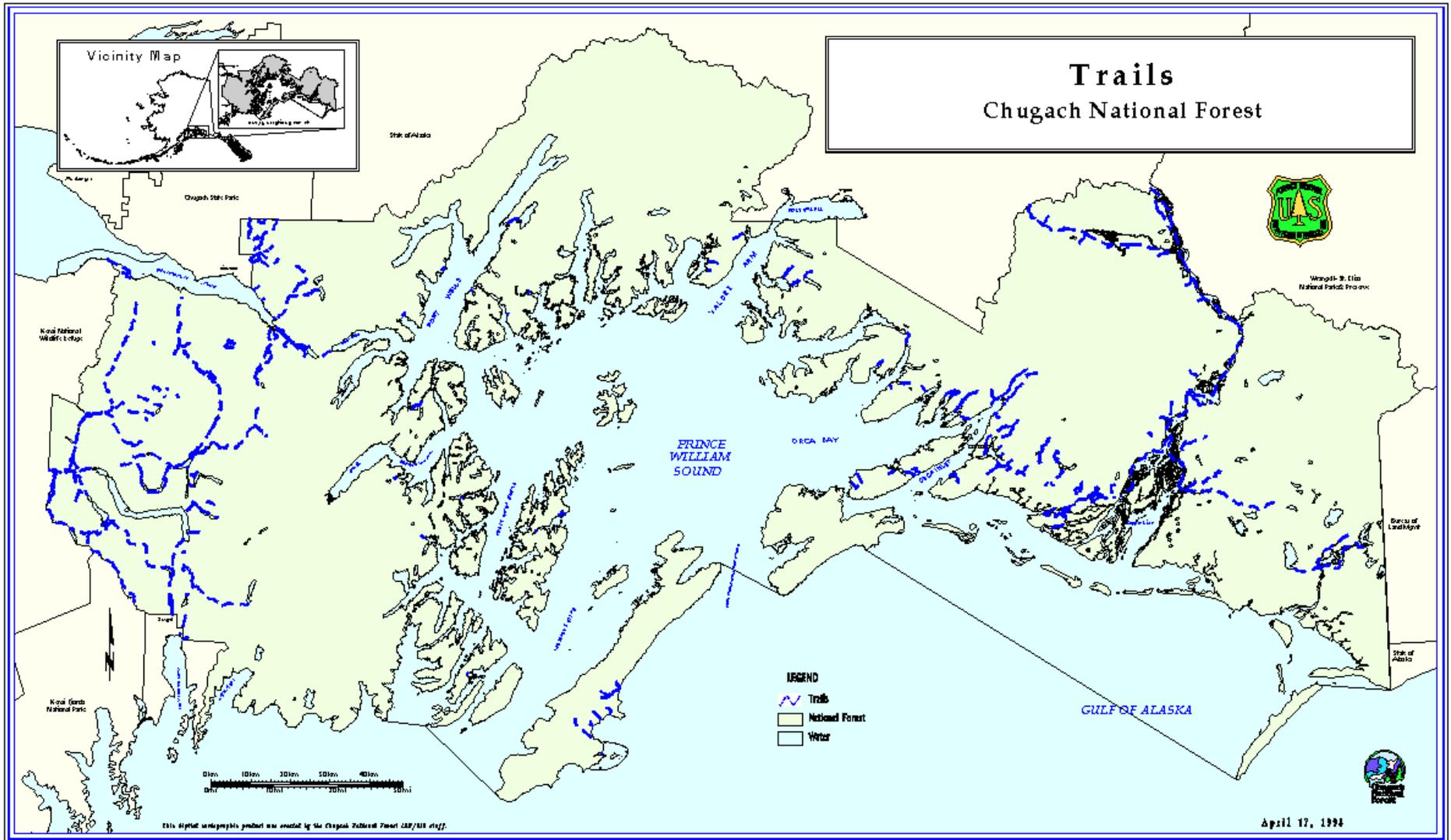


This map is not intended to be used as a navigational aid.



| 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 Division of Tourism | 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 was 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. Additional information can be obtained from the Alaska Department of Environmental Conservation at 465-5350.

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SENSITIVE AREAS: PART FIVE - 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, Whittier Coastal Management Plan. They are summarized below and outlined on the accompanying maps.

| DESIGNATED AREA | REASONS FOR DESIGNATION | LAND OWNERSHIP/ VILLAGES TO CONTACT |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 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 |
| Keystone Canyon | Area used for recreational, scenic and transportation purposes. Historical value. | State |
| Mineral Creek Canyon | Site is an aquifer recharge area. Presence of historic sites. Area used for recreational and scenic purposes. | State |
| 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 |
| 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 |

| DESIGNATED AREA | REASONS FOR DESIGNATION | LAND OWNERSHIP/ VILLAGES TO CONTACT |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 |
| 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 SIX - KEY REFERENCES

The following documents will provide information on critical fish and wildlife concentrations and human uses. The information contained in these documents is not, for the most part, duplicated in this contingency plan. Also identified are Geographic Information System (GIS) databases, which may have automated resources information for the area.

Documents

Alaska Department of Fish and Game. 1985. Alaska Habitat Management Guide, Southcentral Region, Vols. 1 and 2.

Alaska Department of Fish and Game. 1985. Alaska Habitat Management Guide Reference Maps, Southcentral Region, Vols. 1-3.

Alaska Department of Fish and Game. 1985. Alaska Habitat Management Guide, Southcentral Region Map Atlas. (Color Atlas)

Alaska Department of Fish and Game and Alaska Department of Natural Resources. 2004. An Atlas to the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes, Southcentral Region—Effective January 15, 2005.

Alaska Department of Fish and Game. 1991. State of Alaska Game Refuges, Critical Habitat Areas and Game Sanctuaries.

Alaska Department of Natural Resources and Alaska Department of Fish and Game. 1988. Prince William Sound Area Plan For State Lands. includes data element reports for cultural resources, fish and wildlife, recreation and tourism, subsurface resources, timber.

Alyeska Pipeline Service Company. 2002. Environmental Atlas of the Trans Alaska Pipeline System. (Color atlas).

Alyeska Pipeline Service Company. 2002. Prince William Sound Tanker Oil Discharge Prevention and Contingency Plan (Tanker Plan) Supplemental Information Document (SID) #3, by the Prince William Sound Response Planning Group.

City of Cordova. 1997. City of Cordova Coastal Management Program.

City of Cordova. 1985. Eyak Lake AMSA Cooperative Management Plan.

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U.S. Forest Service: Steve Zemke, Anchorage, 743-9521

National Oceanic and Atmospheric Administration: John Whitney, Anchorage, 271-3593

Alyeska Pipeline Service Company: Rod Hoffman, Valdez, 834-6833

Prince William Sound Oil Spill Recovery Institute: Nancy Bird, Cordova, 424-5800

Bureau of Land Management: Gust Panos, Anchorage, 271-5545

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

Salmon Escapement Averages for Prince William Sound

The following tables provide data from 1983 through 2003 on the peak adult salmon escapement counts for anadromous fish streams throughout Prince William Sound, Alaska (Alaska Department of Fish and Game).

Major concern: >20,000 total peak count (sum all species); OR > 500 pink peak count; OR > 200 chum peak count

Moderate concern: 501 - 20,000 total peak count

Lesser concern: < or equal to 500 total peak count

Please consult An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fish or the Fish Distribution Database for further anadromous species present in Prince William Sound streams (ADF&G 2003).

These tables are intended to be used only for the initial response to an oil spill. Once the area Alaska Department of Fish and Game biologists have become involved in the response, they will use the tables but may set different priorities for stream protection due to factors such as run timing and percentage of run spawning in intertidal zone.

Upper Copper River Chinook Salmon Aerial Escapement Index Counts

| Stream | Catalog Number | Average 1992-2002 |
|-------------------|-----------------------------|-------------------|
| Gulkana R.b | 212-20-10080-2461 | 1,280 |
| Chistochina R. | 212-20-10080-2571 | 533 |
| Indian R. | 212-20-10080-2591 | 37 |
| Mendeltna Ck | 212-20-10080-2431-3122 | 155 |
| Kaina Ck | 212-20-10080-2431-3113-0010 | 335 |
| St. Anne Ck | 212-20-10080-2401-3100 | 150 |
| Manker Ck | 212-20-10080-2401-3061 | 103 |
| Little Tonsina R. | 212-20-10080-2331-0020 | 102 |
| Greyling Ck | 212-20-10080-2331-3100 | 164 |

Aerial survey indices of chinook salmon escapement to the upper Copper River.

| Stream | Catalog Number | Average 1983-1992 |
|-----------------------|----------------------------|-------------------|
| East Fork Chistochina | 212-20-10080-2571-3062 | 590 |
| Gulkana River | 212-20-10080-2461 | 1,466 |
| Mendeltna Creek | 212-20-10080-2431-3122 | 116 |
| Kaina Creek | 212-20-100802431-3113-0010 | 276 |
| St. Anne Creek | 212-20-10080-2401-3100 | 89 |
| Manker Creek | 212-20-10080-2401-3061 | 124 |
| Greyling Creek | 212-20-10080-2331-3100 | 125 |
| Little Tonsina River | 212-20-10080-2331-3081 | 200 |
| Indian River | 212-20-10080-2591 | 13 |

Copper River Delta and Bering River coho salmon escapement estimates

| Stream/Lake | Catalog Number | Average 1992-2002 |
|----------------------|-----------------------------|-------------------|
| Eyak Lake | 212-10-10050-0010 | 6,272 |
| Hatchery Creek | 212-10-10050-0010-2250 | 862 |
| Power Creek | 212-10-10050-2240 | 1,623 |
| Ibek Creek | 212-10-10050-2020-3091-4041 | 7,766 |
| Scott &Elsner River | 212-10-10040-2090 | 1,275 |
| 18/20 Mile | | 1,801 |
| McKinley Lake | 212-10-10010-2061-0010 | 867 |
| Salmon Creek | 212-10-10010-2061-3010-4009 | 1,430 |
| 26/27 Mile | 212-20-10110 | 1,210 |
| 39 Mile | 212-20-10064 | 3,623 |
| Goat Mountain | 212-20-10040-2011-3030 | 882 |
| Pleasant Cr. | 212-20-10040-2011 | 274 |
| Martin River | 212-20-10020 | 6,917 |
| Ragged Pt. River/Lk. | 212-30-10020-2040-0010 | 553 |
| Martin Lake | 212-20-10020-2050-0010 | 464 |

| Copper River Delta and Bering River coho salmon escapement estimates | | |
|----------------------------------------------------------------------|----------------------------------|-------------------|
| Stream/Lake | Catalog Number | Average 1992-2002 |
| Pothole Lake | 212-20-10020-2050-0010-3020-0010 | 697 |
| Little Martin Lake | 212-20-10020-2061-0010 | 4,001 |
| Tokun River/Lake | 212-30-10040-2170-0010 | 1,247 |
| Martin River Slough | 212-30-10020 | 8,094 |
| Katalla R. | 200-10-10020 | 4,478 |
| Bering Lake | 200-20-10110-2031-0010 | 11,639 |
| Dick Creek | 200-20-10110-2031-3055 | 936 |
| Shepard Cr. | 200-20-10110-2030 | 504 |
| Nichawak R. | 200-20-10100 | 2,905 |
| Gandil R. | 200-20-10110-0010-2030 | 1,213 |
| Controller Bay | 200-20 | 8,184 |

| Copper River and Bering River area sockeye salmon escapement estimates | | |
|------------------------------------------------------------------------|----------------------------------|-------------------|
| Stream/Lake | Catalog Number | Average 1992-2002 |
| Eyak Lake | 212-10-10050-0010 | 16,541.50 |
| Hatchery Creek | 212-10-10050-0010-2250 | 2065 |
| Power Creek | 212-10-10050-0010-2240 | 1812 |
| Ibek Creek | 212-10-10050-2020 | 415 |
| McKinley Lake | 212-10-10010-2061-0010 | 7430 |
| Salmon Creek | 212-10-10010-2061-3010 | 3501.4 |
| 26/27 Mile Creek | 212-20-10110 | 2439.5 |
| 39 Mile Creek | 212-20-10064 | 7763.6 |
| Goat Mountain | 212-20-10040-2011-3030 | 371.5 |
| Pleasant Creek | 212-20-10040-2011 | 3152.5 |
| Martin River | 212-30-10020 | 1995.5 |
| Ragged Pt. R./Lake | 212-20-10020-2040-0010 | 3331 |
| Martin Lake | 212-30-10020-2050-0010 | 12609.1 |
| Pothole Lake | 212-30-10020-2050-0010-3020-0010 | 2501.8 |
| L. Martin Lake | 212-30-10020-2060-0010 | 1405 |
| Tokun Lake/River | 212-30-10020-2070-3020-0010 | 6341.8 |
| Martin River Slough | 212-30-10020 | 5684.1 |
| Bering River/Lake | 200-20-10110-2031-0010 | 26034 |
| Shepherd Creek | 200-20-10110-2031-3032 | 1398.5 |
| Stillwater Cr. | 200-20-10110-2151 | 590 |
| Kushtaka Lake | 200-20-10110-2151-0010 | 433.5 |
| Katalla River | 200-10-10020 | 1415 |

| Copper River and Bering River area sockeye salmon escapement estimates | | | |
|------------------------------------------------------------------------|----------------|--------------------------|---------|
| Stream/Lake | Catalog Number | 5 Year Average 1999-2002 | 1983-92 |

| Copper River and Bering River area sockeye salmon escapement estimates | | | |
|------------------------------------------------------------------------|----------------------------------|--------------------------|---------|
| Stream/Lake | Catalog Number | 5 Year Average 1999-2002 | 1983-92 |
| Fish Lake | 212-20-10080-2461-3272 | 3887 | 8,299 |
| Bad Crossing #1&2 | | 2129 | 4,099 |
| Suslota Lake | 212-20-10080-2605-3030-0020 | 1579 | 1,355 |
| Dickey Lake | 212-20-10080-2461-3171-0030 | 80 | 139 |
| Keg Creek | 212-20-10080-2461-4122 | 174 | 675 |
| Mahlo Creek | 212-20-10080-2401-3071 | 3612 | 2,848 |
| St. Anne Creek | 212-20-10080-2401-3100 | 2531 | 5,630 |
| Fish Cr.-Mentasta | 212-20-10080-2461-3091-4021-0010 | 1336 | 1,941 |
| Swede Lake | 212-20-10080-2461-3171-4042-0010 | 393 | 571 |
| Tana River | 212-20-10080-2300-3660 | 1345 | 1,282 |
| Mentasta Lake | 212-20-10080-2605-3050-0010 | 4949 | 3,893 |
| Tanada Lake | 212-20-10080-2655-0010 | 1710 | 4,129 |
| Salmon Creek | 212-20-10080-2100-3115 | 845 | 714 |
| Paxson Inlt-Mud Cr | | 6910 | 5,682 |
| Mud Creek and Lake | 212-20-10080-2461-3241-0010 | 110 | 364 |
| Mendeltna Creek | 212-20-10080-2431-3122 | 1613 | 2,562 |
| Paxson Lake Outlet | 212-20-10080-2461-0040 | 1000 | 2,815 |
| Mud Cr.- Summit L. | 212-20-10080-2461-0060 | 2059 | 8,314 |
| Long Lake | 212-20-10080-2300-3421-406 | 1577 | 1,756 |
| Tonsina Lake | 2112-20-10080-2301-0020 | 1080 | 1,268 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|--------------------------------|--------------|----------------|---------------|-------------|
| EASTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Orca Inlet | | | | |
| Hartney Creek | 221-10-10020 | 7,456 | 5,235 | 2,215 |
| Eccles Creek | 221-10-10050 | 960 | 1,394 | 105 |
| Humpy Creek | 221-10-10110 | 3,943 | 9,046 | 47 |
| Simpson & Sheep Bay | | | | |
| Twin Lakes Creek | 221-20-10190 | 873 | 3,339 | 50 |
| Spring Creek | 221-20-10200 | 499 | 3,009 | 12 |
| Rogue Creek | 221-20-10210 | 395 | 3,433 | 24 |
| Chase Creek | 221-20-10230 | 1,768 | 6,226 | 1,622 |
| Koppen Creek | 221-20-10350 | 24,743 | 38,297 | 3,266 |
| Sheep River | 221-20-10360 | 61,574 | 54,187 | 12,104 |
| Allen Creek | 221-20-10370 | 2,098 | 2,692 | 18 |
| Port Gravina | | | | |
| Pass Creek | 221-30-10410 | 3,859 | 2,611 | 20 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|-------------------------|--------------|----------------|---------------|---------------------|
| EASTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Plateau Creek | 221-30-10450 | 686 | 6,541 | 391 |
| Comfort Creek | 221-30-10460 | 7,337 | 21,995 | 1,718 |
| Beartrap River | 221-30-10480 | 34,592 | 27,086 | 14,036 |
| Cataract Creek | 221-30-10490 | 1,433 | 921 | 0 |
| Olsen Creek | 221-30-10510 | 25,641 | 28,087 | 7,902 |
| Control Creek | 221-30-10520 | 15,201 | 20,837 | 1,779 |
| Carlsen Creek | 221-30-10540 | 977 | 4,345 | 16 |
| St. Matthews Creek | 221-30-10560 | 8,392 | 9,359 | 459 |
| Port Fidalgo | | | | |
| Two Moon Creek | 221-40-10720 | 234 | 105 | 1991-1999 average=0 |
| Tundra Creek | 221-40-10730 | 232 | 94 | 25 |
| Irish Creek | 221-40-10760 | 12,616 | 26,500 | 1,537 |
| Whalen Creek | 221-40-10800 | 12,028 | 11,796 | 1,079 |
| Keta Creek | 221-40-10830 | 5,263 | 2,998 | 1,758 |
| Sunny River | 221-40-10870 | 7,038 | 5,112 | 6,207 |
| Short Creek | 221-40-10880 | 1,817 | 1,287 | 172 |
| Fish Creek | 221-40-10890 | 18,832 | 21,359 | 3,581 |
| Shale Creek | 221-40-10920 | 1,375 | 988 | 56 |
| Kirkwood Creek | 221-40-10930 | 957 | 1,575 | 130 |
| Rock Creek | 221-40-10940 | 1,452 | 1,409 | 31 |
| Lagoon Creek | 221-40-10990 | 11,509 | 10,416 | 4,075 |
| Valdez Arm | | | | |
| Gladhough Creek | 221-50-11060 | 2,046 | 1,620 | 51 |
| Black Creek | 221-50-11070 | 448 | 501 | 15 |
| Turner Creek | 221-50-11140 | 1,140 | 1,456 | 18 |
| Millard Creek | 221-50-11150 | 20,078 | 6,802 | 760 |
| Duck River | 221-50-11160 | 56,985 | 13,666 | 8,278 |
| Indian Creek | 221-50-11170 | 15,834 | 12,127 | 6,334 |
| Donaldson Creek | 221-50-11200 | 1,068 | 1,466 | 2 |
| Levshakoff Creek | 221-50-11210 | 4,028 | 5,167 | 370 |
| No Name Creek | 221-50-11220 | 369 | 879 | 18 |
| Gregorieff Creek | 221-50-11230 | 3,580 | 4,277 | 316 |
| Naomoff River | 221-50-11270 | 15,293 | 7,522 | 3,471 |
| Vlasoff Creek | 221-50-11290 | 5,693 | 3,338 | 990 |
| Twin Falls Creek | 221-50-11520 | 9,081 | 5,816 | 1,688 |
| Stellar Creek | 221-50-11530 | 18,210 | 19,386 | 5,545 |

| Port Valdez | | | | |
|--------------------|--------------|-------|-------|-----|
| Gorge Creek | 221-61-11310 | 898 | 1,140 | 513 |
| Sawmill Creek | 221-61-11330 | 3,188 | 1,713 | 308 |
| Low River | 221-61-11370 | 1,010 | 16 | 55 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|-------------------------|--------------|----------------|---------------|-------------|
| EASTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Siwash Creek | 221-61-11430 | 3,143 | 1,399 | 372 |
| Crooked Creek | 221-61-11450 | 1,014 | 383 | 547 |
| Mineral Flats | 221-61-11480 | 1,014 | 391 | 804 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|--------------------------------------|--------------|----------------|---------------|-------------|
| NORTHERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Columbia & Long Bay | | | | |
| Heather Bay | 222-10-12040 | 32 | 398 | 0 |
| Granite Cove | 222-10-12080 | 89 | 1,673 | 1 |
| Useless Creek | 222-10-12090 | 40 | 511 | 0 |
| Elf Creek | 222-10-12100 | 16 | 180 | 0 |
| Bench Mark Creek | 222-10-12130 | 540 | 425 | 20 |
| Long Creek | 222-10-12140 | 9,767 | 9,654 | 5,308 |
| Vanishing Creek | 222-10-12160 | 12,413 | 9,341 | 2,115 |
| Spring Creek | 222-10-12170 | 6,277 | 3,138 | 2,051 |
| Billy's Creek | 222-10-12180 | 1,080 | 1,210 | 3 |
| Eickelberg Creek | 222-10-12210 | 1,784 | 672 | 214 |
| Wells Bay & Unakwik Inlet | | | | |
| Backyard Creek | 222-20-12240 | 1,665 | 4,472 | 1 |
| Granite Creek | 222-20-12270 | 2,039 | 1,372 | 42 |
| Cedar Creek | 222-20-12290 | 6,702 | 4,566 | 957 |
| Delta Creek | 222-20-12320 | 278 | 493 | 12 |
| Surplus Creek | 222-20-12330 | 2,580 | 1,058 | 230 |
| Wells River | 222-20-12340 | 26,586 | 19,239 | 11,883 |
| Complex Creek #1 | 222-20-12570 | 1,130 | 444 | 129 |
| Complex Creek #2 | 222-20-12565 | 991 | 1,767 | 125 |
| Williams Creek | 222-20-12580 | 19,851 | 22,838 | 2,430 |
| Waterfall Creek | 222-20-12630 | 2,520 | 3,217 | 236 |
| Siwash River | 222-20-12640 | 21,751 | 13,220 | 1,860 |
| Unakwik Creek | 222-20-12650 | 4,957 | 797 | 39 |
| Eaglek Bay | | | | |
| Schoppe Creek | 222-30-12730 | 3,389 | 1,450 | 298 |
| Black Bear Creek | 222-30-12760 | 8,025 | 2 | 1,128 |
| Dead Creek | 222-30-12770 | 476 | 217 | 19 |
| Comeback Creek | 222-30-12780 | 1,567 | 419 | 5 |
| Canyon Creek | 222-30-12790 | 8,078 | 4,985 | 6,403 |

| Survey Location NORTHERN DISTRICT | Catalog Number | Pink Salmon (1990-1999) Even Year AVG. | Pink Salmon (1991-1999) Odd Year AVG. | Chum Salmon 1990-1999 10 Year AVG |
|---------------------------------------------|-------------------|----------------------------------------------|---------------------------------------------|-----------------------------------------|
| Good Creek | 222-30-12820 | 7,717 | 1,810 | 963 |
| Bad Creek | 222-30-12830 | 3,463 | 2,571 | 493 |
| Derickson Creek | 222-30-12890 | 1,176 | 7,706 | 12 |

| Survey Location UNAKWIK DISTRICT | Catalog Number | Pink Salmon (1990-1999) Even Year AVG. | Pink Salmon (1991-1999) Odd Year AVG. | Chum Salmon 1990-1999 10 Year AVG |
|--------------------------------------------|-------------------|----------------------------------------------|---------------------------------------------|-----------------------------------------|
|--------------------------------------------|-------------------|----------------------------------------------|---------------------------------------------|-----------------------------------------|

| Upper Unakwik Inlet | | | | |
|----------------------------|--------------|-------|-------|----|
| Cowpen Creek | 223-10-12420 | 1,506 | 1,684 | 21 |

| Survey Location COGHILL DISTRICT | Catalog Number | Pink Salmon (1990-1999) Even Year AVG. | Pink Salmon (1991-1999) Odd Year AVG. | Chum Salmon 1990-1999 10 Year AVG |
|--------------------------------------------|-------------------|----------------------------------------------|---------------------------------------------|-----------------------------------------|
|--------------------------------------------|-------------------|----------------------------------------------|---------------------------------------------|-----------------------------------------|

| West Side Port Wells | | | | |
|-----------------------------|--------------|--------|--------|-------|
| Harrison Creek | 223-10-14140 | 1,145 | 698 | 120 |
| Hobo Creek | 223-10-14170 | 115 | 401 | 2 |
| Mill Creek | 223-10-14210 | 7,184 | 4,075 | 1,797 |
| Old Creek | 223-10-14240 | 1,368 | 1,179 | 171 |
| Hummer Creek | 223-10-14250 | 3,874 | 1,082 | 531 |
| Pirate Creek | 223-10-14280 | 250 | 162 | 520 |
| Meacham Creek | 223-10-14300 | 8,519 | 4,161 | 988 |
| Swanson Creek | 223-10-14320 | 14,515 | 11,408 | 2,629 |

| Esther Passage | | | | |
|-----------------------|--------------|-------|-----|----|
| Triple Creek | 223-20-13030 | 1,684 | 900 | 18 |
| Village Creek | 223-20-13070 | 406 | 680 | 0 |

| College Fiord | | | | |
|----------------------|--------------|--------|--------|-------|
| Golden Lagoon | 223-30-13100 | 760 | 362 | 60 |
| Avery River | 223-30-13140 | 56 | 107 | 5 |
| Coghill River | 223-30-13220 | 25,140 | 53,638 | 5,048 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|-------------------------------------|--------------|----------------|---------------|-------------|
| NORTHWESTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Passage Canal & Cochrane | | | | |
| Logging Camp Creek | 224-10-14350 | 1,254 | 172 | 10 |
| Tebenkoff Creek | 224-10-14500 | 2,674 | 1,356 | 898 |
| Blackstone Creek | 224-10-14510 | 1,567 | 1,608 | 359 |
| Halferty Creek | 224-10-14540 | 9,245 | 3,522 | 3,385 |
| Paulson Creek | 224-10-14550 | 6,107 | 2,228 | 1,241 |
| Parks Creek | 224-10-14580 | 12,366 | 3,969 | 1,332 |
| Cochrane Creek | 224-10-14610 | 2,096 | 1,962 | 115 |
| Wickett Creek | 224-10-14690 | 2,650 | 3,278 | 553 |
| Culross Passage | | | | |
| Narrows Creek | 224-30-14710 | 444 | 114 | 73 |
| Shrode Creek | 224-30-14760 | 17,513 | 15,037 | 552 |
| Culross Creek | 224-30-14790 | 2,726 | 2,222 | 183 |
| Port Nellie Juan | | | | |
| Mink Creek | 224-40-14800 | 10,008 | 7,309 | 1,207 |
| E. Finger Creek | 224-40-14840 | 5,168 | 1,661 | 487 |
| W. Finger Creek | 224-40-14850 | 13,223 | 10,504 | 2,319 |
| Most Creek | 224-40-14930 | 657 | 323 | 105 |
| Chimevisky Lagoon | 224-40-14950 | 2,224 | 1,658 | 458 |
| McClure Creek | 224-40-14980 | 2,606 | 1,466 | 41 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|------------------------|--------------|----------------|---------------|-------------|
| ESHAMY DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Eshamy Bay | | | | |
| Loomis Creek | 225-30-15060 | 1,571 | 2,672 | 0 |
| Gumboot Creek | 225-30-15070 | 323 | 959 | 0 |
| Solf Creek | 225-30-15080 | 3,309 | 2,193 | 35 |
| Elishansky Creek | 225-30-15100 | 1,617 | 1,842 | 10 |
| Eshamy | 225-30-15110 | 1,066 | 1,634 | 0 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|-----------------|---------|-------------|-------------|-------------|
|-----------------|---------|-------------|-------------|-------------|

| SOUTHWESTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
|--------------------------------------------|--------------|----------------|---------------|-------------|
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Chenega Is. & Dangerous Passage | | | | |
| Paddy Creek | 226-20-16010 | 2,747 | 2,146 | 1 |
| Nacktan Creek | 226-20-16020 | 2,883 | 1,840 | 2 |
| Ewan Creek | 226-20-16030 | 10,171 | 5,728 | 175 |
| Erb Creek | 226-20-16040 | 3,448 | 3,218 | 155 |
| Jackpot River | 226-20-16080 | 18,506 | 25,479 | 140 |
| Kompkoff River | 226-20-16100 | 1,495 | 1,640 | 0 |
| Jackpot Bay #1 | 226-20-16110 | 1,253 | 212 | 0 |
| Jackpot Bay #2 | 226-20-16120 | 799 | 246 | 31 |
| Jackson Creek | 226-20-16130 | 14,334 | 10,719 | 771 |
| Totemoff Creek | 226-20-16210 | 5,713 | 3,599 | 0 |
| Brizgaloff Creek | 226-20-16230 | 2,852 | 2,236 | 4 |
| Bainbridge Creek | 226-20-16300 | 16,466 | 17,678 | 506 |
| Claw Creek | 226-20-16320 | 2,589 | 1,879 | 0 |
| Pablo Creek | 226-20-16330 | 4,253 | 2,824 | 30 |
| Whale Bay #1 | 226-20-16340 | 1,494 | 987 | 5 |
| Whale Creek | 226-20-16360 | 9,577 | 1,559 | 11 |
| East Knight Is. | | | | |
| Snug Harbor | 226-30-16820 | 10,863 | 9,295 | 200 |
| Bainbridge & Latouche Passage | | | | |
| Johnson Creek | 226-40-16550 | 7,665 | 3,245 | 16 |
| Halverson Creek | 226-40-16560 | 4,458 | 2,684 | 44 |
| Bjorne Creek | 226-40-16650 | 525 | 870 | 0 |
| O'Brien Creek | 226-40-16660 | 2,663 | 2,114 | 21 |
| Montgomery Creek | 226-40-16700 | 426 | 1,400 | 0 |
| Latouche Island | 226-40-16720 | 1,118 | 1,538 | 0 |
| Falls Creek | 226-40-16730 | 3,066 | 5,323 | 0 |
| Horseshoe Creek | 226-40-16760 | 1,840 | 2,433 | 0 |
| Hayden Creek | 226-40-16770 | 2,024 | 2,178 | 0 |
| Port Bainbridge | | | | |
| Hogg Creek | 226-50-16530 | 4,476 | 13,591 | 60 |

| MONTAGUE DISTRICT | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|--------------------------|---------|----------------|---------------|-------------|
| | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| | | | | |

| Montague Strait | | | | |
|------------------------|--------------|--------|--------|-------|
| Point Creek | 227-10-17020 | 2,615 | 2,391 | 13 |
| Clam Beach Creek | 227-10-17030 | 1,933 | 3,054 | 10 |
| MacLeod Creek | 227-10-17070 | 4,740 | 12,631 | 220 |
| Hanning Creek | 227-10-17100 | 1,990 | 7,052 | 140 |
| Quadra Creek | 227-10-17110 | 5,792 | 27,829 | 350 |
| Montague Island #1 | 227-10-17170 | 927 | 7,869 | 2 |
| Montague Island #2 | 227-10-17180 | 502 | 8,011 | 10 |
| Montague Island #3 | 227-10-17190 | 501 | 8,216 | 0 |
| Montague Island #4 | 227-10-17220 | 14 | 284 | 0 |
| Montague Island #5 | 227-10-17240 | 7 | 843 | 0 |
| Montague Island #6 | 227-10-17250 | 131 | 2,414 | 100 |
| Montague Creek | 227-10-17260 | 80 | 400 | 0 |
| Russell Creek | 227-10-17380 | 1,379 | 2,412 | 85 |
| Swamp Creek | 227-10-17390 | 10,940 | 41,284 | 322 |
| Kelez Creek | 227-10-17400 | 3,471 | 13,673 | 37 |
| Chalmers River | 227-10-17410 | 12,124 | 19,317 | 1,061 |
| Green Is. | | | | |
| Wilby Creek | 227-20-17440 | 2,543 | 6,229 | 50 |
| Wild Creek | 227-20-17450 | 2,268 | 6,853 | 20 |
| Schuman Creek | 227-20-17460 | 1,752 | 3,434 | 78 |
| Cabin Creek | 227-20-17470 | 15,876 | 16,817 | 580 |
| Gilmour Creek | 227-20-17480 | 1,503 | 2,222 | 5 |
| Shad Creek | 227-20-17490 | 3,548 | 5,591 | 0 |
| Stockdale Creek | 227-20-17520 | 3,230 | 6,070 | 50 |
| Stockdale Bay | 227-20-17530 | 1,099 | 1,820 | 0 |
| Dry Creek | 227-20-17540 | 1,355 | 1,151 | 0 |
| Rocky Bay Head | 227-20-17580 | 3,267 | 2,532 | 7 |
| Rocky Creek | 227-20-17590 | 3,979 | 8,631 | 0 |
| Carr Creek | 227-20-17660 | 753 | 482 | 13 |
| Udall Creek | 227-20-17700 | 364 | 2,167 | 50 |
| McKernan Creek | 227-20-17710 | 122 | 1,212 | 0 |
| Rosswog Creek | 227-20-17740 | 1,404 | 2,581 | 10 |
| Pautze Creek | 227-20-17750 | 630 | 1,747 | 11 |
| Green Creek | 227-20-17880 | 2,499 | 3,983 | 10 |

| Survey Location | Catalog | Pink Salmon | Pink Salmon | Chum Salmon |
|------------------------------------|--------------|----------------|---------------|-------------|
| SOUTHEASTERN DISTRICT | Number | (1990-1999) | (1991-1999) | 1990-1999 |
| | | Even Year AVG. | Odd Year AVG. | 10 Year AVG |
| Orca Is. & East Hawkins | | | | |
| Orca Creek | 228-10-18630 | 4,975 | 6,415 | 21 |
| Hawkins Cutoff | | | | |

| | | | | |
|------------------------------------------|--------------|--------|--------|--------|
| Bates Creek | 228-20-18330 | 1,131 | 1,731 | 45 |
| Hardy Creek | 228-20-18340 | 16,609 | 48,419 | 507 |
| Scott Creek | 228-20-18350 | 9,536 | 46,237 | 828 |
| Dan's Creek | 228-20-18360 | 4,010 | 13,784 | 522 |
| Widgeon Creek | 228-20-18370 | 1,625 | 3,936 | 95 |
| Goose Creek | 228-20-18390 | 1,910 | 7,322 | 287 |
| North Hawkins & Canoe Passage | | | | |
| Makaka Creek | 228-30-18440 | 16,870 | 21,098 | 96 |
| Hawkins Creek | 228-30-18470 | 12,893 | 24,558 | 579 |
| Rollins Creek | 228-30-18490 | 3,302 | 4,258 | 148 |
| Canoe Creek | 228-30-18500 | 5,568 | 14,234 | 25 |
| Zillesenoff Creek | 228-30-18510 | 4,881 | 6,144 | 0 |
| W. Lagoon Creek | 228-30-18560 | 4,508 | 2,262 | 0 |
| E. Lagoon Creek | 228-30-18570 | 7,338 | 2,254 | 0 |
| N. Lagoon Creek | 228-30-18580 | 6,025 | 1,485 | 102 |
| Bernard Creek | 228-30-18610 | 15,086 | 14,805 | 3 |
| Clamdiggers Creek | 228-30-18620 | 1,649 | 2,521 | 0 |
| Double Bay | | | | |
| Captain Creek | 228-40-18270 | 4,276 | 7,794 | 116 |
| Cook Creek | 228-40-18280 | 15,288 | 31,343 | 1,499 |
| King Creek | 228-40-18290 | 1,779 | 3,230 | 47 |
| Double Creek | 228-40-18310 | 5,455 | 17,211 | 1,203 |
| Johnstone Point | | | | |
| Deer Creek | 228-50-18170 | 2,741 | 14,418 | 272 |
| Juania Creek | 228-50-18180 | 3,634 | 24,299 | 396 |
| Brown Bear Creek | 228-50-18210 | 4,315 | 10,888 | 1,126 |
| Port Etches | | | | |
| Port Etches - S. Shore | 228-60-18050 | 216 | 528 | 10 |
| Dog Salmon Creek | 228-60-18060 | 841 | 5,319 | 128 |
| Beaver Creek | 228-60-18070 | 127 | 1,678 | 1 |
| Garden Creek | 228-60-18100 | 5,387 | 12,253 | 833 |
| Etches Creek | 228-60-18110 | 3,199 | 6,774 | 278 |
| Nuchek Creek | 228-60-18120 | 21,258 | 66,989 | 3,329 |
| Constantine Creek | 228-60-18150 | 36,944 | 99,509 | 12,073 |

| Stock | Species | 2002 Escapement |
|--------------------|---------|-----------------|
| PWS Total | Pink | 943,177 |
| PWS Total | Chum | 257,717 |
| Coghill River | Sockeye | 28,323 |
| Eshamy River | Sockeye | 40,478 |
| Bering River | Sockeye | 24,680 |
| Upper Copper River | Sockeye | 819,886 |
| Copper River delta | Sockeye | 75,735 |
| Copper River | Chinook | |
| Bering River | Coho | 34,200 |
| Copper River delta | Coho | 89,815 |

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

Harbor Seal and 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 |
| 120 | C | Naked Island | | 60 39 00 | 147 23 30 | Western, southern, and eastern shorelines |

**Prince William Sound
Harbor Seal Sites**

| Site | Type* | Site Name | N* | Latitude ¹ | Longitude ¹ | Specific Habitat |
|------|-------|-----------------|----|-----------------------|------------------------|----------------------------------|
| 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
Sea Lion Sites**

| 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

