CHENEGA BAY MARINE SERVICE CENTER (CBMSC)
EXECUTIVE SUMMARY

Presented by Chenega Bay IRA Council

Introduction

Chenega Bay is located just north of Sawmill Bay on Evans Island in Prince William Sound (PWS), Alaska. The village of Chenega Bay, with a population of 96, was reestablished at this site in 1984 because the historic village site on Chenega Island, some 20 miles to the north, was destroyed by the 1964 earthquake and resulting tsunami.

The community of Chenega Bay has embarked upon a plan to seek significant funding for dock and port improvements with the goal of enhancing three natural advantages:

1) an excellent harbor, already recognized as a safe haven in bad weather;

2) a unique location, closer than any other settlement to the heart of the salmon-spawning habitat where the Prince William Sound fishing fleet harvests 48% of all salmon taken in Alaska;

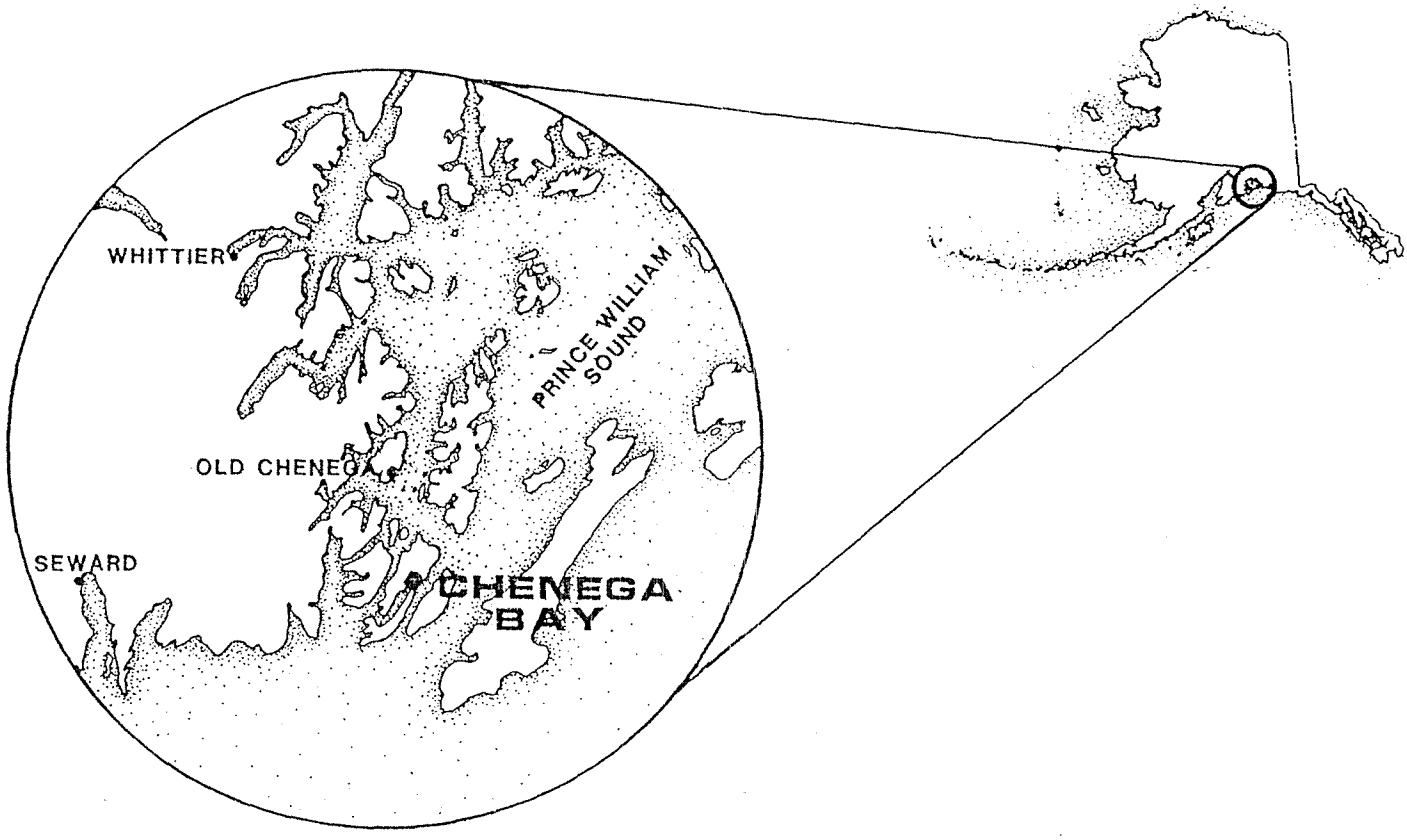
3) a gateway for tourists and recreational boaters to the western part of Prince William Sound. At present, the visitor market is shut out of this whole area due to lack of harbor, fuel, and supply services. Chenega Bay is approximately 75 statute miles from both Seward and Whittier, one day's voyage for most power boats.

Background

The Chenega Bay IRA Council has been planning for the development of the CBMSC since 1987. The Council initiated several planning studies beginning in 1990. The planning has been coordinated by the Council and consists of market study of PWS fishery (1991), a market demand study of fishery and recreation markets (1992), an economic forecasting and financial planning (1992), and marine facility planning and engineering (1993). The results of the planning and studies are briefly highlighted here.

The PWS and the adjacent waters of the Gulf of Alaska are important harvest areas for commercial fishermen. There are 243 salmon purse seine vessels, with crews of four to six people, operating in PWS, and hundreds of larger longline vessels operating in the northern Gulf of Alaska. Fishing begins in April-May, peaks in August, and ends in October-November. The above-referenced studies attest to a strong and growing demand for marine services at Chenega Bay during the May-October period.

Again, according to the marketing studies, more than 420 noncommercial boats now moored in Seward and Whittier are powerful enough to make a trip to Chenega Bay a pleasant outing. In addition, the marinas of both communities dispatch thousands of boaters annually aboard vessels as diverse as kayaks and 120-foot boats outfitted for week-long excursions. As an example of demand for services in Chenega Bay, tour operators and kayak rental businesses contacted in the demand study expressed an interest in 720 hotel rooms per 120-day season. Power and sail boat clientele demand exists for 1,012 nights of lodging per season. This equates to a total need of 15 rooms per night.

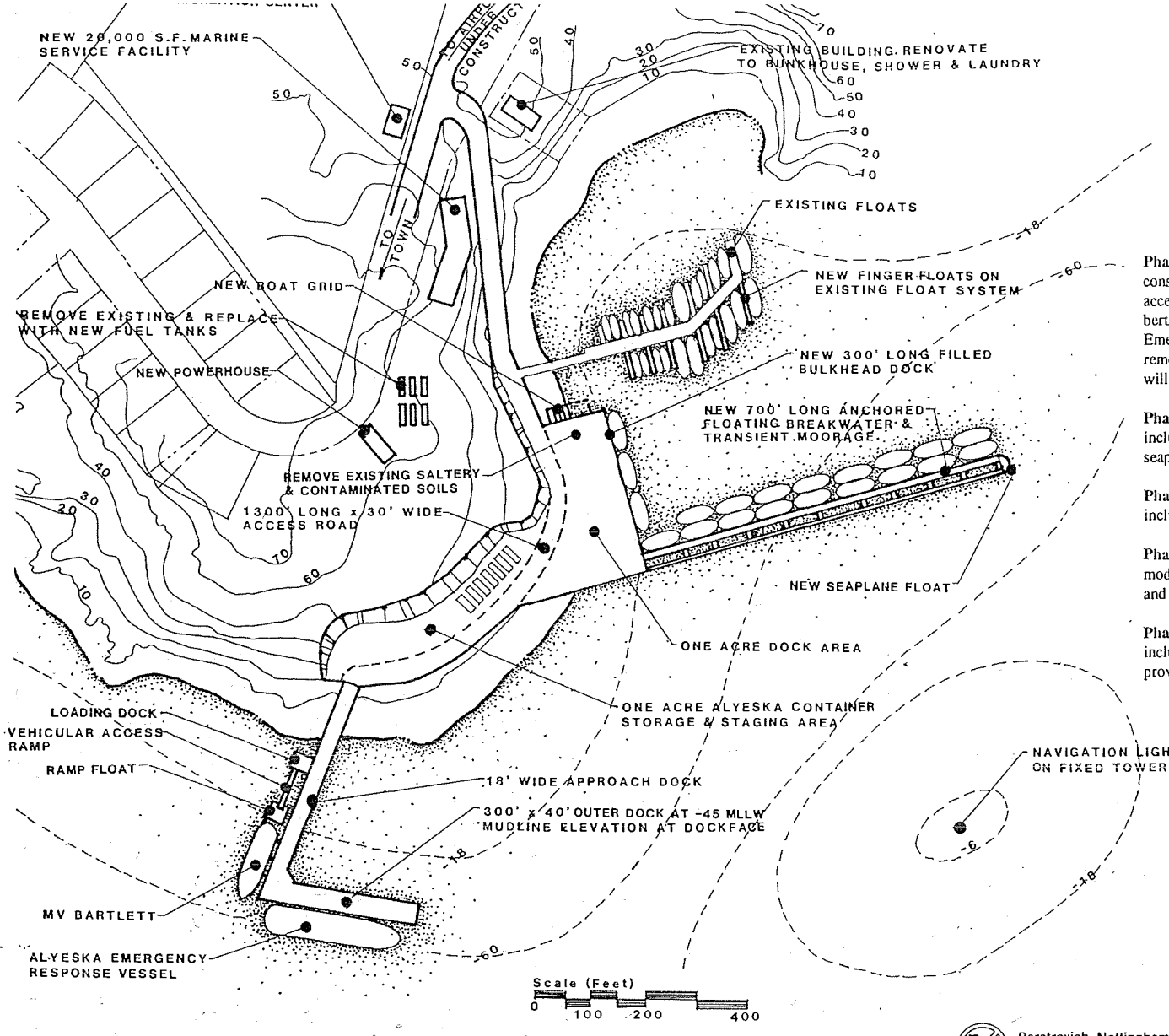


CHENEGA BAY MARINE SERVICE CENTER
PHASE FINANCING PLAN

Contained within the **Alyeska Pipeline Service Company Settlement** with the State of Alaska are $14.5 million to be used in Chenega Bay and Tatitlik for docks, suitable for oil spill response and the MV Bartlett, and oil spill response staging areas including oil spill response equipment and supplies. Also mentioned in the Settlement agreement is removal of the old Saltery, in order to make way for the dock and staging area. These funds will be used to fund **Phase I** of the construction project.

The Council is also looking to **Exxon/State of Alaska Criminal Penalties Fund** for construction of portions of the CBMSC. We are looking to that fund for local resource enhancement. We are requesting that $1.6 million be included in any appropriation from this fund to cover cost of construction of **Phases III and IV-A.**

Chenega Bay is presenting the **Exxon Valdez Trustees Council** with a proposal for construction funds as a match to the Alyeska Settlement. The request is based upon the restoration of recreation and tourism services lost on account of the Exxon Valdez oil spill (EVOS), to enhance and otherwise replace services damaged on account of the EVOS, and services to replace or substitute for injured, lost or destroyed resources and affected services. We will apply for funds from this source for construction of **Phase II and IV-B** of this project.



CHENEGA BAY MARINE SERVICE CENTER
PHASED CONSTRUCTION DEVELOPMENT PLAN

Phase I of the development plan focuses on removal of the abandoned saltery and construction of the outer main dock, bulkhead dock, adjacent uplands, breakwater, access road, area lighting and power, and water supply. The outer dock will allow berthing of the state ferries MV Bartlett and MV Tustemena and also Ayleska Emergency Response Vessels. The bulkhead dock will be constructed to contain fill removed to develop the one acre uplands needed for spill response supply storage and will serve as an important staging and work area for shoreside harbor activities.

Phase II of the development consists of improvements to the small boat harbor including a finger float addition to existing floats, boat grid, marine crane and a new seaplane float.

Phase III focuses on improvements to the village's supporting infrastructure and includes new fuel storage and distribution and improved power generation.

Phase IV-A creates upland amenities to service the needs of visitors and includes modification of an existing building into a bunkhouse with a shower/laundry facility, and also a museum/visitor/recreation center.

Phase IV-B completes the Chenega Bay Marine Service Center Development Plan and includes construction of the marine service facility a full service building which will provide supplies, food and lodging.

CHENEGA BAY MARINE CENTER
DEVELOPMENT PLAN

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants

CHENEGA BAY MARINE SERVICE CENTER
DEVELOPMENT PLAN
ENGINEERS ESTIMATE (FEBRUARY 1993)

PHASE I - OUTER DOCK & UPLAND DEVELOPMENT

ITEM	UNIT	QUANTITY	PRICE	AMOUNT
SALTERY DEMOLITION	L.S.	ALL REQ'D	$600,000	$600,000
REMOVE CONTAMINATED SOILS	L.S.	ALL REQ'D	$400,000	$400,000
ACCESS ROAD	L.F.	1,300	$150	$195,000
ROCK EXCAVATION	C.Y.	25,000	$12	$300,000
BULKHEAD DOCK	L.F.	400	$3,000	$1,200,000
NAVIGATION MARKING	L.S.	ALL REQ'D	$30,000	$30,000
OUTER MAIN DOCK	S.F.	20,000	$120	$2,400,000
LOADING DOCK	S.F.	3,000	$150	$450,000
VEHICULAR RAMP	L.S.	ALL REQ'D	$600,000	$600,000
RAMP FLOAT	L.S.	ALL REQ'D	$500,000	$500,000
BARTLETT FENDERS	L.S.	ALL REQ'D	$400,000	$400,000
WATER TO DOCKS	L.S.	ALL REQ'D	$300,000	$300,000
AREA LIGHTING & POWER	L.S.	ALL REQ'D	$300,000	$300,000
TOTAL ESTIMATED CONSTRUCTION COST				$7,675,000
ENGINEERING, INSPECTION, & ADMINISTRATION				$1,151,250
TOTAL PHASE I COST				$8,826,250

PHASE II - SMALL BOAT HARBOR DEVELOPMENT

ITEM	UNIT	QUANTITY	PRICE	AMOUNT
FLOATING BREAKWATER	L.F.	700	$2,500	$1,750,000
SEAPLANE FLOAT	L.S.	ALL REQ'D	$50,000	$50,000
FINGER FLOATS	L.S.	ALL REQ'D	$150,000	$150,000
MARINE CRANE	L.S.	ALL REQ'D	$50,000	$50,000
BOATGRID	L.S.	ALL REQ'D	$200,000	$200,000
TOTAL ESTIMATED CONSTRUCTION COST				$2,200,000
ENGINEERING, INSPECTION, & ADMINISTRATION				$330,000
TOTAL PHASE II COST				$2,530,000

PHASE III - UPLAND INFRASTRUCTURE IMPROVEMENTS

ITEM	UNIT	QUANTITY	PRICE	AMOUNT
NEW FUEL STORAGE & LINES	L.S.	ALL REQ'D	$250,000	$250,000
FUEL DISTRIBUTION AT DOCK	L.S.	ALL REQ'D	$50,000	$50,000
NEW POWER HOUSE & GENERATORS	L.S.	ALL REQ'D	$250,000	$250,000
TOTAL ESTIMATED CONSTRUCTION COST				$550,000
ENGINEERING, INSPECTION, & ADMINISTRATION				$110,000
TOTAL PHASE III COST				$660,000

PHASE IV - MARINE SERVICE FACILITIES - PART A

ITEM	UNIT	QUANTITY	PRICE	AMOUNT
MUSEUM/VISITOR/REC. CENTER	S.F.	4,000	$120	$480,000
RENOVATE EXISTING BLDG.	L.S.	ALL REQ'D	$250,000	$250,000
WATER & SEWER TO STORE	L.S.	ALL REQ'D	$50,000	$50,000
TOTAL ESTIMATED CONSTRUCTION COST				$780,000
ENGINEERING, INSPECTION, & ADMINISTRATION				$156,000
TOTAL PHASE IV COST				$936,000

PHASE IV - MARINE SERVICE FACILITIES - PART B

ITEM	UNIT	QUANTITY	PRICE	AMOUNT
MARINE SERVICE FACILITY	S.F.	20,000	$120	$2,400,000
TOTAL ESTIMATED CONSTRUCTION COST				$2,400,000
ENGINEERING, INSPECTION, & ADMINISTRATION				$480,000
TOTAL PHASE IV COST				$2,880,000

OVERALL PROJECT COST $15,832,250

WALCOFF & ASSOCIATES

M E M O R A N D U M

TO: EIS Team*

FROM: Jacquie Glover-Brown

DATE: April 12, 1993

SUBJECT: Project 4700-38 -- Ken Rice Visit, Draft Chapter 3 (Last Section) and Options

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Carol has asked me to inform you that Ken Rice will be visiting Walcoff on April 27, 28, and, if necessary, April 29. She is unsure whether or not this will effect the planned visit to Anchorage on May 17.

Enclosed is a current listing of the Options that we did not have, and a short description of each. This was received late Friday afternoon from Ray Thompson.

Also, I have enclosed the latest Chapter 3 for your review, etc.

*Distribution

Carol Paquette
Matt McMillen
Kathleen Schildbach
Sue Brown

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WALCOFF

April 21, 1993

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Walcoff & Associates, Inc. has been contracted by the government to write an Environmental Impact Statement under the direction of the *Exxon Valdez* Oil Spill Trustee Council. The Environmental Impact Statement will analyze the impacts of the alternatives of the Restoration Plan on the physical, biological, social, cultural and economic resources of the affected areas of the oil spill, as identified by the map in the enclosed brochure.

It is required that we solicit and consider the proposed actions of federal, state and local agencies, and native entities to obtain a complete assessment of the short- and long-range implications of alternatives. Therefore, it is necessary to request from your organization a brief description of planned actions that are either currently underway, or that will be undertaken in the foreseeable future, that should be considered when evaluating the impact of the Restoration Plan's alternatives.

The scope of this request requires the following information:

- proposed or actual year of implementation of any plans of action,
- the specific area(s) involved, and
- a brief description of the project.

The requested information will be used in conjunction with information received from other public agencies to assess the cumulative impact of the Restoration Plan's proposed alternatives. Our requirement is for informational purposes to allow an analysis of the consequences of any given alternative on, for example, commercial and recreational fishing; the aggregate and specific effects on birds, fish, mammals, and other wildlife; effects on cultural and general recreational uses, transportation, etc.

Your prompt response would be greatly appreciated. In consideration of time limitations please respond to Jacquie Glover-Brown no later than Friday, May 7, 1993. (A fax response to her attention would be especially helpful.)

INFORMATION ◆ MANAGEMENT ◆ COMMUNICATIONS

635 Slaters Lane, Suite 400, Alexandria, Virginia 22314 Phone (703) 684-5588 / Fax (703) 548-0426 / TDD (703) 684-8226

If you have any questions regarding this request, please feel free to contact me. Thank you for your prompt and cooperative attention.

Sincerely,

Carol A. Paquette
Project Manager

Enclosure

Cordova Chamber of Commerce
P.O. Box 99
Cordova, AK 99574

Jean Stewart
Executive Director
Valdez Chamber of Commerce
P.O. Box 512
Valdez, AK 99686

Mary Gordaoff
President
The Tatitlek Corporation
P.O. Box 650
Cordova, AK 99574

Johnny Hawk
President
Calista Corporation
601 W. 5th Avenue, Suite 200
Anchorage, AK 99501-2225

Michael Brown
President
Chugach Alaska Corporation
530 E. 34th Avenue, Suite 200
Anchorage, AK 99503-4196

Carl H. Marrs
Senior Vice President
Cook Inlet Region, Inc.
P.O. Box 93330
Anchorage, AK 99509-3330

Ken Johns
Executive Director
Copper River Native Association
Drawer H
Copper Center, AK 99573

Dee Lane
Land Manager
The Byak Corporation
P.O. Box 340
Cordova, AK 99574

Captain Max R. Miller
Commanding Officer
Marine Safety Office
222 W. 7th Avenue, #17
Anchorage, AK 99513-7565

Hayes C. Dye
Soil Conservation Service
U.S. Department of Agriculture
949 E. 36th Avenue, Suite 400
Anchorage, AK 99508-4302

Robert S. Hatfield, Jr.
President and CEO
Alaska Railroad Corporation
P.O. Box 107500
Anchorage, AK 99510-7500

Bruce Van Zee
Forest Supervision
201 East 9th Avenue
Anchorage, AK 99501

Theresa A. Weiland
Executive Director
Alaska State ASCS Office
800 W. Evergreen, Suite 216
Palmer, AK 99645

Donald P. Blasko
Chief
Alaska Field Operations
U.S. Bureau of Mines
3301 C Street, Suite 525
Anchorage, AK 99503-3935

Katherine Boling
President
Kenai Native Association
215 Fidalgo, Suite 203
Kenai, AK 99611

John W. Merrick
Koniag, Inc.
4300 B Street, Suite 407
Anchorage, AK 99503

Richard Rolland
Executive Director
Chugach Mint, Inc.
3300 C Street
Anchorage, AK 99503

Fred Elvaas
President
Seldovia Native Association
P.O. Drawer L
Seldovia, AK 99653

Director
Division of Tourism
Department of Commerce
MS 1503, P.O. Box E
Juneau, AK 99811

Executive Director
Alaska Tourism Marketing Council
3601 C Street, Suite 700
Anchorage, AK 99503

Executive Director
Alaska Seafood Marketing Institute
P.O. Box DX
Juneau, AK 99811

David Johnson
Chairman
Oil and Gas Conservation Committee
3001 Porcupine Drive
Anchorage, AK 99501

Ron Garzini
Executive Director
Alaska Energy Authority
P.O. Box AM
Juneau, AK 99811

Colonel John W. Pierce
Officer in Charge
Anchorage District Engineer
U.S. Army Corps of Engineers
Fort Richardson
Anchorage, AK 99506

Alvin L. Ewing
Assistant Regional Administrator
Environmental Protection Agency
Alaska Operations Office
222 W. 7th Avenue, #19
Anchorage, AK 99513

Carl Lautenberger
Food and Drug Administration
222 W. 7th Avenue
Anchorage, AK 99513-7561

Daniel Rogness
Office of Environmental Health
and Engineering
222 W. 8th Avenue, #65
Anchorage, AK 99513-7561

Executive Director
Oil Spill Coordination Office
P.O. Box AV
Juneau, AK 99811-0115

Glenn A. Olds
Commissioner
Department of Commerce
and Economic Development
MS 0800, P.O. Box D
Juneau, AK 99811

Edgar Blatchford
Commissioner
Department of Community and Regional Affairs
MS 2100, P.O. Box B
Juneau, AK 99811

Commissioner
Department of Transportation
and Public Facilities
MS 2500, P.O. Box Z
Juneau, AK 99811

Paul Gates
Regional Environmental Officer
Office of Environmental Affairs
Room 119
1689 C Street
Anchorage, AK 99501

Charles K. Weaverling
Mayor
City of Cordova
P.O. Box 1210
Cordova, AK 99574

Harry Gregoire
Mayor
City of Homer
491 E. Pioneer Avenue
Homer, AK 99603

Neil Johannsen
Director
Parks and Outdoor Recreation Division
P.O. Box 107001
Anchorage, AK 99510-7001

Dr. Doug Segar
Director
Environment and Natural
Resources Institute
707 A Street
Anchorage, AK 99501

Division of Forestry
HC1 Box 107
Soldotna, AK 99669

Rob Waldman
Alaska Power Administration
Eklutna Headquarters
Palmer, AK 99645

Wyatt Gilbert
Minerals and Materials
Development Chief
Geological and Geophysical Surveys
P.O. Box 107005
Anchorage, AK 99510-7005

Institute of Social and Economic Research
University of Alaska, Anchorage
3211 Providence Drive
Anchorage, AK 99508

Theodore A. Mala
Commissioner
Department of Health
and Social Services
MS 0600, P.O. Box H
Juneau, AK 99811-0601

Commissioner
Department of Labor
MS 0700, P.O. Box 21149
Juneau, AK 99802-1149

James Ayers
System Director
Alaska Marine Highway System
P.O. Box R
Juneau, AK 99811

Commissioner
Department of Education
P.O. Box F
Juneau, AK 99811-0500

Donald W. Cripps
Mayor of Seward
P.O. Box 167
Seward, AK 99664

Donald E. Gilman
Mayor
City and Borough of Kenai Peninsula
144 N. Binkley Street
Soldotna, AK 99669

City of Soldotna
Soldotna, AK 99609

U.S. Department of Interior
Minerals Management Service
Alaska OCS Regional Office
949 E. 36th Avenue
Anchorage, AK 99508

U.S. Department of Interior
NPS Office of Environmental Project Review
1689 C Street
Anchorage, AK 99501

Joe Cunningham
Branch Chief, Oil Section
Environmental Protection Agency
401 M Street, SW, Room 2827
Washington, DC 20460

John Harris
Mayor
City of Valdez
P.O. Box 307
Valdez, AK 99686

Valdez Port and Transportation
P.O. Box 307
Valdez, AK 99686

Kelly Carlisle
Mayor
City of Whittier
P.O. Box 608
Whittier, AK 99693

Julie Kitka
President
Alaska Federation of Natives
1577 C Street, Suite 100
Anchorage, AK 99501

Wilson Justin
President
Ahtna, Inc.
P.O. Box 649
Glenallen, AK 99588

Hope Community Council
Hope, AK 99605

Charles Totemoff
Chenega Corporation
P.O. Box 8060
Chenega Bay, AK 99574-8060

John Sandor
Commissioner
Alaska Department
of Environmental Conservation
410 Willoughy, Suite 105
Juneau, AK 99801-1795

Dr. Paul Rusanowski
Director, OMB/DGI
P.O. Box 110030
Juneau, AK 99811-0030

State Forester
Forestry Division
P.O. Box 107005
Anchorage, AK 99510-7005

Commissioner
Commerce and Economic Development
Department
3601 C Street, Suite 724
Anchorage, AK 99503

Ron Swanson
Director
Division of Land and Water
P.O. Box 107005
Anchorage, AK 99510-7005

Federal Aviation Administration
Alaska Region
701 C Street
P.O. Box 14
Anchorage, AK 99513

Jerome Selby
Mayor of Kodiak
Kodiak, AK 99615-6340

Dr. Edward Diemer
NOAA National Weather Service
222 W. 7th Avenue
Anchorage, AK 99513

Institute of Marine Sciences
Seward Marine Center
Box 730
Seward, AK 99664

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MEMORANDUM State of Alaska

DEPARTMENT OF NATURAL RESOURCES Phone: 907/278-8012

OIL SPILL RESTORATION OFFICE FAX: 907/276-7178

TO: HPWG

DATE: April 21, 1993

FROM: Art Weiner [AHW]
Chuck Gilbert

SUBJECT: Draft Habitat Protection Appendix for the Restoration Plan

Attached, for your review, is the first draft of the Habitat Protection Appendix for the Restoration Plan. As you know, there is a one page summary of this option in the main text of the Draft Plan. The intent of the Appendix version is to provide a more comprehensive treatment of the option without burdening the public with a lot of unnecessary detail. We would like you to review the draft with this objective in mind.

We would also like for you to consider the following questions:

- Should the list of linked resources/services be presented as a separate table rather than embedded in the text?

- Do you feel that it is necessary/desirable to explain, in some detail, each of the evaluation/ranking criteria?

- Does the flow chart need to show more detail?

Please get your comments to us as soon as possible so that we can circulate the next draft. The final HPWG version must also be reviewed by the RT before we forward it on to RPWG.

Thank you!

HABITAT PROTECTION/ACQUISITION

Introduction

The objective of habitat protection/acquisition is to protect lands linked to resources and services that were injured by the Exxon Valdez oil spill. Protection of these lands prevents additional injury to living resources and habitats, services and natural support systems while recovery is taking place. The Trustee Council published this objective in the March 1, 1991 *Federal Register* notice that describes restoration planning and implementation activities under consideration. This notice stated that the objective of habitat protection is to *identify and protect strategic wildlife and fisheries habitats and recreation sites and to prevent further potential environmental damages to resources injured by the Exxon Valdez oil spill.*

In situations where natural recovery is slow to occur or where direct restoration is neither technically feasible or cost effective, other measures need to be considered to mitigate injury. These may include replacement of injured resources and services with those that are equivalent[1]. The *Memorandum of Agreement and Consent Decree* entered into by the State of Alaska and the United States states that: *Restoration includes all phases of injury assessment, restoration, replacement, and enhancement of natural resources, and acquisition of equivalent resources and services.* The *Agreement and Consent Decree* rendered as a Judgment by the Court specifies that funds received from EXXON and deposited in the Joint Account can be used for the acquisition of equivalent resources.

Habitat protection addresses cases where existing regulations affecting private land use are inadequate to protect essential habitats of recovering resources and services. It is also designed to provide additional protection to habitats of recovering species on public lands where agency management strategies are not currently directed toward facilitating recovery of these resources.

The *Habitat Protection and Acquisition Process* ~~has~~ been adopted by the Trustee Council as the method for acquiring lands or partial interests in private lands that contain habitats linked to resources and/or services injured by the oil spill. The process is divided into evaluation, ranking, acquisition and post-acquisition management phases. This approach to land acquisition is a multi-step evaluation process that includes *threshold criteria* and *evaluation and ranking criteria*. The threshold criteria are designed to eliminate proposals that are inappropriate or unreasonable. The evaluation and ranking criteria are used to prioritize or rank those candidate lands that are in compliance with the threshold criteria.

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1 Replacement or acquisition of the equivalent means compensation for an injured, lost or destroyed resource by substituting another resource that provides the same or substantially similar services as the injured resource (56 Federal Register 8899 [March 1, 1991].

Protection tools that will be considered for use by the Trustee Council include: fee acquisition, conservation easements, acquisition of partial interests and others. Subsequent to purchase, acquired parcels will be managed by the appropriate resource agency in a manner that is consistent with the restoration of the affected resources and/or services. The Trustee Council will decide which agency will manage the land or may create a new management authority.

Linkage

Affected resources and services that were determined to be linked to the habitat protection strategy include:

Common murre, harlequin duck, marbled murrelet, river otter, pink salmon, sockeye salmon, cutthorat trout, dolly varden, Pacific herring, bald eagle, pigeon guillemot, sea otter, harbor seal, black oystercatcher, inter tidal and subtidal resources, consumptive and non-consumptive recreation[2], consumptive and non-consumptive commercial uses, subsistence, cultural resources and wilderness.

All of these species/services are dependent on

Linkage for the above-listed species means dependency upon essential upland and nearshore habitat(s) during critical life history stages, i.e., reproduction, feeding, molting. Habitat components linked to injured services include spawning fishing areas for anadromous fish, view sheds, freshwater streams and the inter tidal streams? zone. Anadromous streams and their adjacent riparian forests are considered to be both habitat and movement corridor. Streams, as habitat, support reproduction of anadromous fish and also act as movement corridors between the spawning and rearing habitat and the open sea. Harlequin ducks nest in trees in the riparian forest but use the open area under the canopy above the stream channel as a movement corridor to their inter tidal feeding habitat.

Threat

The Habitat Protection Process looks at the susceptibility of recovering resources and services to adverse impacts from human activity and the probability that these will occur. Potential threats to living resources and their habitats include both disturbance and habitat degradation or loss. Degradation or habitat loss can be caused by changes in land use such as development or resource extraction activities. An example of habitat degradation would be pollution of spawning or breeding habitat or fragmentation of nesting habitat. Man-induced disturbance can result in disruption of reproductive activity or displacement of animals from important feeding areas. Marine mammals, for example, when hauled out on to land, are sensitive to disturbance.

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[2] Non-consumptive uses refers to activities that generally have a low impact and do not include, as a primary objective, the harvest of fish and wildlife.

The most probable threat to recovering resources and services is intensive timber harvest. Although upland areas were not oiled, they often contain essential habitats of living resources that were directly affected by the spill and cleanup activities. Logging has the potential to jeopardize the nesting habitat of marbled murrelets, harlequin ducks and bald eagles. It can cause long term damage to forest systems through erosion, degradation of instream water quality, impairment of nutrient cycling, moisture uptake and retention. Practices associated with logging disturb animals that are dependent upon inter tidal and nearshore habitats. Wilderness values and tourism are adversely impacted by landscapes denuded by clearcutting. Habitat protection measures can eliminate these and other threats to affected resources and thereby facilitate recovery.

Habitat Protection/Acquisition Process

The process is built around a consecutive sequence of steps leading to the protection of those lands linked to the recovery or replacement of injured resources and services. Figure 1 is a summary chart of this process. These steps can be grouped into three phases: (1) Evaluation and Selection; (2) Acquisition; and (3) Management. This strategy evolved from discussions with local experts, literature reviews, reviews of damage assessment and restoration studies, and collaboration with biologists, ecologists, resource managers, archeologists, realty and services' specialists. Existing habitat protection systems, such as the Florida Conservation and Recreation Lands program were reviewed as models. To aid in the development of this process, The Nature Conservancy produced a handbook, for the Trustee Council[3]. The Handbook provides an overview of the identification and ranking processes and protection tools, techniques and strategies that are used by the Conservancy, federal and state resource agencies and by other land stewardship organizations.

Although the objective of this process is to protect and manage lands linked to spill-affected resources and services, other resources will also be affected, including water quality, wildlife, fisheries, tourism and outdoor recreation. There will also be economic and social impacts that result from the implementation of this process.

[3] *Options for Identifying and Protecting Strategic Fish and Wildlife Habitats and Recreation Sites* (The Nature Conservancy Handbook, 1991)

Key steps in the process are:

Evaluation and Selection

(1) Characterize essential habitat types for injured resources and services;

(2) Identify essential habitat types on specific parcels and determine the optimum boundary necessary for the most cost-effective protection;

(3) Evaluate and rank each candidate parcel;

Acquisition

(4) Acquire title to, or partial interests in, the highest ranked parcels, for the least cost, with the most appropriate protection tool (s); and

Management

(5) Implement a management plan for each acquired parcel that facilitates recovery of injured resources and services and provides for long term protection.

Nominations of private lands with willing sellers are first evaluated by biologists and resource managers against a set of *Threshold Criteria*. These criteria are designed to determine whether or not a nomination is acceptable for further consideration. A nomination will be rejected if it is not in compliance with **ALL** threshold criteria. Based on existing information, the threshold criteria will eliminate proposals that are inappropriate or unreasonable.

Threshold Criteria

1) There is a willing seller of the parcel or property right ;

2) The parcel contains key habitats that are linked to, replace, provide the equivalent of, or substitute for injured resources or services based on scientific data or other relevant information;

3) The seller acknowledges that the government can only purchase the parcel or property rights at fair market value;

4) Recovery of the injured resource or service would benefit from protection in addition to that provided by the owner and applicable laws and regulations; and

5) The acquired property rights can reasonably be incorporated into public land management systems.

Nominations that comply with all the threshold criteria will be listed as *Candidate Lands* and subjected to detailed evaluation against a set of *Evaluation/Ranking Criteria*. The first step in this assessment is the determination of a parcel boundary within which is contained the habitats and support systems that need to be protected. Once the optimum boundary is determined, the parcel is evaluated and ranked using the criteria. These evaluation criteria are designed to determine:

- The degree of linkage of injured resources and services to specific parcels; and

- The potential for benefit that implementation of habitat protection would have on each linked reource and service.

Evaluation/Ranking Criteria

1) The parcel contains essential habitat(s)/sites for injured species or services. Essential habitats include feeding, reproductive, molting, roosting, and migration concentrations; essential sites include known or presumed high public use areas. Key factors for determining essential habitat/sites are: (a) population or number of animals or number of public users, (b) number of essential habitats/sites on parcel, and (c) quality of essential habitats/sites.

2) The parcel can function as an intact ecological unit or essential habitats on the parcel are linked to other elements/habitats in the greater ecosystem.

3) Adjacent land uses will not significantly degrade the ecological function of the essential habitat(s) intended for protection.

4) Protection of the habitats on parcel would benefit more than one injured species/service (unless protection of a single species/service would provide a high recovery benefit).

5) The parcel contains critical habitat for a depleted, rare, threatened, or endangered species.

6) Essential habitats/sites on parcel are vulnerable or potentially threatened by human activity.

7) Management of adjacent lands is, or could easily be made compatible with protection of essential habitats on parcel.

8) The parcel is located within the oil spill affected area.

Highly ranked parcels that receive support from the Trustee Council are reviewed within the acquisition element of the process. Realty specialists, foresters, resource managers, attorneys, and land appraisers will review the anticipated cost of acquisition and recommend the most appropriate and cost-effective mix of protection tools.

4/20/93

DRAFT

ACQUISITION PROCESS

Acquisition of lands or interests in lands will be accomplished according to accepted realty principles and practices. Although there are minor differences in the ways the Federal government and the State of Alaska conduct acquisitions, the essential elements of real estate acquisitions are common to both processes. All acquisitions will require title evidence, appraisals of fair market value, hazardous substances surveys, legal review of title and negotiations. In addition, some acquisitions will require new land surveys.

Once a tract is identified for acquisition by the Trustee Council, it will be assigned as an acquisition case to an agency, multi-agency acquisition team, or other entity, at the discretion of the Trustee Council. Additionally, assistance in acquisitions may be obtained from other entities, such as non-profit land conservation groups. The party with responsibility for an acquisition will be required to coordinate and receive direction from the Trustee Council and Restoration Team to assure that acquisitions are conducted in accordance with Trustee Council directives and will fulfill restoration objectives. Once an acquisition has been fully negotiated, with agreement on a defined tract, all terms and conditions, and price, the Trustee Council will have final authority to approve or disapprove the acquisition and cause the disbursal of restoration funds. The agency or group that would receive title to the tract would also need to accept title.

From the time an acquisition case is assigned to its completion will typically take six months to two years, depending on the complexity of a variety of factors. Such factors include title conditions, potential contamination, need for land surveys, protracted negotiations and approvals by corporate boards and the Trustee Council.

Acquisitions may involve land exchanges. If suitable federal or state lands can be identified for exchange for lands that would be acquired for restoration purposes, land exchanges may be pursued. Because land exchanges involve both the acquisition and disposal of lands, they are more complex than purchases and typically take a minimum of two years.

As a general rule land acquisitions will occur on a willing seller basis. However, the federal and state governments have authority to acquire lands by eminent domain (condemnation). In extreme cases where acquisition may be vitally necessary for restoration purposes and an owner is unwilling to sell, condemnation may be employed.

HABITAT PROTECTION/ACQUISITION PROCESS

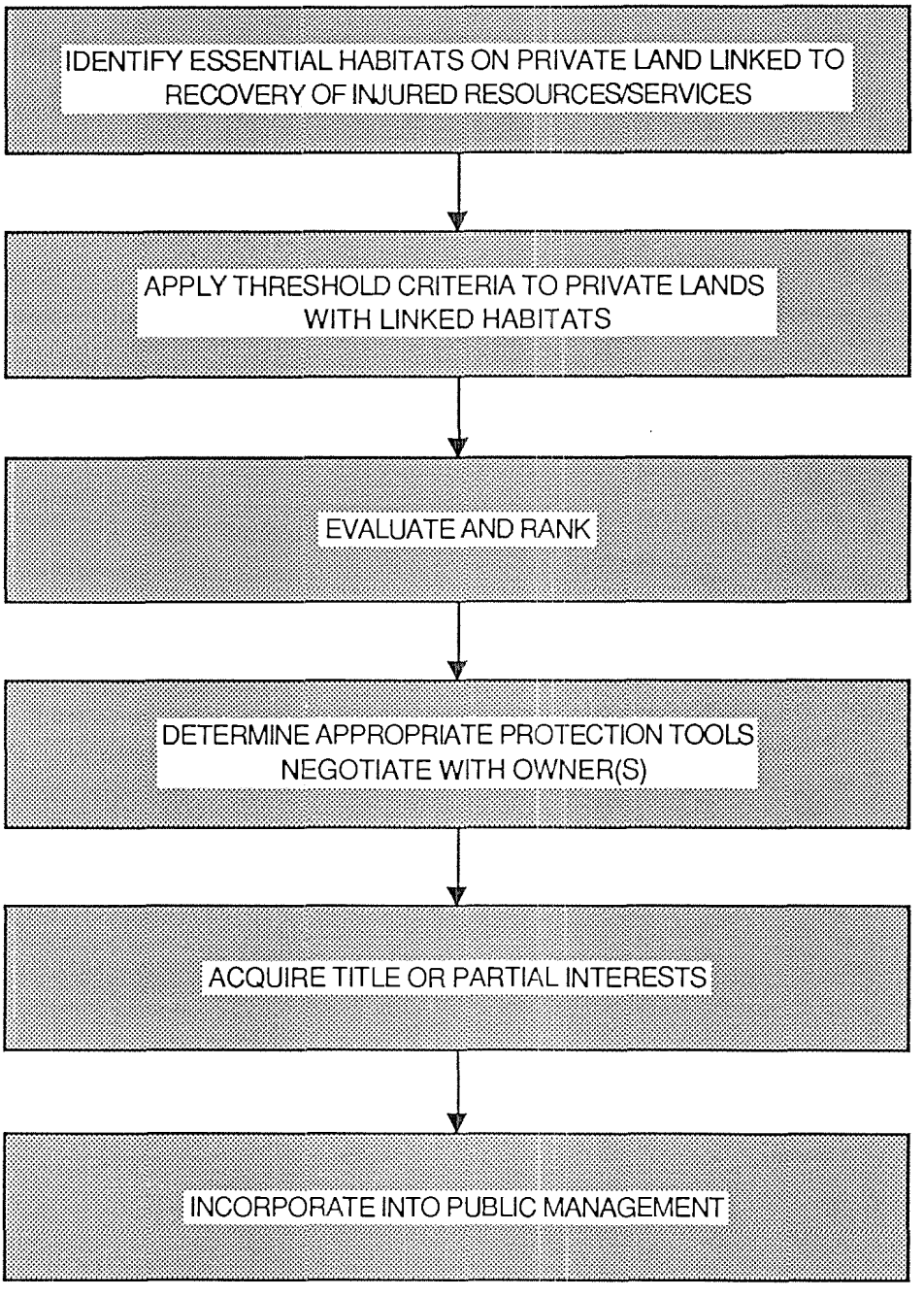

Figure 1 Summary of Habitat Protection/Acquisition Process

Exxon Valdez Oil Spill Trustee Council

Restoration Office
645 "G" Street, Anchorage, AK 99501
Phone: (907) 278-8012 Fax: (907) 276-7178

April 19, 1993

Dear Concerned Citizen:

The Trustee Council is in the process of developing the 1994 program of work to help restore the resources and services injured by the Exxon Valdez Oil Spill. "Restoration includes....injury assessment, restoration, replacement and enhancement of natural resources, and acquisition of equivalent resources or services," (Memorandum of Agreement and Consent Decree for Civil Action A91-081CV in U.S. District Court, District of Alaska, filed August 29, 1991). Attached is a list of titles for potential restoration projects for 1994 which are being considered for this program. These potential projects have been derived from the following sources:

(1) Public comments on the Restoration Framework (an April 1992 restoration discussion document),
(2) Public comment on the 1992 and 1993 work plans,
(3) Federal and state trustee agency recommendations,
(4) Other solicited and unsolicited public comments,
(5) Projects identified by the Exxon Valdez Oil Spill Public Advisory Group,
(6) Projects suggested by individuals testifying at Trustee Council meetings.
(7) Projects identified by the Chief Scientist and peer reviewers.

Please review and comment on this list of potential projects. It may be difficult for you to comment on many of the projects because of the limited information available. However, you are being asked to comment now so that you have an opportunity to influence the projects that will be selected for inclusion in the draft 1994 Work Plan. Project descriptions of these titles will be developed for the draft 1994 Work Plan to be released for public comment this summer. After reviewing those public comments, the Trustee Council will select the projects to be conducted in 1994.

Please check the columns on the right hand side of the attached table to indicate whether a project should be conducted and when. Additional space has been provided under each resource name in the table for new project titles. Be sure to note in the appropriate column the injured resource or service and the restoration option/suboption your project title addresses. Titles should be as complete and meaningful as possible. Please indicate the geographic area in which the project would be conducted. If the project is outside of the spill area please write "out" in the region columns. Your cost estimates and duration may be preliminary estimates and subject to change as are ours. A paragraph explaining your new proposed project would be useful to make sure we understand what you are proposing. At the end of the project title listing, two blank sheets are included for your new project ideas. Summary of injury tables are attached as background information to assist your deliberations on restoration projects.

The $900 million civil recovery from the *Exxon Valdez* Oil Spill is to be paid over a 10 year period. In September 1993, a $100 million payment will occur, and, from 1994 through 2001, yearly payments of $70 million will be made. Since the money is being paid over a multi-year period, not all potential projects can be funded in 1994. No decision has been made on the total amount that will be spent for the 1994 program of work (October 1, 1993 through September 30, 1994). Please note that in addition to project costs, any program of work will require funding for the administration of restoration activities.

A Restoration Plan is being developed as a long-term guide to the restoration of the resources and services injured by the *Exxon Valdez* oil spill. The Restoration Plan will be used to guide the selection of specific projects to be included in each annual work plan. A draft Restoration Plan is expected to be available in June 1993; the final version will be published by the end of 1993.

There is a 30-day period to review and comment on the enclosed potential project titles. To make sure your comments are considered, they must be postmarked by May 20, 1993. Please return your comments to:

Exxon Valdez Trustee Council
1994 Work Plan Work Group
645 "G" Street
Anchorage, Alaska 99501

Thank you.

Michael A. Barton
Regional Forester
Alaska Region
Forest Service
U.S. Department of Agriculture

Charles E. Cole
Attorney General
State of Alaska

Paul D. Gates
Regional Environmental Officer
Office of the Secretary
U.S. Department of Interior

Steve Pennoyer
Director
Alaska Region
National Marine Fisheries Service

Carl L. Rosier
Commissioner
Alaska Department of Fish and Game

John A. Sandor
Commissioner
Alaska Department of Environmental Conservation

Resources: Summary of Results of Injury Assessment Studies Done After the *Exxon Valdez* Oil Spill

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
MARINE MAMMALS										
Harbor Seals (c)	YES (200)	YES	YES	POSSIBLY STABLE, BUT NOT RECOVERING (a)	UNKNOWN	YES	YES (d)	UNKNOWN	UNKNOWN	Many seals were directly oiled . There was a measurable difference in populations between oiled and unoiled areas in PWS in 1989 and 1990. Population was declining prior to the spill and no recovery evident in 1992. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990.
Humpback Whales	NO	NO	NO	(e)	(e)	(e)	(e)	(e)	(e)	Other than fewer animals being observed in Knight Island Passage in summer 1989, which did not persist in 1990, the oil spill did not have a measurable impact on the north Pacific population of humpback whales.
Killer Whales	YES (13)	YES	UNKNOWN	RECOVERING	UNKNOWN	YES	UNKNOWN	UNKNOWN	UNKNOWN	13 Adult whales of the 36 in AB pod are missing and presumed dead. The AB pod has grown by 2 whales since 1990. Circumstantial evidence links whale disappearance to oiling.
Sea Lions (c)	UNKNOWN	UNKNOWN	NO	CONTINUING DECLINE	(e)	(e)	(e)	(e)	(e)	Several sea lions were observed with oiled pelts and oil residues were found in some tissues. It was not possible to determine population effects or cause of death of carcasses recovered. Sea lion populations were declining prior to the oil spill.

(a) There may have been an unequal distribution of injury within each region;
(b) Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;
(c) Population may have been declining prior to the spill;
(d) Based on recovery of dead animals from this region of the spill zone;
(e) If no injury was detected or known, no assessment of recovery could be made;
(f) Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Sea Otters	YES (3,500 TO 5,000)	YES	YES	STABLE, BUT NOT RECOVERING	YES, POSSIBLY	YES	YES	YES (d)	YES (d)	Post-spill surveys showed measurable difference in populations and survival between oiled and unoiled areas in 1989, 1990 and 1991. Survey data have not established a significant recovery. Prime-age animals were still found on beaches in 1989, 1990 and 1991. Carcasses of sea otters feed in the lower intertidal and subtidal areas and may still be exposed to hydrocarbons in the environment.
TERRESTRIAL MAMMALS										
Black Bear	NO	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	No field studies were done.
Brown Bear	NO	NO	NO	(e)	(e)	(e)	(e)	(e)	(e)	Hydrocarbon exposure was documented on Alaska Peninsula in 1989 including high hydrocarbon level in the bile of one dead cub. Brown bear feed in the intertidal zone and may still be exposed to hydrocarbons in the environment.
River Otters	YES (NUMBER UNKNOWN)	UNKNOWN	YES	UNKNOWN	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	Exposure to hydrocarbons and sub-lethal effects were determined, but no effects were established on population. Sub-lethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may be still be exposed to hydrocarbons in the environment.
Sitka Black-tailed Deer	NO	NO	NO	(e)	(e)	(e)	(e)	(e)	(e)	Elevated hydrocarbons were found in tissues in some deer in 1989.

(a) There may have been an unequal distribution of injury within each region;
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(c) Population may have been declining prior to the spill;
(d) Based on recovery of dead animals from this region of the spill zone;
(e) If no injury was detected or known, no assessment of recovery could be made;
(f) Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
BIRDS										
Bald Eagles	YES (614-902)	YES	YES	RECOVERING	UNKNOWN	YES	YES	YES (d)	YES(d)	Productivity in PWS was disrupted in 1989, but returned to normal in 1990. Exposure to hydrocarbons and some sub-lethal effects were found in 1989 and 1990, but no continuing effects were observed on populations.
Black-legged Kittiwakes	YES (NUMBER UNKNOWN)	NO	NO	NO CHANGE	NO	YES	YES (d)	YES (d)	YES (d)	Total reproductive success in oiled and unoiled areas of PWS has declined since 1989. Hydrocarbon contaminated tissues were detected in 1989. Hydrocarbon contaminated stomach contents were detected in 1989 and 1990. This species is known for great natural variation and reproductive failure may be unrelated to the oil spill.
Black Oyster-catchers	YES (129 ADULTS; UNKNOWN FOR CHICKS (f)	YES	YES	RECOVERING	YES	YES	YES (d)	YES (d)	YES (d)	Differences in egg size between oiled and unoiled areas were found in 1989. Exposure to hydrocarbons and some sublethal effects were determined. Populations declined more in oiled areas than unoiled areas in post-spill surveys in 1989, 1990 and 1991. Black oystercatchers feed in the intertidal areas and may be still be exposed to hydrocarbons in the environment.
Common Murres	YES (175,000 to 300,000)	YES	YES	DEGREE OF RECOVERY VARIES IN COLONY	YES	NO	YES	YES	YES	Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding is still inhibited in some colonies in the Gulf of Alaska.
Glaucous-winged gulls	YES (NUMBER UNKNOWN)	NOT DETECTED	NO	NO CHANGE	NO	YES (d)	YES (d)	YES (d)	YES (d)	While dead birds were recovered in 1989, there is no evidence of a population level impact when compared to historic (1972, 1973) population levels.

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(c) Population may have been declining prior to the spill;
(d) Based on recovery of dead animals from this region of the spill zone;
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Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Harlequin Ducks	YES (423)	YES	YES	STABLE OR CONTINUING DECLINE	YES	YES	YES (d)	YES (d)	YES (d)	Post-spill samples showed hydrocarbon contaminatio and poor body conditions. Surveys in 1990-1992 indicated population declines and near total reproductive failure. Harlequin ducks feed in the intertidal and shallow subtidal areas and may stil be exposed to hydrocarbons in the environment.
Marbled Murrelets (c)	YES (8,000 TO 12,000)	YES	UNKNOWN	STABLE OR CONTINUING DECLINE	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Measurable population effects on were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the spill. Hydrocarbon contamination was found in livers of adult birds.
Peale's Peregrine Falcons	UNKNOWN	UNKNOWN	NO	(e)	(e)	(e)	(e)	(e)	(e)	When compared to 1985 surveys a reduction in population and lower than expected productivity wa measured in 1989 in the PWS. Cause of these changes are unknown.
Pigeon Guillemots (c)	YES (1,500 TO 3,000)	YES	NO	STABLE OR CONTINUING DECLINE	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Pigeon guillemot populations were declining prior to the spill. Hydrocarbon contamination was found in birds and, externally, on eggs.
Storm Petrels	YES (NUMBER UNKNOWN)	NO	AWAITING RESULTS	NO CHANGE	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Few carcasses were recovered in 1989 although petrels ingested oil and transferred oil to their eggs. Reproduction was normal in 1989.
Other Seabirds	YES (375,000-435,000)	VARIES BY SPECIES	UNKNOWN	VARIES BY SPECIES	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Seabird recovery has not been studied. Species collected dead in 1989 include common, yellow-billed, pacific, red-throated loon; red-necked and horned grebe; northern fulmar; sooty and short-tailed shearwater; double-crested, pelagic, and red-faced cormorant; herring and mew gull; arctic and Aleutian tern; Kittlitz's and ancient murrelet Cassin's, least, parakeet, and rhinoceros auklet; and horned and tufted puffin.

(a) There may have been an unequal distribution of injury within each region;
(b) Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;
(c) Population may have been declining prior to the spill;
(d) Based on recovery of dead animals from this region of the spill zone;
(e) If no injury was detected or known, no assessment of recovery could be made;
(f) Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Other Sea Ducks	YES (875) (b)	NO	UNKNOWN	UNKNOWN	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include Stellar's, king and common eider; white-winged, surf and black scoter; oldsquaw; bufflehead; common and Barrow's goldeneye; and common and red-breasted merganser. Sea ducks tend to feed in the intertidal and shallow subtidal areas which were most heavily impacted by oil.
Other Shorebirds	YES (NUMBER UNKNOWN)	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include golden plover; lesser yellowlegs; semipalmated, western, least and Baird's sandpiper; surfbird; short-billed dowitcher; common snipe; red and red-necked phalarope.
Other Birds	YES (NUMBER UNKNOWN)	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include emperor and Canada goose; brant; mallard; northern pintail; green-winged teal; greater and lesser scaup; ruddy duck; great blue heron; long-tailed jaeger; willow ptarmigan; great-horned owl; Stellar's jay; magpie; common raven; northwestern crow; robin; varied and hermit thrush; yellow warbler; pine grosbeak; savannah and golden-crowned sparrow; white-winged crossbill.
FISH										
Cutthroat Trout	YES, SEE COMMENTS	POSSIBLY	YES	STABLE, BUT NOT RECOVERING	UNKNOWN	YES	UNKNOWN	UNKNOWN	UNKNOWN	Differences in survival and growth between anadromous adult populations in the oiled and unoiled areas persisted in 1991 despite the decrease in exposure indicators. This could be due to continuing injury to the food base.
Dolly Varden	YES, SEE COMMENTS	POSSIBLY	YES	STABLE, BUT NOT RECOVERING	UNKNOWN	YES	UNKNOWN	UNKNOWN	UNKNOWN	Differences in survival between anadromous adult populations in the oiled and unoiled areas persisted in 1991 despite the decrease in exposure indicators. This could be due to continuing injury to the food base.

(a) There may have been an unequal distribution of injury within each region;
(b) Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;
(c) Population may have been declining prior to the spill;
(d) Based on recovery of dead animals from this region of the spill zone;
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Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Pacific Herring	YES, TO EGGS AND LARVAE	UNKNOWN	YES	UNKNOWN	NO	YES	UNKNOWN	UNKNOWN	UNKNOWN	Measurable difference in egg counts between oiled and unoiled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and to a lesser extent in 1990; in 1991 there were no differences between oiled and unoiled areas. It is possible that the 1989 year class was injured and could result in reduced recruitment to the fishery.
Pink Salmon (Wild) (c)	YES, TO EGGS	POSSIBLY	YES	SEE COMMENTS	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	There was initial egg mortalituy in 1989. Egg mortality continued to be high in 1991, possibly due to genetic damage to spawners. Abnormal fry were observed in 1989. Reduced growth of juvenile was found in the marine environment, which can be correlated with reduced survival.
Rockfish	YES (20) (f)	UNKNOWN	YES	UNKNOWN	UNKNOWN	YES	YES	UNKNOWN	UNKNOWN	Few dead fish were found in 1989 in condition to b analyzed. Exposure to hydrocarbons with some sub-lethal effects were determined in those fish, but no effects established on the population. Closure to salmon fisheries increased fishing pressures or rockfish which may be impacting population.
Sockeye Salmon	UNKNOWN	YES	YES	SEE COMMENTS	YES	UNKNOWN	YES	YES	NO	Smolt survival continues to be poor in the Red Lak and Kenai River systems due to overescapements in Red Lake in 1989, and in the Kenai River in 1987, 1988, 1989. As a result, future adult returns are expected to be low in 1994 and successive years. Trophic structures of Kenai and Skilak Lakes have been altered by overescapement.
SHELLFISH										
Clam	YES (NUMBER UNKNOWN)	UNKNOWN	POSSIBLY, FINAL ANALYSES PENDING	UNKNOWN	UNKNOWN	YES	YES	YES	YES	Native littleneck and butter clams were impacted b both oiling and clean-up, particularly high pressure, hot water washing. Littleneck clams transplanted to oiled areas in 1990 grew significantly less than those transplanted to unoiled sites. Reduced growth recorded at oiled sites in 1989 but not 1991.

(a) There may have been an unequal distribution of injury within each region;
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(e) If no injury was detected or known, no assessment of recovery could be made;
(f) Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate) (b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Crab (Dungeness)	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Crabs collected from oil areas were not found to have accumulated petroleum hydrocarbons.
Oyster	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Although studies were initiated in 1989, they were not completed because they were determined to be of limited value.
Sea Urchin	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Studies limited to laboratory toxicity studies.
Shrimp	UNKNOWN	UNKNOWN	NO	(e)	(e)	(e)	(e)	(e)	(e)	No conclusive evidence presented for injury linked to oil spill.
INTERTIDAL/SUBTIDAL COMMUNITIES										
Intertidal Organisms/ Communities	YES	YES	YES	VARIABLE BY SPECIES, SEE COMMENTS	YES	YES	YES	YES	YES	Measurable impacts on populations of plants and animals were determined. The lower intertidal and, to some extent, the mid intertidal is recovering. Some species (Fucus) in the upper intertidal zone have not recovered, and oil may persist in and mussel beds.
Subtidal Communities	YES	YES	YES	VARIABLE BY SPECIES, SEE COMMENTS	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	Measurable impacts on population of plants and animals were determined in 1989. Eel grass and some species of algae appear to be recovering. Amphipods in eel grass beds recovered to pre-spill densities in 1991. Leather stars and helmet crabs show little sign of recovery through 1991.

(a) There may have been an unequal distribution of injury within each region;
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(e) If no injury was detected or known, no assessment of recovery could be made;
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Service	Description of Injury	Status of Recovery in December, 1992	Geographic Extent of Injury (a)				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
Passive Use	In 1991, over 90% of those surveyed (nation-wide) said they were aware of the *Exxon Valdez* oil spill. People report that values have been lost; their feelings about the spill area have changed. There is a wide-spread feeling that something has been lost.	Recovery status is unknown.	YES	YES	YES	YES	Over 50% of those surveyed believed that the spill was the largest environmental accident caused by humans anywhere in the world. The median household willingness to pay for future prevention was $31. Multiplying this by the number of U.S. household results in a damage estimate of $2.8 billion.
Recreation (e.g., hunting, fishing, camping, kayaking, sailboating, motorboating, environmental education)	The nature and extent of injury varied by user group and by area. About a quarter of key informants interviewed reported no change in their recreation experience, but others reported avoidance of the spill area, reduced wildlife sightings, residual oil, and more people. Overall, recreation use declined significantly in 1989. Between 1989 and 1990 a decline in sport fishing (number of anglers, fishing trips and fishing days) were recorded for PWS, Cook Inlet and the Kenai Peninsula. In 1992 an emergency order restricting cutthroat trout fishing was issued for western PWS due to low adult returns. Sport hunting of harlequin duck was affected by restrictions imposed in 1991 in response to damage assessment studies.	Declines in recreation activities reported in 1989 appear to be recovering for some user groups, but the degree of recovery is unknown. EVOS related sockeye over-escapement in the Kenai River and Red Lake system is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in sport fishing closures or harvest restrictions during these and perhaps in subsequent years. The 1992 sport fishing closure for cutthroat trout is expected to continue at least through 1993. Harvest restrictions are expected to continue for harlequin duck through 1993.	YES	YES	YES	YES	Survey respondents also reported changes in their perception of recreation opportunity in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects, and, in some, a sense of optimism.

(a) There may have been an unequal distribution of injury within each region, see map for location of regions.

Summary of Results of Injury Assessment Studies Done After the *Exxon Valdez* Oil Spill

Service	Description of Injury	Status of Recovery in December, 1992	Geographic Extent of Injury (a)				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
Commercial Fishing	During 1989, emergency commercial fishery closures were ordered in PWS, Cook Inlet, Kodiak and the Alaska Peninsula. This affected salmon, herring, crab, shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990 a portion of PWS was closed to shrimp fishing.	Currently there are no area-wide oil spill-related commercial closures in effect. Management actions to try to compensate for the spill are still in effect. EVOS related sockeye over-escapement in the Kenai River and Red Lake system is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and perhaps in subsequent years.	YES	YES	YES	YES	Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain. Therefore, future impacts on these fisheries is unknown.
Commercial Tourism	Approximately 43% of the tourism businesses surveyed felt their businesses had been significantly affected by the oil spill in summer 1989. The net loss in visitor spending in the oil spill area in 1989 was $19 million.	By 1990, 12% of the tourism businesses surveyed felt their businesses had been significantly affected by the oil spill.	YES	YES	YES	YES	

(a) There may have been an unequal distribution of injury within each region.

Summary of Results of Injury Assessment Studies Done After the *Exxon Valdez* Oil Spill

Service	Description of Injury	Status of Recovery in December, 1992	Geographic Extent of Injury (a)				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
Subsistence	Subsistence harvests of fish and wildlife in 10 of 15 villages surveyed declined from 4 - 78% in 1989 when compared to pre-spill levels. At least 4 of the 10 villages showed continued lower than average levels of use in the period 1990-1991; this decline is particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989-1991, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat. In 1989-1991, health advisories were issued indicating that shellfish from oiled beaches should not be eaten.	Many subsistence users believe that continued contamination to subsistence food sources is dangerous to their health. In addition, village residents believe that subsistence species continue to decline or have not recovered from the oil spill.	YES	YES	YES	NO	For detailed information on village subsistence use see table _, page__.

(a) There may have been an unequal distribution of injury within each region.

Summary of Results of Injury Assessment Studies Done After the *Exxon Valdez* Oil Spill

Other Natural Resources and Archaeology: Summary of Results of Injury Assessment Studies Done After the *Exxon Valdez* Oil Spill (b)

Resource	Description of Injury	Status of Recovery in December, 1992	Geographic Extent of Injury (a)				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
Air	Air quality standards for aromatic hydrocarbons were exceeded in portions of PWS. Health and safety standards for permissible exposure levels were exceeded up to 400 times.	Recovered	YES	NO	NO	NO	Impacts diminished rapidly as oil weathered and lighter factions evaporated.
Sediments	Oil coated beaches and became buried in beach sediments. Oil laden sediments were transported off beaches and deposited on subtidal marine sediments.	Patches of oil residue remain intertidally on rocks and beaches and buried beneath the surface at other beach locations. Oil remains in some subtidal marine sediments and has spread to depths greater than 20 meters.	YES	YES	YES	YES	Unweathered buried oil will persist for many years in protected low-energy sites.
Water	State of Alaska water quality standards may have been exceeded in portions of PWS. Federal and State oil discharge standards of no visible sheen were exceeded.	Recovered	YES	YES	YES	YES	Impacts diminished as oil weathered and lighter fractions evaporated.
Archaeological sites/artifacts	Currently, 24 sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. 113 sites are estimated to have been similarly affected. Injuries attributed to looting and vandalism (linked to the oil spill) are still occurring.	Archaeological sites and artifacts cannot recover; they are finite non-renewable resources.	YES	YES	YES	YES	
Designated Wilderness Areas	Many miles of Federal and State Wilderness and Wilderness Study Area coastlines were affected by oil. Some oil remains buried in the sediments of these areas.	Oil has degraded in many areas but remains in others. Until the remaining oil degrades, injury to Wilderness areas will continue.	YES	YES	YES	YES	

(a) There may have been an unequal distribution of injury within each region.
(b) This page has not yet been reviewed by the Chief Scientist.

(a) There may have been an unequal distribution of injury within each region.

Name:_____

Phone:_____

1994 POTENTIAL PROJECT TITLES

#	RESOURCE or SERVICE	RESTORATION OPTION or SUBOPTION	POTENTIAL PROJECTS	REGION PWS	REGION KEN	REGION KOD	EST. COST/YR $K	EST. DURATION (YEARS)	1994	1995	1996	1997	1998	1999	2000	2001	Do Not Fund
1	**Archaeology**	Acquire Archaeological Artifacts	Archaeological Specimens Collection, University of Alaska Museum	X	X	X	$41	M									
2		Acquire Archaeological Artifacts	Nuchek Heritage Interpretive Center, Design	X			$300	1									
3		Habitat Protection and Acquisition	Archaeological Site Acquisition	X	X	X	$200	M									
4		Intensified Management	Coastal Archaeological Inventory and Evaluation of Archaeological Sites-Interagency	X	X	X	$525	M									
5		Intensified Management	Vandalized Cultural Resources--Inventory, Evaluation, Interpretation	X	X	X	$400	M									
6		Option Not Identified	Restoration of Chenega Village Site	X			$75	1									
7		Option Not Identified	Site-specific Archaeological Restoration - Interagency	X	X	X	$300	93 - M									
8		Public Information	Passports in Time-Cultural Resource Patterns in PWS	X			$230	M									
9		Public Information	Heritage Information Replacement	X	X	X	$200	M									
10		Public Information	PWS Landmarks-Evaluation and Interpretation	X			$400	M									
11		Public Information	Public Education and Interpretation of Archaeological Resource	X	X	X	$400	M									
12		Restoration Monitoring	Study of Petroleum Hydrocarbon Spectra at Selected Sites	X	X	X	$225	M									
13		Site Patrol and Monitoring	Archaeological Site Protection-Public Education-Interagency	X	X	X	$150	M									
14		Site Patrol and Monitoring	Archaeological Site Protection-Site Patrol Monitoring-Interagency	X	X	X	$210	M									
15		Site Stewardship Program	Archaeological Site Stewardship Program	X	X	X	$114	M									
16		Visitor Center	Chugach National Forest Heritage Interpretive Center, Design	X			$1,200	1									
17	**Bald Eagle**	Habitat Protection	Identification and Protection of Important Bald Eagle Habitats	X	X	X	$262	M									
18		Recovery Monitoring	Bald Eagle Productivity Survey and Catalog	X	X	X	$10	M									
19		Recovery Monitoring	Long-Term Population Monitoring for Bald Eagles	X	X	X	$200	M									
20	**Black Oystercatcher**	Recovery Monitoring	Black Oystercatcher Interaction with Intertidal Communities	X	X	X	$108	93 - M									
21		Recovery Monitoring	Feeding Ecology and Reproductive Success of Black Oystercatchers in PWS	X			$125	M									

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1994 POTENTIAL PROJECT TITLES

	RESOURCE or SERVICE	RESTORATION OPTION or SUBOPTION	POTENTIAL PROJECTS	REGION			EST. COST/YR $K	EST. DURATION (YEARS)	1994	1995	1996	1997	1998	1999	2000	2001	Do Not Fund
				PWS	KEN	KOD											
22	**Black Oystercatcher**	Restoration Monitoring															
23	**Commercial Fishing**	Habitat Protection and Acquisition	Weir And Conservation Land Acquisition	X	X	X	$1,100	M									
24		Intensify Management	Establish an Ecological Basis for Restoring and Enhancing Mixed-stock Salmon Resources	X	X	X	$385	M									
25		Intensify Management	Fishery Industrial Technology Center	X	X	X	$3,500	1									
26		Intensify Management	Model for Capacity of Salmon Production for the Susitna Drainage		X		$150	M									
27		Intensify Management	Susitna River Sockeye Salmon Production Evaluation		X		$300	M									
28		Monitoring	Thirteen Commercial Species Hydrocarbon Contamination and Injury Assessment	X	X	X	$200	M									
29		Option Not Identified	Payoff Debt of Valdez Fisheries Development Association	X			$5,000	1									
30		Recovery Monitoring	Recovery of Coded-Wire Tags from Pink Salmon in Commercial Catches, Hatchery Cost Recovery	X			$868	M									
31		Recovery Monitoring	Wild Fish Stock Information Assessment	X	X	X	$50	M									
32		Replace Harvest Opportunities	Mitigation Fishery at Kitoi Bay Hatchery on Afognak Island			X	$45	M									
33		Replace Harvest Opportunities	Montague Island Chum Salmon Restoration	X			$80	M									
34		Replace Harvest Opportunities	Paint River Fish Ladder Salmon Stocking Program		X		$50	M									
35		Replace Harvest Opportunities	Red Lake Mitigation			X	$191	M									
36	**Common Murre**	Feasibility Study: Improve Nest Sites	Testing of the Feasibility of Enhancing Productivity	X	X	X	$280	M									
37		Feasibility Study: Social Stimuli	Restoration of Murres by Way of Behavioral Attraction and Habitat Enhancement	X	X	X	$51	93 - M									
38		Feasibility Study: Social Stimuli	Restoration of Murres by Way of Transplantation of Chicks-Feasibility Study	X	X	X	$73	M									
39		Recovery Monitoring	Common Murre Population Monitoring OUT	X	X	X	$191	M									
40		Reduce Disturbance	Reduce Disturbance Near Murre Colonies Injured by the Oil Spill	X	X	X	$40	M									
41		Remove Introduced Species	Removal of Introduced Predators from Bird Colonies OUT				$460	M									

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	RESOURCE or SERVICE	RESTORATION OPTION or SUBOPTION	POTENTIAL PROJECTS	REGION PWS	REGION KEN	REGION KOD	EST. COST/YR $K	EST. DURATION (YEARS)	1994	1995	1996	1997	1998	1999	2000	2001	Do Not Fund
42	Common Murre	Restoration Monitoring						M									
43	Cutthroat/Dolly	Intensify Management	Cutthroat Trout and Dolly Varden Habitat Restoration	X			$200	M									
44		Intensify Management	Enhanced Management of Cutthroat Trout and Dolly Varden	X			$285	M									
45		Option Not Identified	Anadromous Cutthroat and Dolly Varden Char Habitat Inventory, Evaluation, and Restoration	X			$35	M									
46		Option Not Identified	Cutthroat Trout and Dolly Varden Hatchery	X			$950	M									
47		Restoration Monitoring						M									
48	General	Administration	Oil Spill Restoration Support Service and Facilities	X	X	X	$600	1									
49		Monitoring	Monitoring of Small Cetaceans (Dall Porpoises) in PWS	X			$200	M									
50		Option Not Identified	Hazardous Material Collection Facility	X	X	X	$100	1									
51		Option Not Identified	Testing of Patch-Response Patch Dependence Hypothesis-Testing of an Ecosystem Model	X	X	X	$488	M									
52		Public Information	Public Broadcasting System Program on Oil Spill	X	X	X	$70	M									
53		Public Information	Publish and Distribute Brochures on Injured Species	X	X	X	$90	M									
54		Public Information	PWS Brochures	X			$65	M									
55		Public Information	PWS Implementation of Interpretive Plan	X			$150	M									
56		Public Information	PWS Large Format Photographic Book	X			$100	M									
57		Public Information	PWS Scenic Byway-- Nomination and Interpretive Plan	X			$70	M									
58		Public Information	PWS Video Programs	X			$100	M									
59		Public Information	Science of the Sound- Education Program	X			$53	M									

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1994 POTENTIAL PROJECT TITLES

	RESOURCE or SERVICE	RESTORATION OPTION or SUBOPTION	POTENTIAL PROJECTS	REGION PWS	KEN	KOD	EST. COST/YR $K	EST. DURATION (YEARS)	1994	1995	1996	1997	1998	1999	2000	2001	Do Not Fund
60	**Harbor Seal**	Cooperative Program-Fishermen															
61		Monitoring	Monitoring Trends in Abundance of Harbor Seals in PWS	X			$39	M									
62		Option Not Identified	Subsistence Harvest Assistance	X			$23	M									
63		Option Not Identified	Habitat Use and Behavior of Harbor Seals in PWS	X			$165	93 - M									
64		Recovery Monitoring	Habitat Use, Monitoring, Population Modelling, and Information Synthesis	X	X	X	$230	M									
65	**Harlequin Duck**	Eliminate Oil from Mussel Beds															
66		Monitoring	Harlequin Duck Recovery Monitoring, Population Modelling and Habitat Information Synthesis	X	X	X	$700	93 - M									
67		Option Not Identified	Quantification of Stream Habitat for Harlequin Ducks from Remotely Sensed Data	X	X	X	$53	M									
68	**Intertidal**	Accelerate Recovery of Intertidal	Deposit Sand on Cleaned Beaches, to Promote Clam Recruitment-Feasibility Study	X	X	X	$20	M									
69		Accelerate Recovery of Intertidal	Fucus Restoration Feasibility Study	X	X	X	$70	M									
70		Accelerate Recovery of Intertidal	Restoration of High-Intertidal Fucus	X	X	X	$300	M									
71		Accelerate Recovery of Intertidal	Beach Subsurface Oil Recovery	X	X	X	$50	M									
72		Accelerate Recovery of Intertidal	Hydrodynamic Purging of Oil from Contaminated Beaches, PWS	X			$500	M									
73		Accelerate Recovery of Intertidal	Rapid Restoration of Weathered Crude Contaminated Beach Subsurface Material	X	X	X	$800	M									
74		Accelerate Recovery of Intertidal	Restore Shorelines Injured by Beach Berm Relocation	X	X	X		M									
75		Monitoring	Coastal Habitat Injury Assessment - Intertidal Algae	X	X	X	$620	M									
76		Monitoring	Fate and Transport of Subsurface Hydrocarbons in Beach Deposits in PWS	X			$600	M									
77		Monitoring	Coastal Habitat Comprehensive Intertidal Monitoring Program	X	X	X	$500	M									
78		Monitoring	Hydrocarbons in Mussels from Coastal Gulf of Alaska, Cook Inlet and Shelikof Strait		X	X	$200	M									
79		Monitoring	Intertidal/Shallow Subtidal Crustacean (Decapod) Composition	X	X	X	$275	M									
80		Monitoring	Long-Term Monitoring -Acute and Chronic Toxicity of Residual Hydrocarbons to Littleneck Clams	X	X	X	$50	M									
81		Monitoring	Monitoring for Recruitment of Littleneck Clams	X	X	X	$186	M									

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82	Intertidal	Monitoring	Monitoring Sites - Collector Beaches and Lagoons	X	X	X	$500	M									
83		Monitoring	Natural Recovery of Oiled and Treated Shorelines and Monitoring	X	X	X	$600	M									
84		Monitoring	Quantification of Intertidal Algal Recovery Using Multispectral Digital Remote Sensing	X	X	X	$195	M									
85		Monitoring	Recovery Monitoring of Intertidal Oiled Mussel Beds	X	X	X	$500	93 - M									
86		Monitoring	Herring Bay Experimental and Monitoring Studies	X			$495	93 - M									
87		Option Not Identified	Bivalve Shellfish Rehabilitation Project	X	X	X	$860	M									
88		Option Not Identified	Clam Enhancement	X	X	X	$120	M									
89		Option Not Identified	Replacement of Oiled Mussels with Commercially Produced Mussels	X	X	X	$500	M									
90		Option Not Identified	Restoration of Mussel Beds	X	X	X	$500	M									
91		Option Not Identified	Characterization of Near-Shore Bottom Habitat	X	X	X	$237	M									
92	Killer Whale	Monitoring	Photo-Identification Studies of PWS Killer Whales	X			$120	93 - M									
93		Monitoring	Recovery Monitoring	X			$125	M									
94		Monitoring	Use of Satellite Transmitters to Investigate Killer Whale Ecology in PWS	X			$180	M									
95		Reduce Fishery Interactions	Change Black Cod Fishery Gear	X				M									
96	Marbled Murrelet	Habitat Protection	Identification of Nesting Habitat Criteria and Reproductive Success for Marbled Murrelet	X	X	X	$240	93 - M									
97		Habitat Protection	Survey to Identify Upland Use by Murrelets	X	X	X	$180	93 - M									
98		Habitat Protection	Assessment of Marbled Murrelet Foraging Habitat Requirements During Breeding Season	X	X	X	$250	M									
99		Habitat Protection	Marbled Murrelet Nesting and Feeding Site Characterization and Assessment	X	X	X	$509	M									
100		Minimize Incidental Take															
101		Recovery Monitoring	Determine Status of Marbled Murrelet Populations In Kenai Fjords and Katmai National Parks		X	X	$200	M									

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102	**Marbled Murrelet**	Restoration Monitoring	Survey to Monitor Recovery of Marbled Murrelets	X	X	X	$250	M									
103	**Multiple Resources**	Habitat Protection	Habitat Modelling	X	X	X	$150	M									
104		Habitat Protection	Riparian Habitat Assessment	X	X	X	$110	M									
105		Habitat Protection	Stream Channel Capability Modeling	X	X	X	$110	M									
106		Habitat Protection	Stream Habitat Assessment	X	X	X	$361	93 - M									
107		Habitat Protection	Valdez Hazardous Waste Collection	X			$200	1									
108		Habitat Protection	Vegetation and Stream Classification and Mapping	X	X	X	$276	93 - M									
109		Habitat Protection	Wetland Habitat Classification, Mapping and Assessment	X	X	X	$100	M									
110		Habitat Protection	Characterization and Identification of Habitat Important to Upland Species	X	X	X	$750	M									
111		Habitat Protection and Acquisition	Inholdings in Alaska Maritime National Wildlife Refuge		X	X	$111	1									
112		Habitat Protection and Acquisition	Inholdings in Alaska Peninsula National Wildlife Refuge			X		1									
113		Habitat Protection and Acquisition	Inholdings in Becharof National Wildlife Refuge			X		1									
114		Habitat Protection and Acquisition	Valdez Duck Flats	X				1									
115		Habitat Protection and Acquisition	Inholdings in Kenai Fjords National Wildlife Refuge		X		$20	1									
116		Habitat Protection and Acquisition	Inholdings in Aniakchak National Monument and Preserve			X		1									
117		Habitat Protection and Acquisition	Kitoi Bay Hatchery Watershed Habitat Acquisition			X	$250	1									
118		Habitat Protection and Acquisition	Acquire Olsen Bay Watershed	X			$3,500	1									
119		Habitat Protection and Acquisition	Acquisition of Inholdings in Shuyak Island State Park			X	$200	1									
120		Habitat Protection and Acquisition	Acquisition of Koniag Corporation Inholdings within the Kodiak National Wildlife Refuge			X	$77,000	1									
121		Habitat Protection and Acquisition	Conservation Easement-Aialik Bay		X		$90	1									
122		Habitat Protection and Acquisition	Conservation Easement-Chugach Bay		X		$60	1									
123		Habitat Protection and Acquisition	Conservation Easement-Dogfish Bay		X		$400	1									
124		Habitat Protection and Acquisition	Conservation Easement-Port Chatham		X		$80	1									
125		Habitat Protection and Acquisition	Conservation Easement-Rock Bay		X		$740	1									
126		Habitat Protection and Acquisition	Habitat Acquisition	X	X	X	$25,000	93 - 1									
127		Habitat Protection and Acquisition	Habitat Acquisition, Afognak			X	$112,500	1									

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128	**Multiple Resources**	Habitat Protection and Acquisition	Habitat Acquisition, Kodiak Island			X	$20,000	1									
129		Habitat Protection and Acquisition	Habitat Acquisition, North Afognak Island			X	$4,000	1									
130		Habitat Protection and Acquisition	Kodiak Bear Refuge Stream Mouth Inholdings Acquisition			X	$1,000	1									
131		Increase Natural Food Supply															
132		Intensify Management	Develop Management Strategy for Enhancing Recovery Rate of Bird and Sea Otter Populations	X	X	X	$50	M									
133		Intensify Management	Genetic Risk Assessment of Injured Salmonids	X	X	X	$408	M									
134		Intensify Management	Restoration and Mitigation of Essential Wetland Habitats for PWS Fish and Wildlife	X			$200	M									
135		Intensify Management	Restoration of Second Growth Habitat for Wildlife in PWS	X			$40	M									
136		Intensify Management	Seabird Colony Restoration	X	X	X	$250	M									
137		Intensify Management	Stock Identification of Chum, Sockeye and Chinook Salmon in PWS	X			$250	M									
138		Monitoring	Shoreline Worm Life Monitoring	X	X	X	$388	M									
139		Option Not Identified	Instream Habitat and Stock Restoration Techniques for Anadromous Fish	X	X	X	$416	M									
140		Option Not Identified	Alaska Land and Wildlife Conservation Fund	X	X	X	one billion	M									
141		Option Not Identified	Field Study of Bioremediation Enhancement Treatment Methods	X	X	X	$280	M									
142		Option Not Identified	Oil Spill Injured Resources Literature Research and Review	X	X	X	$7	M									
143		Option Not Identified	Analyze Natural Resource Damage Assessment Samples Left Un-Analyzed	X	X	X	$650	1									
144		Option Not Identified	Identification of Seabird Feeding Areas from Remotely Sensed Data and Impact on Restoration	X	X	X	$48	M									
145		Option Not Identified	Shoreline Assessment	X	X	X	$250	93 - M									
146		Option Not Identified	Uganik River Fish Counting Weir - Brown Bear and Other Wildlife Food Study			X	$28	M									
147		Recovery Monitoring	Comprehensive Monitoring Program, Plan and Administer	X	X	X	$500	93 - M									
148		Recovery Monitoring	Cook Inlet Comprehensive Monitoring Program		X		$800	M									
149		Recovery Monitoring	Full Funding for Oil Spill Recovery Institute	X	X	X	$2,300	1									
150		Recovery Monitoring	Injured Resource Food Supply	X	X	X	$850	M									
151		Recovery Monitoring	Inventory, Monitor, Protect Permanent Study Sites	X	X	X	$500	M									
152		Recovery Monitoring	Long-Term Monitoring of Marine Environment of Resurrection Bay		X		$600	M									
153		Recovery Monitoring	Migratory Shore Birds Staging in Rocky Intertidal Habitats of PWS	X			$80	M									
154		Recovery Monitoring	Migratory Waterfowl and Shorebird Monitoring	X	X	X	$150	M									
155		Recovery Monitoring	Monitor Population Status of Seabird Nesting Colonies in the Spill Zone	X	X	X	$100	M									
156		Recovery Monitoring	Restoration Recovery Monitoring of Stream-Rearing Anadromous Salmonids	X	X	X	$200	M									
157		Recovery Monitoring	Survey to Determine Abundance Distribution, Habitat, and Food Habits of Staging Shore Birds	X			$35	M									

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158	**Multiple Resources**	Recovery Monitoring	Survey to Determine Distribution, Abundance, and Food Habits of Staging Migratory Waterfowl	X			$91	M									
159		Recovery Monitoring	Surveys to Monitor Marine Bird and Sea-Otter Populations	X	X	X	$275	93 - M									
160		Reduce Disturbance by Field Presence															
161		Reduce Disturbance Through Public Info	Public Information and Education	X	X	X	$316	M									
162		Reduce Disturbance Through Public Info	Publish and Distribute Brochures on Injured Species	X	X	X	$50	M									
163		Restoration Monitoring	Abundance and Distribution of Forage Fish and Their Influence on Recovery of Injured Species	X	X	X	$500	M									
164		Restoration Monitoring	Ecosystem Study	X	X	X	$6,000	M									
165	**Pacific Herring**	Intensify Management	Genetic Stock Identification for Herring in PWS	X			$205	M									
166		Intensify Management	Herring Spawn Deposition, Egg Loss, and Reproductive Impairment	X			$400	M									
167		Intensify Management	PWS Herring Tagging Feasibility Study	X			$112	M									
168		Monitoring	Herring Embryo Viability Evaluation - Natural and Catastrophic Effects	X			$189	M									
169		Monitoring	Larval Herring Age and Growth in PWS Using Otoliths	X			$60	M									
170		Option Not Identified	Enhancement of Pacific Herring	X	X	X	$120	M									
171		Restoration Monitoring															
172	**Pigeon Guillemot**	Monitoring	Pigeon Guillemot Colony Survey	X	X	X	$40	93 - M									
173		Monitoring	Pigeon Guillemot Recovery Enhancement and Monitoring	X	X	X	$180	M									
174		Restoration Monitoring															
175		Temporary Predator Control															

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176	**Pink Salmon**	Fish Passes and Access	Feasibility of Fish Passes as Oil Spill Restoration	X	X	X	$25	M									
177		Fish Passes and Access	Horse Marine Creek Pink Salmon Restoration			X	$28	1									
178		Fish Passes and Access	Otter Creek Fish Pass	X			$130	1									
179		Fish Passes and Access	Pink Creek Pink Salmon Restoration			X	$11	1									
180		Fish Passes and Access	Sockeye Creek Fish Pass	X			$60	1									
181		Fish Passes and Access	Waterfall Creek Pink Salmon Restoration-Fish Improvement			X	$55	1									
182		Improve Survival Rates	Fry Rearing to Improve Survival and Restore Wild Pink and Chum Salmon Stocks	X	X	X	$727	M									
183		Intensify Management	Adult Tagging to Determine Distribution, Migratory Timing and Rate of Movement of Pink Salmon	X			$495	M									
184		Intensify Management	Coded Wire Tag Recoveries from Commercial Catches in PWS Salmon Fisheries	X			$855	M									
185		Intensify Management	Coded Wire Tagging of Wild Stock Pink Salmon for Stock Identification	X			$500	M									
186		Intensify Management	Inventory and Effect of Straying Hatchery Pink Salmon on Wild Pink Salmon Population	X			$253	M									
187		Intensify Management	Otolith Marking - Inseason Stock Separation Tool to Reduce Wild Stock Salmon Exploitation	X	X	X	$152	M									
188		Intensify Management	Pink Salmon Escapement Enumeration	X	X	X	$705	M									
189		Intensify Management	PWS Salmon Stock Genetics	X			$150	M									
190		Intensify Management	Quality Assurance for PWS Coded Wire Tagging and Fish Production Records	X			$66	M									
191		Monitoring	Investigating and Monitoring Oil Related Egg and Alevin Mortalities	X	X		$686	M									
192		Monitoring	Restoration Monitoring and Preservation of Wild Populations of Pink Salmon	X	X		$899	M									
193		Monitoring	Injury to Salmon Eggs and Pre-emergent Fry in PWS, Laboratory Verification	X			$141	M									
194		Monitoring	Pink Salmon Egg to Pre-Emergent Fry Survival in PWS	X			$385	93 - M									
195		Monitoring	Monitoring Early Marine Growth of Juvenile Salmon in Prince William Sound	X			$50	M									
196		Option Not Identified	Pink Salmon Stream Enhancement in Prince William Sound, Lower Cook Inlet and Kodiak	X	X	X	$300	M									
197	**Recreation**	Establish Marine Environmental Institute	Build Research and Monitoring Facilities and Program/Cook Inlet, Kodiak		X	X	$1,250	M									
198		Establish Marine Environmental Institute	Oiled Wildlife Rehabilitation Center	X	X	X	$6,000	1									
199		Establish Marine Environmental Institute	Seward Sea Life Center	X	X	X	$40,000	1									
200		Habitat Protection and Acquisition	17(b) Easement Identification-Public Access	X	X	X	$500	M									
201		Habitat Protection and Acquisition	Acquisition of Important Recreation Lands	X	X	X	$500	M									

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202	Recreation	Habitat Protection and Acquisition	Acquisition of Recreational Sites on Kodiak Road System			X	$500	1									
203		Habitat Protection and Acquisition	Land Exchange Shuyak for Kodiak Land on Road System			X	$70	1									
204		Habitat Protection and Acquisition	Shelter Cove, Cordova Restoration Project	X			$50	M									
205		Monitoring	Assessment of Economic Injuries to Wilderness-Based Tourism	X	X	X	$100	M									
206		Monitoring	Post-Oil Spill Recreation-Based User Survey for PWS	X			$58	M									
207		Monitoring	Recreation Field Management and Monitoring	X	X	X	$700	M									
208		New Backcountry Recreation Facilities	Enhanced Trail Opportunities, Including Columbia and Blackstone Glacier Trails	X			$150	1									
209		New Backcountry Recreation Facilities	Green Island Cabin Replacement	X			$20	1									
210		New Backcountry Recreation Facilities	Improve Marine Parks	X	X	X	$100	M									
211		New Backcountry Recreation Facilities	Low Impact Recreation Development Nellie Juan, College Fiord Wilderness Study Area	X			$100	1									
212		New Backcountry Recreation Facilities	Prince William Sound Campground	X			$70	1									
213		New Backcountry Recreation Facilities	Public Use Cabins in State Marine Parks	X	X	X	$150	M									
214		New Backcountry Recreation Facilities	PWS Kayak Trail	X			$100	1									
215		New Backcountry Recreation Facilities	PWS Recreation Facilities	X			$250	1									
216		Option Not Identified	Development of Gulf of Alaska Recreation Plan		X	X	$140	1									
217		Option Not Identified	Implement Prince William Sound Area Recreation Plan	X			$400	M									
218		Option Not Identified	Sustainable Tourism in PWS	X			$240	M									
219		Option Not Identified	Watchable Wildlife	X	X	X	$65	M									
220		Option Not Identified	Increased Access PWS	X			$100	M									
221		Plan Commercial Recreation Facilities	Recreation Development	X	X	X	$200	M									
222		Restoration Monitoring															
223		Visitor Center	Bird and Mammal Specimens, University of Alaska Museum	X	X	X	$77	M									
224		Visitor Center	Center for PWS Oil Spill and Natural Resource Education	X				1									
225		Visitor Center	Coastal Habitat Specimens, University of Alaska Museum	X	X	X	$310	M									
226		Visitor Center	Cordova Environmental Education Center	X			$15	1									
227		Visitor Center	Cordova Mini-Imaginarium	X			$63	1									
228		Visitor Center	Develop Video Library of Intertidal Habitat and Biota to Assess Impacts	X	X	X	$155	M									
229		Visitor Center	Environmental Education Center in PWS	X			$90	1									
230		Visitor Center	Environmental Learning Resource Center	X	X	X	$90	1									
231		Visitor Center	Establish Natural Resource Library and Computer Support Technical Service in Cordova	X			$450	1									

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232	**Recreation**	Visitor Center	Information Center	X	X	X	$600	1									
233		Visitor Center	Interpretation of PWS	X			$10	M									
234		Visitor Center	Maritime Wing Valdez Museum	X			$150	1									
235		Visitor Center	Multi-agency Library on PWS and Copper River Delta	X			$150	1									
236		Visitor Center	Valdez Visitor Center	X			$850	1									
237	**River Otter**	Monitoring	River Otter Recovery Monitoring	X			$180	M									
238		Monitoring	Synthesis of Information on Ecology and Injury to River Otters in PWS	X			$40	M									
239		Restoration Monitoring															
240		Sport/trap Harvest Guidelines	Develop Harvest Guidelines to Aid Restoration of Injured Terrestrial Mammals and Seaducks	X	X	X	$99	1									
241	**Rockfish**	Intensify Management	Develop a Rockfish Management Plan	X	X		$175	M									
242		Monitoring	Monitoring Injury to Rockfish in PWS	X			$117	M									
243		Monitoring															
244	**Sea Otter**	Cooporative Prgm-Subsistence Users															
245		Habitat Protection (Public Land)	Habitat Utilization by Sea Otters and Designation of Protected Areas	X	X	X	$83	M									
246		Monitoring	Monitoring of Sea Otter Population Abundance, Distribution, Reproduction, and Mortality	X	X	X	$337	M									
247		Monitoring	Radio-Telemetry Project to Monitor Recovery of Sea Otters	X	X	X	$450	M									
248		Monitoring	Sea Otter Population Dynamics	X	X	X	$291	93 - M									
249		Restoration Monitoring															

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250	**Sea Otter**	Study: Eliminate Oil from Mussel Beds															
251	**Sockeye Salmon**	Fish Passes and Access	Solf Lake Fish Pass	X			$120	M									
252		Intensify Management	Develop and Deploy In-River Hydroacoustic Counters for Sockeye Salmon in the Kenai River		X		$333	M									
253		Intensify Management	Genetic Monitoring of Kodiak Island Sockeye Salmon			X	$275	M									
254		Intensify Management	Genetic Stock Identification of Kenai River Sockeye		X		$500	93 - M									
255		Intensify Management	Kenai River Sockeye Salmon Restoration		X		$1,000	93 - M									
256		Intensify Management	Lower Cook Inlet Sockeye Salmon Restoration and Enhancement		X		$143	M									
257		Monitoring	Ayakulik River Sockeye Salmon Escapement Evaluation			X	$6	M									
258		Monitoring	Sockeye Salmon Overescapement		X	X	$641	93 - M									
259		Option Not Identified	Restoration of the Coghill Lake Sockeye Salmon Stock	X			$165	93 - M									
260		Option Not Identified	Red Lake Salmon Restoration			X	$72	M									
261	**Sport Fishing**	Recovery Monitoring															
262		Replace Harvest Opportunities	Fort Richardson Hatchery Improvement		X		$4,200	1									
263		Restoration Monitoring															
264	**Subsistence**	Access to Traditional Foods															
265		Bivalve Shellfish Hatchery															
266		Option Not Identified	Chenega Bay Subsistence Restoration Project (Remove Oil)	X			$200	M									
267		Option Not Identified	Mariculture Hatchery and Research Center Feasibility Study and Design	X	X	X	$300	1									

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268	Subsistence	Option Not Identified	Mariculture Technical Center	X	X	X	$2,200	1									
269		Option Not Identified	Seward Shellfish Hatchery	X	X	X	$1,300	1									
270		Recovery Monitoring	Survey of Impacted Native Communities-Subsistence	X	X	X	$700	M									
271		Replace Harvest Opportunities	Chenega Bay Replacement Subsistence Resource Project	X			$50	M									
272		Replace Harvest Opportunities	Chenega Chinook and Coho Release Program	X			$55	M									
273		Replace Harvest Opportunities	Port Graham Salmon Hatchery		X		$2,500	1									
274		Replace Harvest Opportunities	Silver Lake Fish Hatchery	X			$1,000	1									
275		Replace Harvest Opportunities	Subsistence Harvest Replacement-Transport Subsistence Users to Unoiled Areas	X	X	X	$55	M									
276		Restoration Monitoring															
277		Subsistence Mariculture Sites	Village Mariculture Project - Oyster Farming	X	X	X	$589	M									
278		Test Subsistence Foods	Assessment and Quality Assurance of Shellfish Resources	X	X	X	$300	M									
279		Test Subsistence Foods	Subsistence Food Safety Testing	X	X	X	$308	93 - M									
280	Subtidal	Habitat Protection	Juvenile Spot Shrimp Habitat Identification	X	X		$110	M									
281		Intensify Management	PWS Spot Shrimp Recovery Management Plan	X			$715	M									
282		Monitoring	PWS Spot Shrimp Survey	X			$90	M									
283		Monitoring	Injury and Recovery of Deep-Benthic Macrofaunal Communities	X	X	X	$275	M									
284		Monitoring	Natural Recovery Monitoring of Subtidal Eelgrass Communities in PWS	X			$265	93 - M									
285		Monitoring	Recovery Monitoring of Hydrocarbon-Contaminated Subtidal Marine Sediment Resources	X	X	X	$390	M									
286		Monitoring	Subtidal Recovery Monitoring	X	X	X	$400	M									
287		Restoration Monitoring	Experimental Studies of Interaction Between Subtidal Epifaunal Invertebrates	X	X	X	$90	M									
288	Technical Services	Administration	Electronic Archiving of Exxon Valdez Records	X	X	X	$450	M									
289		Administration	Geographic Information System Mapping of Natural Resources in Western PWS	X			$75	M									

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290	Technical Services	Administration	Hydrocarbon Data Analysis and Interpretation	X	X	X	$105	93 - M									
291		Administration	Toxicological Profile of PWS	X			$150	M									
292		Public Information	CD-ROM Publication of Digital Spatial Data from Exxon Valdez Oil Spill Mapping Activities	X	X	X	$8	M									
293		Public Information	Database Integration	X	X	X	$148	M									
294		Public Information	Develop User Friendly Synopsis of Oil Spill Information	X	X	X		M									
295		Public Information	Providing Public Access to Oilspill GIS Databases Using Arcview in PC Windows Environment	X	X	X	$120	M									
296		Public Information	Public Access Repository for Oil Spill Geographic Information System (GIS)	X	X	X	$100	M									
297		Public Information	User-Friendly GIS and Remote-Sensing Demonstration Center for Public-5 Communities	X	X	X	$72	M									

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1994 POTENTIAL PROJECT TITLES

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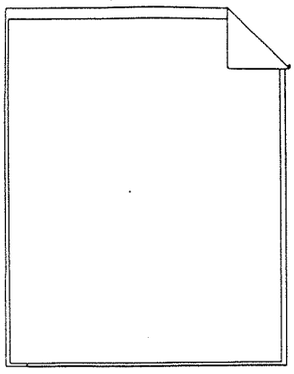

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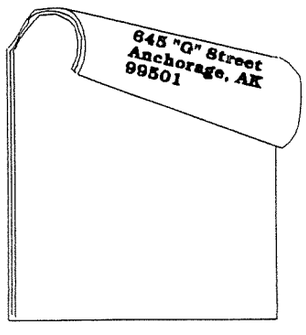

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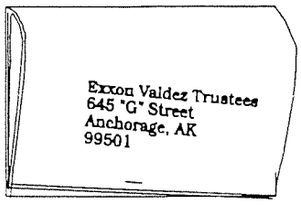

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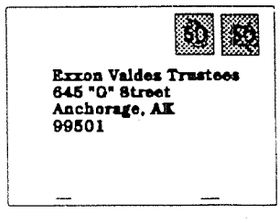

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Restoration Planning Following the Exxon Valdez Oil Spill: Draft Technical Workshop Report

RESTORATION PLANNING
FOLLOWING THE
EXXON VALDEZ OIL SPILL

Draft Technical Workshop Report

April 3-5, 1990

Prepared by:

Versar, Inc.

ESM Operations

9200 Rumsey Road

Columbia, Maryland 21045

for the

Restoration Planning Work Group

September, 1990