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Oil Spill Restoration Office
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Anchorage, Alaska 99501

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EXXON VALDEZ OIL SPILL RESTORATION PLAN

Summary of Alternatives for Public Comment

Public Meetings

Chignik Lagoon	School Cafeteria	**April 12 • *2:00 p.m.***
ChignikLake	School Cafeteria	**April 12 • *7:00 p.m.***
Chenega Bay	Community Building	**April 19 • *11:00 a.m.***
Kodiak	Kodiak Borough Assembly Chambers	**April 19 • *7:00 p.m.***
Port Graham	Community Center	**April 20 • *1:00 p.m.***
Ouzinkie	Community Center	**April 20 • *1:00 p.m.***
Port Lions	Community Hall	**April 20 • *7:00 p.m.***
Seldovia	Multi-purpose Room, City Building	**April 21 • *7:00 p.m.***
Larsen Bay	Tribal Council Office	**April 21 • *7:00 p.m.***
Homer	City Council Chambers	**April 22 • *7:00 p.m.***
Akhiok	City Offices	**April 22 • *2:00 p.m.***
Old Harbor	City Hall	**April 22 • *7:00 p.m.***
Nanwalek	IRA Village Office	**April 23 • *2:00 p.m.***
Anchorage	Simpson Building, 645 G Street	**April 26 • *7:00 p.m.***
Valdez	City Council Chambers	**April 26 • *7:00 p.m.***
Seward	City Council Chambers	**April 27 • *7:00 p.m.***
Tatitlek	Community Center	**April 27 • *3:00 p.m.***
Juneau	Centennial Hall, Hickel Room	**April 28 • *7:00 p.m.***
Cordova	Council Chambers, Cordova Library	**April 28 • *7:00 p.m.***
Fairbanks	Wood Center, Univ. of AK, Fairbanks	**April 29 • *7:00 p.m.***
Whittier	Fire Hall	**April 30 • *5:00 p.m.***

Photo by ROB SCHAEFER

***Exxon Valdez* Oil Spill Public Information Center**
645 "G" Street, Anchorage, Alaska 99501
(907) 278-8008
Inside Alaska (800) 478-7795 • Outside Alaska (800) 283-7745

Michael A. Barton
Regional Forester
Alaska Region -
USDA Forest Service

Charles E. Cole
Attorney General
State of Alaska

Paul Gates
Regional
Environmental Officer-Alaska
U.S. Department of the Interior

Steven 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

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EXXON VALDEZ OIL SPILL
RESTORATION PLAN

Summary of Alternatives for Public Comment

What is in this Brochure?

In 1989, *the Exxon Valdez oil spill contaminated thousands of miles of Alaska's coastline.* It killed birds, mammals, and fish, and damaged other resources. In 1991, Exxon agreed to pay the United States and the State of Alaska $900 million over a period of ten years to restore resources and human uses injured by the spill. This brochure describes alternative ways to help the animals, plants, and people injured by the spill. We are distributing this brochure by mail, by newspaper, and at public meetings. Please take a moment to fill out and return the response form on Page 8 of this brochure, or present your views at a public meeting in your community. The information you provide will help us prepare a Final Restoration Plan that will be presented to the public this fall. We would appreciate receiving your comments as soon as possible, but we will use all comments received by **August 6, 1993.**

The National Environmental Policy Act requires that an Environmental Impact Statement be part of any significant federal action such as the restoration program. In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustee Council and the public understand the consequences of alternative ways of restoring injuries caused by the spill.

Photo by ED KLINKHART

The Draft Environmental Impact Statement and the full text of the Draft Restoration Plan will be ready in June 1993. Because many people are busy during the summer, this summary is being released now to gather your ideas. If you prefer, you may wait to see the Draft Environmental Impact Statement and Draft Restoration Plan this June before you respond.

The information you provide will be used to prepare a Final Restoration Plan that will be presented to the public this fall. The final plan may contain parts of several of the alternatives presented here plus new information you provide.

inside LOOK

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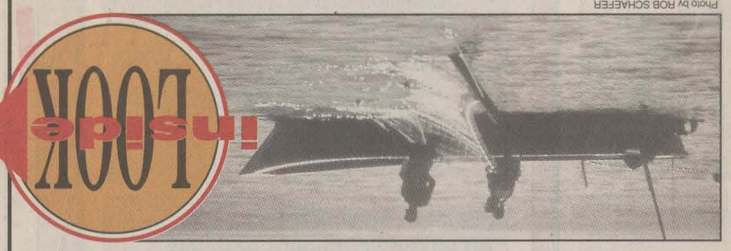

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Introduction

What is the Restoration Plan?

The Exxon Valdez Restoration Plan will provide long-term guidance for restoring resources and human uses injured by the oil spill. Each year the Restoration Plan will be implemented through an Annual Work Plan. The Annual Work Plan is a mix of restoration activities to be funded that year based on the policies and spending guidelines of the plan, future public comments, and changing restoration needs. Once the Restoration Plan is adopted, it may be changed in response to new information about the injuries and recovery, new technologies, or other changing conditions.

Who are the Exxon Valdez Oil Spill Trustees?

A council of six federal and state trustees was established to administer the $900-million civil settlement to restore resources and services injured by the oil spill.

State of Alaska Trustees

- Commissioner of the Department of Environmental Conservation
- Commissioner of the Department of Fish and Game
- Alaska Attorney General

Federal Trustees

- Secretary of the U.S. Department of the Interior
- Secretary of the U.S. Department of Agriculture
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce

The Federal Trustees have appointed their lead representative in Alaska to serve on the Trustee Council.

The Trustee Council uses funds from the civil settlement for activities to restore injured resources and services. It does not manage fish and wildlife resources or make land-use decisions. Fish and game management decisions or land-use decisions are made by fish and game boards, or by appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights.

The Spill and the Court Settlements

Shortly after midnight on March 24, 1989, the T/V Exxon Valdez ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest oil spill in United States history. All through the spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, three National Parks, five State Parks, four State Critical Habitat Areas, and one State Game Sanctuary. Oil eventually reached shorelines nearly 600 miles southwest of Bligh Reef.

On October 8, 1991, the U.S. District Court approved an agreement that settled the claims of the United States and the State of Alaska against Exxon for various criminal violations and for recovery of civil damages resulting from the oil spill.

CIVIL SETTLEMENT AND RESTORATION FUND

In the civil settlement, Exxon agreed to pay the United States and the State of Alaska $900 million over a period of 10 years. The use of the civil settlement funds is the subject of this plan.

THE CRIMINAL PLEA AGREEMENT

As part of the criminal plea agreement, the court fined Exxon $250 million — the largest fine ever imposed for an environmental crime. Of this amount, $125 million were forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. Of the remaining $125 million, $50 million each were paid to the United States and the State of Alaska. The state and federal governments separately manage these $50 million payments. The remaining $25 million were paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

Funds from the criminal plea agreement are not under the authority of the Trustee Council and are not considered by this plan. However, they must be used exclusively for restoration activities, within the State of Alaska, relating to the Exxon Valdez oil spill.

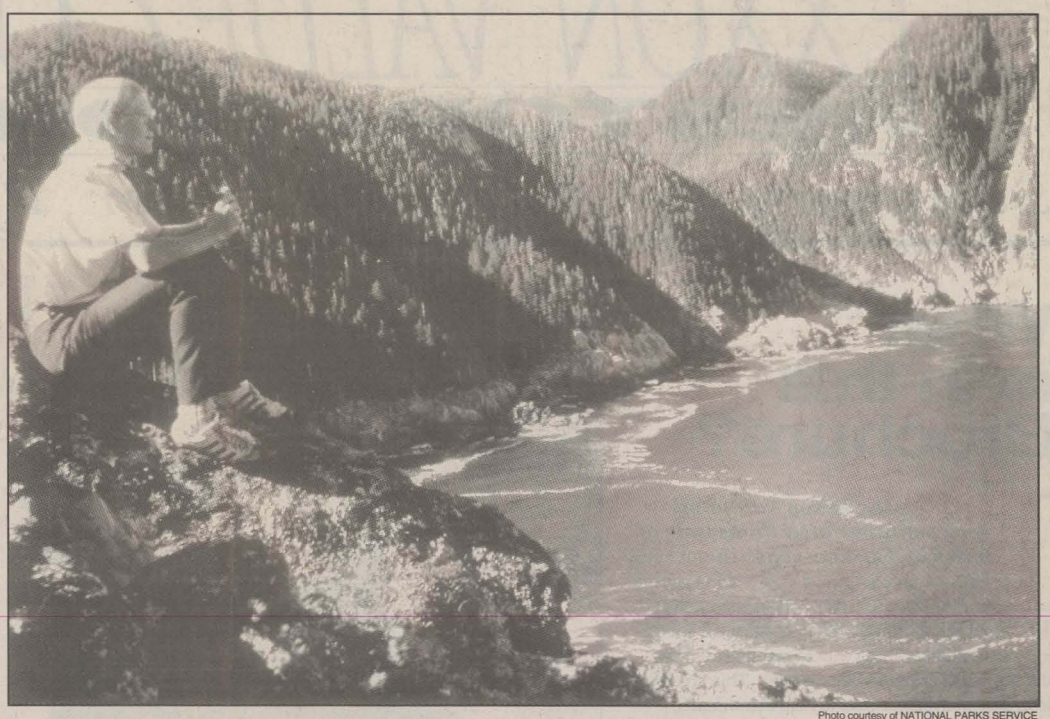


Photo courtesy of NATIONAL PARKS SERVICE

Rules for Spending the Civil Settlement Funds

1. **The Trustee Council must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of natural resources injured as a result of the Oil Spill and the reduced or lost services provided by such resources..." (except for reimbursements to the state and federal governments in settlement of past costs).**

2. **The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.**

3. **All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.**

The settlement defines **NATURAL RESOURCES** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and animals, and archaeological resources.

In addition to restoring natural resources, funds may be used to restore reduced or lost **SERVICES (human uses)** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport fishing, sport hunting, camping, and boating are services that were damaged by injuries to fish and wildlife. Other injured services include commercial tourism, and the enjoyment that people receive from undisturbed wild areas.

Funding

The Civil Settlement Funds as of March 1993

The civil settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. The table below shows uses and commitments of that money. It shows that of the $900 million civil settlement, approximately $610 to $630 million remain for funding restoration activities.

PAYMENTS

Past Exxon Payments

$240 million

- $210.1 million in 1991 and 1992
- $39.9 million credited to Exxon for cleanup costs after January 1, 1991

Future Exxon Payments

$660 million by 2001

TOTAL EXXON PAYMENTS
$900 million

EXPENSES

Past Reimbursements, Deductions, Withdrawals & Commitments

$200.2 million

- $107.5 to reimburse the federal and state governments for past damage assessment, clean-up, litigation, response, and restoration expenses;
- $19.5 for the 1992 work plan;
- $33.3 for the 1993 work plan (including $7.5 for Kachemak Bay purchase); and
- $39.9 credited to Exxon for cleanup costs after January 1, 1991.

Future Commitments

An unknown amount probably between $70 - $90 million

To reimburse the governments for past expenditures

Total Remaining

Aproximately $610-$630 million

TOTAL EXPENDITURES
$900 million

The Planning Process

The restoration planning process has used the results of many scientific studies, meetings, and symposia conducted during the four years that have elapsed since the oil spill.

Information presented here will be developed further and presented for public review and comment in the Draft Restoration Plan and Draft Environmental Impact Statement to be published in June 1993. A Final Restoration Plan and Final Environmental Impact Statement will be released in late Fall 1993.

Restoration Planning Process has used results derived from:

- **Natural Resource Damage Assessment Studies: 1989-1992**
- **Restoration Science Studies: 1990-1992**
- **Technical Workshop 1990**
- **Public Symposium 1990**
- **Restoration Planning Progress Report 1990**
- **Public meetings 1990-1993**
- **Restoration Framework and Supplement 1992**
- ***Exxon Valdez* Oil Spill Symposium 1993**

Information to understand the alternatives

Summary of Injury

The Exxon Valdez oil spill occurred in March, just before the most biologically active season of the year. It affected the migration of birds, and the primary breeding season for most species of birds, mammals, fish, and marine invertebrates in the spill's path. Much of southcentral Alaska's intricate coastline was oiled, frequently with devastating impact to intertidal and shallow subtidal resources. It also affected human use of the spill area, including subsistence, recreation, commercial fishing, and other uses. Some resources and services remain exposed to oil persisting below high tide.

Oil affected each resource and use differently. For some resources, the population measurably declined. By measurably declined, we mean a measurable decline in abundance that will persist for more than one generation. For example, an estimated 3,500 to 5,000 sea otters were killed by the spill, and the population will not recover for many generations. Other species were killed or otherwise injured by the spill, but the injury did not measurably lower the overall population. Deaths of individual animals or sublethal injuries, which do not result in death, may not be reflected in a lower population because the natural variability of the species may mask the injury, or the resource may have some mechanism to compensate for the injury.

Some species, such as marbled murrelets, pigeon guillemots, and harbor seals were declining before the spill. Their rate of decline was accelerated by the spill, but other factors such as variations in climatic conditions, habitat loss, or increased competition for food may also influence long-term trends in the health and populations of these and other species.

The spill also directly affected human uses of the spill area including commercial fishing, commercial tourism, recreation, passive use, and subsistence. The nature and extent of the injury varied by user group and by area

More information about injury and recovery *See p.6*

Injured by the Oil Spill

The table below summarizes injuries caused by the spill. It does not include resources, such as sea lions and brown bears, that were studied but for which clear injuries were not determined.

RESOURCES

Population Decline	Injured, but No Population Decline	Other
Black oystercatcher	Bald eagle	Air, water, and sediments
Common murre	Cutthroat trout ◆	Archaeological resources
Harbor seal	Dolly Varden ◆	Designated wilderness areas
Harlequin duck	Killer whale ◆	
Intertidal organisms	Pacific herring	
Marbled murrelet	Pink salmon ◆	
Pigeon guillemot	River otter	
Sea otter	Rockfish	
Sockeye salmon		
Subtidal organisms		

NATIONAL PARKS SERVICE

SERVICES (Human use)

- Commercial fishing
- Commercial tourism
- Passive use
- Recreation including sport fishing, sport hunting, and other recreation use
- Subsistence

Photo by ROBERT SCHAEFER

◆ For these species, the Trustee Council's scientists have considerable disagreement over the conclusions to be drawn from the results of the damage assessment studies.

NOTE: The table may change if sublethal injuries result in population declines, or as new information about other resources is obtained.

Issues and Policy Questions

The planning process raised five significant issues. Different answers to these questions will influence which restoration actions are conducted.

Injuries Addressed by Restoration Actions: Should restoration actions address all injured resources & services or all except those biological resources whose populations did not measurably decline because of the spill?

Some injured resources declined in population. For example, the loss of 35-70% of the breeding common murres in the Gulf of Alaska resulted in a decline that will persist through future generations. Other injuries, such as reduced growth rates, may not have resulted in a lower population. However, over time these injuries might also cause populations to decline.

If an injury was not severe enough to produce a detectable change in population, then perhaps settlement funds should not be spent to address it. On the other hand, if something can be done to address less serious injuries that might eventually cause populations to decline, perhaps it should be done before more serious effects occur.

Restoration Actions for Recovered Resources: Should restoration actions cease when an injured resource has recovered, or continue in order to enhance the resource?

None of the injured resources has recovered from a population decline. If a goal of the settlement is to restore injured resources, then perhaps restoration actions should cease once the resource has recovered to where it would have been had no spill occurred. On the other hand, if restoration actions were to continue after a resource has recovered, they may offset other disturbances or improve its condition. As resources recover, this issue will become more important.

Effectiveness of Restoration Actions: Should the plan include only those restoration actions that produce substantial improvement over natural recovery or also those that produce at least some improvement?

One strategy is to consider only those restoration actions likely to produce substantial improvement over natural recovery. However, if the Trustee Council were to consider all restoration activities that offer at least some promise of helping injured resources and services, the cumulative effect may produce greater improvement overall.

Location of Restoration Actions: Should restoration actions take place in the spill area only or anywhere there is a link to injured resources or services?

If restoration actions were limited to the spill area, they could focus on the populations and uses directly affected. On the other hand, restoration actions outside the spill area may be more effective than those within the spill area. For example, increasing common murre populations at colonies outside the spill area may do more to increase the numbers of that species than would comparable projects within the spill area. The map of the oil spill area is on page 10.

Opportunities for Human Use: To what extent should restoration actions create opportunities for human use of the spill area?

Certain restoration actions may create opportunities for human use of the spill area. Some of these actions would protect existing use. Examples include constructing outhouses in over-used areas and improving trails where hiking is damaging wetlands. Other activities would increase existing use. Examples include installing a new mooring buoy in an anchorage or constructing new public-use cabins in a recreation area. Still other activities would encourage new uses in appropriate locations. Examples include providing a new visitor center or attracting new commercial facilities onto public land.

One view is that restoration actions should not create any opportunity for human use of the spill area. However, if restoration actions that create opportunities for human use were to be limited to those that would protect existing use, then restoration could proceed without changing the character of the area or impeding recovery of injured resources and services. On the other hand, increasing opportunities for human use through either increasing existing use or encouraging new use, would make the area more usable for more people and improve the quality of the experience for some users.

Any facilities built on public land would comply with existing land-use plans, and agency procedures such as those requiring public notice.

Issues and Policy Questions Addressed in the Alternatives

ISSUE	POLICY QUESTION
INJURIES ADDRESSED BY RESTORATION ACTIONS	Should restoration actions address all injured resources and services or all *except* those biological resources whose populations did not measurably decline because of the spill?
RESTORATION ACTIONS FOR RECOVERED RESOURCES	Should restoration actions cease when a resource has recovered or continue in order to enhance the resource?
EFFECTIVENESS OF RESTORATION ACTIONS	Should the plan include only those restoration actions that produce substantial improvement over natural recovery or also those that produce at least some improvement?
LOCATION OF RESTORATION ACTIONS	Should restoration activities take place in the spill area only or anywhere there is a link to injured resources or services?
OPPORTUNITIES FOR HUMAN USE	To what extent should restoration actions create opportunities for human use of the spill area?

Categories of Restoration Actions

Restoration actions fall into four categories. The alternatives place different emphases on these categories. Not all categories are included in every alternative.

HABITAT PROTECTION and ACQUISITION

This category includes protection and acquisition of habitat on private land as well as protection of habitat on public land.

▼ Habitat protection and acquisition on private land.

Resource development on private land, such as harvesting timber or building subdivisions, can sometimes harm already injured resources or services that rely on the land. The object of protecting and acquiring land is to prevent further injury to resources and services and allow recovery to occur at its natural rate. For example, the recovery of harlequin ducks may be helped by protecting nesting habitat from future changes that may hamper recovery.

The Trustee Council may purchase private land or partial interests such as conservation easements, mineral rights, or timber rights as methods of restoration. These lands would be managed to protect injured resources and services. The Council's recent decision to purchase inholdings in Kachemak Bay State Park is an example of habitat protection and acquisition on private land. However, the settlement requires that any purchases must benefit resources or services injured by the spill.

The following injured resources and services might benefit from the purchase of private land or property rights: salmon, trout, bald eagle, black oystercatcher, common murre, harbor seal, harlequin duck, marbled murrelet, pigeon guillemot, river otter, sea otter, areas adjacent to particularly productive intertidal areas, recreation and commercial tourism, archaeological resources, and subsistence. Types of habitat that might be protected or acquired include:

- **Habitats important to injured species**
- **Scenic areas such as those viewed from important recreation and tourist routes**
- **Areas important for recreation, including sport fishing and hunting**
- **Important subsistence harvest areas**

Since there will not be enough money in any alternative to buy or protect all habitat important to recovery, it is necessary to prioritize available land. Some of the most important criteria are the degree of importance of the land to the recovery of injured resources or services and the number of resources or services that rely on a given parcel. Costs will vary depending on the land, and the private rights being purchased. For example, timbered land will often be more expensive than similar land without marketable timber. Also, purchase of partial interests such as easements or mineral rights may be less expensive and could increase the number of acres that can be protected.

▼ Habitat protection on public land

Changes in management practices on public land and water may protect injured resources and services from further injury. Examples of these changes include amending agency management plans, changing regulations, and designating public land and water as special areas. Examples of special areas include scientific research reserves, recreation areas, parks, critical habitat areas, and marine sanctuaries. Any management changes must be approved and implemented by the appropriate government agency, or in some cases by the Alaska State Legislature or the U.S. Congress. Since land and water management actions could extend to any public upland, intertidal area, or marine waters, the actions could potentially benefit most injured resources and services. Management changes necessitated by spill injuries may be funded with settlement monies, but the costs are not expected to be a significant portion of the total settlement funds.

GENERAL RESTORATION

Since 1989, agencies and the public have proposed hundreds of ideas for restoration. Some ideas restore injured resources and services by directly manipulating resources. Examples include building fish passes and public-use cabins or replanting seaweed in the intertidal areas. Other ideas focus on managing human use to aid restoration. Examples include redirecting hunting and fishing harvest, or reducing human disturbance around sensitive bird colonies. General Restoration does not include Monitoring and Research or Habitat Protection and Acquisition.

In each alternative, enough money is potentially allocated to General Restoration to fund all activities that have been identified and that meet the policies of that alternative. Each alternative also identifies enough additional funds to provide a reserve for General Restoration activities that may be identified in the future.

MONITORING AND RESEARCH PROGRAM

A monitoring and research program will help the Trustee Council decide how resources and services are recovering, and whether restoration activities are effective. It could also be used to monitor the general health of affected ecosystems, or provide basic and applied scientific research about how to protect, manage, or restore resources or services injured by the spill. The program could include one or more of the following, although its components vary among alternatives.

▼ **Recovery Monitoring** would assess the rate of recovery of injured resources and services, and determine when recovery has occurred.

▼ **Restoration Monitoring** would evaluate the effectiveness of specific restoration activities, identify where additional restoration activities may be appropriate, and determine if delayed injury occurs.

▼ **Ecosystem Monitoring** would follow long-term trends in the distribution and abundance of injured resources and the quality and quantity of services. Monitoring could also detect residual spill effects and provide ecological baseline information to assess the impacts of future disturbances.

▼ **Restoration Research** would focus on the design, development and implementation of new technologies and approaches to restore resources not recovering or recovering at lower than expected rates.

ADMINISTRATION AND PUBLIC INFORMATION

Funding is required to manage the restoration program and to provide the public with information about recovery and restoration. As the number of restoration projects increases and the complexity of management duties grows, the percentage of funds needed for Administration and Public Information increases.

description of alternatives

***FIVE ALTERNATIVES** have been developed for your review. Each alternative presents a different way of approaching restoration. Each uses different policies and emphasizes different categories of restoration activities to restore resources and human uses injured by the spill. No single alternative is likely to match your vision of the ideal plan. The questionnaire on page 8 asks which policies you prefer and how you would combine categories of restoration activities.*

ALTERNATIVE 1

NATURAL RECOVERY (No Action)

What would happen to resources and services injured by the oil spill if no restoration actions were taken? The table on page 7 describes expected times for natural recovery of injured resources and services, if expected patterns of use continue. They range from a few years to 120 years and are unknown for six resources. However, because recovery would not be monitored under this alternative, it would not be possible to confirm when recovery has occurred. Archaeological resources will not recover.

This alternative is the no-action alternative in the draft Environmental Impact Statement that will be released in June 1993. Consequently, none of the civil settlement funds would be spent.

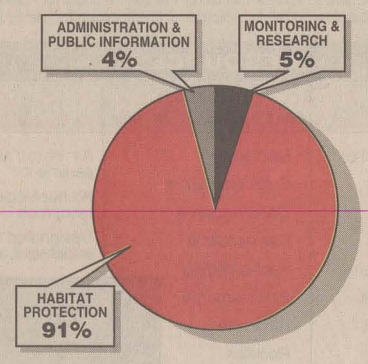
ALTERNATIVE 2

HABITAT PROTECTION

The goal of this alternative is to protect strategic lands and habitats important to resources and services injured by the spill. In this alternative, 91% of the remaining settlement funds would be available for habitat protection. Monitoring and Research and Habitat Protection and Acquisition are the only restoration actions included in this alternative. The Habitat Protection and Acquisition program includes the acquisition of private land interests and changes in public land management. The Monitoring and Research program would evaluate the effectiveness of habitat protection measures undertaken and follow the progress of natural recovery. Restoration activities would be limited to the spill area.

Protect injured resources and services within the spill area from further degradation or disturbance.

ISSUES	POLICIES
Injuries Addressed by Restoration Actions	Address all injured resources and services.
Restoration Actions for Recovered Resources	Continue restoration actions even after a resource has recovered.
Effectiveness of Restoration Actions	Conduct restoration actions that provide substantial improvement over natural recovery.
Location of Restoration Actions	Limit restoration actions to the spill area.
Opportunities for Human Use	Use habitat protection to protect or increase existing human use of the spill area.



ALTERNATIVE 3

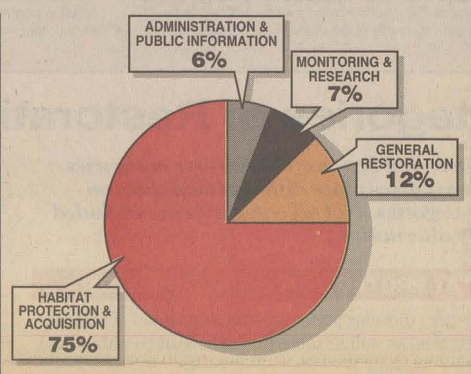
LIMITED RESTORATION

The goal of this alternative is to help the most injured resources and services recover as efficiently as possible. As its title implies, this alternative is ***limited*** in that it addresses only the most severe injuries until the resource or service recovers, includes actions most likely to produce substantial improvement over natural recovery, is limited to the spill area, and does not fund activities intended to increase human use of the spill area. Only a few restoration activities meet these standards.

In this alternative, 75% of remaining settlement funds would be available for Habitat Protection and Acquisition. Of the General Restoration options that have been evaluated, only 21 meet the criteria of this alternative. See page 9. The Monitoring and Research program would evaluate the effectiveness of restoration actions and follow the progress of natural recovery.

Take the most effective actions within the spill area to protect and restore all injured services and resources except those biological resources whose populations did not measurably decline. Maintain the existing character of the spill area.

ISSUES	POLICIES
Injuries Addressed by Restoration Actions	Address all resources and services ***except*** those biological resources whose populations did not measurably decline.
Restoration Actions for Recovered Resources	Cease restoration actions once a resource has recovered.
Effectiveness of Restoration Actions	Conduct restoration actions that provide substantial improvement over natural recovery.
Location of Restoration Actions	Limit restoration actions to the spill area.
Opportunities for Human Use	Use restoration actions to protect existing human use of the spill area.



ALTERNATIVE 4

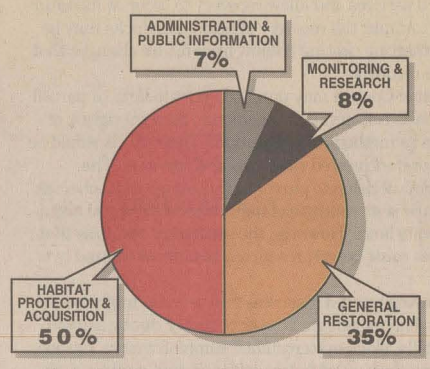
MODERATE RESTORATION

The goal of this alternative is to help all injured resources and services recover as efficiently as possible. It is similar to Alternative 3 in limiting restoration actions to resources not yet recovered and setting the same high standard of effectiveness. It differs from Alternative 3 by addressing additional injured species whose populations did not decline, including activities outside the spill area, and increasing opportunities for human use of the area to a limited extent.

In this alternative, 50% of remaining settlement funds would be available for Habitat Protection and Acquisition. Of the General Restoration options that have been evaluated, 31 meet the criteria for this alternative. The Monitoring and Research program would include ecosystem monitoring and restoration research in addition to evaluating the effectiveness of restoration actions and following the progress of natural recovery.

Take the most effective actions to protect and restore all injured resources and services. Increase, to a limited extent, opportunities for human use of the spill area.

ISSUES	POLICIES
Injuries Addressed by Restoration Actions	Address all injured resources and services.
Restoration Actions for Recovered Resources	Cease restoration actions once a resource has recovered.
Effectiveness of Restoration Actions	Conduct restoration actions that provide substantial improvement over natural recovery.
Location of Restoration Actions	Undertake restoration actions anywhere there is a link to injured resources or services.
Opportunities for Human Use	Use restoration actions to protect or increase existing human use of the spill area.



ALTERNATIVE 5

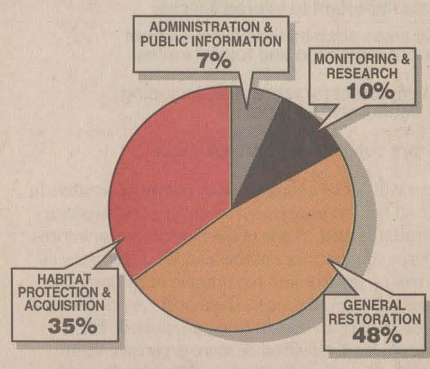
COMPREHENSIVE RESTORATION

The goal of this alternative is to help all injured resources and services return to or exceed prespill levels. It is similar to Alternative 4 in addressing ***all*** injured resources and services and including activities outside the spill area. It is more expansive than Alternative 4 because it allows restoration actions to continue in order to enhance a resource even after it has recovered, includes any action likely to produce at least some improvement over natural recovery, and encourages appropriate new human use of the spill area.

In this alternative, 35% of remaining settlement funds would be available for Habitat Protection and Acquisition. Of the General Restoration options that have been evaluated, 47 meet the standards of this alternative. The Monitoring and Research program would include ecosystem monitoring, and restoration research in addition to restoration monitoring and natural recovery monitoring.

Take all effective actions to protect, restore, and enhance all injured resources and services. Increase opportunities for human use of the spill area.

ISSUES	POLICIES
Injuries Addressed by Restoration Actions	Address all injured resources and services.
Restoration Actions for Recovered Resources	Continue restoration actions even after a resource has recovered.
Effectiveness of Restoration Actions	Conduct restoration actions that provide at least some improvement over natural recovery.
Location of Restoration Actions	Undertake restoration actions anywhere there is a link to injured resources and services.
Opportunities for Human Use	Use restoration actions to protect or increase existing use or encourage appropriate new use of the spill area.

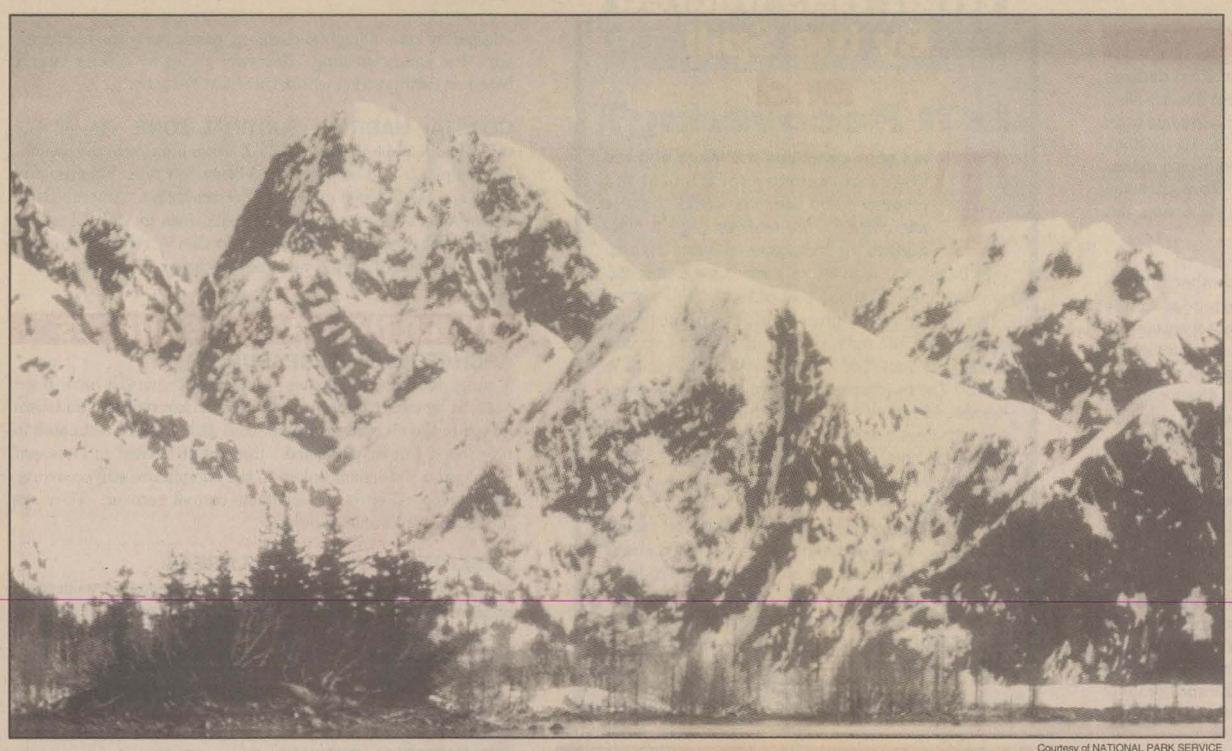


Funding Methods: Endowments

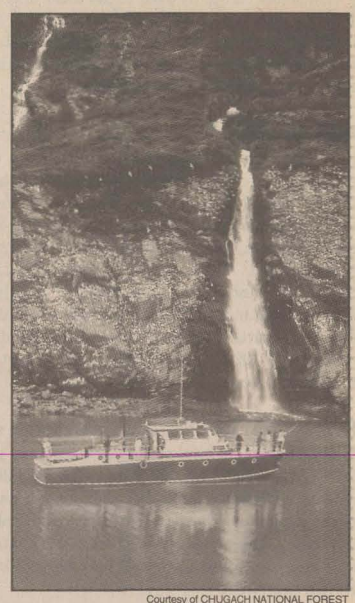
Exxon has made deposits into the restoration fund since 1991 and will continue to do so until 2001. The Trustees could spend the entire settlement during that time or they could save some for future use. An endowment is a savings program to fund restoration after Exxon's payments end. It uses part of the settlement funds to create an interest-bearing savings account, which could fund a constant level of restoration activities indefinitely. An endowment could be used to fund some or all categories of restoration activities.

The size of an endowment determines the amount of income it earns and the amount of restoration activities it can fund. It is possible to place any portion of the remaining settlement funds into an endowment. For example, 20% of the remaining restoration funds could be placed into a savings account. If so, fewer restoration activities could be accomplished within ten years, but the interest from the account could annually fund approximately $3 to $5 million worth of restoration activities indefinitely.

Comparison of alternatives



Courtesy of NATIONAL PARK SERVICE



Courtesy of CHUGACH NATIONAL FOREST

In general, how does each alternative benefit recovery?

ALTERNATIVE 1 **NATURAL RECOVERY (No Action)**, would produce no improvement over natural recovery. This alternative includes no restoration activities. It would allow injured resources and services to recover naturally, but would not monitor their recovery.

ALTERNATIVE 2 **HABITAT PROTECTION**, would improve natural recovery by preventing some habitat disturbances that might otherwise occur. Benefits would accrue primarily to injured resources and services linked to upland habitat. The effectiveness of habitat protection would be monitored, as would the progress of natural recovery of injured resources and services for which no habitat protection measure is undertaken.

ALTERNATIVE 3 **LIMITED RESTORATION**, might improve recovery of the most injured populations within the spill area. It includes no restoration activities for those species whose populations did not measurably decline because of the spill (see table on page 3). By protecting existing human use, this alternative neither changes the character of the area nor impedes natural recovery of injured resources and services. Because this alternative allocates less to General Restoration actions than do Alternatives 4 and 5, more funds would be available for habitat protection.

ALTERNATIVE 4 **MODERATE RESTORATION**, might improve recovery of all injured resources and services, reaching outside the spill area, if necessary, to find the most effective restoration actions. This alternative also addresses less severe injuries and prepares for future problems through ecosystem monitoring and restoration research. Finally, this alternative would increase opportunities for existing human use of the spill area, if doing so would improve recovery of an injured service. Because of the expanded scope of restoration actions in this alternative, fewer funds would be available for habitat protection than in Alternatives 2 and 3.

Comparison of Potential Allocations to Restoration Categories by Alternative

The table compares potential allocations within the five alternatives. It also indicates the components of the Monitoring and Research program included in each alternative. Spending for each restoration category gives a sense of the emphasis of the restoration program by alternative. The allocations are illustrative only and are not a commitment of actual expenditures.

In general, as potential allocations to General Restoration increase, funds available for Habitat Protection and Acquisition decline. Furthermore, as the restoration program increases in complexity, so does the cost of Administration and Public Information, and of Monitoring and Research.

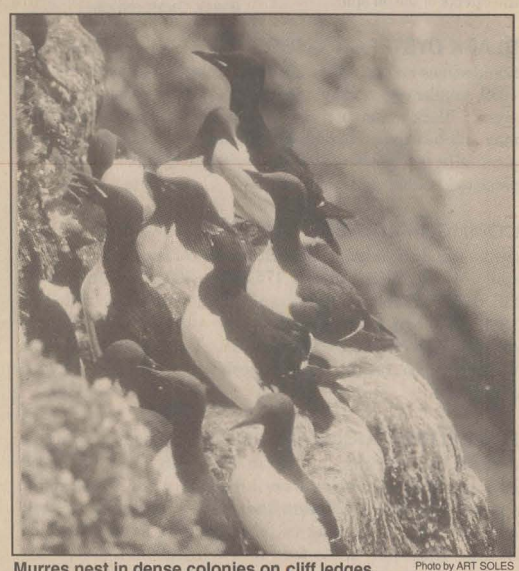
RESTORATION CATEGORY	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5
ADMINISTRATION AND PUBLIC INFORMATION		4%	6%	7%	7%
MONITORING AND RESEARCH		5%	7%	8%	10%
• *Recovery Monitoring*		X	X	X	X
• *Restoration Monitoring*		X	X	X	X
• *Ecosystem Monitoring*				X	X
• *Restoration Research*				X	X
GENERAL RESTORATION (For examples of general restoration activities within each alternative see page 9)			12%	35%	48%
HABITAT PROTECTION & ACQUISITION		91%	75%	50%	35%
Balance	100%				
TOTAL	*100%*	*100%*	*100%*	*100%*	*100%*

NOTE: Diplay of potential allocations is illustrative only and not commitment of actual expenditures. Allocation expressed as a percent of remaining civil settlement fund.

Alternative #1 is the No-Action alternative for the Draft Environmental Impact Statement. Consequently, it includes a balance that would not be spent on any restoration activity.

X= Component of restoration category included in this alternative.

ALTERNATIVE 5 **COMPREHENSIVE RESTORATION**, might improve recovery of all injured resources and services and could enhance some of them. In addition to the restoration actions in Alternative 4, this alternative includes actions that are less certain to benefit recovery and encourages appropriate new human use of the spill area. If successful, these additional General Restoration actions could produce greater overall beneficial effects than those in Alternatives 3 and 4, but they would further reduce the availability of funds for habitat protection. Under this alternative, restoration actions would be undertaken anywhere there is a link to injured resources and services.



Murres nest in dense colonies on cliff ledges. This behavior helps reduce predation. Photo by ART SOLES

Photo by BOB LOEFFLER

Funding Methods: *Endowment*

Whether or not funds are placed into an endowment is a decision about the timing of when restoration activities should occur. The alternatives compared above assume that the funds are spent within approximately ten years. Some of the remaining funds could be placed into an endowment to fund restoration activities after Exxon payments end.

Habitat Protection on Private Lands: *How Much Land Could Be Protected?*

The alternatives indicate that 91% to 35% of the remaining settlement funds could be available for acquiring and protecting habitat. The Trustee Council is looking at many methods of protecting habitat. Some of the factors that would influence the actual amount of habitat protected include:

- **land costs, which are highly variable; and**
- **whether full or partial property rights are acquired.**

Under any alternative, the amount of available land exceeds available funding. Therefore, land parcels must be ranked according to their value in restoring injured resources and services. Acquiring fee title is the most expensive way of protecting private land. Assuming acquisition of fee title and a mix of land costs, approximately 275,000 acres of land could be protected under Alternative 2. This is equivalent to about 14% of the private land within the spill area. Under Alternative 5, this figure drops to 100,000 acres, or approximately 5% of the private land within the spill area. These acreage estimates could be even lower if a larger proportion of high-value land were acquired. The estimates could be higher, if the mix of land acquired included more low cost land or partial property rights.

injury & recovery

What Was Injured By the Spill and Is It Recovering?

This page describes the injury and the status of recovery for each of the resources and services included in the alternatives. The table on page 3 categorizes the biological resource injuries into those that resulted in a measurable population decline and those that did not. These other injuries include higher mortality in early life stages (for example, eggs and very young animals) and sublethal injuries that do not result in death. These injuries have not resulted in measurable effects to the overall adult population.

Injuries to services (human uses) are more difficult to categorize. They depend in part on the injury to the resources as well as on the way people use and perceive areas and resources.

In addition to the resources described below, other species were studied as part of the damage assessment process but are not believed to have suffered notable injuries. These include sea lions, brown bears, Sitka black-tailed deer, black-legged kittiwakes, some sea birds, crab, shrimp, and many others.

MAMMALS

HARBOR SEALS The oil spill caused population declines and sublethal injuries in harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to determine the effects of the spill. There are some recent indications that the population may be stabilizing, but there is no indication of any increase.

KILLER WHALES Population decline and other injuries have been documented in one of the pods (extended family group) in the oil spill area. There is debate about whether the oil spill caused these injuries. Thirteen whales out of 36 in one whale pod in Prince William Sound are missing and presumed dead. Circumstantial evidence links the whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins and social disruption of family units has been observed. In that pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births suggest that the pod is beginning to recover.

RIVER OTTERS There are differences in some indicators of health, feeding habits, and other aspects of river otter biology between oiled and unoiled areas. These differences may indicate an effect of the spill. Lacking prespill data and a measure of the population, there is great uncertainty about the nature of the injury. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

SEA OTTERS The oil spill caused population declines and sublethal injuries in sea otters. It is estimated that 3,500 to 5,000 otters died. The total sea otter population in the Gulf of Alaska is estimated at around 20,000. Surveys in 1989, 1990 and 1991 showed measurable differences in population and survival rates between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead, prime-age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

BIRDS

BALD EAGLES A minimum of 200 to 300 eagles were estimated to have been killed by the spill. However, because population census techniques are not accurate enough to detect population changes this small, no measurable population decline has been recorded. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering, and may have recovered, from the effects of the oil spill.

Black Oystercatcher

Courtesy of US. FISH & WILDLIFE SERVICE

BLACK OYSTERCATCHERS The oil spill caused population declines and sublethal injuries in black oystercatchers. In 1989, smaller eggs and lighter weight chicks were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

COMMON MURRES The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, between 175,000 to 300,000 murres were killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies and some colonies show little evidence of recovery.

HARLEQUIN DUCKS The oil spill caused population declines and sublethal injuries in harlequin ducks. In 1989, approximately 400 birds were killed. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas of Prince William Sound. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

MARBLED MURRELETS The oil spill caused population declines, but it is unknown if there were sublethal injuries. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991 as a result of the oil spill. In 1989, oil contamination was found in livers of adult birds. Marbled murrelet populations were declining prior to the oil spill. In 1992, recovery was uncertain and no signs of an increasing population have been observed, but the decline may have stabilized.

PIGEON GUILLEMOTS The oil spill caused population declines in pigeon guillemots. In 1989, between 1,500 to 3,000 birds were estimated to have been killed. In 1989, oil contamination was found in birds and on eggs. The recovery status in 1992 is uncertain. There is no evidence of an increase in the population. Pigeon guillemot populations were declining prior to the spill.

FISH

CUTTHROAT TROUT AND DOLLY VARDEN The oil spill caused sublethal injuries and possibly population declines in these two species. Between 1989 and 1991, survival and growth in adult populations in oiled areas differed from those in unoiled areas. This difference persisted even though indications of exposure to oil decreased over these years. The persistence of different rates of survival and growth may have been due to continuing injury to the food base. However, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

PACIFIC HERRING The oil spill caused sublethal injuries to Pacific herring. It is presently unknown whether these injuries will result in a population decline. Measurable differences in egg mortality between oiled and unoiled areas were found in 1989. Eggs and larvae were injured or killed in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoiled areas. Injuries to the 1989 year class may result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

PINK SALMON The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on whether the observed injuries will result in reduced adult returns. Reduced growth of juveniles, which correlates with reduced survival, was found in 1989 and 1991. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

ROCKFISH The oil spill caused at least sublethal injuries; however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those analyzed showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be affecting the population. It is unknown if the population has recovered from sublethal injuries, or from any population decline.

Photo by RON STANEK

SOCKEYE SALMON Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. In 1992, the estimated number of Kenai River smolt was only 3% of average. As a result of overescapement, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

COASTAL HABITAT

COASTAL HABITAT - INTERTIDAL ZONE The oil spill caused population declines and sublethal injuries in the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid-intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were affected by both oiling and clean-up, particularly the high pressure, hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

COASTAL HABITAT - SUBTIDAL ZONE The oil spill caused population declines and sublethal injuries in the populations of plants and animals found below low tide. Eelgrass and some species of algae appear to be recovering. Amphipods in eelgrass beds recovered to prespill densities in 1991. Leather stars and helmet crabs showed little sign of recovery through 1991. Overall recovery is variable by species.

OTHER NATURAL RESOURCES

ARCHAEOLOGICAL RESOURCES
Twenty-four archaeological sites are known to have been harmed by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover. They are finite, non-renewable resources.

DESIGNATED WILDERNESS AREAS
Many miles of coastlines were oiled in designated wilderness areas and wilderness study areas. Some oil remains embedded in the sediments of these areas. Until oil is completely removed or degrades naturally, injuries to these areas will continue.

SERVICES (HUMAN USES)

COMMERCIAL FISHING During 1989, emergency commercial fishery closures were ordered throughout the spill area. Closures affected salmon, herring, crab, shrimp, rockfish, and sablefish. The 1989 closures resulted in sockeye overescapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye overescapement is anticipated to result in low adult returns in 1994 and 1995. This may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.

COMMERCIAL TOURISM Although the nature and extent of injury varied, approximately 43 percent of the tourism businesses surveyed in 1990 felt they had been significantly affected by the oil spill. Millions of dollars were lost in 1989 due to reduced visitor spending in Southcentral and Southwest Alaska. By 1990, only 12 percent felt that their businesses were affected by the spill.

PASSIVE USE In 1991, over 90% of those surveyed nationwide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the value of wild areas had diminished. Some respondents reported that their perception of lost value was recovering as they sensed some recovery was occurring. The feelings of others have not changed as they did not believe recovery was occurring.

RECREATION The nature and extent of injury varied by user group and by area of use. About one quarter of respondents to a recreation survey in 1992 reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, and concern about long-term ecological effects. However, some respondents reported a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have returned to prespill levels.

RECREATION - SPORT FISHING AND HUNTING
Between 1989 and 1990, a decline in sport fishing (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet, and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery. Kenai River sockeye overescapements may severely affect sport fishing as early as 1994.

SUBSISTENCE Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to prespill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination of subsistence food sources continues to be dangerous to their health and that some subsistence species continue to decline.

natural recovery

Estimated Natural Recovery Rates of Injured Biological Resources

The estimates in the table contain a great deal of uncertainty. For some species there is substantial disagreement within the scientific community. The estimates are likely to change as recovery continues, more information is provided through monitoring, and scientists learn more about the species.

The table presents estimated natural recovery rates for injured biological resources. Predicting the amount of time needed for a species to recover is extremely difficult. Scientists often use models based on factors such as population numbers and growth rates. However, for many of the injured biological resources, the background information was not available to develop these predictive models. For those resources, peer reviewers and agency scientists based their estimates on the best available information.

For example, for black oystercatchers there have been no studies to determine a population growth rate anywhere within the species' range. In this case, the experts are forced to rely on information from a related species, the Eurasian oystercatcher, to estimate a recovery time. Under certain circumstances, a population of Eurasian oystercatchers would be capable of growing at 6.25% annually. If the injured black oystercatcher population grows at the same rate, it could recover to prespill numbers in 15 years. The amount of time could be considerably less if the growth rate is higher, or if animals from adjacent areas move to the oiled area. On the other hand, the recovery time could be considerably longer if the growth rate is less than that of the Eurasian oystercatcher, or if the habitat quality is low. Where oil persists in the environment, habitat quality is likely to be low.

Recovery estimates for services are not provided in the table below. Recovery is linked, in part, to the resources that support the service, and can vary widely between user groups.

	RESOURCES	NATURAL RECOVERY ESTIMATES *(Years from 1989)*	COMMENTS
POPULATION DECLINE	**BLACK OYSTERCATCHER**	15 to 30 years	Recovering.
	COMMON MURRE	50 to 120 years	Recovery varies by colony.
	HARBOR SEAL	Unknown	In decline before spill. Population may have stabilized.
	HARLEQUIN DUCK	10 to 50 years	Still no reproduction within oiled areas studied in Prince William Sound.
	INTERTIDAL ORGANISMS	10 to 25 years	Recovery estimates are combined for all organisms in the upper intertidal zone. Recovery in lower and mid-intertidal zones is expected to be faster than that in the upper intertidal zone.
	MARBLED MURRELET	Unknown	In decline before spill. Estimates vary widely on when the population may stabilize. It may be stable now, or may take about 50 years to stabilize at lower population size.
	PIGEON GUILLEMOT	Unknown	In decline before spill. Probably still declining. Should stabilize in less than 50 years.
	SEA OTTER	15 to 40 years	Population stable, but not recovering.
	SOCKEYE SALMON	10 to 50 years	Estimates ar for attaining a 10-year average similar to prespill populations for Kenai River and Red Lake sockeye salmon.
	SUBTIDAL ORGANISMS	Less than 10 years	Recovering in most places.
INJURED, BUT NO POPULATION DECLINE	**BALD EAGLE**	4 to 6 years	Back to prespill population between 1993 and 1995.
	CUTTHROAT TROUT	10 to 20 years	
	DOLLY VARDEN	10 to 20 years	
	KILLER WHALE	10 to 20 years	Estimates are for the injured pod to return to its prespill size. Currently recovering.
	PACIFIC HERRING	Unknown	Population decline may be documented after 1993.
	PINK SALMON	Less than 20 years	Estimates represent recovery of wild stocks to a population level that may be less than 100% of the prespill population.
	RIVER OTTER	Unknown	Injury and actual population size are difficult to assess.
	ROCKFISH	Unknown	

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Courtesy of CHUGACH NATIONAL FOREST

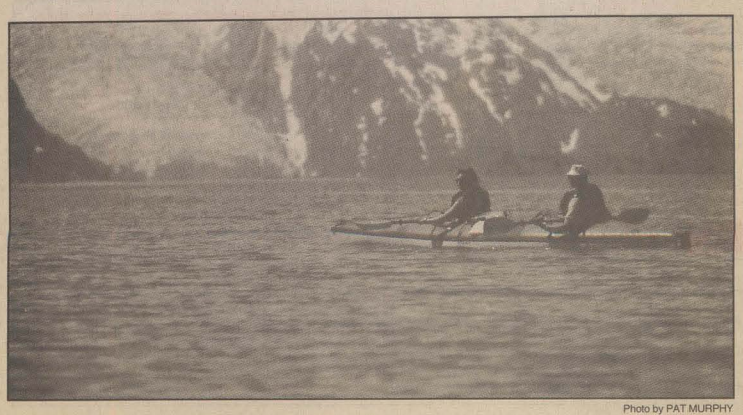

Photo by PAT MURPHY

STEP 2. fold on dotted line (left half, away from you)

Tape or Staple Here

RETURN ADDRESS:

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PLACE STAMP HERE

Exxon Valdez
Oil Spill Restoration Office
645 "G" Street
Anchorage, Alaska 99501

STEP 3 fold on dotted line (bottom half, away from you)

TELL US WHAT YOU THINK

We would like to know your views about the appropriate policies, categories of restoration activities, and possible spending allocations. Please fill out the questions on the next page and let the Trustee Council know which approaches you believe will best restore the resources and services injured by the spill. If you need more information, please come to one of the public meetings. Also, feel free to comment on other parts of the plan alternatives. Attach additional sheets if you need more space.

Thanks for your help!

To be sure that you are on our mailing list and to receive further information when it is available, please put your name and address either here on or as the return address. If you would rather not list your name, please put the community where you live.

_____

_____

_____

☐ If you would like to receive a copy of the Draft Environmental Impact Statement and Draft Restoration Plan when it is avail able this June, please check the box.

While we would appreciate your comments as soon as possible, they must be received by **August 6, 1993.**

NEXT PAGE

Questionnaire

Tell Us What You Think!

QUESTIONS ABOUT ISSUE AND POLICIES

The alternatives present policy questions. The answers to those questions will help guide restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views. If you think that these policies should apply to some restoration activities but not others, please write your views in the space provided beneath each question. For example, if you think that *some general restoration activities are appropriate outside the spill area but that habitat protection* should concentrate only on the spill area, you would write that information in the comment space.

Injuries Addressed by Restoration Actions:

Should restoration actions address all injured resources and services, or all except those biological resources whose populations did not measurably decline because of the spill?

- ❑ Target restoration activities to all injured resources and services.
- ❑ Target all injured resources and services except those biological resources whose populations did not measurably decline because of the spill.
- ❑ No preference.

Comments:

Restoration Actions for Recovered Resources:

Should restoraction actions cease when a resource has recovered, or continue in order to enhance the resource?

- ❑ Cease restoration actions once a resource recovers.
- ❑ Continue restoration actions even after a resource has recovered in order to enhance the resource.
- ❑ No preference

Comments:

Effectiveness of Restoration Actions:

Should the plan include only those restoration actions that produce substantial improvement over natural recovery or also those that produce at least some improvement?

- ❑ Conduct only those restoration actions that provide substantial improvement over natural recovery.
- ❑ Conduct restoration actions that provide at least some improvement over natural recovery.
- ❑ No preference

Comments:

Location of Restoration Actions:

Should restoration activities take place in the spill area only, anywhere in Alaska provided there is a link to injured resources or services, or anywhere in the United States provided there is a link to injured resources or services?

- ❑ Limit restoration actions to the spill area only.
- ❑ Undertake restoration actions anywhere in Alaska there is a link to injured resources or services.
- ❑ Undertake restoration actions anywhere in the United States there is a link to injured resources or services.
- ❑ No preference

Comments:

Opportunities for Human Use:

To what extent should restoration actions be used to create opportunities for human use of the spill area?

- ❑ Do not conduct restoration actions that create opportunities for human use.
- ❑ Conduct restoration actions to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas such as outhouses or improved trails.
- ❑ In addition to restoration actions that protect existing human use, also conduct actions that increase existing human use. Examples are increasing existing sport- or commercial fish runs, or constructing recreation facilities such as public-use cabins.
- ❑ In addition to activities that protect or increase existing human use, also conduct actions that encourage appropriate new uses. Examples are new fish runs, commercial facilities, or visitor centers.
- ❑ No preference

Comments:

COMMENTS

Please use the space below to describe an area you would like the Trustee Council to acquire or protect, or an area appropriate for any other restoration option such as locations for public-use cabins, or fish passes. Or use the space to write any comments you would like the Trustee Council to know about. If you do describe a particular location, please provide enough detail about the location so we can understand where it is, and which injured resource or service it would benefit. Any comment you write will be greatly appreciated.

QUESTIONS ABOUT RESTORATION CATEGORIES

The questions below discuss the different categories of restoration activities. The questions ask about what categories of activities you believe the Trustee Council should use.

Monitoring and Research To effectively conduct restoration, it is necessary to monitor recovery and to monitor the effectiveness of individual restoration activities. It is also possible to conduct other monitoring activities: Ecological monitoring and restoration research.

In addition to Recovery and Restoration monitoring, should the Trustee Council also conduct other monitoring activities?

- ❑ NO
- ❑ YES. Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):
  - ❑ Ecological monitoring (monitor general ecosystem health to identify problems and prepare for future spills)
  - ❑ Restoration Research (basic and applied research to benefit injured resources and services)
  - ❑ Other

Comments:

Habitat Protection and Acquisition Four of the alternatives identify habitat protection and acquisition as a means of restoring injured resources or services (human uses).

Do you agree that habitat protection and acquisition should be a part of the plan?

- ❑ NO
- ❑ YES. Protection and acquisition will include all habitat types, but may emphasize one over another. Please indicate the habitat types, if any, that should be emphasized. Suggest your own approach if it isn't covered here.
  - ❑ Emphasize acquiring and protecting habitat important to injured resources. Important scenic areas and human use areas with little habitat important to injured resources would be less likely to be acquired.
  - ❑ Emphasize acquiring and protecting habitat important for human use (important scenic areas and human use areas). Habitat important to injured resources, but seldom used or viewed by people, would be less likely to be acquired.
  - ❑ Place equal emphasis on acquiring the most important habitats for injured species and on the most important habitats for human use (scenic and human use areas). Parcels that are only moderately important for injured resources or services would be less likely to be acquired.
  - ❑ Other

Comment:

QUESTIONS ABOUT SPENDING

Funding Method: Endowment. The Trustee Council could save some of the civil settlement to fund restoration activities after Exxon payments end. It is possible to save any portion of the settlement. For example, if approximately 20% of the remaining settlement funds were placed into an endowment and the principal inflation-proofed, the endowment could fund $3-$5 million worth of restoration activities indefinitely.

Are you in favor of an endowment or savings account of some kind?

- ❑ NO, I believe the funds should be spent within approximately 10 years.
- ❑ YES. Please indicate the amount that you believe should be placed into an endowment
  - ❑ Less than 20%
  - ❑ 20%
  - ❑ 40%
  - ❑ More than 40%
  - ❑ Other Amount. If you know the amount please indicate: _____%.

Comments:

If you answered "Yes" to the previous question, please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):

- ❑ Monitoring and Research
- ❑ General Restoration
- ❑ Habitat Protection and Acquisition
- ❑ No Preference

Comments:

Potential Allocations

The table shows potential allocations in the five alternatives. If one of the alternatives reflects your view of which activities should be emphasized, please circle the number of that alternative. If not, please put write in your percentages in the box provided under category "YOUR ALTERNATIVE".. If you favor categories for restoration that are not listed below, please write your ideas in the space providied. If, in the question above, you marked "YES" to indicate you favor endowment, remember to put in a percentage for endowment. (Make sure your percentages add to 100%!).

ALTERNATIVE:	1 NATURAL RECOVERY	2 HABITAT PROTECTION	3 LIMITED RESTORATION	4 MODERATE RESTORATION	5 COMPREHENSIVE RESTORATION	YOUR ALTERNATIVE	*If none of our alternatives reflect your views about allocating the funds. Write percentages below.*
Administration & Public Information		4%	6%	7%	7%		Administration & Public Information
Monitoring & Research		5%	7%	8%	10%		Monitoring & Research
General Restoration			12%	35%	48%		General Restoration
Habitat Protection & Acquisition		91%	75%	50%	35%		Habitat Protection & Acquisition
							Other_____
							Other_____
Endowment							Endowment
Balance	100%						Balance
TOTAL:	*100%*	*100%*	*100%*	*100%*	*100%*	*100%*	*TOTAL*

General restoration

For some resources and services, no known restoration approach is likely to be effective. In these cases, the main agent of recovery is nature. For other resources and services, however, it may be possible to provide some improvement over natural recovery.

The General Restoration category of Alternatives 3 through 5 includes various restoration actions that have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The evaluation of options considered how recovery was aided and whether further potential injury could be prevented. Other considerations included potential negative effects and how many species benefit. No options were identified for restoring subtidal resources, air, water, sediment, designated wilderness or wilderness study areas. The list on this page provides examples of restoration options that received favorable evaluations. New options will continue to be evaluated as the restoration plan is implemented.

Specific projects will require legal review to ensure compliance with the civil settlement. The Trustee Council will only fund projects that are consistent with the civil settlement.

Some activities, such as habitat protection and acquisition, would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area. This is especially true of the activities that protect marine, coastal and upland habitats. In addition, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

MAMMALS

		ALTERNATIVES 3	4	5
HARBOR SEAL	Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			X
	◆ Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	X	X	X
	◆ Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	X	X	X
KILLER WHALE	◆ Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		X	X
SEA OTTER	◆ Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	X	X	X
	◆ Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	X	X	X
	◆ Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	X	X	X
RIVER OTTER	Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			X

FISH

		ALTERNATIVES 3	4	5
SOCK-EYE SALMON	◆ Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	X	X	X
	Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			X
	Fertilize lakes to improve sockeye rearing success within the lake and increase sockeye population.		X	X
	◆ Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	X	X	X
PINK SALMON	◆ Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		X	X
	Construct salmon spawning channels and other instream improvements to increase spawing production and provide long-term enhancement. This would have benefits in local areas only.			X
	Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			X
	◆ Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		X	X
	Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			X
	Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			X
CUT-THROAT TROUT	◆ Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		X	X
	Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			X
DOLLY VARDEN	◆ Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		X	X
PACIFIC HERRING	◆ Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.		X	X
ROCK-FISH	◆ Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.		X	X

COASTAL HABITAT

		ALTERNATIVES 3	4	5
INTERTIDAL ORGANISMS	◆ Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	X	X	X
SUBTIDAL ORGANISMS	No restoration options have been identified.			

NOTE: ◆ denotes options that may produce substantial improvement in assuring recovery of a biological resource. Those without an asterisk may produce at least some improvement in recovery.

BIRDS

		ALTERNATIVES 3	4	5
BLACK OYSTER-CATCHER	Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas. This would have benefits in local areas only.			X
	◆ Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.		X	X
COMMON MURRE	Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.			X
	◆ Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X
	◆ Remove predators at injured colonies or remove predators from islands that previously supported murres.	X	X	X
HARLEQUIN DUCK	Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.			X
	◆ Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X
MARBLED MURRELET	◆ Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X
PIGEON GUILLEMOT	◆ Control predator access or remove predators from islands that previously supported birds.	X	X	X
BALD EAGLE	No options other than habitat protection have been identified.			

DESIGNATED WILDERNESS AREAS

ALTERNATIVES 3 4 5

No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

ARCHAEOLOGICAL RESOURCES

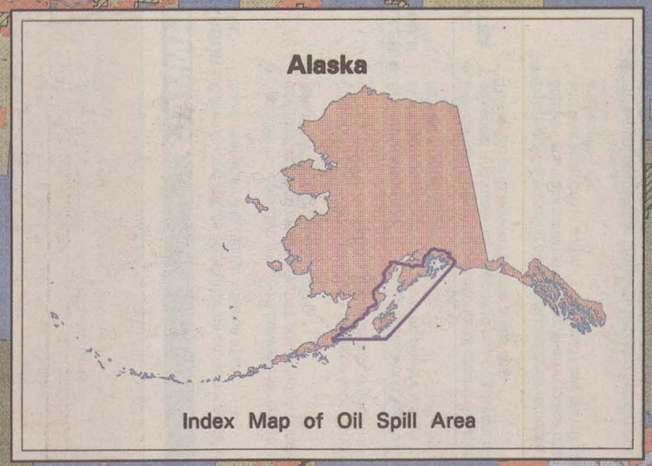
	ALTERNATIVES 3	4	5
Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	X	X	X
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	X	X	X
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	X	X	X
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		X	X

SERVICES

Resource options shown above also benefit many services.

		ALTERNATIVES 3	4	5
RECREATION	Develop new backcountry public recreation facilities to protect existing recreation use.	X	X	X
	Develop backcountry public recreation facilities to protect and increase existing resource use.		X	X
	Encourage appropriate new recreation use, such as:			X
	Marketing public land for commercial operators and recreationists to use public lands.			
	Creating new visitor centers or building a marine envi ronmental institute to increase public awareness of the nature of injury and recovery and understanding of the ecosystem of that area.			
	Replace lost harvest opportunities by creating new fisheries for salmon or trout.	X	X	X
COMMERCIAL TOURISM	The restoration options, and the alternatives they appear in, are identical to those described above for RECREATION	X	X	X
SUBSISTENCE	Replace lost harvest opportunities by creating new salmon runs.			X
	Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.	X	X	X
	Provide new access to traditional foods in areas outside the spill area to restore lost use. This option will undergo legal review.	X	X	X
	Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			X
	Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			X
COMMERCIAL FISHING	Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.	X	X	X
PASSIVE USE	No options other than habitat protection have been identified for this resource.			

Map of the oil spill area



THE *EXXON VALDEZ* OIL SPILL AREA GENERAL LAND STATUS

SOUTHCENTRAL ALASKA

0 50 miles

LEGEND

Oil Spill Area Boundary

FEDERAL LANDS

- National Forest
- National Parks, Monuments or Preserves
- National Wildlife Refuges
- Bureau of Land Management

STATE OR MUNICIPAL LANDS

- State or Municipal Lands
- State Parks, Critical Habitat Areas and Game Refuges
- State Marine Parks Areas

OTHER LANDS

- Native or Other Private Lands
- Native Selected

The *Exxon Valdez* Oil Spill Area includes the area enclosed by the maximum extent of oiled shorelines, severely affected communities and their immediate human-use areas, and adjacent uplands to the watershed divide.

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