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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 8 1991

OFFICE OF WATER

MEMORANDUM

SUBJECT: Federal Register Notice for Restoration Planning and 1991 Restoration Work Plan

FROM: Rosanna B. Ciupek
Special Assistant to the Assistant Administrator for Water

TO: Charles E. Cole
Attorney General for the State of Alaska

As requested, enclosed is a redraft of the Federal Register (FR) notice concerning restoration from the Exxon Valdez oil spill. I spoke with Bill Brighton from the U.S. Department of Justice (DOJ) concerning your last conversation with him on this document.

As I understand it, you and Bill discussed additional language changes to the proposed FR notice. To ensure that changes are as you requested/discussed during that meeting, I have indicated language changes in the following manner:

- **Bold type** where you indicated exact wording.
- Underline where you agreed with DOJ that a change should be made, but requested DOJ propose specific language to you.

Two specific issues were discussed with Alaska Department of Law (DOL) staff subsequent to your discussions with DOJ. These are:

- Project 4 (page 17) - Department of Agriculture (DOA) wished to modify the language proposed by DOL regarding the Step 1 - Identification process. Informally, we have discussed DOA's modifications with DOL staff. The enclosed document reflects compromise language which DOA accepted.
- Purpose Statement (page 2) - Regarding your desire to address the State Lead Trustee role in tandem with EPA's action under the Clean Water Act, language presented on page 2 was suggested by DOL staff.

Other changes proposed earlier by DOL which you did not modify have been incorporated into the document as final. At this point, I can say that NOAA, DOI, DOA and DOJ have agreed to the document as currently written. The last step that remains is to insure that the language that DOJ provided on your behalf correctly states your verbal instructions.

Thank you for your time on this. I hope that this document will quickly become the final version for publication in the Federal Register.

cc: Washington Policy Group
Trustee Council
Liza McCraken, AK DOL
Paul Gertler, Chair (Management Team)
Stan Senner, RPWG

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(Incorporation of AK Attorney General Cole comments; Federal agreement)
DRAFT

Environmental Protection Agency
[WH-FRL-]

Agency: Environmental Protection Agency and the Alaska Department of Law

Action: Notice

Summary: The Environmental Protection Agency, acting to coordinate restoration on behalf of the Federal Trustees (the U.S. Departments of Interior and Agriculture and the National Oceanic and Atmospheric Administration), and the Alaska **Attorney General, as the lead** State Trustee, are publishing here 1) a discussion of the overall process the State and Federal governments intend to follow to enhance and expedite the recovery of Prince William Sound, lower Cook Inlet, and the Gulf of Alaska from the Exxon Valdez oil spill and 2) a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities being considered by the Trustees. The public is invited to comment and to suggest other activities that should be considered by the Trustees in preparing this draft 1991 Restoration Work Plan . Notice of intent to take this action was published in the FEDERAL REGISTER in November (55 FR 48160, November 19, 1990).

Dates: The Federal and State of Alaska governments will accept comments through [insert date 45 days from publication in the FEDERAL REGISTER]. Written comments should be submitted to: Secretary, Restoration Planning Work Group, Oil Spill Restoration Planning Office, 437 "E" Street, Suite 301, Anchorage, Alaska 99501, Phone (907) 271-2461.

I. Introduction

Purpose

The U.S. Departments of Agriculture (DOA) and the Interior (DOI), the National Oceanic & Atmospheric Administration (NOAA), and the Alaska **Attorney General** (hereafter referred to as "the Trustees") and the Environmental Protection Agency (EPA) desire to implement restoration activities in the areas affected by the Exxon Valdez oil spill as soon as practicable. This Notice contains a draft 1991 Restoration Work Plan comprised of

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restoration planning and initial implementation activities under consideration by the Trustee Council, an Alaska-based intergovernmental group charged by the Trustees with managing the natural resources damage assessment and restoration program for 1991. Restoration activities in 1991 and subsequent years will be undertaken as appropriate, based on the Trustees' increasing understanding of resource injuries and other relevant considerations. Implementation activities in 1991 will not foreclose future restoration options and are not intended to be a complete or comprehensive restoration program. Implementation of all restoration activities will follow appropriate procedures for compliance with applicable State and Federal laws and regulations. The President of the United States has designated EPA to coordinate, on behalf of the Federal Trustees, the long-term restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill. Accordingly, the EPA Administrator is issuing this document as an action under the Clean Water Act and is working in concert with the lead Trustee for Alaska, the Alaska Attorney General, under State authority.

Although preparation of the draft 1991 Restoration Work Plan is not required under the Clean Water Act or the laws of Alaska, the Trustees and EPA have chosen to present this document to obtain public comment and to invite suggestions about other restoration activities that should be considered by the State and Federal governments. The public is also invited to comment on the overall process the governments intend to follow in enhancing environmental recovery in Prince William Sound, lower Cook Inlet, and the Gulf of Alaska and achieving restoration of affected resources and services after the Exxon Valdez oil spill.

The Trustees expect to complete the assessment of damages, determine liability, and collect funds from the responsible parties before they prepare a final Restoration Plan. Although the Trustees wish to resolve damage assessment and liability issues as promptly as possible, it is not possible to predict when this will occur. Considering this uncertainty, in cases where the nature of the resource injury, loss or destruction [hereinafter referred to as "injury"] is reasonably clear, and where no alternatives would be foreclosed, it may be desirable to begin implementation of certain restoration activities prior to a final Restoration Plan. As a result, the Trustees are considering implementation in 1991 of activities described in Section III of this notice. Other activities related to restoration, such as feasibility studies, technical support projects, and monitoring (see Sections 2 and 3), will be considered in the following months and will be presented to the public for review and comment. The Trustees also expect to publish a revised 1991 Restoration Work Plan in the FEDERAL REGISTER in the Spring. The Trustees also expect subsequently to publish notice of and to solicit public comment on detailed descriptions for each of the

restoration projects selected for implementation in 1991.

Organization of this Notice

This notice has three main sections: I. Introduction, II. Restoration Planning, and III. Draft 1991 Restoration Work Plan. The Introduction presents a synopsis of the purpose of this notice and background information. Section II, Restoration Planning, describes the overall approach to restoration and reports on the planning activities conducted in 1990. In Section III, this notice provides information on restoration planning and initial implementation actions under consideration for 1991.

Further Information

Further information about the Exxon Valdez oil spill, the damage assessment studies, and restoration planning activities is contained in the documents referenced at the end of this notice and in the FEDERAL REGISTER published on November 19, 1990 (55 FR 48160). These documents and other information on restoration and damage assessment are available from the Oil Spill Public Information Center, 645 G Street, Anchorage, Alaska 99501.

II. Restoration Planning

A. The Planning Process

The Trustees' and EPA's restoration planning activities are designed to determine appropriate ways to restore natural resources and services injured by the Exxon Valdez oil spill. Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the environment to its baseline condition.

The Natural Resource Damage Assessment (NRDA) regulations [43 CFR 11], which implement certain provisions of CERCLA and CWA, define "restoration" or "rehabilitation" as "...actions undertaken [in addition to response actions], to return an injured resource to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...". This definition of restoration from the NRDA regulations is provided here for informational purposes. The NRDA regulations are not mandatory but do provide a model for restoration planning.

The Trustees have determined that restoration after the Exxon Valdez oil spill should be subject to continuing review as information is developed about injuries and possible restoration opportunities. The Trustees expect that each year's work will build on the last, and that all information pertinent to the Exxon Valdez oil spill will be examined in the course of the restoration process.

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1. Steps in the Planning Process

The restoration planning process is a dynamic and evolving process that will generally include the following steps:

a. Determining the Need for Restoration.
The need for restoration depends on the nature and extent of natural resources injured, lost, or destroyed and the adequacy of natural recovery. The primary information sources regarding resource injury, loss, or destruction are the studies conducted by State and Federal agencies as part of the natural resources damage assessment. These studies are described in the 1989 and 1990 Exxon Valdez damage assessment plans (see the documents referenced at the end of this notice). Other sources of information include public comments, data gathered as part of the oil spill response, and other studies conducted by government agencies outside of the damage assessment process.

b. Identifying Potential Restoration Activities.
For any injury, there are three possible types of restoration which may be used singularly or in any combination:

direct restoration refers to measures in addition to response actions, usually taken on site, to directly restore or rehabilitate an injured, lost, or destroyed resource or otherwise to promote or enhance the recovery of such resources;
replacement refers to substituting one resource for an injured, lost, or destroyed resource of the same or similar type; and
acquisition of equivalent resources means to compensate for an injured, lost, or destroyed resource by substituting another resource that provides the same or substantially similar services as the injured resource.

Determining the adequacy of natural recovery is fundamental to the choice of a restoration activity. In some cases the Trustees may determine that it is most appropriate to allow natural recovery to proceed without further intervention by man (i.e., no action alternative). The definition of direct restoration includes any administrative actions that may be taken by the Federal or State agencies, such as limiting certain activities in the affected areas, to promote recovery of injured resources.

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c. Evaluating Potential Restoration Alternatives.
Evaluation of potential restoration alternatives will consider such factors as:

- nature and extent of injury;
- adequacy of natural recovery;
- technical feasibility;
- net environmental benefit (including indirect impacts);
- cost effectiveness;
- reasonableness of cost of the restoration project in light of the value or ecological significance of the resource; and
- results of actual or planned response actions.

Some restoration proposals may be readily evaluated. In other cases additional information, for example, biological, ecological, or resource assessment data, will be gathered to support the evaluation process.

The goal of the Trustees and EPA is to conduct restoration planning for the recovery of ecosystems. In general, priority will be given to alternatives which benefit multiple rather than single species or resources. By necessity, however, individual elements of the restoration program may be species- or resource-specific.

d. Recommending and Implementing Restoration Activities on a Continuing Basis.
As information about injuries, resources recovery, restoration methods or costs becomes available, certain activities may be recommended and carried out in advance of the receipt of funds for restoration from the parties responsible for the oil spill (see Section III, below).

e. Presenting a Damage Claim to Parties Responsible for the Oil Spill and Receiving Funds for Restoration.
The damage assessment process initiated by the Trustees is designed to identify and quantify specific resource injuries and determine restoration costs and other corresponding monetary values. **The Federal and State governments will present their claims for these amounts to the parties responsible for the oil spill as required by Federal and State law.**

f. Preparing and Implementing a Final Restoration Plan. When the full amount of restoration funds that will be recovered has been resolved, final determinations will be made concerning the nature and scope of the remaining phases of restoration.

g. Evaluating the Effectiveness of Restoration Measures, and Recommending Additional Actions. Implementation of restoration activities and the success of resource recovery will be monitored and evaluated based on standards appropriate to individual projects and resources to verify that restoration goals have been met. Long-term monitoring activities also may be implemented to verify that the affected area is recovering.

Restoration planning, as outlined above, is underway; the overall pace of restoration is dependent on the availability of information to determine injury and the resolution of a claim for damages. Implementation of restoration and monitoring activities may take a number of years. The Trustees and EPA intend to follow the restoration planning process as outlined above in order to accelerate the restoration of the Prince William Sound-Gulf of Alaska ecosystem and the affected natural resources and services.

2. Public Participation

The Trustees and EPA intend to encourage, provide for, and be responsive to public participation and review during the restoration planning process. Carrying out this intent, however, is complicated by the need for confidentiality with respect to damage assessment information due to pending or possible future litigation with the parties responsible for the Exxon Valdez oil spill. Notwithstanding these considerations, the Trustees intend to provide an opportunity for meaningful public review and comment on all restoration implementation activities.

In September of 1990, the Oil Spill Public Information Center was opened in Anchorage to provide the public with scientific data and other information related to the 1989 Exxon Valdez oil spill. The Trustees will continue to place information in the center as it becomes available.

3. Restoration Planning Activities in 1990

The Trustees and EPA began to solicit public opinion in March 1990 with a symposium on restoration in Anchorage, Alaska. In April and May of 1990, eight public scoping meetings were held throughout southcentral Alaska to

ascertain the public's priorities for the restoration program. For a detailed description of these meetings, see the documents referenced at the end of this notice. In addition to these public meetings, the governments have communicated individually with such constituencies as Native corporations and villages, fishing groups, and environmental organizations.

To gather specific scientific input for the restoration planning process, technical workshops were held in Anchorage in April 1990. Follow-up meetings were held in October and November 1990. Participants included members of the Restoration Planning Work Group (the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Departments of Interior and Agriculture, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency) Federal and State resource managers, and scientists and technical experts under contract to the governments. Due to the necessary discussion of litigation-sensitive damage assessment information, these workshops were closed to the general public.

The Restoration Planning Work Group completed a preliminary literature search, which identified articles and other published material concerning techniques for ecological restoration following oil spills. Approximately 200 publications were acquired for detailed review and are listed in the August 1990 Progress Report.

The Trustees and EPA initiated several small-scale field studies to evaluate the feasibility of restoration techniques. Results from these studies will help determine the costs and effectiveness of full-scale restoration projects. Several technical support studies were also initiated to provide information needed to evaluate or carry out some potential restoration activities. These studies are described in the "State/Federal Natural Resources Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," August 1990. The 1990 studies and preliminary results are summarized below.

B. 1990 Restoration Feasibility Studies

1. Reestablishment of Fucus in Rocky Intertidal Ecosystems
Lead Agency: U.S. Environmental Protection Agency

Early observations indicated that Fucus, a marine plant (rockweed) found on rocky shorelines in the intertidal zone throughout the oil spill area, was extensively damaged by both the spilled oil and cleanup efforts. If the natural recovery of Fucus could be significantly accelerated or enhanced it would benefit the recovery of associated flora and fauna on intertidal rocky

shores.

Specific objectives of this study were to identify the causes of variation in Fucus recovery at and near Herring Bay, Knight Island in Prince William Sound; to document the effects of alternative cleaning methods on Fucus; and to test the feasibility of enhancing the reestablishment of Fucus. Although results are preliminary at this time, it appears that Fucus recovers most slowly at the sites that were intensively cleaned and that almost no recovery occurs where tar cover persists.

2. Reestablishment of Critical Fauna in Rocky Intertidal Ecosystems
Lead Agency: U.S. Forest Service

This feasibility study was designed to compare the rates of faunal recovery in rocky intertidal communities, and to demonstrate the feasibility of restoration of these communities by enhancing recolonization rates for such key species as limpets and starfish. Recolonization rates for these organisms and for the rockweed, Fucus, may limit the natural rates of recovery for the entire community. Parameters examined included the presence or absence of common intertidal species on impacted and reference sites, population dynamics of several species of invertebrates, larval settlement on oiled versus non-oiled surfaces, and differences in algal grazing by limpets between oiled and referenced sites. Preliminary results indicate that heavy predation of several species of transplanted invertebrates was probably due to the lack of cover usually provided by Fucus.

3. Identification of Potential Sites for Stabilization and Restoration with Beach Wildrye
Lead Agency: Alaska Department of Natural Resources

This study was designed to identify sites at which damage to beach wildrye grass has occurred and to recommend restoration measures. This species was affected by both spilled oil and subsequent cleanup activities. Beach wildrye grass is important in the prevention of erosion in the coastal environment and is a key component of supratidal habitats in locations throughout the oil spill area. Erosion resulting from loss of beach wildrye can lead to the destabilization and degradation of wildlife habitats and of cultural and recreational sites. Survey work in 1990 in Prince William Sound indicated injury to several beach rye communities. Following confirmation in the 1991 spring shoreline assessment, restoration activities can be initiated (see Restoration Project 1 summary).

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4. Identification of Upland Habitats Used by Wildlife Affected by the Oil Spill
Lead Agencies: U.S. Fish and Wildlife Service, Alaska Department of Fish and Game.

A diversity of birds, mammals, and other animals were killed by the spill or injured by contamination of prey and habitats. Many of these species are dependent on aquatic or intertidal habitats for activities such as feeding and resting, but many also use upland habitats. Protection of upland habitats from further degradation may reduce cumulative effects on injured fish and wildlife populations, and thereby help them recover from the effects of the oil spill. This study focused specifically on marbled murrelets and harlequin ducks, two species known to have been affected by the spill and known to use upland habitats.

Based on surveys of 140 streams, preliminary results of the harlequin duck study indicate that this species nests along larger-than-average anadromous fish streams, with moderate gradients and clear waters. Preliminary results on murrelets suggest that murrelets use slopes facing north or west, and inland areas at the heads of bays as opposed to the outer peninsulas. Open bog meadows, especially at the heads of bays, appear to be used as flight corridors to upper wooded areas.

5. Land Status, Uses, and Management Plans in Relation to Natural Resources and Services
Lead Agency: Alaska Department of Natural Resources

The objective of this study is to locate, categorize, evaluate, and determine the availability of maps, management plans, and other resource documents relevant to restoration planning throughout the oil-spill region. Resource materials identified will assist in planning for and implementing site-specific restoration activities, including direct restoration, replacement, and the acquisition of equivalent resources.

To date, a variety of documents, maps, and management plans have been identified and are being evaluated; other resource materials are being located. This preliminary project will be completed in Spring 1991. A second phase, directly supporting the proposed Restoration Project Number 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is under consideration.

C. 1990 Technical Support Projects

1. Peer Reviewer Process for Restoration Feasibility Studies

Lead Agencies: Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, U.S. Department of the Interior, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, U.S. Environmental Protection Agency

This project provided funds to ensure that scientists with expertise on natural resource restoration were available to provide peer review of restoration feasibility projects and other restoration planning studies and activities.

2. Assessment of Beach Segment Survey Data
Lead Agency: Alaska Department of Natural Resources

The objective of this project is to review and summarize beach survey information (obtained through oil spill response activities) to assist in planning for and implementing site-specific restoration activities, particularly in the area of direct restoration. This study was initiated late in 1990 and continues to date.

A master database is being created from that portion of the beach surveys relevant to restoration. The primary sources of this information are the Alaska Departments of Natural Resources and Environmental Conservation. Data from local and regional governments as well as non-governmental sources will also be reviewed and integrated into the system as appropriate. This preliminary project will be completed in Spring 1991.

3. Development of Potential Feasibility Studies for 1991
Lead Agencies: Alaska Department of Fish and Game, U.S. Environmental Protection Agency

This project provided for the orderly development of additional feasibility studies including: a) monitoring "natural" recoveries; b) pink salmon stock identification; c) herring stock identification/spawning site inventory; d) artificial reefs for fish and shellfish; e) alternative recreation sites and facilities; f) historic sites and artifacts; and g) availability of forage fish. Currently feasibility study proposals are under consideration for all of the above themes.

III. 1991 Restoration Work Plan

The Trustees are currently developing and evaluating restoration planning and implementation activities, which

will be described in the 1991 Restoration Work Plan to be published in the FEDERAL REGISTER later in the Spring. Planning activities will include feasibility studies, technical support studies, and natural recovery monitoring which will be made available to the public for review and comment. Implementation activities that are now under consideration are presented in this section. The Trustees and EPA are asking, through this notice, for public comment on and additional suggestions for restoration planning and implementation activities for 1991. As noted previously, the Trustees and EPA anticipate publishing later this Spring a notice of the restoration projects identified for implementation in 1991. More detailed descriptions for 1991 restoration projects will be made available to the public for comment.

A. 1991 Restoration Planning Activities

The fundamental purpose of restoration planning is to identify and evaluate potentail restoration implementation activities, in consultation with technical experts and the public. The integration of results from the damage assessment and other information into restoration planning is critical to the success of the oil spill program. As damage assessment results are reviewed and evaluated, the Trustees will identify potential restoration implementation activities and related feasibility and technical support projects. This process involves ongoing consultations with principal investigators for damage assessment studies, agency experts, and outside peer reviewers to review the nature and extent of oil spill injuries in relation to the biology and ecology of injured species, habitats, and ecosystems. A key goal is to identify life history requirements, limiting factors, and environmental processes that are especially sensitive or that may be enhanced.

Section II describes five feasibility studies carried out in 1990, some of which may continue in 1991. The Trustees and EPA are considering additional feasibility and technical support projects in 1991 and, following additional review, intend to discuss them in the Spring 1991 FEDERAL REGISTER Notice. Studies now being considered concern a variety of resources, including pink salmon, tidal marshes, Pacific herring, bald eagles, recreation, and sea otters. Feasibility and technical support studies will be implemented as damage assessment data and funding become available.

The scientific literature and experience from oil spills other than the Exxon Valdez will provide background on restoration and information from other oil spills. In 1991, the Restoration Planning Work Group expects to review and evaluate previously identified literature on restoration (see

Appendix B, August 1990 Progress Report) and to continue review and evaluation of literature on species and ecosystem recoveries following anthropogenic and natural environmental disturbances.

Information on the adequacy of natural recovery is central to determining whether to implement restoration actions or to allow injured resources to recover on their own. Direct measures of recovery, such as species distribution, abundance, diversity, growth, reproductive success, or other physiological and biochemical properties, may be appropriate monitoring objectives. In some cases, it is appropriate to indirectly determine the degree of recovery by measuring exposure (presence of oil residuals and/or metabolites) and by applying knowledge of toxicological effects derived from the oil spill literature. For these reasons, the recovery of injured resources can best be followed by implementing a balanced program of monitoring. The duration of recovery monitoring will depend on the time necessary to establish a trend for recovery, and this in turn will necessarily depend on the severity and duration of effects resulting from the oil spill.

Some recovery monitoring studies will be considered for implementation in 1991. As with feasibility and technical support projects, these will be discussed in the March 1991 FEDERAL REGISTER document.

Public participation will continue to be an important component of restoration planning in 1991. The Restoration Planning Work Group is interested in and will try to accomodate requests for meetings with individuals or groups. In addition, the Trustees will consider whether and what additional actions, such as publications and workshops, are appropriate and possible in 1991. Requests and suggestions from the public are invited.

B. 1991 Restoration Implementation Activities

Where the nature of the resource injury is reasonably clear, it may be desirable to begin restoration prior to receipt of funds from the parties responsible for the oil spill. There are several reasons why this may be so.

Failure to undertake timely restoration may allow damages initiated by the spill to continue or accelerate, as in the case of the loss of stabilizing vegetation on beaches. In other cases, protection of strategic habitats, subject to land-use changes, can reduce cumulative stresses on injured resources and maintain, in the near term, a full range of restoration options. Finally, the importance of a resource for subsistence, commercial, or recreational purposes may justify prompt restoration action.

The restoration activities being considered by the

Trustees for implementation in 1991 are described below. Before making final decisions for the 1991 program, the Trustees are prepared to conduct public meetings in some of the oil spill communities, if requested to do so. Moreover, the Trustees expect to provide further opportunity for public comment on the 1991 restoration projects after detailed descriptions for each project are available. The projects now under consideration for the initial phase of the restoration process are:

1. Restoration of the Beach Wildrye Community
   Lead Agencies: Alaska Department of Environmental Conservation, U.S. Forest Service

Need and Objectives

The high intertidal-supratidal beach wildrye grasses (Elymus arenarius and E. mollis) communities show signs of localized injury as a result of the Exxon Valdez oil spill and the associated cleanup activities. Injury appears to have resulted from oiling and the stress of mechanical abrasion resulting from oil removal operations carried out by cleanup workers and equipment. Beach wildrye grasses are major contributors to natural beach stability. Injury to this important plant community may result in accelerated erosion of the beaches and adjacent upland plant communities. Also at risk from increased erosion are several nearshore archaeological sites.

Once the beach wildrye root masses are disturbed, natural recovery may be slow, taking several years. Wildrye recolonizes primarily by spreading outward from undamaged plants, and this process can be stopped altogether if the rate of erosion is too great. This may result in a significant loss of intertidal and supratidal area. Restoration intervention may often restabilize a beach in one growing season.

The objective of this project is to stabilize injured sites where natural or cultural resources are at risk. Specific sites for restoration will be chosen following the 1991 Spring Shoreline Assessment. The Department of Environmental Conservation and the Forest Service are also exploring whether this project may more appropriately be carried out under the State/Federal response program.

Methods:

Replanting beach wildrye for stabilization is a proven technology. Nearby healthy stocks of beach wildrye grass will be used as a source of donor material. After replanting, fertilizer will be applied (20-20-10 fertilizer up to 800 pounds per acre) to help the

transplanted beach wildrye grass recolonize. At some locations fertilizer alone may be sufficient to encourage existing injured plant communities to recover without transplanting new stock.

Estimated 1991 Cost: $180,000

2. Public Information and Education for Recovery and Protection of Alaska's Marine and Coastal Resources
Lead Agencies: U.S. Fish and Wildlife Service, National Park Service

Need and Objectives:

The Exxon Valdez oil spill caused direct and indirect injury to the marine birds and mammals of southcentral Alaska. The purpose of this project is to make users of the area aware of the changes to the ecosystem resulting from the oil spill and to lessen the potential for additional harmful human disturbances..

Methods:

The project's sponsors will publish and distribute information explaining the potential adverse impacts of human activities, and the importance of increased conservation and protection of marine birds and mammals in key habitats in the oil spill area. Print media such as posters, brochures, and possibly books and video tapes will be produced. Consideration will also be given to production of material for school curricula.

Print media will be distributed through traditional outlets including but not limited to refuge, park, and tourist information and visitor centers. Additional distribution will occur to airports, boat harbors, commercial tour operators, and to public agency and private industry training staffs.

Some species identification information will be included but the primary content of the media will emphasize strategies to allow public use and enjoyment of marine birds and mammals while preventing harmful disturbances to these species.

Estimated 1991 Cost:$100,000.

3. Salmonid Stocks and Habitat Restoration
Lead Agencies: Alaska Department of Fish and Game, U.S. Forest Service

Need and Objectives:

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Spawning and nursery areas of wild stocks of pink and chum salmon which were impacted by the Exxon Valdez oil spill occur throughout Prince William Sound, lower Cook Inlet, and the Gulf of Alaska. Pink and chum salmon are major components of the ecosystem, serving as important food sources for other fish, birds, terrestrial and marine mammals. Pink and chum salmon are also harvested by man in subsistence, commercial, and sport fisheries. Since salmon return to the individual streams in which they were born, with little straying to other streams, genetically unique wild salmon stocks will be restored and enhanced through site specific rehabilitation of salmon spawning and rearing habitats.

Methods:

This project consists of several proven fisheries enhancement techniques that may be applied immediately at specific sites. In addition to those sites and streams at which potential rehabilitation activities already have been identified, a survey of affected salmon spawning habitat within the oil spill area will be conducted in 1991 to determine additional restoration measures. The proposed techniques include fish passage through stream channelization or fish ladders to overcome physical and hydrological barriers and construction of spawning channels. All of these measures provide oil-free spawning areas to replace oil-impacted spawning areas. Additional wild salmon stock restoration measures include remote egg-taking and incubation at existing hatcheries for ultimate fry release in oil-impacted streams. Other measures may include optimal fry release programs that will enhance marine survival of juvenile salmonids.

Estimated 1991 Cost: $1,300,000

4. Protection of Strategic Fish and Wildlife Habitats and Recreation Sites

Lead Agencies: Alaska Department of Fish and Game,
Alaska Department of Natural Resources
U.S. Department of the Interior,
U.S. Department of Agriculture

Need and Objectives:

The marine and intertidal habitats where most oil spill injuries occurred are ecologically linked to adjacent uplands. The water quality in streams and estuaries where salmon spawn depends on the adjacent uplands. Eagles nest and roost in large trees along the coasts and streams, and marbled murrelets nest in

association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas. Common and thick-billed murres and other seabirds nest on off-shore islands.

Tourism and recreation activities, such as sport fishing and camping, also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts of the regional ecosystem, including strategic marine, intertidal, and estuarine habitats and adjacent uplands, may be necessary for the recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acquisition and changes in management practices.

Land-use activities may occur in the oil spill area in 1991 or 1992. These activities may impact important habitats and recreation sites or slow the recovery of spill-injured resources.

The objective of this project 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. This project will be preceded by a technical support project to identify and evaluate potential properties which if publicly owned will contribute to this objective. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis. Primary considerations in deciding which properties should be acquired during this project will include 1) the nature and immediacy of changes in use that may further affect resources injured by the oil spill and 2) the prospect that failure to act will foreclose restoration opportunities.

The Trustees have developed the following preliminary sequence of steps for use in identifying and protecting strategic fish and wildlife habitats and recreation sites:

1. Identification of key upland habitats that are linked to the recovery of injured resources or services by scientific data or other relevant

information.

2. Characterization and evaluation of potential impacts from changed land use in relation to their effects on recovery of the ecosystem and its components; comparative evaluation of recovery strategies not involving acquisition of property rights, including an assessment of protections afforded by existing law, regulations, and other alternatives.
3. Evaluation of cost-effective strategies to achieve restoration objectives for key upland habitats, identified through steps one and two above. This would include evaluation of other restoration alternatives for these resource injuries.
4. Willing seller/buyer negotiations with private landowners for property rights.
5. Incorporation of acquired property rights into public management.

Habitat and recreation site acquisition proposals that meet the appropriate evaluation factors for restoration (see Section 2) will be identified and assigned by priority for implementation in accordance with this preliminary five-step process and applicable State and Federal laws and regulations.

The geographic scope of the 1991 project will be the oil spill area. Subsequent to this initial effort, the Trustees will continue to survey potential acquisitions, including acquisitions outside the spill area.

Estimated Cost: To be determined

c. Funding for the 1991 Restoration Work Plan

Although it is expected that the responsible parties will pay for the costs of the damage assessment and restoration program, there is no certainty about the final amount and when such funds will be forthcoming. It is possible, therefore, that funds to carry out the 1991 Restoration Work Plan , including the proposed planning and implementation activities, will have to be advanced by the State and Federal governments. To date, those funds have not been committed or secured by either government.

D. References

The documents listed below provide additional information on damage assessment and restoration. They are available from the Oil Spill Public Information Center, The Simpson Building, 645 G Street, Anchorage, Alaska, 99501.

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"The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Volume I Assessment and Restoration Plan Appendices A,B,C."

"State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill," August 1989.

"Restoration Planning following the Exxon Valdez Oil Spill: August 1990 Progress Report."

"Restoration following the Exxon Valdez Oil Spill: Proceedings of the Public Symposium," July 1990.

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LaJuana S. Wilcher
Assistant Administrator
Office of Water
U.S. Environmental Protection Agency

Date

Charles E. Cole
Attorney General
State of Alaska

Date

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February 28, 1991

SUBJECT: Federal Register Notice: Draft Restoration Work Plan and 1991 Restoration Projects -- TRANSMITTAL

FROM: Stanley Senner, Restoration Program Manager Stan Senner
Alaska Department of Fish and Game

Susan MacMullin, EPA Representative Susan MacMullin
Management Team

TO: Trustee Council
Management Team
Legal Team
Restoration Planning Work Group

Enclosed is the signed and dated copy of the Federal Register notice on restoration. We have been advised by the Office of the Federal Register that this notice will appear on March 1, 1991.

Please feel free to call either of us (Stan: 907 271-2461 or Susan: 202 245-4373) if you have any questions.

Attachment
cc: LaJuana Wilcher (w/out attachment)
Charles Cole
Tom Campbell
Dan Esty
Rosanna Ciupek (w/out attachment)
Robert Spies
Pete Peterson
Bart Freedman

Environmental Protection Agency

[WH-FRL-]

Agency: Environmental Protection Agency and the Alaska Department of Law

Action: Notice

Summary: The Environmental Protection Agency, acting to coordinate restoration on behalf of the Federal Trustees (the U.S. Departments of Interior and Agriculture and the National Oceanic and Atmospheric Administration), and with the Alaska State Trustees (the Alaska Attorney General as the lead State Trustee and the Alaska Departments of Fish and Game and Environmental Conservation) are publishing here 1) a discussion of the overall process the State and Federal governments intend to follow to enhance and expedite the recovery of Prince William Sound, lower Cook Inlet, and the Gulf of Alaska from the Exxon Valdez oil spill and 2) a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities being considered by the Trustees. The public is invited to comment and to suggest other activities that should be considered by the Trustees in preparing this draft 1991 Restoration Work Plan . Notice of intent to take this action was published in the FEDERAL REGISTER in November (55 FR 48160, November 19, 1990).

Dates: The Federal and State of Alaska governments will accept comments through [insert date 45 days from publication in the FEDERAL REGISTER]. Written comments should be submitted to: Secretary, Restoration Planning Work Group, Oil Spill Restoration Planning Office, 437 "E" Street, Suite 301, Anchorage, Alaska 99501, Phone (907) 271-2461.

I. Introduction

Purpose

The U.S. Departments of Agriculture (DOA) and the Interior (DOI), the National Oceanic & Atmospheric Administration (NOAA), and the Alaska Attorney General, the Alaska Departments of Fish and Game and Environmental Conservation, (hereafter referred to as "the Trustees") and the Environmental Protection Agency (EPA) desire to implement restoration activities in the areas affected by the Exxon Valdez oil spill as soon as practicable. This Notice

contains a draft 1991 Restoration Work Plan comprised of restoration planning and initial implementation activities under consideration by the Trustee Council, an Alaska-based intergovernmental group charged by the Trustees with managing the natural resources damage assessment and restoration program for 1991. Restoration activities in 1991 and subsequent years will be undertaken as appropriate, based on the Trustees' increasing understanding of resource injuries and other relevant considerations. Implementation activities in 1991 will not

foreclose future restoration options and are not intended to be a complete or comprehensive restoration program. Implementation of all restoration activities will follow appropriate procedures for compliance with applicable State and Federal laws and regulations. The President of the United States has designated EPA to coordinate, on behalf of the Federal Trustees, the long-term restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill. Accordingly, the EPA Administrator is issuing this document as an action under the Clean Water Act and the Alaska Attorney General is working in concert with the EPA under State authority.

Although preparation of the draft 1991 Restoration Work Plan is not required under the Clean Water Act or the laws of Alaska, the Trustees and EPA have chosen to present this document to obtain public comment and to invite suggestions about other restoration activities that should be considered by the State and Federal governments. The public is also invited to comment on the overall process the governments intend to follow in enhancing environmental recovery in Prince William Sound, lower Cook Inlet, and the Gulf of Alaska and achieving restoration of affected resources and services after the Exxon Valdez oil spill.

The Trustees expect to complete the assessment of damages, determine liability, and collect funds from the responsible parties before they prepare a final Restoration Plan. Although the Trustees wish to resolve damage assessment and liability issues as promptly as possible, it is not possible to predict

when this will occur. Considering this uncertainty, in cases where the nature of the resource injury, loss or destruction [hereinafter referred to as "injury"] is reasonably clear, and where no alternatives would be foreclosed, it may be desirable to begin implementation of certain restoration activities prior to a final Restoration Plan. As a result, the Trustees are considering implementation in 1991 of activities described in Section III of this notice. Other activities related to restoration, such as feasibility studies, technical support projects, and monitoring (see Sections 2 and 3), will be considered in the following months and will be presented to the public for review and comment. The Trustees also expect to publish a revised 1991 Restoration Work Plan in the FEDERAL REGISTER in Spring 1991. The Trustees also expect subsequently to publish notice of and to solicit public comment on detailed descriptions for each of the restoration projects selected for implementation in 1991.

Organization of this Notice

This notice has three main sections: I. Introduction, II. Restoration Planning, and III. Draft 1991 Restoration Work Plan. The Introduction presents a synopsis of the purpose of this notice and background information. Section II, Restoration Planning, describes the overall approach to restoration and reports on the planning activities conducted in 1990. In Section III, this notice provides information on restoration planning and initial implementation actions under consideration for 1991.

Further Information

Further information about the Exxon Valdez oil spill, the damage assessment studies, and restoration planning activities is contained in the documents referenced at the end of this notice and in the FEDERAL REGISTER published on November 19, 1990 (55 FR 48160). These documents and other information on restoration and damage assessment are available from the Oil Spill Public Information Center, 645 G Street, Anchorage, Alaska 99501.

II. Restoration Planning

A. The Planning Process

The Trustees' and EPA's restoration planning activities are designed to determine appropriate ways to restore natural resources and services injured by the Exxon Valdez oil spill. Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the environment to its baseline condition.

The Natural Resource Damage Assessment (NRDA) regulations [43 CFR 11], which implement certain provisions of CERCLA and CWA, define "restoration" or "rehabilitation" as "...actions undertaken [in addition to response actions], to return an injured resource to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...". This definition of restoration from the NRDA regulations is provided here for informational purposes. The NRDA regulations are not mandatory but do provide a model for restoration planning.

The Trustees have determined that restoration after the

Exxon Valdez oil spill should be subject to continuing review as information is developed about injuries and possible restoration opportunities. The Trustees expect that each year's work will build on the last, and that all information pertinent to the Exxon Valdez oil spill will be examined in the course of the restoration process.

1. Steps in the Planning Process

The restoration planning process is a dynamic and evolving process that will generally include the following steps:

a. Determining the Need for Restoration.

The need for restoration depends on the nature and extent of natural resources injured, lost, or destroyed and the adequacy of natural recovery. The primary information sources regarding resource injury, loss, or destruction are the studies conducted by State and Federal agencies as part of the natural resources damage assessment. These studies are described in the 1989 and 1990 Exxon Valdez damage assessment plans (see the documents referenced at the end of this notice). Other sources of information include public comments, data gathered as part of the oil spill response, and other studies conducted by government agencies outside of the damage assessment process.

b. Identifying Potential Restoration Activities.

For any injury, there are three possible types of

restoration which may be used singularly or in any combination:

direct restoration refers to measures in addition to response actions, usually taken on site, to directly restore or rehabilitate an injured, lost, or destroyed resource or otherwise to promote or enhance the recovery of such resources;

replacement refers to substituting one resource for an injured, lost, or destroyed resource of the same or similar type; and

acquisition of equivalent resources means to compensate for an injured, lost, or destroyed resource by substituting another resource that provides the same or substantially similar services as the injured resource.

Determining the adequacy of natural recovery is fundamental to the choice of a restoration activity. In some cases the Trustees may determine that it is most appropriate to allow natural recovery to proceed without further intervention by man (i.e., no action alternative). The definition of direct restoration includes any administrative actions that may be taken by the Federal or State agencies, such as limiting certain activities in the affected areas, to promote recovery of injured resources.

c. Evaluating Potential Restoration Alternatives.

Evaluation of potential restoration alternatives will consider such factors as:

- nature and extent of injury;
- adequacy of natural recovery;
- technical feasibility;
- net environmental benefit (including indirect impacts);
- cost effectiveness;
- reasonableness of cost of the restoration project in light of the value or ecological significance of the resource; and
- results of actual or planned response actions.

Some restoration proposals may be readily evaluated. In other cases additional information, for example, biological, ecological, or resource assessment data, will be gathered to support the evaluation process. The goal of the Trustees and EPA is to conduct restoration planning for the recovery of the injured environment as a whole. In general, priority will be given to alternatives which benefit multiple rather than single species or resources. By necessity, however, individual elements of the restoration program may be species- or resource-specific.

d. Recommending and Implementing Restoration Activities

on a Continuing Basis.

As information about injuries, resources recovery, restoration methods or costs becomes available, certain activities may be recommended and carried out in advance of the receipt of funds for restoration from the parties responsible for the oil spill (see Section III, below).

e. Presenting a Damage Claim to Parties Responsible for the Oil Spill and Receiving Funds for Restoration. The damage assessment process initiated by the Trustees is designed to identify and quantify specific resource injuries and determine restoration costs and other corresponding monetary values. The Federal and State governments will present their claims for these amounts to the parties responsible for the oil spill as required by Federal and State law.

f. Preparing and Implementing a Final Restoration Plan. When the full amount of restoration funds that will be recovered has been resolved, final determinations will be made concerning the nature and scope of the remaining phases of restoration.

g. Evaluating the Effectiveness of Restoration Measures, and Recommending Additional Actions. Implementation of restoration activities and the success of resource recovery will be monitored and evaluated based on

standards appropriate to individual projects and resources to verify that restoration goals have been met. Long-term monitoring activities also may be implemented to verify that the affected area is recovering.

Restoration planning, as outlined above, is underway; the overall pace of restoration is dependent on the availability of information to determine injury and the resolution of a claim for damages. Implementation of restoration and monitoring activities may take a number of years. The Trustees and EPA intend to follow the restoration planning process as outlined above in order to accelerate the restoration of the Prince William Sound-Gulf of Alaska ecosystem and the affected natural resources and services.

2. Public Participation

The Trustees and EPA intend to encourage, provide for, and be responsive to public participation and review during the restoration planning process. Carrying out this intent, however, is complicated by the need for confidentiality with respect to damage assessment information due to pending or possible future litigation with the parties responsible for the Exxon Valdez oil spill. Notwithstanding these considerations, the Trustees intend to provide an opportunity for meaningful public review and comment on all restoration implementation activities.

In September of 1990, the Oil Spill Public Information

Center was opened in Anchorage to provide the public with scientific data and other information related to the 1989 Exxon Valdez oil spill. The Trustees will continue to place information in the center as it becomes available.

3. Restoration Planning Activities in 1990

The Trustees and EPA began to solicit public opinion in March 1990 with a symposium on restoration in Anchorage, Alaska. In April and May of 1990, eight public scoping meetings were held throughout southcentral Alaska to ascertain the public's pricrities for the restoration program. For a detailed description of these meetings, see the documents referenced at the end of this notice. In addition to these public meetings, the governments have communicated individually with such constituencies as Native corporations and villages, fishing groups, and environmental organizations.

To gather specific scientific input for the restoration planning process, technical workshops were held in Anchorage in April 1990. Follow-up meetings were held in October and November 1990. Participants included members of the Restoration Planning Work Group (the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Departments of Interior and Agriculture, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency) Federal and State resource managers, and scientists and

technical experts under contract to the governments. Due to the necessary discussion of litigation-sensitive damage assessment information, these workshops were closed to the general public.

The Restoration Planning Work Group completed a preliminary literature search, which identified articles and other published material concerning techniques for ecological restoration following oil spills. Approximately 200 publications were acquired for detailed review and are listed in the August 1990 Progress Report.

The Trustees and EPA initiated several small-scale field studies to evaluate the feasibility of restoration techniques. Results from these studies will help determine the costs and effectiveness of full-scale restoration projects. Several technical support studies were also initiated to provide information needed to evaluate or carry out some potential restoration activities. These studies are described in the "State/Federal Natural Resources Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," August 1990. The 1990 studies and preliminary results are summarized below.

B. 1990 Restoration Feasibility Studies

1. Reestablishment of Fucus in Rocky Intertidal Ecosystems

Agencies: U.S. Environmental Protection Agency, U.S. Forest Service

Early observations indicated that Fucus, a marine plant

(rockweed) found on rocky shorelines in the intertidal zone throughout the oil spill area, was extensively damaged by both the spilled oil and cleanup efforts. If the natural recovery of Fucus could be significantly accelerated or enhanced it would benefit the recovery of associated flora and fauna on intertidal rocky shores.

Specific objectives of this study were to identify the causes of variation in Fucus recovery at and near Herring Bay, Knight Island in Prince William Sound; to document the effects of alternative cleaning methods on Fucus; and to test the feasibility of enhancing the reestablishment of Fucus. Although results are preliminary at this time, it appears that Fucus recovers most slowly at the sites that were intensively cleaned and that almost no recovery occurs where tar cover persists.

2. Reestablishment of Critical Fauna in Rocky Intertidal Ecosystems

Agencies: U.S. Forest Service, U.S. Environmental Protection Agency

This feasibility study was designed to compare the rates of faunal recovery in rocky intertidal communities, and to demonstrate the feasibility of restoration of these communities by enhancing recolonization rates for such key species as limpets and starfish. Recolonization rates for these organisms and for the rockweed, Fucus, may limit the natural rates of recovery for the entire community.

Parameters examined included the presence or absence of common intertidal species on impacted and reference sites, population dynamics of several species of invertebrates, larval settlement on oiled versus non-oiled surfaces, and differences in algal grazing by limpets between oiled and referenced sites. Preliminary results indicate that heavy predation of several species of transplanted invertebrates was probably due to the lack of cover usually provided by Fucus.

3. Identification of Potential Sites for Stabilization and Restoration with Beach Wildrye

Lead Agency: Alaska Department of Natural Resources, United States Forest Service

This study was designed to identify sites at which damage to beach wildrye grass has occurred and to recommend restoration measures. This species was affected by both spilled oil and subsequent cleanup activities. Beach wildrye grass is important in the prevention of erosion in the coastal environment and is a key component of supratidal habitats in locations throughout the oil spill area. Erosion resulting from loss of beach wildrye can lead to the destabilization and degradation of wildlife habitats and of cultural and recreational sites. Survey work in 1990 in Prince William Sound indicated injury to several beach rye communities. Following confirmation in the 1991 spring shoreline assessment, restoration activities can be initiated

(see Restoration Project 1 summary).

4. Identification of Upland Habitats Used by Wildlife Affected by the Oil Spill

Agencies: U.S. Fish and Wildlife Service, Alaska Department of Fish and Game.

A diversity of birds, mammals, and other animals were killed by the spill or injured by contamination of prey and habitats. Many of these species are dependent on aquatic or intertidal habitats for activities such as feeding and resting, but many also use upland habitats. Protection of upland habitats from further degradation may reduce cumulative effects on injured fish and wildlife populations, and thereby help them recover from the effects of the oil spill. This study focused specifically on marbled murrelets and harlequin ducks, two species known to have been affected by the spill and known to use upland habitats.

Based on surveys of 140 streams, preliminary results of the harlequin duck study indicate that this species nests along larger-than-average anadromous fish streams, with moderate gradients and clear waters. Preliminary results on murrelets suggest that murrelets use slopes facing north or west, and inland areas at the heads of bays as opposed to the outer peninsulas. Open bog meadows, especially at the heads of bays, appear to be used as flight corridors to upper wooded areas.

5. Land Status, Uses, and Management Plans in Relation to

Natural Resources and Services

Agencies: Alaska Department of Natural Resources, U.S. Forest Service, U.S. National Park Service, Alaska Department of Fish and Game

The objective of this study is to locate, categorize, evaluate, and determine the availability of maps, management plans, and other resource documents relevant to restoration planning throughout the oil-spill region. Resource materials identified will assist in planning for and implementing site-specific restoration activities, including direct restoration, replacement, and the acquisition of equivalent resources.

To date, a variety of documents, maps, and management plans have been identified and are being evaluated; other resource materials are being located. This preliminary project will be completed in Spring 1991. A second phase, directly supporting the proposed Restoration Project Number 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is under consideration.

C. 1990 Technical Support Projects

1. Peer Reviewer Process for Restoration Feasibility Studies

Agencies: Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, U.S. Department of the Interior, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration,

U.S. Environmental Protection Agency

This project provided funds to ensure that scientists with expertise on natural resource restoration were available to provide peer review of restoration feasibility projects and other restoration planning studies and activities.

2. Assessment of Beach Segment Survey Data

Agencies: Alaska Department of Natural Resources, Alaska Department of Environmental Conservation, Alaska Department of Fish and Game, U.S. Forest Service, U.S. Park Service, U.S. Environmental Protection Agency

The objective of this project is to review and summarize beach survey information (obtained through oil spill response activities) to assist in planning for and implementing site-specific restoration activities, particularly in the area of direct restoration. This study was initiated late in 1990 and continues to date.

A master database is being created from that portion of the beach surveys relevant to restoration. The primary sources of this information are the Alaska Departments of Natural Resources and Environmental Conservation. Data from local and regional governments as well as non-governmental sources will also be reviewed and integrated into the system as appropriate. This preliminary project will be completed in Spring 1991.

3. Development of Potential Feasibility Studies for 1991

Agencies: Alaska Department of Fish and Game,

U.S. Environmental Protection Agency, Alaska Department of Natural Resources, Alaska Department of Environmental Conservation, U.S. Forest Service, U.S. Department of Fish and Game, U.S. National Park Service, U.S. National Oceanic and Atmospheric Administration

This project provided for the orderly development of additional feasibility studies including: a) monitoring "natural" recoveries; b) pink salmon stock identification; c) herring stock identification/spawning site inventory; d) artificial reefs for fish and shellfish; e) alternative recreation sites and facilities; f) historic sites and artifacts; and g) availability of forage fish. Currently feasibility study proposals are under consideration for all of the above themes.

III. 1991 Restoration Work Plan

The Trustees are currently developing and evaluating restoration planning and implementation activities, which will be described in the 1991 Restoration Work Plan to be published in the FEDERAL REGISTER later in the Spring. Planning activities will include feasibility studies, technical support studies, and natural recovery monitoring which will be made available to the public for review and comment. Implementation activities that are now under consideration are presented in this section. The Trustees and EPA are asking, through this notice, for public comment

on and additional suggestions for restoration planning and implementation activities for 1991. As noted previously, the Trustees and EPA anticipate publishing later this Spring a notice of the restoration projects identified for implementation in 1991. More detailed descriptions for 1991 restoration projects will be made available to the public for comment.

A. 1991 Restoration Planning Activities

The fundamental purpose of restoration planning is to identify and evaluate potential restoration implementation activities, in consultation with technical experts and the public. The integration of results from the damage assessment and other information into restoration planning is critical to the success of the oil spill program. As damage assessment results are reviewed and evaluated, the Trustees will identify potential restoration implementation activities and related feasibility and technical support projects. This process involves ongoing consultations with principal investigators for damage assessment studies, agency experts, and outside peer reviewers to review the nature and extent of oil spill injuries in relation to the biology and ecology of injured species, habitats, and ecosystems. A key goal is to identify life history requirements, limiting factors, and environmental processes that are especially sensitive or that may be enhanced.

Section II describes five feasibility studies carried

out in 1990, some of which may continue in 1991. The Trustees and EPA are considering additional feasibility and technical support projects in 1991 and, following additional review, intend to discuss them in the Spring 1991 FEDERAL REGISTER Notice. Studies now being considered concern a variety of resources, including pink salmon, tidal marshes, Pacific herring, bald eagles, recreation, and sea otters. Feasibility and technical support studies will be implemented as damage assessment data and funding become available.

The scientific literature and experience from oil spills other than the Exxon Valdez will provide background on restoration and information from other oil spills. In 1991, the Restoration Planning Work Group expects to review and evaluate previously identified literature on restoration (see Appendix B, August 1990 Progress Report) and to continue review and evaluation of literature on species and ecosystem recoveries following anthropogenic and natural environmental disturbances.

Information on the adequacy of natural recovery is central to determining whether to implement restoration actions or to allow injured resources to recover on their own. Direct measures of recovery, such as species distribution, abundance, diversity, growth, reproductive success, or other physiological and biochemical properties, may be appropriate monitoring objectives. In some cases, it is appropriate to indirectly determine the degree of recovery

by measuring exposure (presence of oil residuals and/or metabolites) and by applying knowledge of toxicological effects derived from the oil spill literature. For these reasons, the recovery of injured resources can best be followed by implementing a balanced program of monitoring. The duration of recovery monitoring will depend on the time necessary to establish a trend for recovery, and this in turn will necessarily depend on the severity and duration of effects resulting from the oil spill.

Some recovery monitoring studies will be considered for implementation in 1991. As with feasibility and technical support projects, these will be discussed in the March 1991 FEDERAL REGISTER document.

Public participation will continue to be an important component of restoration planning in 1991. The Restoration Planning Work Group is interested in and will try to accommodate requests for meetings with individuals or groups. In addition, the Trustees will consider whether and what additional actions, such as publications and workshops, are appropriate and possible in 1991. Requests and suggestions from the public are invited.

B. 1991 Restoration Implementation Activities

Where the nature of the resource injury is reasonably clear, it may be desirable to begin restoration prior to receipt of funds from the parties responsible for the oil spill. There are several reasons why this may be so.

Failure to undertake timely restoration may allow damages initiated by the spill to continue or accelerate, as in the case of the loss of stabilizing vegetation on beaches. In other cases, protection of strategic habitats, subject to land-use changes, can reduce cumulative stresses on injured resources and maintain, in the near term, a full range of restoration options. Finally, the importance of a resource for subsistence, commercial, or recreational purposes may justify prompt restoration action.

The restoration activities being considered by the Trustees for implementation in 1991 are described below. Before making final decisions for the 1991 program, the Trustees are prepared to conduct public meetings in some of the oil spill communities, if requested to do so. Moreover, the Trustees expect to provide further opportunity for public comment on the 1991 restoration projects after detailed descriptions for each project are available. The projects now under consideration for the initial phase of the restoration process are:

1. Restoration of the Beach Wildrye Community

   Lead Agencies: Alaska Department of Environmental Conservation, U.S. Forest Service

   Need and Objectives

   The high intertidal-supratidal beach wildrye grasses (Elymus arenarius and E. mollis) communities show signs of localized injury as a result of the Exxon Valdez oil

spill and the associated cleanup activities. Injury appears to have resulted from oiling and the stress of mechanical abrasion resulting from oil removal operations carried out by cleanup workers and equipment. Beach wildrye grasses are major contributors to natural beach stability. Injury to this important plant community may result in accelerated erosion of the beaches and adjacent upland plant communities. Also at risk from increased erosion are several nearshore archaeological sites.

Once the beach wildrye root masses are disturbed, natural recovery may be slow, taking several years. Wildrye recolonizes primarily by spreading outward from undamaged plants, and this process can be stopped altogether if the rate of erosion is too great. This may result in a significant loss of intertidal and supratidal area. Restoration intervention may often stabilize a beach in one growing season.

The objective of this project is to stabilize injured sites where natural or cultural resources are at risk. Specific sites for restoration will be chosen following the 1991 Spring Shoreline Assessment. The Department of Environmental Conservation and the Forest Service are also exploring whether this project may more appropriately be carried out under the State/Federal response program.

Methods:

Replanting beach wildrye for stabilization is a proven technology. Nearby healthy stocks of beach wildrye grass will be used as a source of donor material. After replanting, fertilizer will be applied (20-20-10 fertilizer up to 800 pounds per acre) to help the transplanted beach wildrye grass recolonize. At some locations fertilizer alone may be sufficient to encourage existing injured plant communities to recover without transplanting new stock.

Estimated 1991 Cost: $180,000

2. Public Information and Education for Recovery and Protection of Alaska's Marine and Coastal Resources

Lead Agencies: U.S. Fish and Wildlife Service,
U.S. National Park Service, Alaska
Department of Environmental Conservation

Need and Objectives:

The Exxon Valdez oil spill caused direct and indirect injury to the marine birds and mammals of southcentral Alaska. The purpose of this project is to make users of the area aware of the changes to the ecosystem resulting from the oil spill and to lessen the potential for additional harmful human disturbances..

Methods:

The project's sponsors will publish and distribute information explaining the potential adverse impacts of human activities, and the importance of increased

conservation and protection of marine birds and mammals in key habitats in the oil spill area. Print media such as posters, brochures, and possibly books and video tapes will be produced. Consideration will also be given to production of material for school curricula.

Print media will be distributed through traditional outlets including but not limited to refuge, park, and tourist information and visitor centers. Additional distribution will occur at airports, boat harbors, commercial tour operators, and to public agency and private industry training staffs.

Some species identification information will be included but the primary content of the media will emphasize strategies to allow public use and enjoyment of marine birds and mammals while preventing harmful disturbances to these species.

Estimated 1991 Cost:$100,000.

3. Salmonid Stocks and Habitat Restoration

Lead Agencies: Alaska Department of Fish and Game, U.S. Forest Service

Need and Objectives:

Spawning and nursery areas of wild stocks of pink and chum salmon which were impacted by the Exxon Valdez oil spill occur throughout Prince William Sound, lower Cook Inlet, and the Gulf of Alaska. Pink and chum salmon are major components of the ecosystem, serving as important

food sources for other fish, birds, terrestrial and marine mammals. Pink and chum salmon are also harvested by man in subsistence, commercial, and sport fisheries. Since salmon return to the individual streams in which they were born, with little straying to other streams, genetically unique wild salmon stocks will be restored through site specific rehabilitation of salmon spawning and rearing habitats.

Methods:

This project consists of several proven fisheries enhancement techniques that may be applied immediately at specific sites. In addition to those sites and streams at which potential rehabilitation activities already have been identified, a survey of affected salmon spawning habitat within the oil spill area will be conducted in 1991 to determine additional restoration measures. The proposed techniques include fish passage through stream channelization or fish ladders to overcome physical and hydrological barriers and construction of spawning channels. All of these measures provide oil-free spawning areas to replace oil-impacted spawning areas. Additional wild salmon stock restoration measures include remote egg-taking and incubation at existing hatcheries for ultimate fry release in oil-impacted streams. Other measures may include optimal fry release programs that will enhance marine survival of juvenile salmonids.

Estimated 1991 Cost: $1,300,000

4. Protection of Strategic Fish and Wildlife Habitats and Recreation Sites

Lead Agencies: Alaska Department of Fish and Game,
Alaska Department of Natural Resources
U.S. Department of the Interior,
U.S. Department of Agriculture

Need and Objectives:

The marine and intertidal habitats where most oil spill injuries occurred are ecologically linked to adjacent uplands. The water quality in streams and estuaries where salmon spawn depends on the adjacent uplands. Eagles nest and roost in large trees along the coasts and streams, and marbled murrelets nest in association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas. Common and thick-billed murres and other seabirds nest on off-shore islands.

Tourism and recreation activities, such as sport fishing and camping, also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts

of the regional ecosystem, including strategic marine, intertidal, and estuarine habitats and adjacent uplands, may be necessary for the recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acquisition and changes in management practices.

Land-use activities may occur in the oil spill area in 1991 or 1992. These activities may impact important habitats and recreation sites or slow the recovery of spill-injured resources.

The objective of this project 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. This project will be preceded by a technical support project to identify and evaluate potential properties which if publicly owned will contribute to this objective. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis. Primary considerations in deciding which properties should be acquired during this project will

include 1) the nature and immediacy of changes in use that may further affect resources injured by the oil spill and 2) the prospect that failure to act will foreclose restoration opportunities.

The Trustees have developed the following preliminary sequence of steps for use in identifying and protecting strategic fish and wildlife habitats and recreation sites:

1. Identification of key upland habitats that are linked to the recovery of injured resources or services by scientific data or other relevant information.
2. Characterization and evaluation of potential impacts from changed land use in relation to their effects on recovery of the ecosystem and its components; comparative evaluation of recovery strategies not involving acquisition of property rights (e.g., redesignation of land use clasification), including an assessment of protection afforded by existing law, regulations, and other alternatives.
3. Evaluation of cost-effective strategies to achieve restoration objectives for key upland habitats, identified through steps one and two above. This would include evaluation of other restoration alternatives for these resource injuries.

4. Willing seller/buyer negotiations with private landowners for property rights.
5. Incorporation of acquired property rights into public management.

Habitat and recreation site acquisition proposals that meet the appropriate evaluation factors for restoration (see Section 2) will be identified and assigned by priority for implementation in accordance with this preliminary five-step process and applicable State and Federal laws and regulations.

The geographic scope of the 1991 project will be the oil spill area. Subsequent to this initial effort, the Trustees will continue to survey potential acquisitions, including acquisitions outside the spill area.

Estimated Cost: To be determined

c. Funding for the 1991 Restoration Work Plan

Although it is expected that the responsible parties will pay for the costs of the damage assessment and restoration program, there is no certainty about the final amount and when such funds will be forthcoming. It is possible, therefore, that funds to carry out the 1991 Restoration Work Plan , including the proposed planning and implementation activities, will have to be advanced by the State and Federal governments. To date, those funds have not been committed or secured by either government.

D. References

The documents listed below provide additional information on damage assessment and restoration. They are available from the Oil Spill Public Information Center, The Simpson Building, 645 G Street, Anchorage, Alaska, 99501.

1. "The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Volume I Assessment and Restoration Plan Appendices A,B,C."
2. "State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill," August 1989.
3. "Restoration Planning following the Exxon Valdez Oil Spill: August 1990 Progress Report."
4. "Restoration following the Exxon Valdez Oil Spill: Proceedings of the Public Symposium," July 1990.

LaJuana S. Wilcher
Assistant Administrator
Office of Water
U.S. Environmental Protection Agency

2-26-91
Date

Charles E. Cole
Attorney General
State of Alaska

2.25.91
Date

exemption (TME) under section 5(h)(1) of the Toxic Substances Control Act (TSCA) and 40 CFR 720.38. EPA designated the original test marketing application as TME-89-26. The test marketing conditions are described below.

EFFECTIVE DATE: October 9, 1990.

FOR FURTHER INFORMATION CONTACT: Andrea Pfahles-Hutchens, New Chemical Branch, Chemical Control Division (TS-794), Office of Toxic Substances, Environmental Protection Agency, Rm. E-611, 401 M St., SW., Washington, DC 20460, (202) 382-2255.

SUPPLEMENTARY INFORMATION: Section 5(h)(1) of TSCA authorizes EPA to exempt persons from premanufacture notification (PMN) requirements and permit them to manufacture or import new chemical substances for test marketing purposes if the Agency finds that the manufacture, processing, distribution in commerce, use and disposal of the substances for test marketing purposes will not present an unreasonable risk of injury to health or the environment. EPA may impose restrictions on test marketing activities and may modify or revoke a test marketing exemption upon receipt of new information which casts significant doubt on its finding that the test marketing activity will not present an unreasonable risk of injury.

EPA hereby approves the modification of the test marketing period for TME-89-26. EPA has determined that test marketing of the new chemical substance described below, under the conditions set out in the TME application, and for the modified time period specified in the modification request, will not present an unreasonable risk of injury to health or the environment. Production volume, use, and the number of customers must not exceed that specified in the application. All other conditions and restrictions described in the original notice of approval of test marketing application remain the same.

T-89-26

Notice of Approval of Original Application: October 10, 1989 (54 FR 42840).

Modified Test Marketing Period: Confidential.

Commencing on: Confidential.

The Agency reserves the right to rescind approval or modify the conditions and restrictions of an exemption should any new information come to its attention which casts significant doubt on its finding that the test marketing activities will not present an unreasonable risk of injury to health or the environment.

Dated: October 9, 1990.

John W. Melone,

Director, Chemical Control Division, Office of Toxic Substances.

[FR Doc 90-27203 Filed 11-16-90, 8:45 am]

BILLING CODE 6560-50-F

[WH-FRL-3861-4]

Prince William Sound and Gulf of Alaska; Restoration Work Plan and Program

AGENCY: Environmental Protection Agency and Alaska Department of Fish and Game.

ACTION: Notice of intent to prepare a draft restoration work plan and to propose a 1991 restoration program.

SUMMARY: The Environmental Protection Agency (EPA), on behalf of the Federal trustees (the Departments of the Interior and Agriculture and the National Oceanic and Atmospheric Administration) and the Alaska Department of Fish and Game (ADF&G), on behalf of the State Trustee, are announcing the intent of the Federal and State governments to prepare a draft restoration work plan for the Prince William Sound and the Gulf of Alaska, and to propose a restoration program for the 1991 field season.

DATES: The Federal and State of Alaska governments intend to jointly publish a draft restoration work plan and a restoration program for the 1991 field season in the Federal Register on or about December 28, 1990, and will accept comments on the draft plan and proposed 1991 projects for 30 days after the publication of that notice.

FOR FURTHER INFORMATION CONTACT: Susan MacMullin—EPA, Washington, DC (202/483-7166) or Stanley Senner—ADF&G, Anchorage, AK (907/271-2461).

SUPPLEMENTARY INFORMATION:

I. Background

The March 24, 1989, grounding of the tanker *Exxon Valdez* in Alaska's Prince William Sound caused the largest oilspill in U.S. history. A slick containing about 11 million gallons of North Slope crude oil covered the western portion of the Sound and moved to Cook Inlet and along the Gulf of Alaska. More than 1,000 miles of shoreline were affected, including State and national forests, wildlife refuges, and parks. The spill damaged areas extremely rich in natural resources. It injured fish, birds, mammals, intertidal and subtidal plants and animals and their associated habitats. The area's important historical and archaeological resources also were injured as a result of oiling and cleanup activities. The oil also adversely affected intrinsic values.

Soon after the spill occurred, President Bush and Alaska Governor Cowper expressed the desire that the environment and economy of Prince William Sound and the Gulf of Alaska be fully restored. Responsibility for full restoration of these natural resources and the services they provide rests with Federal and State agencies.

Both Federal and State law provide authority for response, damage assessment, and restoration actions undertaken following the *Exxon Valdez* oilspill. Under Federal law, section 107(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and section 311(f) of the Federal Water Pollution Control Act (Clean Water Act) provide for Federal and State officials to act as trustees on behalf of the injured, lost and destroyed natural resources and to pursue recovery of damages for injury, loss or destruction of these resources. Federal law authorizes the State and Federal governments to present claims to the responsible parties for damages for injury, loss or destruction of natural resources and their uses. The funds received from these claims must be used to restore, replace or acquire the equivalent of the natural resources and services injured, lost or destroyed by the spill.

CERCLA applies to releases of hazardous substances other than oil, while the Clean Water Act applies to oilspills. Both laws are supplemented by the National Contingency Plan (40 CFR part 300) and the Natural Resource Damage Assessment (NRDA) regulations (43 CFR part 11) which set out a process, which is not mandatory, for determining proper compensation to the public for injury, loss or destruction of natural resources. In this case, the natural resource trustees have not made a final decision on whether to follow the NRDA regulations. In combination, these laws and regulations provide the structure for the Federal/State response, damage assessment, and restoration activities following the *Exxon Valdez* oilspill.

Restoration (including actions to restore, replace or acquire the equivalent of resources) is one component of this process. Combined with response, cleanup and the damage assessment process, these efforts seek to minimize adverse impacts and compensate the public for natural resource injury, loss, or destruction and

lost use and intrinsic values, by restoring the resources and the services they provide.

Response activities include the initial emergency measures to contain the spilled oil and minimize adverse impacts, as well as the subsequent efforts to clean up oil from the spill area. The magnitude of and circumstances surrounding the *Exxon Valdez* oil spill resulted in relatively little of the spilled oil being contained. Consequently, cleanup activity has focused primarily on removing oil from the shoreline areas affected by the spill. Cleanup activities continued through the summer of 1990 and are expected to resume next year.

In 1989, State and Federal natural resource trustee agencies initiated scientific studies after the oil spill to assess the amount of damage. Most of these studies were continued into 1990, with a number of new studies being initiated as well. This damage assessment process, which is comprised of data collection and analysis components, will continue in 1991. It is designed to identify and quantify the specific resource injury, loss, or destruction and to determine corresponding monetary values. These monetary values include restoration costs, as well as lost-use and intrinsic values. Claims for those damages will be presented to the responsible parties, and under Federal law, the monies received must be used for restoration, replacement or acquisition of equivalent resources.

Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the injured, lost or damaged environment.

The NRDA regulations define "restoration" or "rehabilitation" as . . . "actions undertaken to return an injured resources to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided . . ." The preceding definition of restoration from the NRDA regulations is provided in this notice for informational purposes. As mentioned earlier, the NRDA regulations are not mandatory.

Generally, the concept of "restoration" includes direct restoration, replacement and the acquisition of equivalent resources:

- Direct restoration refers to measures, in addition to response actions, taken, usually on-site, to directly rehabilitate an injured, lost or destroyed resource.
- Replacement refers to substituting one resource for an injured, lost or destroyed resource of the same or similar type.
- Acquisition of equivalent resources includes the purchase or protection of resources to enhance the recovery, productivity, and survival of the ecosystems affected by the oil spill.

The goal of the restoration planning effort is to identify appropriate measures that can be taken to restore natural resources affected by the *Exxon Valdez* oil spill. Specific objectives include:

- Identify or develop technically feasible restoration options for natural resources and services potentially affected by the oil spill.
- Determine the nature and pace of natural recovery of injured resources, and identify where direct restoration measures may be appropriate.
- Incorporate an approach to restoration that, where appropriate, focuses on recovery of ecosystems, rather than on the individual components of those systems.
- Identify the costs associated with implementing restoration measures, in support of the overall natural resource damage assessment process.
- Encourage, provide for and be responsive to public participation and review during the restoration planning process.

Among the documents now available on the restoration program are several compiled by the Restoration Planning Work Group (RPWG), which is composed of representatives from the U.S. Departments of Agriculture and the Interior, NOAA, EPA and the Alaska Departments of Environmental Conservation, Fish and Game, and Natural Resources. The RPWG is responsible for planning for the restoration of the areas affected by the *Exxon Valdez* oil spill. To that end, the RPWG has undertaken to gather and develop information on all aspects of restoration related to oil spills.

During the past 18 months, EPA conducted a computerized literature search to identify restoration approaches that have potential for success, as well as actions to avoid. The databases searched were: Aquatic Science Abstracts (1978–1990), BIOSIS Previews (1970–1990) Environmental Bibliography (1969–1989), ENVIROLINE (1970–1989), Pollution Abstracts (1970–1990), and NTIS (1964–1990). The search yield approximately 450 publications. EPA then reviewed the titles and abstracts and identified the most relevant publications for acquisition and detailed review. Articles were selected according to the following criteria:

- Techniques potentially applicable to sub-arctic conditions;
- Restoration of the same resources as those that may have been damaged by the *Exxon Valdez* oil spill;
- Creation of new aquatic habitats (by dredge-and-fill techniques, construction of artificial reefs, etc);
- success of organisms grown in or transplanted to oil-contaminated substrates;
- Approaches and techniques for long-term monitoring studies.

This selective bibliography (approximately 200 citations) is found in appendix A to this notice. The full bibliography of about 450 citations (Item 1, appendix B) is available as noted in appendix B.

The RPWG has developed two reports which are publicly available. One documents the proceedings of an oil spill restoration symposium held on March 26–27, 1990, in Anchorage, Alaska (Item 2, appendix B). The symposium began with introductory statements by Dennis Kelso, Commissioner of the Alaska Department of Environmental Conservation, and Tom Dunne, Acting Regional Administrator of the U.S. Environmental Protection Agency. These opening remarks described the restoration planning process and its objectives. Three keynote speakers addressed the symposium on legal issues related to the damage assessment and restoration process, experiences with restoration of nonmarine ecosystems and public participation in the planning process. A final keynote speaker provided an overview of restoration concepts.

Panel discussions comprised the remainder of the symposium. Sessions addressed direct and indirect restoration of six categories of resources or their uses: Coastal habitats, fisheries, marine and terrestrial mammals, birds, cultural resources and recreation uses. Panelists included experts on restoration in each of these six categories, as well as representatives from various resource user groups, Alaska Native corporations, public land managers, environmental interest groups and the timber and tourism industries. All panel sessions included opportunities for questions and comments from the public, and an extended public comment session took place at the end of the symposium.

Restoration concepts and ideas discussed at the symposium can be grouped into three categories. Broad restoration approaches and philosophies; recommendations for public participation during the restoration planning process; and addressing restoration of specific

resources (e.g., fisheries, mammals, cultural resources).

The second report is the August 1990 progress report, "Restoration Planning Following the *Exxon Valdez* Oil Spill" (Item 3, appendix B), which summarizes the RPWG activities to date. Its chapters present discussions on public participation programs, a technical workshop, the literature review, and restoration feasibility studies. The report also organizes a possible restoration program in a series of matrices for birds, mammals, fish and shellfish, coastal habitats, recreational uses, cultural resources and multiple resources and values. Within each matrix, categories of potentially injured, lost or destroyed resources are cross-referenced to potential restoration approaches.

The report also offers a discussion of future restoration planning activities, including the evaluation and selection of restoration options and development of a final restoration plan.

The RPWG has undertaken a series of restoration studies designed to assess the potential of direct restoration techniques for some of the resources injured by the oil spill. The study titles are as follows:

Restoration Feasibility Study No. 1.	Re-establishment of *Fucus in Rocky Intertidal Ecosystems.*
Restoration Feasibility Study No. 2.	Re-establishment of Critical Fauna in Rocky Intertidal Ecosystems.
Restoration Feasibility Study No. 3.	Identification of Potential Sites for Stabilization and Restoration of Beach Wild Rye.
Restoration Feasibility Study No. 4.	Identification of Upland Habitats used by Wildlife Affected by the Exxon Valdez oil spill.
Restoration Feasibility Study No. 5.	Land Status, Uses, and Management Plans in Relation to Natural Resources and Service.

There Restoration Technical Support Projects are also being carried out in 1990. The first project will support development of detailed plans for potential restoration studies in 1991, including, but not limited to:

- "Natural recovery" monitoring;
- Pink salmon stock identification;
- Herring stock identification/spawing site inventory;
- Artifical habitat construction for fish and shellfish;
- Alternative recreation site/facility identification;
- Historic site/artifact restoration; and,
- Forage fish availability.

A second Restoration Technical Support Project will develop and implement a scientific peer review process for the feasibility studies and potential restoration projects.

The third Restoration Technical Support Project will assess and summarize existing beach segment survey data to identify sites for future restoration projects.

These studies are summarized in the document "The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plans for the Exxon Valdez Oil Spill (Item 4, appendix B). Included in this document are responses to public comments received concerning the 1989 damage assessment report (Item 5, appendix B). Commenters responded to a general section that briefly discussed restoration planning as a goal for the upcoming year.

II. Notice of Intent to Publish a Draft Restoration Work Plan and a Proposed Restoration Program for the 1991 Field Season

EPA, on behalf of the Federal trustee agencies, and ADF&G, on behalf of the State Trustee, are announcing the intent of the Federal and State of Alaska governments to jointly publish in the Federal Register on or about December 28, 1990 the following:

- A draft restoration work plan that addresses appropriate steps for long-range restoration or Prince William Sound and the Gulf of Alaska.
- A proposed restoration program for the 1991 field season.

The draft restoration work plan is expected to provide the public with information about the restoration plans of the Federal and State trustees and identify a proposed program, including restoration projects, that may be implemented in 1991. Development of this work plan is not required by the NRDA regulations. The Federal and State governments expect the parties responsible for the oil spill to pay for these projects.

The State and Federal governments will request public comment on restoration priorities and methods upon the publication of the draft restoration work plan in the Federal Register. The restoration work plan will not be the final restoration plan, but an opportunity for further public participation in the restoration planning process.

Dated: October 24, 1990.

Lajuana S. Wilcher,

Assistant Administrator, Office of Water, Environmental Protection Agency.

Dated: October 30, 1990.

Gregg K. Erickson,

Director, Division of Oil Spill Impact Assessment and Restoration, Alaska Department of Fish and Game.

Appendix A

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Appendix B

Item 1: "Ecological Restoration of PWS and the GOA: An Annotated Bibliography of Relevant Literature." RPWG and EPA-ORD, March 1990.

Item 2: "Restoration Following the Exxon Valdez Oil Spill: Proceedings the Public Symposium." Prepared by the RPWG, July 1990.

Item 3: "Restoration Following the Exxon Valdez Oil Spill: August 1990 Progress Report." Prepared by the RPWG, August 1990.

Item 4: "State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill—Sept. 1990." Trustee Council.

Item 5: "State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill—Aug. 1989." Trustee Council.

[FR Doc. 90–27196 Filed 11–16–90; 8:45 am]
BILLING CODE 6560–60–M

FEDERAL RESERVE SYSTEM

Central Bancshares of the South, Inc., et al.; Acquisitions of Companies Engaged in Permissible Nonbanking Activities

The organizations listed in this notice have applied under § 225.23 (a)(2) or (f) of the Board's Regulation Y (12 CFR 225.23 (a)(2) or (f)) for the Board's approval under section 4(c)(8) of the Bank Holding Company Act (12 U.S.C. § 1843(c)(8)) and § 225.21(a) of Regulation Y (12 CFR 225.21(a)) to acquire or control voting securities or assets of a company engaged in a nonbanking activity that is listed in § 225.25 of Regulation Y as closely related to banking and permissible for bank holding companies. Unless otherwise noted, such activities will be conducted throughout the United States.

Each application is available for immediate inspection at the Federal Reserve Bank indicated. Once the application has been accepted for processing, it will also be available for inspection at the offices of the Board of Governors. Interested persons may express their views in writing on the question whether consummation of the proposal can "reasonably be expected to produce benefits to the public, such as greater convenience, increased competition, or gains in efficiency, that outweigh possible adverse effects, such as undue concentration of resources, decreased or unfair competition, conflicts of interests, or unsound banking practices." Any request for a hearing on this question must be accompanied by a statement of the reasons a written presentation would not suffice in lieu of a hearing, identifying specifically any questions of fact that are in dispute, summarizing the evidence that would be presented at a hearing, and indicating how the party commenting would be aggrieved by approval of the proposal.

Unless otherwise noted, comments regarding each of these applications

RPWG
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JAN 10 1991

OFFICE OF WATER

The Honorable Don Collinsworth
Acting Commissioner
Alaska Department of Fish and Game
P.O. Box 3-2000
Juneau, Alaska 99802-2000

Dear Mr. Collinsworth:

On behalf of the Federal Trustees, we are pleased to transmit the draft FEDERAL REGISTER notice on restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill for your review.

As you are well aware, your staff and others from the Alaska Departments of Environmental Conservation, Law, and Natural Resources and the U.S. Departments of Agriculture, Interior, and Justice, the National Oceanic and Atmospheric Administration, and the Environmental Protection Agency have all worked diligently and successfully to develop a credible FEDERAL REGISTER notice in a very short time.

The Washington Policy Group has reviewed this draft FEDERAL REGISTER notice which was transmitted to us by the Trustee Council on January 3, 1991. Some changes were made here in Washington to further accommodate the combined needs of the Federal Trustees and the Department of Justice. The two most prominent changes are as follows:

1. The projected amount of funding for proposed Restoration Project 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is stated as "Estimated Cost: To be determined."

2. The section of the document that presents the 1991 restoration projects for comment has been retitled "Phase I Restoration Plan - 1991" from "1991 Restoration Work Plan". The Federal Trustees made this change to reflect that this document is the beginning of restoration and not a comprehensive plan.

We believe that the document is a sound step forward in the restoration process and restoration efforts for 1991. This notice will explain to the public both the general principles that are being considered regarding the restoration process and

the specific restoration activities which could be initiated in 1991.

Given that the 1991 field season is coming quickly upon us, we wish to publish this FEDERAL REGISTER notice as expeditiously as possible. Publication will ensure timely public involvement in the restoration planning process and will assist long-term restoration efforts by allowing for appropriate restoration actions to be begin this field season.

We would like to receive Alaska's approval for this proposed notice within the next few days. We look forward to hearing from you soon.

Sincerely yours,

for Thomas A. Campbell
Thomas A. Campbell
General Counsel
National Oceanic and Atmospheric Administration

LaJuana S. Wilcher
LaJuana S. Wilcher
Assistant Administrator for Water
Environmental Protection Agency

cc: Charles Cole, Alaska AG
Alan Raul, DOA
Verne Wiggins, DOI
George Van Cleve, DOJ
Joel Kaplan, OMB

Final Draft
1/10/91

Environmental Protection Agency
[WHR-L-]

Agency: Environmental Protection Agency and the Alaska Department of Fish and Game

Action: Notice

Summary: The Environmental Protection Agency, acting to coordinate restoration on behalf of the Federal Trustees (the U.S. Departments of Interior and Agriculture and the National Oceanic and Atmospheric Administration), and the Alaska Department of Fish and Game, on behalf of the State Trustee, are publishing here 1) a discussion of the overall process the State and Federal governments intend to follow to enhance and expedite the recovery of Prince William Sound, lower Cook Inlet, and the Gulf of Alaska from the Exxon Valdez oil spill and 2) a draft Phase I Restoration Plan - 1991 comprised of restoration planning and implementation activities being considered by the Trustees. The public is invited to comment and to suggest other activities that should be considered by the Trustees in preparing this Phase I Restoration Plan - 1991. Notice of intent to take this action was published in the FEDERAL REGISTER in November (55 FR 48160, November 19, 1990).

Dates: The Federal and State of Alaska governments will accept comments through [insert date 45 days from publication in the FEDERAL REGISTER]. Written comments should be submitted to: Secretary, Restoration Planning Work Group, Oil Spill Restoration Planning Office, 437 "E" Street, Suite 301, Anchorage, Alaska 99501, Phone (907) 271-2461.

I. Introduction

Purpose

The U.S. Departments of Agriculture (DOA) and the Interior (DOI), the National Oceanic & Atmospheric Administration (NOAA), and the Alaska Department of Fish and Game (hereafter referred to as "the Trustees") and the Environmental Protection Agency (EPA) desire to implement restoration activities in the areas affected by the Exxon Valdez oil spill as soon as practicable. This Notice contains a draft Phase I Restoration Plan - 1991 comprised of restoration planning and initial implementation activities under consideration by the Trustee Council, an Alaska-based intergovernmental group charged by the Trustees with managing the natural resources damage assessment and restoration program for 1991. Restoration activities in 1991 and subsequent years will

be undertaken as appropriate, based on the Trustees' increasing understanding of resource injuries and other relevant considerations. Implementation activities in 1991 will not foreclose future restoration options and will be modest relative to those that are likely to be carried out when injuries to the resources are fully assessed and understood. Implementation of all restoration activities will follow appropriate procedures for compliance with applicable State and Federal laws and regulations. The President of the United States has designated EPA to coordinate, on behalf of the Federal Trustees, the long-term restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill. Accordingly, the EPA Administrator is issuing this document as an action under the Clean Water Act (CWA).

The Trustees and EPA have chosen to present the draft Phase I Restoration Plan - 1991 to obtain public comment and to invite suggestions about other restoration activities that should be considered by the State and Federal governments. The public is also invited to comment on the overall process the governments intend to follow in enhancing environmental recovery in Prince William Sound, lower Cook Inlet, and the Gulf of Alaska and achieving restoration of affected resources and services after the Exxon Valdez oil spill.

The Trustees expect to complete the assessment of damages, determine liability, and collect funds from the responsible parties before they prepare a final Restoration Plan. Although the Trustees wish to resolve damage assessment and liability issues as promptly as possible, it is not possible to predict when this will occur. Considering this uncertainty, in cases where the nature of the resource injury, loss or destruction [hereinafter referred to as "injury"] is reasonably clear, and where no alternatives would be foreclosed, it may be desirable to begin implementation of certain restoration activities prior to a final Restoration Plan. As a result, the Trustees are considering implementation in 1991 of activities described in Section III of this notice. Other activities related to restoration, such as feasibility studies, technical support projects, and monitoring (see Sections 2 and 3), will be considered in the following months and will be presented to the public for review and comment. The Trustees expect to publish a revised Phase I Restoration Plan - 1991 in the FEDERAL REGISTER on or about March 21, 1991. The Trustees also expect subsequently to publish notice of and to solicit public comment on detailed descriptions for each of the restoration projects selected for implementation in 1991.

Organization of this Notice

This notice has three main sections: I. Introduction, II. Restoration Planning, and III. Restoration Implementation. The Introduction presents a synopsis of the purpose of this notice and background information. Section II, Restoration Planning, describes the overall approach to restoration and reports on the

planning activities conducted in 1990. In Section III, this notice provides information on restoration planning and initial implementation actions under consideration for 1991.

Further Information

Further information about the Exxon Valdez oil spill, the damage assessment studies, and restoration planning activities is contained in the documents referenced at the end of this notice and in the FEDERAL REGISTER published on November 19, 1990 (55 FR 48160). These documents and other information on restoration and damage assessment are available from the Oil Spill Public Information Center, 645 G Street, Anchorage, Alaska 99501.

II. Restoration Planning

The Planning Process

The Trustees' and EPA's restoration planning activities are designed to determine appropriate ways to restore natural resources and services injured by the Exxon Valdez oil spill. Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the environment to its baseline condition.

The Natural Resource Damage Assessment (NRDA) regulations [43 CFR 11], which implement certain provisions of CERCLA and CWA, define "restoration" or "rehabilitation" as "...actions undertaken [in addition to response actions], to return an injured resource to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...". This definition of restoration from the NRDA regulations is provided here for informational purposes. The NRDA regulations are not mandatory but do provide a model for restoration planning.

The Trustees have determined that restoration after the Exxon Valdez oil spill should be subject to continuing review as information is developed about injuries and possible restoration opportunities. The Trustees expect that each year's work will build on the last, and that all information pertinent to the Exxon Valdez oil spill will be examined in the course of the restoration process.

The restoration planning process is a dynamic and evolving process that will generally include the following steps:

- Determining the Need for Restoration.
  The need for restoration depends on the nature and extent of natural resources injured, lost, or destroyed and the adequacy of natural recovery. The primary information sources regarding resource injury, loss, or destruction are the studies conducted by State and Federal agencies as part of the natural resources damage assessment. These studies are described in the 1989 and 1990 Exxon

Valdez damage assessment plans (see the documents referenced at the end of this notice). Other sources of information include public comments, data gathered as part of the oil spill response, and other studies conducted by government agencies outside of the damage assessment process.

Identifying Potential Restoration Alternatives. For any injury, there are three types of possible restoration alternatives that can be achieved by resource management activities:

> direct restoration refers to measures in addition to response actions, usually taken on site, to directly restore or rehabilitate an injured, lost, or destroyed resource or otherwise to promote or enhance the recovery of such resources;
> replacement refers to substituting one resource for an injured, lost, or destroyed resource of the same or similar type; and
> acquisition of equivalent resources means to compensate for an injured, lost, or destroyed resource by substituting another resource that provides the same or substantially similar services as the injured resource.

Determining the adequacy of natural recovery is fundamental to the choice of a restoration activity. In some cases the Trustees may determine that it is most appropriate to allow natural recovery to proceed without further intervention by man (i.e., no action alternative). In addition, the Federal or State agencies may take administrative actions, such as limiting certain activities in the affected areas, to promote recovery of injured resources. These alternatives may, of course, be used singularly or in any combination.

Evaluating Potential Restoration Alternatives. Evaluation of potential restoration alternatives will consider such factors as:

- nature and extent of injury;
- adequacy of natural recovery;
- technical feasibility;
- net environmental benefit (including indirect impacts);
- cost effectiveness;
- reasonableness of cost of the restoration project in light of the value or ecological significance of the resource; and

- results of actual or planned response actions.

Some restoration proposals may be readily evaluated. In other cases additional information, for example, biological, ecological, or resource assessment data, will be gathered to support the evaluation process.

The goal of the Trustees and EPA is to conduct restoration planning for the recovery of ecosystems. In general, priority will be given to alternatives which benefit multiple rather than single species or resources. By necessity, however, individual elements of the restoration program may be species- or resource-specific.

Recommending and Implementing Restoration Alternatives on a Continuing Basis.
The Trustees and EPA view the entire restoration process as dynamic and evolving. As information about injuries, resources recovery, restoration methods or costs becomes available, certain activities may be recommended and carried out in advance of the receipt of funds for restoration from the parties responsible for the oil spill (see Section III, below).

Presenting a Damage Claim to Parties Responsible for the Oil Spill and Receiving Funds for Restoration.
The damage assessment process initiated by the Trustees is designed to identify and quantify specific resource injuries and determine restoration costs and other corresponding monetary values. Claims for these amounts will be presented to the parties responsible for the oil spill and, under Federal law, the monies received must be used to plan for and implement restoration activities, after reimbursing the costs of the damage assessment program.

Preparing and Implementing a Final Restoration Plan.
When the full amount of restoration funds that will be recovered has been resolved, final determinations will be made concerning the nature and scope of the remaining phases of restoration.

Evaluating the Effectiveness of Restoration Measures, and Recommending Additional Actions. Implementation of restoration activities and the success of resource recovery will be monitored and evaluated based on standards appropriate to individual projects and resources to verify that restoration goals have been

met.

Restoration planning, as outlined above, is underway; the overall pace of restoration is dependent on the availability of information to determine injury and the resolution of a claim for damages. Implementation of restoration and monitoring activities may take a number of years. The Trustees and EPA intend to follow the restoration planning process as outlined above in order to accelerate the restoration of the Prince William Sound-Gulf of Alaska ecosystem and the affected natural resources and services.

Public Participation

The Trustees and EPA intend to encourage, provide for, and be responsive to public participation and review during the restoration planning process. Carrying out this intent, however, is complicated by the need for confidentiality with respect to damage assessment information due to pending or possible future litigation with the parties responsible for the Exxon Valdez oil spill. Notwithstanding these considerations, the Trustees intend to provide an opportunity for meaningful public review and comment on all restoration implementation activities.

In September of 1990, the Oil Spill Public Information Center was opened in Anchorage to provide the public with scientific data and other information related to the 1989 Exxon Valdez oil spill. The Trustees will continue to place information in the center as it becomes available.

Restoration Planning Activities in 1990

The Trustees and EPA began to solicit public opinion in March 1990 with a symposium on restoration in Anchorage, Alaska. In April and May of 1990, eight public scoping meetings were held throughout southcentral Alaska to ascertain the public's priorities for the restoration program. For a detailed description of these meetings, see the documents referenced at the end of this notice. In addition to these public meetings, the governments have communicated individually with such constituencies as Native corporations and villages, fishing groups, and environmental organizations.

To gather specific scientific input for the restoration planning process, technical workshops were held in Anchorage in April 1990. Follow-up meetings were held in October and November 1990. Participants included members of the Restoration Planning Work Group (the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Departments of Interior and Agriculture, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency) Federal and State resource managers, and scientists and technical experts under contract to the governments. Due to

the necessary discussion of litigation-sensitive damage assessment information, these workshops were closed to the general public.

The Restoration Planning Work Group completed a preliminary literature search, which identified articles and other published material concerning techniques for ecological restoration following oil spills. Approximately 200 publications were acquired for detailed review and are listed in the August 1990 Progress Report.

The Trustees and EPA initiated several small-scale field studies to evaluate the feasibility of restoration techniques. Results from these studies will help determine the costs and effectiveness of full-scale restoration projects. Several technical support studies were also initiated to provide information needed to evaluate or carry out some potential restoration activities. These studies are described in the "State/Federal Natural Resources Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," August 1990. The 1990 studies and preliminary results are summarized below.

1990 Restoration Feasibility Studies

1. Reestablishment of Fucus in Rocky Intertidal Ecosystems
Lead Agency: U.S. Environmental Protection Agency

Early observations indicated that Fucus, a marine plant (rockweed) found on rocky shorelines in the intertidal zone throughout the oil spill area, was extensively damaged by both the spilled oil and cleanup efforts. If the natural recovery of Fucus could be significantly accelerated or enhanced it would benefit the recovery of associated flora and fauna on intertidal rocky shores.

Specific objectives of this study were to identify the causes of variation in Fucus recovery at and near Herring Bay, Knight Island in Prince William Sound; to document the effects of alternative cleaning methods on Fucus; and to test the feasibility of enhancing the reestablishment of Fucus. Although results are preliminary at this time, it appears that Fucus recovers most slowly at the sites that were intensively cleaned and that almost no recovery occurs where tar cover persists.

2. Reestablishment of Critical Fauna in Rocky Intertidal Ecosystems
Lead Agency: U.S. Forest Service

This feasibility study was designed to compare the rates of faunal recovery in rocky intertidal communities, and to demonstrate the feasibility of restoration of these communities by enhancing recolonization rates for such key species as limpets and starfish. Recolonization rates for

these organisms and for the rockweed, Fucus, may limit the natural rates of recovery for the entire community. Parameters examined included the presence or absence of common intertidal species on impacted and reference sites, population dynamics of several species of invertebrates, larval settlement on oiled versus non-oiled surfaces, and differences in algal grazing by limpets between oiled and referenced sites. Preliminary results indicate that heavy predation of several species of transplanted invertebrates was probably due to the lack of cover usually provided by Fucus.

3. Identification of Potential Sites for Stabilization and Restoration with Beach Wildrye

Lead Agency: Alaska Department of Natural Resources

This study was designed to identify sites at which damage to beach wildrye grass has occurred and to recommend restoration measures. This species was affected by both spilled oil and subsequent cleanup activities. Beach wildrye grass is important in the prevention of erosion in the coastal environment and is a key component of supratidal habitats in locations throughout the oil spill area. Erosion resulting from loss of beach wildrye can lead to the destabilization and degradation of wildlife habitats and of cultural and recreational sites. Survey work in 1990 in Prince William Sound indicated injury to several beach rye communities. Following confirmation in the 1991 spring shoreline assessment, restoration activities can be initiated (see Restoration Project 1 summary).

4. Identification of Upland Habitats Used by Wildlife Affected by the Oil Spill

Lead Agencies: U.S. Fish and Wildlife Service,
Alaska Department of Fish and Game.

A variety of bird and mammals was killed by the spill or injured by contamination of prey and habitats. Many of these species are dependent on aquatic or intertidal habitats for activities such as feeding and resting, but many also use upland habitats. Protection of upland habitats from further degradation may reduce cumulative effects on injured fish and wildlife populations, and thereby help them recover from the effects of the oil spill. This study focused specifically on marbled murrelets and harlequin ducks, two species known to have been affected by the spill and known to use upland habitats.

Based on surveys of 140 streams, preliminary results of the harlequin duck study indicate that this species nests along larger-than-average anadromous fish streams, with moderate gradients and clear waters. Preliminary results on murrelets suggest that murrelets use slopes facing north or

west, and inland areas at the heads of bays as opposed to the outer peninsulas. Open bog meadows, especially at the heads of bays, appear to be used as flight corridors to upper wooded areas.

5. Land Status, Uses, and Management Plans in Relation to Natural Resources and Services
Lead Agency: Alaska Department of Natural Resources

The objective of this study is to locate, categorize, evaluate, and determine the availability of maps, management plans, and other resource documents relevant to restoration planning throughout the oil-spill region. Resource materials identified will assist in planning for and implementing site-specific restoration activities, including direct restoration, replacement, and the acquisition of equivalent resources.

To date, a variety of documents, maps, and management plans have been identified and are being evaluated; other resource materials are being located. This preliminary project will be completed in Spring 1991. A second phase, directly supporting the proposed Restoration Project Number 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is under consideration.

1990 Technical Support Projects

1. Peer Reviewer Process for Restoration Feasibility Studies
Lead Agencies: Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, U.S. Department of the Interior, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, U.S. Environmental Protection Agency

This project provided funds to ensure that scientists with expertise on natural resource restoration were available to provide peer review of restoration feasibility projects and other restoration planning studies and activities.

2. Assessment of Beach Segment Survey Data
Lead Agency: Alaska Department of Natural Resources

The objective of this project is to review and summarize beach survey information (obtained through oil spill response activities) to assist in planning for and implementing site-specific restoration activities, particularly in the area of direct restoration. This study was initiated late in 1990 and continues to date.

A master database is being created from that portion of the beach surveys relevant to restoration. The primary sources of this information are the Alaska Departments of

Natural Resources and Environmental Conservation. Data from local and regional governments as well as non-governmental sources will also be reviewed and integrated into the system as appropriate. This preliminary project will be completed in Spring 1991.

3. Development of Potential Feasibility Studies for 1991
Lead Agencies: Alaska Department of Fish and Game,
U.S. Environmental Protection Agency

This project provided for the orderly development of additional feasibility studies including: a) monitoring "natural" recoveries; b) pink salmon stock identification; c) herring stock identification/spawning site inventory; d) artificial reefs for fish and shellfish; e) alternative recreation sites and facilities; f) historic sites and artifacts; and g) availability of forage fish. Currently feasibility study proposals are under consideration for all of the above themes.

III. Restoration Implementation

The Trustees are currently developing and evaluating restoration planning and implementation activities, which will be described in the Phase I Restoration Plan -1991 to be published in the FEDERAL REGISTER in March. Planning activities will include feasibility studies, technical support studies, and natural recovery monitoring which will be made available to the public for review and comment. Implementation activities that are now under consideration are presented in this section. The Trustees and EPA are asking, through this notice, for public comment on and additional suggestions for restoration planning and implementation activities for 1991. As noted previously, the Trustees and EPA anticipate publishing in late March notice of the restoration projects identified for implementation in 1991. Detailed descriptions for 1991 restoration projects will be made available to the public for comment at that time.

1991 Restoration Planning Activities

The integration of results from the damage assessment and other information into restoration planning is critical to the success of the oil spill program. As damage assessment results are reviewed and evaluated, the Trustees will identify potential restoration implementation activities and related feasibility and technical support projects. This process involves ongoing consultations with principal investigators for damage assessment studies, agency experts,

and outside peer reviewers to review the nature and extent of oil spill injuries in relation to the biology and ecology of injured species, habitats, and ecosystems. A key goal is to identify life history requirements, limiting factors, and environmental processes that are especially sensitive or that may be enhanced.

Section II describes five feasibility studies carried out in 1990, some of which may continue in 1991. The Trustees and EPA are considering additional feasibility and technical support projects in 1991 and, following additional review, intend to discuss them in the March 1991 FEDERAL REGISTER Notice. Studies now being considered concern a variety of resources, including pink salmon, tidal marshes, Pacific herring, bald eagles, recreation, and sea otters. Feasibility and technical support studies will be implemented as damage assessment data and funding become available.

The scientific literature and experience from oil spills other than the Exxon Valdez will provide background on restoration and information from other oil spills. In 1991, the Restoration Planning Work Group expects to review and evaluate previously identified literature on restoration (see Appendix B, August 1990 Progress Report) and to continue review and evaluation of literature on species and ecosystem recoveries following anthropogenic and natural environmental disturbances.

Information on the adequacy of natural recovery is central to determining whether to implement restoration actions or to allow injured resources to recover on their own. Direct measures of recovery, such as species distribution, abundance, diversity, growth, reproductive success, or other physiological and biochemical properties, may be appropriate monitoring objectives. In some cases, it is appropriate to indirectly determine the degree of recovery by measuring exposure (presence of oil residuals and/or metabolites) and by applying knowledge of toxicological effects derived from the oil spill literature. For these reasons, the recovery of injured resources can best be followed by implementing a balanced program of monitoring. The duration of recovery monitoring will depend on the time necessary to establish a trend for recovery, and this in turn will necessarily depend on the severity and duration of effects resulting from the oil spill.

Some recovery monitoring studies will be considered for implementation in 1991. As with feasibility and technical support projects, these will be discussed in the March 1991 FEDERAL REGISTER document.

Public participation will continue to be an important component of restoration planning in 1991. The Restoration Planning Work Group is interested in and available for meetings with individuals or constituency groups. In addition, the Trustees will consider whether and what additional actions, such as publications and workshops, are

appropriate and possible in 1991. Requests and suggestions from the public are invited.

1991 Restoration Implementation Activities

Where the nature of the resource injury is reasonably clear, it may be desirable to begin restoration prior to receipt of funds from the parties responsible for the oil spill. There are several reasons why this may be so.

Failure to undertake timely restoration may allow damages initiated by the spill to continue or accelerate, as in the case of the loss of stabilizing vegetation on beaches. In other cases, protection of strategic habitats, subject to land-use changes, can reduce cumulative stresses on injured resources and maintain, in the near term, a full range of restoration options. Finally, the importance of a resource for subsistence, commercial, or recreational purposes may justify prompt restoration action.

The restoration activities being considered by the Trustees for implementation in 1991 are described below. Before making final decisions for the 1991 program, the Trustees are prepared to conduct public meetings in some of the oil spill communities, if requested to do so. Moreover, the Trustees expect to provide further opportunity for public comment on the 1991 restoration projects after detailed descriptions for each project are available. The projects now under consideration for the initial phase of the restoration process are:

1. Restoration of the Beach Wildrye Community
   Lead Agencies: Alaska Department of Environmental Conservation, U.S. Forest Service

   Need and Objectives

   The high intertidal-supratidal beach wildrye grasses (Elymus arenarius and E. mollis) communities show signs of localized injury as a result of the Exxon Valdez oil spill and the associated cleanup activities. Injury appears to have resulted from oiling and the stress of mechanical abrasion resulting from oil removal operations carried out by cleanup workers and equipment. Beach wildrye grasses are major contributors to natural beach stability. Injury to this important plant community may result in accelerated erosion of the beaches and adjacent upland plant communities. Also at risk from increased erosion are several nearshore archaeological sites.

   Once the beach wildrye root masses are disturbed, natural recovery may be slow, taking several years. Wildrye recolonizes primarily by spreading outward from undamaged plants, and this process can be stopped altogether if the rate of erosion is too great. This may result in a significant loss of intertidal and supratidal area. Restoration intervention may often restabilize a

beach in one growing season.

The objective of this project is to stabilize injured sites where natural or cultural resources are at risk. Specific sites for restoration will be chosen following the 1991 Spring Shoreline Assessment.

Methods:

Replanting beach wildrye for stabilization is a proven technology. Nearby healthy stocks of beach wildrye grass will be used as a source of donor material. After replanting, fertilizer will be applied (20-20-10 fertilizer up to 800 pounds per acre) to help the transplanted beach wildrye grass recolonize. At some locations fertilizer alone may be sufficient to encourage existing injured plant communities to recover without transplanting new stock.

Estimated 1991 Cost: $180,000

2. Public Information and Education for Recovery and Protection of Alaska's Marine and Coastal Resources
Lead Agencies: U.S. Fish and Wildlife Service, National Park Service

Need and Objectives:

The Exxon Valdez oil spill caused direct and indirect injury to the marine birds and mammals of southcentral Alaska. The purpose of this project is to make users of the area aware of the changes to the ecosystem resulting from the oil spill and to lessen the potential for additional harmful human disturbances..

Methods:

The project's sponsors will publish and distribute information explaining the potential adverse impacts of human activities, and the importance of increased conservation and protection of marine birds and mammals in key habitats in the oil spill area. Print media such as posters, brochures, and possibly books and video tapes will be produced. Consideration will also be given to production of material for school curricula.

Print media will be distributed through traditional outlets including but not limited to refuge, park, and tourist information and visitor centers. Additional distribution will occur to airports, boat harbors, commercial tour operators, and to public agency and private industry training staffs.

Some species identification information will be included but the primary content of the media will emphasize strategies to allow public use and enjoyment of marine birds and mammals while preventing harmful

disturbances to these species.

Estimated 1991 Cost:$100,000.

3. Salmonid Stocks and Habitat Restoration
Lead Agencies: Alaska Department of Fish and Game,
U.S. Forest Service

Need and Objectives:
Spawning and nursery areas of wild stocks of pink and chum salmon which were impacted by the Exxon Valdez oil spill occur throughout Prince William Sound, lower Cook Inlet, and the Gulf of Alaska. Pink and chum salmon are major components of the ecosystem, serving as important food sources for other fish, birds, terrestrial and marine mammals. Pink and chum salmon are also harvested by man in subsistence, commercial, and sport fisheries. Since salmon return to the individual streams in which they were born, with little straying to other streams, genetically unique wild salmon stocks will be restored and enhanced through site specific rehabilitation of salmon spawning and rearing habitats.

Methods:
This project consists of several proven fisheries enhancement techniques that may be applied immediately at specific sites. In addition to those sites and streams at which potential rehabilitation activities already have been identified, a survey of affected salmon spawning habitat within the oil spill area will be conducted in 1991 to determine additional restoration measures. The proposed techniques include fish passage through stream channelization or fish ladders to overcome physical and hydrological barriers and construction of spawning channels. All of these measures provide oil-free spawning areas to replace oil-impacted spawning areas. Additional wild salmon stock restoration measures include remote egg-taking and incubation at existing hatcheries for ultimate fry release in oil-impacted streams. Other measures may include optimal fry release programs that will enhance marine survival of juvenile salmonids.

Estimated 1991 Cost: $1,300,000

4. Protection of Strategic Fish and Wildlife Habitats and Recreation Sites
Lead Agencies: Alaska Department of Fish and Game,
Alaska Department of Natural Resources

U.S. Department of the Interior,

U.S. Department of Agriculture

Need and Objectives:

The marine and intertidal habitats where most oil spill injuries occurred are ecologically linked to adjacent uplands. The water quality in streams and estuaries where salmon spawn depends on the adjacent uplands. Eagles nest and roost in large trees along the coasts and streams, and marbled murrelets nest in association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas. Common and thick-billed murres and other seabirds nest on off-shore islands.

Tourism and recreation activities, such as sport fishing and camping, also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts of the regional ecosystem, including strategic marine, intertidal, and estuarine habitats and adjacent uplands, may be necessary for the recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acquisition and changes in management practices.

Land-use activities may occur in the oil spill area in 1991 or 1992. These activities may impact important habitats and recreation sites or slow the recovery of spill-injured resources.

The objective of this project 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. This project will be preceded by a technical support project to identify and evaluate potential properties which if publicly owned will contribute to this objective. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis. Primary considerations in deciding which properties should be acquired during this project will include 1) the nature and immediacy of changes in use that may further affect resources injured by the oil spill and 2) the prospect that failure to act will foreclose restoration opportunities.

The Trustees have developed the following preliminary

sequence of steps for use in identifying and protecting strategic fish and wildlife habitats and recreation sites:

1. Identification, through interpretation of scientific data regarding the injuries caused by the oil spill, of upland habitats that are linked to the recovery of injured resources or services.
2. Characterization and evaluation of potential impacts from changed land use in relation to their effects on recovery of the ecosystem and its components; comparative evaluation of recovery strategies not involving acquisition of property rights, including an assessment of protections afforded by existing law, regulations, and other alternatives.
3. Evaluation of cost-effective strategies to achieve restoration objectives for key upland habitats, identified through steps one and two above. This would include evaluation of other restoration alternatives for these resource injuries.
4. Willing seller/buyer negotiations with private landowners for property rights.
5. Incorporation of acquired property rights into public management.

Habitat and recreation site acquisition proposals that meet the appropriate evaluation factors for restoration (see Section 2) will be identified and assigned by priority for implementation in accordance with this preliminary five-step process and applicable State and Federal laws and regulations.

The geographic scope of the 1991 project will be the oil spill area. Subsequent to this initial effort, the Trustees will continue to survey potential acquisitions, including acquisitions outside the spill area.

Estimated Cost: To be determined

Funding for the Phase I Restoration Plan - 1991

Although it is expected that the responsible parties will pay for the costs of the damage assessment and restoration program, there is no certainty about the final amount and when such funds will be forthcoming. It is possible, therefore, that funds to carry out the Phase I Restoration Plan - 1991, including the proposed planning and implementation activities, will have to be advanced by the State and Federal governments. To date, those funds have not been committed or secured by either government.

References

The documents listed below provide additional

information on damage assessment and restoration. They are available from the Oil Spill Public Information Center, The Simpson Building, 645 G Street, Anchorage, Alaska, 99501.

"The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Volume I Assessment and Restoration Plan Appendices A,B,C."

"State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill," August 1989.

"Restoration Planning following the Exxon Valdez Oil Spill: August 1990 Progress Report."

"Restoration following the Exxon Valdez Oil Spill: Proceedings of the Public Symposium," July 1990.

LaJuana S. Wilcher Date
Assistant Administrator
Office of Water
U.S. Environmental Protection Agency

Gregg K. Erickson Date
Director
Division of Oil Spill Impact Assessment and Restoration
Alaska Department of Fish and Game

RPWG

to admin record

JAN 3 1991

Memorandum

To: Washington Policy Group

From: The Federal Members of the Trustee Council

Subject: Draft 1991 Restoration Work Plan

The federal members of the Trustee Council submit the attached draft 1991 Restoration Work Plan to the Washington Policy Group in response to the instructions from the federal Natural Resource Damage Assessment (NRDA) Trustees to support the efforts of the Environmental Protection Agency (EPA) to produce a draft restoration work plan and a list of proposed restoration projects for the 1991 field season for publication in the Federal Register. The Trustee Council also worked with the Alaska Department of Fish and Game, the state co-chair of the Restoration Planning Work Group, in preparation of this document. The schedule has not allowed time for resolution of a number of issues that we bring to your attention below:

1. Information on natural resource injuries is rapidly growing but is still preliminary and not thoroughly analyzed. Much of our current understanding of comprehensive injury came into focus during the December 3-15, 1990, NRDA synthesis and planning meetings and were not available to the RPWG during the development of the draft Restoration Work Plan. It is essential that any restoration project proposed by the Trustees be grounded firmly in knowledge of injuries and incorporate thorough scientific review. The projects included in the draft Restoration Work Plan are directly tied to suspected injuries and have been reviewed. The injury data used to support restoration proposals have not yet received sufficient quality assurance and quality control (QA/QC) for public release. Availability of sample analyses, quantities of data collected, progress towards completion of studies, and commitments of principal investigators are variables that effect when data from different studies will receive necessary QA/QC.

2. The draft Restoration Work Plan includes four proposed restoration implementation projects and refers to the possibility that restoration feasibility, technical support, and monitoring projects will be reviewed and presented in the final Restoration Work Plan to be published in the Federal Register in March 1991. These project proposals are not included in the draft Restoration Work Plan because of a critical need for a more thorough review before being presented to the public. We know that some of these other projects are likely to be presented in the March 1991 document. Although there are pros and cons to this approach, we are concerned that there may be a perception that the public was not provided a meaningful opportunity to comment. We will explore opportunities to provide the public with additional opportunities to comment.

3. Specific funds for restoration projects have not yet been requested by any federal Trustee agency, or provided to any Trustee agency. The Trustee Council has ensured that the uncertainty about the availability of funds is

clearly articulated in the draft Restoration Work Plan. The Trustee Council also made it clear that the proposed restoration projects represent a modest effort and are not intended to address the full scope of injuries. Nonetheless, we are concerned that the public may perceive either that the proposed effort is minimal when compared with perceived injury or that the proposed amounts listed under each project is a firm commitment by the Trustees.

4. Related to the above issue, we are also concerned that if the Trustees do not authorize restoration actions and provide supporting funds until late March or early April 1991, it will be difficult for the Trustee agencies to logistically deploy these projects into the field during the 1991 field season.

5. The ability to deploy projects into the field in 1991 may be further complicated by requirements that specific projects comply with the National Environmental Policy Act, Coastal Zone Management Act and other state and federal laws and regulations. The Trustee Council has asked the Department of Justice to provide legal guidance on this issue.

6. The EPA has recommended that the following language be included in the draft Restoration Work Plan; 'The President of the United States has designated the EPA to coordinate the long-term restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill. The State of Alaska and the Administrator of the EPA, on behalf of the Trustees, are issuing this document as an action under the Clean Water Act.' The Trustee Council has not had the opportunity to thoroughly assess the needs for these statements and raises these statements to the attention of the Washington Policy Group. We have already raised these statements to the attention of the Legal Team.

7. The state Trustee Council member advised the Trustee Council that the draft Restoration Work Plan will need to be reviewed at a policy level within the state government. Although they said they would conduct this review as quickly as possible, no firm commitment was provided on when this review would be completed.

The Trustee Council supports the Trustees' objective to increase restoration planning efforts. We will make specific restoration proposals in accordance with injury information and restoration planning process review. We are confident that the 1991 Exxon Valdez oil spill program will be a prudent balance of NRDA and restoration efforts.

Environmental Protection Agency
[WHR-L-]

Agency: Environmental Protection Agency and the Alaska Department of Fish and Game

Action: Notice

Summary: The Environmental Protection Agency, on behalf of the Federal Trustees (the U.S. Departments of Interior and Agriculture and the National Oceanic and Atmospheric Administration), and the Alaska Department of Fish and Game, on behalf of the State Trustee, are publishing here 1) a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities being considered by the Trustee Council, and 2) a discussion of the overall process the state and Federal governments intend to follow to enhance and expedite the recovery of Prince William Sound, lower Cook Inlet, and the Gulf of Alaska from the Exxon Valdez oil spill. The public is invited to comment and to suggest other activities that should be considered by the Trustee Council in preparing a 1991 Restoration Work Plan. Notice of intent to take this action was published in the FEDERAL REGISTER in November (55 FR 48160, November 19, 1990).

Dates: The Federal and State of Alaska governments will accept comments through [insert date 45 days from publication in the FEDERAL REGISTER]. Written comments should be submitted to: Secretary, Restoration Planning Work Group, Oil Spill Restoration Planning Office, 437 "E" Street, Suite 301, Anchorage, Alaska 99501, Phone (907) 271-2461.

I. Introduction

Purpose

The U.S. Departments of Agriculture (DOA) and the Interior (DOI), the National Oceanic & Atmospheric Administration (NOAA), and the Alaska Department of Fish and Game (hereafter referred to as "the Trustees") and the Environmental Protection Agency (EPA) desire to implement restoration activities in the areas affected by the Exxon Valdez oil spill as soon as possible. This Notice presents a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities under consideration by the Trustee Council, an Alaska-based intergovernmental group charged by the Trustees with managing the natural resources damage assessment and restoration program. Restoration activities in 1991 and subsequently will be undertaken as

appropriate, based on understanding of resource injuries. Implementation activities in 1991 will be modest relative to those that will be carried out when injuries to the resources are fully assessed and understood. The combined information in this FEDERAL REGISTER Notice and a subsequent Notice planned for March 1991 will provide a full discussion of the 1991 program. Implementation of all restoration activities will follow appropriate procedures for compliance with applicable State and Federal laws and regulations, such as the National Environmental Policy Act, the Alaska Nations Interest Lands Conservation Act, the Alaska Native Claims Settlement Act, and the Coastal Zone Management Act. The President of the United States has designated EPA to coordinate the long-term restoration of Prince William Sound and other areas affected by the Exxon Valdez oil spill. The EPA Administrator is issuing this document as an action under the Clean Water Act (CWA).

Although preparation of a 1991 Restoration Work Plan is not required under the Clean Water Act or the laws of Alaska, the Trustees and EPA have chosen to present the draft 1991 Restoration Work Plan to obtain public comment and to invite suggestions about other restoration activities that should be considered by the State and Federal governments. The public is also invited to comment on the overall process the governments intend to follow in enhancing environmental recovery in Prince William Sound, lower Cook Inlet, and the Gulf of Alaska after the Exxon Valdez oil spill.

The Trustees expect to complete the assessment of damages, determine liability, and collect funds from the responsible parties before they prepare a final Restoration Plan. Although the Trustees wish to resolve damage assessment and liability issues as promptly as possible, it is not possible to predict when this will occur. Considering this uncertainty, in cases where the nature of the resource injury is reasonably clear, it may be desirable to implement restoration activities prior to a final Restoration Plan. As a result, the Trustee Council is considering implementation in 1991 of activities described in section III of this notice. Other activities related to restoration, such as feasibility studies, technical support projects, and monitoring (see Sections 2 and 3), will be considered in the following months. The Trustees expect to publish a revised 1991 Restoration Work Plan in the FEDERAL REGISTER on or about March 21, 1991.

Organization of this Notice

This notice has three main sections: I. Introduction, II. Restoration Planning, and III. Restoration Implementation. The Introduction presents a synopsis of the purpose of this notice and background information. Section II, Restoration Planning, describes the overall approach to

restoration and reports on the planning activities conducted in 1990. In Section III, this notice provides information on restoration planning and implementation actions under consideration for 1991.

Further Information

Further information about the Exxon Valdez oil spill, the damage assessment studies, and restoration planning activities is contained in the documents referenced at the end of this notice and in the FEDERAL REGISTER published on November 19, 1990 (55 FR 48160). These documents and other information on restoration and damage assessment are available from the Oil Spill Public Information Center, 645 G Street, Anchorage, Alaska 99501.

II. Restoration Planning

The Planning Process

The Trustees' and EPA's restoration planning activities are designed to determine appropriate ways to restore natural resources and services injured by the Exxon Valdez oil spill. Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the environment to its baseline condition.

The Natural Resource Damage Assessment (NRDA) regulations [43 CFR 11], which implement certain provisions of CERCLA and CWA, define "restoration" or "rehabilitation" as "...actions undertaken, in addition to response actions, to return an injured resource to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...". This definition of restoration from the NRDA regulations is provided here for informational purposes only. The NRDA regulations are not mandatory but do provide a model for restoration planning. The Trustees will consider whether and to what degree the NRDA regulations will be followed.

The Trustees have determined that restoration after the Exxon Valdez oil spill should be subject to continuing review as information is developed about injuries and possible restoration opportunities. The Trustees expect that each year's work will build on the last, and that all information pertinent to the Exxon Valdez oil spill will be examined.

Although the restoration planning process may be modified to accommodate new information, the process will generally include the following steps:

- Determining the Need for Restoration.
  The need for restoration depends on the nature and extent of natural resources injured, lost, or destroyed and the adequacy of natural recovery. The

primary information sources regarding injury, damage, or loss are the studies conducted by State and Federal agencies as part of the natural resources damage assessment. These studies are described in the 1989 and 1990 Exxon Valdez damage assessment plans (see the documents referenced at the end of this notice). Other sources of information include public comments, data gathered as part of the oil spill response, and other studies conducted by government agencies outside of the damage assessment process.

- Identifying Potential Restoration Activities.
For any injury, there are three types of possible restoration activities:
  direct restoration refers to measures in addition to response actions, usually taken on site, to directly rehabilitate an injured, lost, or destroyed resource;
  replacement refers to substituting one resource for an injured, lost, or destroyed resource of the same or similar type; and
  acquisition of equivalent resources means to compensate for an injury to a resource by substituting another resource that provides the same or substantially similar service as the resource injured, lost, or destroyed.

  Determining the adequacy of natural recovery is fundamental to the choice of a restoration activity. In some cases the Trustees may determine that it is most appropriate to allow natural recovery to proceed without further intervention by man.
  Potential restoration activities and concepts from numerous sources have been presented in a series of matrices in "Restoration Planning Following the Exxon Valdez Oil Spill: August 1990 Progress Report." Additional activities will be identified and considered at any time as additional damage assessment data are received.

- Evaluating Potential Restoration Activities.
Evaluation of potential restoration activities will consider such factors as:

  - injury;
  - adequacy of natural recovery;
  - technical feasibility;
  - net environmental benefit;
  - cost effectiveness; and
  - reasonableness of cost of the restoration project in light of the value and importance of the resource.

Some restoration proposals may be readily evaluated. In other cases additional information, for example, biological, ecological, or resource assessment data, will be gathered to support the evaluation process.

The goal of the Trustees and EPA is to conduct restoration planning for the recovery of ecosystems. In general, priority will be given to activities which benefit multiple rather than single species or resources. By necessity, however, individual elements of the restoration program may be species- or resource-specific.

- Recommending and Implementing Restoration Activities on a Continuing Basis.
The Trustees and EPA view the entire restoration process as dynamic and evolving. As information about injuries becomes available, and as potential restoration activities are evaluated, certain activities may be recommended and carried out in advance of the receipt of funds for restoration from the parties responsible for the oil spill (see Section III, below).

- Presenting a Damage Claim to Parties Responsible for the Oil Spill and Receiving Funds for Restoration.
The damage assessment process initiated by the Trustees is designed to identify and quantify specific resource injuries and determine corresponding monetary values. Claims for these amounts will be presented to the parties responsible for the oil spill and, under Federal law, the monies received must be used to plan for or implement restoration activities, after reimbursing the costs of the damage assessment program.

- Preparing and Implementing a Final Restoration Plan.
When restoration funds are received, determinations will be made concerning the nature and scope of all remaining potential restoration activities.

- Evaluating the Effectiveness of Restoration Measures, and Recommending Additional Actions. Implementation of restoration activities will be evaluated based on standards appropriate to individual projects and resources. In addition to verifying that restoration goals have been met, ongoing monitoring activities will be employed to identify remaining injuries or effects that can be addressed through modified or additional restoration actions.

Restoration planning, as outlined above, is underway; the overall pace of restoration is dependent on the

availability of information to determine injury and the resolution of a claim for damages. Implementation of restoration and monitoring activities may take a number of years. The Trustees and EPA intend to follow the restoration planning process as outlined above in order to accelerate the restoration of the Prince William Sound-Gulf of Alaska ecosystem.

Public Participation

The Trustees and EPA intend to encourage, provide for, and be responsive to public participation and review during the restoration planning process. Carrying out this intent, however, is complicated by the need for confidentiality with respect to damage assessment information due to pending or possible future litigation with the parties responsible for the Exxon Valdez oil spill. Notwithstanding these considerations, the Trustees intend to provide an opportunity for meaningful public review and comment on all restoration implementation activities.

In September of 1990, the Oil Spill Public Information Center was opened in Anchorage to provide the public with scientific data and other information related to the 1989 Exxon Valdez oil spill. The Trustees will continue to place information in the center as it becomes available.

Restoration Planning Activities in 1990

The Trustees and EPA began to solicit public opinion in March 1990 with a symposium on restoration in Anchorage, Alaska. In April and May of 1990, eight public scoping meetings were held throughout southcentral Alaska to ascertain the public's priorities for the restoration program. For a detailed description of these meetings, see the documents referenced at the end of this notice. In addition to these public meetings, the governments have communicated individually with such constituencies as Native corporations and villages, fishing groups, and environmental organizations.

To gather specific scientific input for the restoration planning process, technical workshops were held in Anchorage in April 1990. Follow-up meetings were held in October and November 1990. Participants included members of the Restoration Planning Work Group (the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Departments of Interior and Agriculture, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency) Federal and State resource managers, and scientists and technical experts under contract to the governments. Due to the necessary discussion of litigation-sensitive damage assessment information, these workshops were closed to the general public.

The Restoration Planning Work Group completed a preliminary literature search, which identified articles and

other published material concerning techniques for ecological restoration following oil spills. Approximately 200 publications were acquired for detailed review and are listed in the August 1990 Progress Report.

The Trustee agencies and EPA initiated several small-scale field studies to evaluate the feasibility of restoration techniques. Results from these studies will help determine the costs and effectiveness of full-scale restoration projects. Several technical support studies were also initiated to provide information needed to evaluate or carry out some potential restoration activities. These studies are described in the "State/Federal Natural Resources Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," August 1990. The 1990 studies and preliminary results are summarized below.

1990 Restoration Feasibility Studies

1. Reestablishment of Fucus in Rocky Intertidal Ecosystems
   Lead Agency: U.S. Environmental Protection Agency

Early observations indicated that Fucus, a marine plant (rockweed) found on rocky shorelines in the intertidal zone throughout the oil spill area, was extensively damaged by both the spilled oil and cleanup efforts. If the natural recovery of Fucus could be significantly accelerated or enhanced it would benefit the recovery of associated flora and fauna on intertidal rocky shores

Specific objectives of this study were to identify the causes of variation in Fucus recovery at and near Herring Bay, Knight Island in Prince William Sound; to document the effects of alternative cleaning methods on Fucus; and to test the feasibility of enhancing the reestablishment of Fucus. Although results are preliminary at this time, it appears that Fucus recovers most slowly at the sites that were intensively cleaned and almost no recovery occurs where the cover persists.

2. Reestablishment of Critical Fauna in Rocky Intertidal Ecosystems
   Lead Agency: U.S. Forest Service

This feasibility study was designed to compare the rates of faunal recovery in rocky intertidal communities, and to demonstrate the feasibility of restoration of these communities by enhancing recolonization rates for such key species as limpets and starfish. Recolonization rates for these organisms and for the rockweed, Fucus, may limit the natural rates of recovery for the entire community. Parameters examined included the presence or absence of common intertidal species on impacted and reference sites, population dynamics of several species of invertebrates, larval settlement on oiled versus non-oiled surfaces, and

differences in algal grazing by limpets between oiled and referenced sites. Preliminary results indicate that heavy predation of several species of transplanted invertebrates was probably due to the lack of cover usually provided by Fucus.

3. Identification of Potential Sites for Stabilization and Restoration with Beach Wildrye
   Lead Agency: Alaska Department of Natural Resources

This study was designed to identify sites at which damage to beach wildrye grass has occurred and to recommend restoration measures. This species was affected by both spilled oil and subsequent cleanup activities. Beach wildrye grass is important in the prevention of erosion in the coastal environment and is a key component of supratidal habitats in locations throughout the oil spill area. Erosion resulting from loss of beach wildrye can lead to the destabilization and degradation of wildlife habitats and of cultural and recreational sites. Survey work in 1990 in Prince William Sound indicated injury to several beach rye communities. Following confirmation in the 1991 spring shoreline assessment, restoration activities can be initiated (see Restoration Project 1 summary).

4. Identification of Upland Habitats Used by Wildlife Affected by the Oil Spill
   Lead Agencies: U.S. Fish and Wildlife Service, Alaska Department of Fish and Game.

A variety of bird and mammals was killed by the spill or injured by contamination of prey and habitats. Many of these species are dependent on aquatic or intertidal habitats for activities such as feeding and resting, but many also use upland habitats. Protection of upland habitats from further degradation may reduce cumulative effects on injured fish and wildlife populations, and thereby help them recover from the effects of the oil spill. This study focused specifically on marbled murrelets and harlequin ducks, two species known to have been affected by the spill and known to use upland habitats.

Based on surveys of 140 streams, preliminary results of the harlequin duck study indicate that this species nests along larger-than-average anadromous fish streams, with moderate gradients and clear waters. Preliminary results on murrelets suggest that murrelets use slopes facing north or west, and inland areas at the heads of bays as opposed to the outer peninsulas. Open bog meadows, especially at the heads of bays, appear to be used as flight corridors to upper wooded areas.

5. Land Status, Uses, and Management Plans in Relation to Natural Resources and Services

Lead Agency: Alaska Department of Natural Resources

The objective of this study is to locate, categorize, evaluate, and determine the availability of maps, management plans, and other resource documents relevant to restoration planning throughout the oil-spill region. Resource materials identified will assist in planning for and implementing site-specific restoration activities, including direct restoration, replacement, and the acquisition of equivalent resources.

To date, a variety of documents, maps, and management plans have been identified and are being evaluated; other resource materials are being located. This preliminary project will be completed in Spring 1991. A second phase, directly supporting the proposed Restoration Project Number 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is under consideration.

1990 Technical Support Projects

1. Peer Reviewer Process for Restoration Feasibility Studies
   Lead Agencies: Alaska Department of Fish and Game, Alaska Department of Environmental Conservation, Alaska Department of Natural Resources, U.S. Department of the Interior, U.S. Department of Agriculture, National Oceanic and Atmospheric Administration, U,S. Environmental Protection Agency

This project provided funds to ensure that scientists with expertise on natural resource restoration were available to provide peer review of restoration feasibility projects and other restoration planning studies and activities.

2. Assessment of Beach Segment Survey Data
   Lead Agency: Alaska Department of Natural Resources

The objective of this project is to review and summarize beach survey information (obtained through oil spill response activities) to assist in planning for and implementing site-specific restoration activities, particularly in the area of direct restoration. This study was initiated late in 1990 and continues to date.

A master database is being created from that portion of the beach surveys relevant to restoration. The primary sources of this information are the Alaska Departments of Natural Resources and Environmental Conservation. Data from local and regional governments as well as non-governmental sources will also be reviewed and integrated into the system as appropriate. This preliminary project will be completed in Spring 1991.

3. Development of Potential Feasibility Studies for 1991
Lead Agencies: Alaska Department of Fish and Game,
U.S. Environmental Protection Agency

This project provided for the orderly development of additional feasibility studies including: a) monitoring "natural" recoveries; b) pink salmon stock identification; c) herring stock identification/spawning site inventory; d) artificial reefs for fish and shellfish; e) alternative recreation sites and facilities; f) historic sites and artifacts; and g) availability of forage fish. Currently feasibility study proposals are under consideration for all or the above themes.

III. Draft 1991 Restoration Work Plan

The Trustees are currently developing and evaluating restoration planning and implementation activities, which will be described in the 1991 Restoration Work Plan to be published in the FEDERAL REGISTER in March. Planning activities will include feasibility studies, technical support studies, and natural recovery monitoring. Implementation activities that are now under consideration are presented in this section. The Trustees and EPA are asking, through this notice, for public comment on and additional suggestions for restoration planning and implementation activities for 1991.

1991 Restoration Planning Activities

Consistent with the steps outlined in Section II, several restoration planning activities will continue in 1991. The fundamental purpose of restoration planning is to identify and evaluate potential restoration implementation activities, in consultation with technical experts and the public.

The integration of results from the damage assessment and other information into restoration planning is critical to the success of the oil spill program. As damage assessment results are synthesized, the Restoration Planning Work Group will identify potential restoration implementation activities and related feasibility and technical support projects. This process involves ongoing consultations with principal investigators for damage assessment studies, agency experts, and outside peer reviewers to review the nature and extent of oil spill injuries in relation to the biology and ecology of injured species, habitats, and ecosystems. A key goal is to identify life history requirements, limiting factors, and environmental processes that are especially sensitive or that may be enhanced.

Section II describes five feasibility studies carried out in 1990, some of which may continue in 1991. The Trustees and EPA are considering additional feasibility and technical support projects in 1991 and, following additional

review, intend to discuss them in the March 1991 FEDERAL REGISTER Notice. Studies now being considered concern a variety of resources, including pink salmon, tidal marshes, Pacific herring, bald eagles, recreation, and sea otters. Feasibility and technical support studies will be implemented as damage assessment data and funding become available.

The scientific literature and experience from oil spills other than the Exxon Valdez will provide background on restoration and information from other oil spills. In 1991, the Restoration Planning Work Group expects to synthesize previously identified literature on restoration (see Appendix B, August 1990 Progress Report) and to continue syntheses of literature on species and ecosystem recoveries following anthropogenic and natural environmental disturbances.

Information on the adequacy of natural recovery is central to determining whether to implement restoration actions or to allow injured resources to recover on their own. Direct measures of recovery, such as species distribution, abundance, diversity, growth, reproductive success, or other physiological and biochemical properties, may be appropriate monitoring objectives. In some cases, it is appropriate to indirectly determine the degree of recovery by measuring exposure (presence of oil residuals and/or metabolites) and by applying knowledge of toxicological effects derived from the oil spill literature. For these reasons, the recovery of injured resources can best be followed by implementing a balanced program of monitoring. The duration of recovery monitoring will depend on the time necessary to establish a trend for recovery, and this in turn will necessarily depend on the severity and duration of effects resulting from the oil spill.

Some recovery monitoring studies will be considered for implementation in 1991. As with feasibility and technical support projects, these will be discussed in the March 1991 FEDERAL REGISTER document.

Public participation will continue to be an important component of restoration planning in 1991. The Restoration Planning Work Group is interested in and available for meetings with individuals or constituency groups. In addition, the Trustees will consider whether and what additional actions, such as publications and workshops, are appropriate and possible in 1991. Requests and suggestions from the public are invited.

1991 Restoration Implementation Activities

Where the nature of the resource injury is reasonably clear, it may be desirable to begin restoration prior to receipt of funds from the parties responsible for the oil spill. There are several reasons why this may be so.

Failure to undertake timely restoration may allow damages initiated by the spill to continue or accelerate, as in the case of the loss of stabilizing vegetation on beaches. In other cases, protection of strategic habitats, subject to

land-use changes, can reduce cumulative stresses on injured resources and maintain, in the near term, a full range of restoration options. Finally, the importance of a resource for subsistence, commercial, or recreational purposes may justify prompt restoration action.

The restoration activities being considered by the Trustee agencies for implementation in 1991 are described below. Before making final decisions for the 1991 program, the Trustees are prepared to conduct public meetings in some of the oil spill communities, if requested to do so. The projects now under consideration are:

1. Restoration of the Beach Wildrye Community
   Lead Agencies: Alaska Department of Environmental Conservation, U.S. Forest Service

Need and Objectives

The high intertidal-supratidal beach wildrye grasses (Elymus arenarius and E. mollis) communities show signs of localized injury as a result of the Exxon Valdez oil spill and the associated cleanup activities. Injury appears to have resulted from oiling and the stress of mechanical abrasion resulting from oil removal operations carried out by cleanup workers and equipment. Beach wildrye grasses are major contributors to natural beach stability. Injury to this important plant community may result in accelerated erosion of the beaches and adjacent upland plant communities. Also at risk from increased erosion are several nearshore archaeological sites.

Once the beach wildrye root masses are disturbed, natural recovery may be slow, taking several years. Wildrye recolonizes primarily by spreading outward from undamaged plants, and this process can be stopped altogether if the rate of erosion is too great. This may result in a significant loss of intertidal and supratidal area. Restoration intervention may often restabilize a beach in one growing season.

The objective of this project is to stabilize injured sites where natural or cultural resources are at risk. Specific sites for restoration will be chosen following the 1991 Spring Shoreline Assessment.

Methods:

Replanting beach wildrye for stabilization is a proven technology. Nearby healthy stocks of beach wildrye grass will be used as a source of donor material. After replanting, fertilizer will be applied (20-20-10 fertilizer up to 800 pounds per acre) to help the transplanted beach wildrye grass recolonize. At some locations fertilizer alone may be sufficient to encourage existing injured plant communities to recover without transplanting new stock.

Estimated 1991 Cost: $180,000

2. Public Information and Education for Recovery and Protection of Alaska's Marine and Coastal Resources
Lead Agencies: U.S. Fish and Wildlife Service, National Park Service

Need and Objectives:

The Exxon Valdez oil spill caused direct and indirect injury to the marine birds and mammals of southcentral Alaska. The purpose of this project is to make users of the area aware of the changes to the ecosystem resulting from the oil spill and to lessen the potential for additional harmful human disturbances..

Methods:

The project's sponsors will publish and distribute information explaining the potential adverse impacts of human activities, and the importance of increased conservation and protection of marine birds and mammals in key habitats in the oil spill area. Print media such as posters, brochures, and possibly books and video tapes will be produced. Consideration will also be given to production of material for school curricula.

Print media will be distributed through traditional outlets including but not limited to refuge, park, and tourist information and visitor centers. Additional distribution will occur to airports, boat harbors, commercial tour operators, and to public agency and private industry training staffs.

Some species identification information will be included but the primary content of the media will emphasize strategies to allow public use and enjoyment of marine birds and mammals while preventing harmful disturbances to these species.

Estimated 1991 Cost: $100,000.

3. Salmonid Stocks and Habitat Restoration
Lead Agencies: Alaska Department of Fish and Game, U.S. Forest Service

Need and Objectives:

Spawning and nursery areas of wild stocks of pink and chum salmon which were impacted by the Exxon Valdez oil spill occur throughout Prince William Sound, lower Cook Inlet, and the Gulf of Alaska. Pink and chum salmon are major components of the ecosystem, serving as important food sources for other fish, birds, terrestrial and marine mammals. Pink and chum salmon are also harvested by man in subsistence, commercial, and sport fisheries.

Since salmon return to the individual streams in which they were born, with little straying to other streams, genetically unique wild salmon stocks will be restored and enhanced through site specific rehabilitation of salmon spawning and rearing habitats.

Methods:

This project consists of several proven fisheries enhancement techniques that may be applied immediately at specific sites. In addition to those sites and streams at which potential rehabilitation activities already have been identified, a survey of affected salmon spawning habitat within the oil spill area will be conducted in 1991 to determine additional restoration measures. The proposed techniques include fish passage through stream channelization or fish ladders to overcome physical and hydrological barriers and construction of spawning channels. All of these measures provide oil-free spawning areas to replace oil-impacted spawning areas. Additional wild salmon stock restoration measures include remote egg-taking and incubation at existing hatcheries for ultimate fry release in oil-impacted streams. Other measures may include optimal fry release programs that will enhance marine survival of juvenile salmonids.

Estimated 1991 Cost: $1,300,000

4. Protection of Strategic Fish and Wildlife Habitats and Recreation Sites

Lead Agencies: Alaska Department of Fish and Game,
Alaska Department of Natural Resources
U.S. Department of the Interior,
U.S. Department of Agriculture

Need and Objectives:

The marine and intertidal habitats where most oil spill injuries occurred are ecologically linked to adjacent uplands. The water quality in streams and estuaries where salmon spawn depends on the adjacent uplands. Eagles nest and roost in large trees along the coasts and streams, and marbled murrelets nest in association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas. Common and thick-billed murres and other seabirds nest on off-shore islands.

Tourism and recreation activities, such as sport fishing and camping, also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts

of the regional ecosystem, including strategic marine, intertidal, and estuarine habitats and adjacent uplands, may be necessary for the recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acquisition and changes in management practices.

Land-use activities may occur in the oil spill area in 1991 or 1992. These activities may impact important habitats and recreation sites or slow the recovery of spill-injured resources.

The objective of this project 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. This project will be preceded by a technical support project to identify and evaluate potential properties which if publicly owned will contribute to this objective. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis.

The Trustees have developed the following preliminary sequence of steps for use in identifying and protecting strategic fish and wildlife habitats and recreation sites:

1. Identification of key upland habitats that are linked to the recovery of injured resources or services.
2. Characterization and evaluation of potential threats from changed land use in relation to their effects on recovery of the ecosystem and its components; comparative evaluation of recovery strategies not involving acquisition of property rights, including an assessment of protections afforded by existing law and regulations..
3. Evaluation of cost-effective strategies to achieve restoration objectives for key upland habitats, identified through steps one and two above. This evaluation may include, for example, cost-benefit and net-benefit analyses for injured resources and appraisals of land values.
4. Willing seller/buyer negotiations with private landowners for property rights.
5. Incorporation of acquired property rights into public management.

Habitat and recreation site acquisition proposals that meet the appropriate factors for restoration (see Section 2) will be identified and assigned by priority for implementation in accordance with this preliminary five-step process and applicable State and Federal laws and regulations governing acquisition of land or interests in land.

The geographic scope of the 1991 project will be the oil spill area. Subsequent to this initial effort, the Trustees will continue to survey potential acquisitions, including acquisitions outside the spill area.

Estimated cost for
multiyear project
beginning in 1991: $40,000,000

Funding for the 1991 Restoration Work Plan

Although it is expected that the responsible parties will pay for the costs of the damage assessment and restoration program, there is no certainty about the final amount and when such funds will be forthcoming. It is possible, therefore, that funds to carry out the 1991 Restoration Work Plan, including the proposed planning and implementation activities, will have to be advanced by the State and Federal governments. To date, those funds have not been committed or secured by either government.

References

The documents listed below provide additional information on damage assessment and restoration. They are available from the Oil Spill Public Information Center, The Simpson Building, 645 G Street, Anchorage, Alaska, 99501.

"The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Volume I Assessment and Restoration Plan Appendices A,B,C."

"State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill," August 1989.

"Restoration Planning following the Exxon Valdez Oil Spill: August 1990 Progress Report."

"Restoration following the Exxon Valdez Oil Spill: Proceedings of the Public Symposium," July 1990.

_____ _____

LaJuana S. Wilcher Date
Assistant Administrator
Office of Water
U.S. Environmental Protection Agency

_____ _____

Gregg K. Erickson Date
Director
Division of Oil Spill Impact Assessment and Restoration
Alaska Department of Fish and Game

RPWG
M

MEMORANDUM DECEMBER 28, 1990

FROM: Stan Senner and Susan MacMullin

TO: Management Team
Legal Team
Trustee Council

SUBJECT: Distribution of the Revised (December 28, 1991) Draft Federal Register Notice

Attached is the revised draft Federal Register notice on restoration. This draft has a revised version of the habitat protection project. An alternative version from the USFS is also enclosed. We will resolve this issue on Monday.

We will address any final changes after the Trustee Council teleconference at 10:00 a.m. on the 31st of December. Please call either of us (Stan - 907/271-2461, Susan - 202/245-4373) if you have any questions. 475-7131

Attachment

Distribution:
Mike Barton
Don Collinsworth
Al Ewing
Steve Pennoyer
Walter Stieglitz
Dave Gibbons
Gregg Erickson
Byron Morris
Paul Gertler
Cordell Roy
Maria Lisowski
Liza McCracken
Martha Fox
Craig O'Connor
Jim Nicoll
Bart Freedman
J. P. Tangens

(3) RFP → Lit. copy to Susan

(1) Agenda
(2) List ? P.R.

cc: RPWG Members

Environmental Protection Agency
[WHR-L-]

Agency: Environmental Protection Agency and the Alaska Department of Fish and Game

Action: Notice

Summary: The Environmental Protection Agency, on behalf of the Federal Trustees (the U.S. Departments of Interior and Agriculture and the National Oceanic and Atmospheric Administration), and the Alaska Department of Fish and Game, on behalf of the State Trustee, are publishing here 1) a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities being considered by the Trustee Council, and 2) a discussion of the overall process the state and Federal governments intend to follow to enhance and expedite the recovery of Prince William Sound, lower Cook Inlet, and the Gulf of Alaska from the Exxon Valdez oil spill. The public is invited to comment and to suggest other activities that should be considered by the Trustee Council in preparing a 1991 Restoration Work Plan. Notice of intent to take this action was published in the FEDERAL REGISTER in November (55 FR 48160, November 19, 1990).

Dates: The Federal and State of Alaska governments will accept comments through [insert date 45 days from publication in the FEDERAL REGISTER]. Written comments should be submitted to: Secretary, Restoration Planning Work Group, Oil Spill Restoration Planning Office, 437 "E" Street, Suite 301, Anchorage, Alaska 99501, Phone (907) 271-2461.

I. Introduction

Purpose

The U.S. Departments of Interior (DOI), of Agriculture (DOA), National Oceanic & Atmospheric Administration (NOAA), and Alaska Department of Fish and Game (hereafter referred to as "the Trustees") and the Environmental Protection Agency (EPA) desire to implement restoration activities in the areas affected by the Exxon Valdez oil spill as soon as possible. This Notice presents a draft 1991 Restoration Work Plan comprised of restoration planning and implementation activities under consideration by the Trustee Council, an Alaska-based intergovernmental group charged by the Trustees with managing the natural resources damage assessment and restoration program. Restoration activities in 1991 and subsequently will be undertaken as appropriate, based on

damage assessment results. Implementation activities in 1991 will be modest relative to those that will be carried out in a comprehensive program. The combined information in this FEDERAL REGISTER Notice and a subsequent Notice planned for March 1991 will provide a full discussion of the 1991 program.

Although preparation of a 1991 Restoration Work Plan is not required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Clean Water Act (CWA), or the laws of Alaska, the Trustees and EPA have chosen to present the draft 1991 Restoration Work Plan to obtain public comment and to invite suggestions about other restoration activities that should be considered by the State and Federal governments. The public is also invited to comment on the overall process the governments intend to follow in enhancing environmental recovery in Prince William Sound, lower Cook Inlet, and the Gulf of Alaska after the Exxon Valdez oil spill.

Background

The Trustees expect to complete the assessment of damages, determine liability, and collect funds from the responsible parties before they prepare a final Restoration Plan. Although the Trustees wish to resolve damage assessment and liability issues as promptly as possible, it is not possible to predict when this will occur. Considering this uncertainty, in cases where the nature of the resource injury is reasonably clear, it may be desirable to implement restoration activities prior to a final Restoration Plan. As a result, the Trustee Council is considering implementation in 1991 of activities described in section III of this notice or other activities that may be identified later in the process. The Trustees expect to publish a revised 1991 Restoration Work Plan in the FEDERAL REGISTER on or about March 21, 1991.

Organization of this Notice

This notice has three main sections: I. Introduction, II. Restoration Planning, and III. Restoration Implementation. The Introduction presents a synopsis of the purpose of this notice and background information. Section II, Restoration Planning, describes the overall approach to restoration and reports on the planning activities conducted in 1990. In Section III, this notice provides information on restoration planning and implementation actions under consideration for 1991.

Further Information

Further information about the Exxon Valdez oil spill, the damage assessment studies, and restoration planning activities is contained in the documents referenced at the end of this notice and in the FEDERAL REGISTER published on November 19, 1990 (55 FR 48160).

II. Restoration Planning

The Planning Process

The Trustees' and EPA's restoration planning activities are designed to determine appropriate ways to restore natural resources and services injured by the Exxon Valdez oil spill. Restoration builds upon the spill response and damage assessment process by planning for, and then implementing, activities to restore the environment to its baseline condition.

The Natural Resource Damage Assessment (NRDA) regulations [insert citation], which implement certain provisions of CERCLA and CWA, define "restoration" or "rehabilitation" as..."actions undertaken, in addition to response actions, to return an injured resource to its baseline condition as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided...". This definition of restoration from the NRDA regulations is provided here for informational purposes only. The Trustees will consider whether and to what degree the NRDA regulations will be followed.

The State and Federal governments have determined that restoration after the Exxon Valdez oil spill should be subject to continuing review as information is developed about injury and possible restoration activities. The Trustees expect that each year's work will build on the last, and that all information pertinent to the Exxon Valdez oil spill will be examined.

Although the restoration planning process may be modified to accommodate new information, the governments contemplate the following steps:

- Determining the Need for Restoration.
  The need for restoration depends on the nature and extent of natural resources injuries, and the adequacy of natural recovery. The primary information source regarding injury, damage, or loss is the studies conducted by State and Federal agencies as part of the natural resources damage assessment. These studies are described in the 1989 and 1990 Exxon Valdez damage assessment plans (see the documents referenced at the end of this notice). Other sources of information include public comments, data gathered as part of the oil spill response, and other studies conducted by government agencies outside of the damage assessment process.

- Identifying Potential Restoration Activities.
  For any injury, there are three types of possible restoration activities:

direct restoration refers to measures in addition to response actions to directly rehabilitate an injured, lost, or damaged resource;
replacement refers to substituting one resource for an injured, lost, or damaged resource of the same or similar type; and
acquisition of equivalent resources means to compensate for an injury to a resource by substituting another resource that provides the same or substantially similar service as the resource injured, lost, or destroyed.

Determining the adequacy of natural recovery is fundamental to the choice of a restoration activity. In some cases the Trustees may determine that it is most appropriate to allow natural recovery to proceed without further intervention by man.

A variety of potential restoration activities and concepts from numerous sources have been presented in a series of matrices in "Restoration Planning Following the Exxon Valdez Oil Spill: August 1990 Progress Report." Additional activities will be identified and considered at any time as additional damage assessment data are received.

- Evaluating Potential Restoration Activities. Evaluation of potential restoration activities will take into account such factors as:

  documentation of the injury;
  determination of the adequacy of natural recovery;
  establishment of technical feasibility;
  determination of net environmental benefit;
  determination of cost effectiveness; and
  establishment of the reasonableness of the cost of the restoration project in light of the value and importance of the resource.

  Some restoration proposals may be readily evaluated. In some cases additional information, for example, biological, ecological, or resource assessment data, will be gathered to support the evaluation process.

  The Trustees and EPA will focus restoration planning on the recovery of ecosystems. By necessity, however, individual elements of the restoration program may be species- or resource-specific. In general, priority will be given to activities which benefit multiple rather than single species or resources.

- Recommending and Implementing Restoration Activities on a Continuing Basis.

The Trustees and EPA view the entire restoration process as dynamic and evolving. As information on damages becomes available, and as potential restoration activities are evaluated, certain activities may be recommended and carried out in advance of the receipt of funds for restoration from the parties responsible for the oil spill (see Section III, below).

- Presenting a Damage Claim to Parties Responsible for the Oil Spill and Receiving Funds for Restoration. The damage assessment process initiated by the Trustees is designed to identify and quantify specific resource injuries and determine the corresponding monetary values. Claims for these amounts will be presented to the parties responsible for the oil spill and, under Federal law, the monies received must be used to plan for or implement restoration activities, after reimbursing the costs of the damage assessment program.

- Preparing and Implementing a Final Restoration Plan. When restoration funds are received, determinations will be made concerning the nature and scope of all remaining known restoration activities. Implementation of any restoration activity will follow appropriate procedures for compliance with relevant State and Federal laws and regulations.

- Evaluating the Effectiveness of Restoration Measures, and Recommending Additional Actions. Implementation of restoration activities will be evaluated based on standards appropriate to individual projects and resources. In addition to verifying that restoration goals have been met, ongoing monitoring activities will be employed to identify lingering injuries or effects that can be addressed through modified or additional restoration actions.

Restoration planning, as outlined above, is underway; the overall pace of restoration is dependent on the availability of information to determine injury and the resolution of a claim for damages. Implementation of restoration and monitoring activities may take a number of years. The Trustees and EPA intend to follow the restoration planning process as outlined above in order to accelerate the restoration of the Prince William Sound-Gulf of Alaska ecosystem.

Public Participation

The Trustees and EPA intend to encourage, provide for, and be responsive to public participation and review during the restoration planning process. However, carrying out this

intent is complicated by the need for confidentiality with respect to damage assessment information due to pending or possible future litigation with the parties responsible for the Exxon Valdez oil spill. Notwithstanding these considerations, the Trustees intend to provide opportunity for meaningful public review and comment on all restoration implementation activities.

In September of 1990, the Oil Spill Public Information Center was opened in Anchorage to provide the public with scientific data and other information related to the 1989 Exxon Valdez oil spill. The Trustees will continue to place information in the center as it becomes available.

Restoration Planning Activities in 1990

The Trustees and EPA began to solicit public opionion in March 1990 with a public symposium on restoration in Anchorage, Alaska. In April and May of 1990, eight public scoping meetings were held throughout southcentral Alaska to gain a sense of the public's priorities for the restoration program. (For a detailed description of these meetings, see the documents referenced at the end of this notice.) In addition to these public meetings, the governments have communicated individually with such constituencies as Native corporations and villages, fishing groups, and environmental organizations.

To gather specific scientific input for the restoration planning process, technical workshops were held in Anchorage in April 1990. Follow-up meetings were held in October and November 1990. Participants included members of the Restoration Planning Work Group (the Alaska Departments of Fish and Game, Environmental Conservation, and Natural Resources, and the U.S. Departments of Interior and Agriculture, the National Oceanic and Atmospheric Administration, and the U.S. Environmental Protection Agency) Federal and State resource managers, and scientists and technical experts under contract to the governments. Due to the necessary discussion of litigation-sensitive damage assessment information, these workshops were closed to the general public.

The Restoration Planning Work Group completed a preliminary literature search, which identified articles and other published material concerning techniques for ecological restoration following oil spills. Approximately 200 publications were acquired for detailed review and are listed in the August 1990 Progress Report.

The Trustee agencies and EPA initiated several small-scale field studies to evaluate the feasibility of restoration techniques. Results from these studies will help to determine the costs and effectiveness of full-scale restoration projects. Several technical support studies were also initiated to provide information needed to evaluate or carry out some potential restoration activities. These studies are described in the "State/Federal Natural Resources

Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill," August 1990. The 1990 studies and preliminary results are summarized below.

1990 Restoration Feasibility Studies

1. Reestablishment of *Fucus* in Rocky Intertidal Ecosystems
   Lead Agency: U.S. Environmental Protection Agency

Early observations indicated that Fucus, a marine plant (rockweed) found on rocky shorelines in the intertidal zone throughout the oil spill area, was extensively damaged by both the spilled oil and cleanup efforts. If the natural recovery of Fucus could be significantly accelerated or enhanced it would benefit the recovery of associated flora and fauna on intertidal rocky shores

Specific objectives of this study were to identify the causes of variation in Fucus recovery at and near Herring Bay, Knight Island in Prince William Sound; to document the effects of alternative cleaning methods on Fucus; and to test the feasibility of enhancing the reestablishment of Fucus. Though results are preliminary at this time, it appears that Fucus recovers most slowly in the intensively cleaned sites, and that almost no recovery has occurred where tar cover persists.

2. Reestablishment of Critical Fauna in Rocky Intertidal Ecosystems
   Lead Agency: U.S. Forest Service

This feasibility study was designed to compare the rates of faunal recovery in rocky intertidal communities, and to demonstrate the feasibility of potential restoration of these communities by enhancing recolonization rates for key species as limpets and starfish. Recolonization rates for these organisms and for the rockweed, Fucus, may limit the natural rates of recovery for the entire community. Parameters examined included the presence or absence of common intertidal species on impacted and reference sites, population dynamics of several species of invertebrates, larval settlement on oiled versus non-oiled surfaces, and differences in algal grazing by limpets between oiled and referenced sites. Preliminary results indicate that heavy predation of several species of transplanted invertebrates was probably due to lack of cover usually provided by Fucus.

3. Identification of Potential Sites for Stabilization and Restoration with Beach Wildrye
   Lead Agency: Alaska Department of Natural Resources

This study was designed to identify sites at which damage to beach wildrye grass has occurred, and to recommend restoration measures. This species was affected by both

spilled oil and subsequent cleanup activities. Beach wildrye grass is important in the prevention of erosion in the coastal environment and is a key component of supratidal habitats in locations throughout the oil spill area. Erosion resulting from loss of beach wildrye can lead to the destabilization and degradation of wildlife habitats and of cultural and recreational sites.

4. Identification of Upland Habitats Used by Wildlife Affected by the Oil Spill
   Lead Agencies: U.S. Fish and Wildlife Service, Alaska Departmenmt of Fish and Game.

A variety of bird and mammals was killed by the spill or injured by contamination of prey and habitats. Many of these species are dependent on aquatic or intertidal habitats for activities such as feeding and resting, but many also use upland habitats. Protection of upland habitats from further degradation may reduce cumulative effects on injured fish and wildlife populations, and thereby help them recover from the effects of the oil spill. This study focused specifically on marbled murrelets and harlequin ducks, two species known to have been affected by the spill and known to use upland habitats.

Based on surveys of 140 streams, preliminary results of the harlequin duck study indicate that this species nests along larger-than-average anadromous fish streams, with moderate gradients and clear waters. Preliminary results on murrelets suggest that murrelets use slopes facing north or west, and inland areas at the heads of bays as opposed to the outer peninsulas. Open bog meadows, especially at the heads of bays, appear to be used as flight corridors to upper wooded areas.

5. Land Status, Uses, and Management Plans in Relation to Natural Resources and Services
   Lead Agency: Alaska Department of Natural Resources

The objective of this study is to locate, categorize, evaluate, and determine the availablity of maps, management plans, and other resource documents relevant to restoration planning throughout the oil-spill region. Resource materials identified will assist in planning for and implementing site-specific restoration activities, including direct restoration, replacement, and the acquisition of equivalent resources.

To date, a variety of documents, maps, and management plans have been identified and are being evaluated; other resource materials are being located. This prliminary project will be completed in Spring 1991. A second phase, directly supporting the proposed Restoration Project Number 4, Protection of Strategic Fish and Wildlife Habitats and Recreation Sites, is under consideration.

1990 Technical Support Projects

1. Peer Reviewer Process for Restoration Feasibility Studies
Lead Agency: Restoration Planning Work Group

This project provided funds to ensure that scientists with expertise on natural resource restoration were available to provide peer review of restoration feasibility projects and other restoration planning studies and activities.

2. Assessment of Beach Segment Survey Data
Lead Agency: Alaska Department of Natural Resources

The objective of this project is to review and summarize beach survey information (obtained through oil spill response activities) to assist in planning for and implementing site-specific restoration activities, particularly in the area of direct restoration. This study was initiated late in 1990 and continues to date.

A master database is being created from that portion of the beach surveys relevant to restoration. The primary sources of this information are the Alaska departments of Natural Resources and Environmental Conservation. Data from local and regional gocvernments as well as non-governmnental sources will also be reviewed and integrated into the system as appropriate. This preliminary project will be completed in Spring 1991.

3. Development of Potential Feasibility Studies for 1991
Lead Agencies: Alaska Department of Fish and Game,
U.S. Environmental Protection Agency

This project provided for the orderly development of additional feasibility studies including: a) monitoring "natural" recoveries; b) pink salmon stock identification; c) herring stock identification/spawning site inventory; d) artificial reefs for fish and shellfish; e) alternative recreation sites and facilities; f) historic sites and artifacts; and g) availability of forage fish. Currently feasibility studies proposals are under consideration for all of the above.

III. Draft 1991 Restoration Work Plan

The Trustees are currently developing and evaluating restoration planning and implementation activities, which will be described in the 1991 Restoration Work Plan to be published in the FEDERAL REGISTER in March. Planning activities will include feasibility studies, technical support studies, and natural recovery monitoring. Implementation activities that are now under consideration are presented in this section. The Trustees and EPA are asking, through this notice, for public comment on and

additional suggestions for restoration planning and implementation activities for 1991.

1991 Restoration Planning Activities

Consistent with the steps outlined in Section II, several restoration planning activities will continue in 1991. The fundamental purpose of restoration planning is to identify and evaluate potential restoration implementation activities, in consultation with technical experts and the public.

The integration of results from the damage assessment into restoration planning is critical to the success of the oil spill program. As damage assessment results are synthesized, the Restoration Planning Work Group will identify potential restoration implementation activities and related feasibility and technical support projects. This process involves ongoing consultations with principal investigators for damage assessment studies, agency experts, and outside peer reviewers to review the nature and extent of oil spill injuries in relation to the biology and ecology of injured species, habitats, and ecosystems. A key goal is to identify life history requirements, limiting factors, and environmental processes that are especially sensitive or that may be enhanced.

Section II describes five feasibility studies carried out in 1990, some of which may continue in 1991. The Trustees and EPA are considering additional feasibility and technical support projects in 1991 and, following additional review, intend to discuss them in the March 1991 FEDERAL REGISTER Notice. Studies now being considered concern a variety of resources, including pink salmon, tidal marshes, Pacific herring, bald eagles, recreation, and sea otters, among others. Studies will be implemented as damage assessment data and funding become available.

The scientific literature and experience from oil spills other than the Exxon Valdez will provide background on restoration and information from other oil spill experiences. In 1991, the Restoration Planning Work Group expects to synthesize previously identified literature on restoration (see Appendix B, August 1990 Progress Report) and to continue syntheses of literature on species and ecosystem recoveries following anthropogenic and natural environmental disturbances.

Information on the adequacy of natural recovery is central to determining whether to implement restoration actions or to allow injured resources to recover on their own. Direct measures of recovery, such as species distribution, abundance, diversity, growth, reproductive success, or other physiological and biochemical properties, may be appropriate monitoring objectives. In some cases, it is appropriate to indirectly determine the degree of recovery by measuring exposure (presence of oil residuals and/or metabolites) and by applying knowledge of toxicological

effects derived from the oil spill literature. For these reasons, the recovery of injured resources can best be followed by implementing a balanced program of monitoring. The duration of recovery monitoring will depend on the time necessary to establish a trend for recovery, and this in turn will necessarily depend on the severity and duration of effects resulting from the oil spill. This may be expeced to extend over a period of several years in cases of long-living, slow-reproducing biota.

Some recovery monitoring studies will be considered for implementation in 1991. As with feasibility and technical support projects, these will be discussed in the March 1991 FEDERAL REGISTER document.

Public participation will continue to be an important component of restoration planning in 1991. The Restoration Planning Work Group is interested in and available for meetings with individuals or constituency groups. In addition, the Trustees will consider whether and what additional actions, such as publications and workshops, are appropriate and possible in 1991. Requests and suggestions from the public are invited.

1991 Restoration Implementation Activities

Where the nature of the resource injury is reasonably clear, it may be desirable to begin restoration prior to receipt of funds from the parties responsible for the oil spill. There are several reasons why this may be so.

Failure to undertake timely restoration may allow damages initiated by the spill to continue or accelerate, as in the case of the loss of stabilizing vegetation on beaches. In other cases, protection of strategic habitats, which may be subject to land-use changes, can reduce cumulative stresses on injured resources and preserve opportunities for the acquisition of equivalent resources. Finally, the importance of a resource for subsistence, commercial, or recreational purposes may justify prompt restoration action.

The restoration activities being considered by the Trustee agencies for implementation in 1991 are described below. Before making final decisions for the 1991 program, the Trustees are prepared to conduct public meetings in some of the oil spill communities, if requested to do so. The projects now under consideration are:

1. Restoration of the Beach Wildrye Community
   Lead Agencies: Alaska Department of Environmental Conservation, U.S. Forest Service

   Need and Objectives

   The high intertidal-supratidal beach wildrye grass (Elymus arenarius, E. mollis) communities show signs of localized injury as a result of the Exxon Valdez oil spill and the associated cleanup activities. Injury appears to have resulted from oiling and the stress of

mechanical abrasion resulting from oil removal operations carried out by cleanup workers and equipment. Beach wildrye grass is a major component of maintaining natural beach stability. Injury to this important plant community may result in accelerated erosion of the beaches and adjacent upland plant communities. Also at risk from increased erosion are several nearshore archaeological sites.

Once the beach wildrye root masses are disturbed, natural recovery may be slow, taking several years. Wildrye recolonizes primarily by spreading outward from undamaged plants, and this process can be stopped altogether if the rate of erosion is too great. This may result in a significant loss of intertidal and supratidal area. Restoration intervention may often restabilize a beach in one growing season.

The objective of this project is to determine the sites for restoration following the 1991 Spring Shoreline Assessment, and to stabilize injured sites where natural or cultural resources are at risk.

Methods:

Replanting beach wildrye for stabilization is a proven technology. Nearby healthy stocks of beach wildrye grass will be used as a source of donor material. After replanting, fertilizer will be applied (20-20-10 fertilizer up to 800 pounds per acre) to help the transplanted beach wildrye grass recolonize. At some locations fertilizer alone may be sufficient to encourage existing injured plant communities to recover without transplanting new stock.

Estimated 1991 Cost: $180,000

2. Public Information and Education for Recovery and Protection of Alaska's Marine and Coastal Resorces
Lead Agencies: U.S. Fish and Wildlife Service, National Park Service

Need and Objectives:

The Exxon Valdez oil spill caused direct and indirect injury to the marine birds and mammals of southcentral Alaska. The purpose of this project is to make users of the area aware of the changes to the ecosystem resulting from the oil spill and to lessen the potential for additional harmful human disturbances..

Methods:

The project's sponsors will publish and distribute information explaining the potential adverse impacts of human activities, and the importance of increased conservation and protection of marine birds and mammals in key habitats in the oil spill area.

Print media will be distributed through traditional outlets including but not limited to refuge, park, and tourist information and visitor centers. Additional distribution will occur to airports, boat harbors, commercial tour operators, and to public agency and private industry training staffs.

Some species identification information will be included but the primary content of the media will emphasize strategies to allow public use and enjoyment of marine birds and mammals while preventing harmful disturbances to these species. Estimated 1991 Cost: $100,000.

3. Salmonid Stocks and Habitat Restoration
Lead Agencies: Alaska Department of Fish and Game, U.S. Forest Service

Need and Objectives:

Spawning and nursery areas of wild stocks of pink and chum salmon which were impacted by the Exxon Valdez oil spill occur throughout Prince William Sound, lower Cook Inlet, and the Gulf of Alaska. Pink and chum salmon are major components of the ecosystem, serving as important food sources for other fish, birds, terrestrial and marine mammals. Pink and chum salmon are also harvested by man in subsistence, commercial, and sport fisheries. Since salmon return to the individual streams in which they were born, with little straying to other streams, genetically unique wild salmon stocks will be restored and enhanced through site specific rehabilitation of salmon spawning and rearing habitats.

Methods:

The Salmonid Stocks and Habitat Restoration Project consists of several proven fisheries enhancement techniques that may be applied immediately. In addition to those sites and streams at which potential rehabilitation activities already have been identified, a survey of affected salmon spawning habitat within the oil spill area will be conducted in 1991 to determine additional restoration measures. The proposed techniques include fish passage through stream channelization or fish ladders to overcome physical and hydrological barriers and construction of spawning channels. All of these measures provide oil-free spawning areas to replace oil-impacted spawning areas. Additional wild salmon stock restoration measures include remote egg-taking and incubation at existing hatcheries for ultimate fry release in oil-impacted streams. Other measures may include optimal fry release programs that will enhance marine survival of juvenile salmonids.

Estimated 1991 Cost: $1,300,000

4. Protection of Strategic Fish and Wildlife Habitats and Recreation Sites
Lead Agencies: Alaska Department of Fish and Game,
Alaska Department of Natural Resources
U.S. Department of the Interior,
U.S. Department of Agriculture

Need and Objectives:

The marine and intertidal habitats where most oil spill injuries occurred are ecologically linked to adjacent uplands. Eagles nest and roost in large trees along the coasts and streams, and marbled murrelets nest in association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas.

Recreation activities such as sport fishing and tourism also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts of the regional ecosystem, including strategic marine, intertidal, and estuarine habitats and adjacent uplands, may be necessary for the efficient recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acqisition and changes in management practices.

Activities such as logging and gravel removal may occur on private lands in the oil spill area in 1991 or 1992. These activities may impact some of these critical habitats or slow the recovery of spill-injured resources.

The objective of this project is to protect strategic wildlife and fisheries habitats and recreation sites and to prevent further environmental damages to resources injured by the Exxon Valdez oil spill.. This project will be preceded by a technical support project to identify and evaluate potential properties which if publically owned will contribute to this objective.. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis.

The overall task of strategic habitat acquisition willembody the following sequential steps.

1. Identification of key upland habitat that is privately owned and linked to the recovery of injured resources or services.
2. Characterization and evaluation of potential threats from changed land use in relation to their effects on recovery of the ecosystem and its components; comparative evaluation of recovery strategies not involving acquisition of property rights, including an assessment of protections afforded by existing law and regulations..
3. Economic evaluation of the most cost-effective strategy to achieve restoration objectives for key upland habitats identified, in steps one and two above, as possibly appropriate for acqisition. For example, cost-benefit analysis and real estate appraisals.
4. Willing seller/buyer negotiations with private landowners for property rights.
5. Incorporation of acquired property rights into public management.

Habitat acquisition proposals that meet the appropriate criteria for restoration will be prudently implemented in accordance with this five-step process and applicable state and federal laws and regulations governing acquisition of land or interests in land.

The geographic scope of the 1991 project will be the oil spill area. During preparation of a final restoration plan, the trustees may undertake a more comprehensive survey of potential acquisitions, including acquisitions outside the spill area.

Estimated 1991 cost: $40,000,000

Funding for the 1991 Restoration Work Plan

Although it is expected that the responsible parties will pay for the costs of the damage assessment and restoration program, there is no certainty about the final amount and when such funds will be forthcoming. It is likely, therefore, that funds to carry out the 1991 Restoration Work Plan, including the proposed planning and implementation activities, will have to be advanced by the State and Federal governments. To date, those funds have not been committed or secured by either government.

The Federal Trustee agencies and EPA are now evaluating what Federal funds might be available to carry out the 1991 Restoration Work Plan. With respect to restoration implementation activities, the State's Trustee has requested from the Legislature $43,146,000 for 1991 restoration projects. For planning activities, including feasibility and technical support studies and other restoration planning

activities, the State Trustee has additionally requested a total of $3,636,000.

References

The following documents provide additional information on damage assessment and restoration and are available from the Oil Spill Public Information Center. [insert address]:

"The 1990 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Volume I Assessment and Restoration Plan Appendices A,B,C."

"State/Federal Natural Resource Damage Assessment Plan for the Exxon Valdez Oil Spill," August 1989.

"Restoration Planning following the Exxon Valdez Oil Spill: August 1990 Progress Report."

"Restoration following the Exxon Valdez Oil Spill: Proceedings of the Public Symposium," July 1990.

12/28/90 DRAFT USFS

Project 4: Protection of Strategic Fish and Wildlife Habitats and Recreation Sites

from Dave Gibbons et al., USDA

Lead Agencies: ADF&G, ADNR, USDA, USDI

Need and Objectives:

The marine and intertidal habitats where most oil-spill injuries occurred are ecologically linked to adjacent uplands. The water quality in streams and estuaries where salmon spawn depends on the adjacent uplands. Eagles nest and roost in large trees along coasts and streams, and marbled murrelets nest in association with forested uplands. Harlequin ducks nest in riparian habitats and feed in the streams as well as in nearby intertidal and estuarine areas.

Recreation activities such as sport fishing and tourism also depend on the quality and accessibility of shorelines and uplands. The diversity, productivity, and uses of intertidal and estuarine habitats, and of freshwater streams along the coast depend on the ecological integrity of the adjacent uplands. Continued productivity in the undamaged parts of the ecosystem--including strategic marine, intertidal, and estuarine habitats and adjacent uplands--may be necessary for the efficient recovery of biological communities that were injured.

During the public scoping process the governments received many restoration suggestions that involved the protection of prime fish and wildlife habitats, recreation sites, and adjacent uplands. Suggested approaches to this protection included land acquisition and changes in land management practices.

Activities such as logging and gravel removal may occur on private lands in the oil spill area in 1991 or 1992. These activities, if conducted improperly, may impact critical habitats or slow the recovery of spill-injured resources.

The objective of this project is to protect strategic wildlife and fisheries habitats and recreation sites. This project will be preceded by a technical support project that will identify and evaluate opportunities for acquisition in relation to resource values, oil-spill injuries, land ownership and other relevant factors. Where acquisition of property rights is determined to be the most prudent method for restoration, property rights will be acquired on a willing buyer/willing seller basis.

Methods:

The overall task of strategic habitat acquisition will occur in the following sequence:

1. Identification of privately owned key upland habitat that is linked to injured resources or services.

2. Evaluation of potential threats from land management practices in relation to the effects on injured resources, including an assessment of protections afforded by existing law or regulations.

3. Evaluation of the most cost-effective strategy to achieve restoration objectives for key upland habitats identified in steps one and two. This evaluation may include, for example, a cost-benefit and net-benefit analyses for injured resources and appraisals of land value.

4. Negotiation with private landowners for property rights on a willing buyer/willing seller basis.

5. Incorporation of acquired property rights into public management.

Only habitat acquisition proposals that meet the appropriate restoration evaluation factors will be considered for implementation in accordance with the above sequence, and acquisition will occur if it is the sole viable method for restoration.

The geographic scope of the 1991 project will be the oil-spill area. During preparation of a final restoration plan, the trustees may undertake a more comprehensive survey of potential acquisitions, including acquisitions outside the spill area.

Estimated 1991 funding for multi-year acquisitions: $40,000,000.

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RPWG PRODUCT
DRAFT FR NOTICE OUTLINE
NOVEMBER 13, 1990

FEDERAL REGISTER NOTICE -- Draft Outline

Draft Restoration Work Plan and Proposed
1991 Restoration Program

I. Introduction (5 pages)
   - Purpose of this notice (Present draft restoration work plan and 1991 restoration program and report on results of 1990 projects)

II. Restoration Plan Development (7 pages)
   - Introduction
     - Dynamic process, interim step only, information still being assessed
     - Leads to final restoration plan after settlement of damage claim
   - Identification of need for restoration
     - NRDA data, feasibility studies, literature review, shoreline surveys etc.
   - Development of alternatives
     - Public workshops, reports, literature review
   - Evaluation of potential restoration measures
     - Feasibility studies, literature reviews, matrices, selection "criteria" etc.
     - Peer review and public comment
   - Compliance with Federal/State statutes and regulations, i.e.. CZM, NEPA, and others
   - Final restoration plan developed after settlement

III. Summary of 1990 Restoration Work (5 pages)
   - Restoration Planning Activities
   - 1990 Feasibility Study Results

IV. Proposed 1991 Restoration Program (7 pages + 2/proposed project)
   - Introduction
   - Present 1991 restoration, feasibility, technical support, and recovery monitoring projects for comment, including "criteria" used for selection
   - Peer Review
   - Public comment/involvement/participation

V. Summary and Request for public comment on items in this FR notice (2 pages)

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CONFIDENTIAL

MEMORANDUM SEPTEMBER 28, 1990

SUBJECT: Proposal for an Accelerated Restoration Process

FROM: Stanley E. Senner
Restoration Program Manager
Department of Fish and Game
State of Alaska

Susan MacMullin
Deputy Director
Alaska Restoration Task Force
Environmental Protection Agency

TO: Washington Policy Group
Trustee Council
Management Team

Summary

This memorandum is prepared in response to a charge to us by the Washington Policy Group and the State Trustee. The charge was to negotiate agreements to achieve a State-Federal draft of a plan for restoration of Prince William Sound and the Gulf of Alaska to be announced in a Federal Register (FR) notice. In the following paragraphs we summarize our discussions and present an outline of the contents of a plan to achieve shared restoration objectives.

The recommendations presented below are based on two points of common ground we quickly established in our discussion:

-that the existing program of the Restoration Planning Work Group (RPWG) provides a basis for accelerated restoration planning; and

-that we can identify a group of ecologically sound, potential restoration projects that could be carried out in 1991, subject to careful scientific and legal evaluation and the availability of funds.

We believe that these points provide a basis for continued State-Federal cooperation in restoration planning.

Background

On September 18, 1990, the Washington Policy Group met regarding the restoration planning process and the Oil Spill Public Information Center (OSPIC). The Policy Group proposed to publish three FR notices between this fall and next spring. The first would announce the opening of the OSPIC and express the intent to publish a "draft restoration plan" in the FR. The second notice, to be published in late autumn 1990, would provide the first draft of the plan for public comment and propose restoration projects to be carried out in 1991. The third notice, scheduled to roughly coincide with the anniversary of the Exxon Valdez Oil Spill, would respond to public comment and present a more detailed version of the plan and 1991 program.

On September 20, 1990, Alan Raul, General Counsel, U.S. Department of Agriculture, discussed the Federal proposal for an accelerated restoration planning process with Don Collinsworth, Trustee for Alaska. The State was invited to participate in this process. On September 24, 1990, in another conversation, Messrs. Raul and Collinsworth agreed to delay the initial FR notice for one week in order to allow for the State's restoration program manager, Stan Senner, to meet with a representative from EPA, Susan MacMullin, acting as Federal representative at the request of the Washington Policy Group, to discuss the potential for and substance of a schedule and document mutually acceptable to the State and Federal governments.

On September 27, 1990, we met in the presence of the following representatives of Federal Trustee agencies: Dave Gibbons, U.S. Department of Agriculture; Byron Morris, National Oceanic and Atmospheric Administration; and Paul Gertler, Cordell Roy, and Sandy Rabinowitch, U.S Department of the Interior. Steve Bugbee and Steve Torok, Environmental Protection Agency, were also present, as were Gina Belt, U.S. Department of Justice, and Liza McCracken, Alaska Department of Law. After the morning session, a working group of Senner, MacMullin, McCracken, and Rabinowitch outlined the discussion and tentative agreements reached in the morning.

Federal Intent Regarding Purpose and Scope of the Second Federal Register Notice

As a preliminary matter, Susan MacMullin recapped the following points about the scope and purpose of the autumn FR notice, as proposed by the Washington Policy Group:

-the Federal government desires to accelerate the restoration process and formally notify the public that restoration is proceeding and how it is proceeding;

-a FR notice will be prepared to begin outlining a restoration plan for Prince William Sound and the Gulf of Alaska, the notice will be published on or about November 16, 1990;

-the notice should characterize the restoration process as dynamic and explain that plans for restoration will necessarily change as additional data on injury, loss, and damages are received;

-the autumn FR notice should--

-describe restoration methodologies;

-describe restoration projects for 1991;

-evaluate these projects in terms of benefits to the environment and other applicable criteria;

-present the projects to the public as proposals, explaining that final decisions will be made upon further analysis of damage assessment data and receipt of public comment;

-discuss the damage assessment process, note that the process is not complete, explain that many data are yet to be evaluated, and identify how that affects restoration planning; and

-invite public comment.

State's Reaction to and Concern with Proposed FR Notice

Stan Senner outlined the State's concerns with the draft FR notice. At the outset, it is important to note that the State Trustee was only notified of the Federal intent to announce a draft restoration plan in the "11th hour." Specific concerns are:

-timing: The draft notice imposes a timetable--about six weeks--for preparation of a draft restoration plan; it is not possible, in that time, to draft a plan that is scientifically credible and legally defensible;

-content: The draft FR notice requires preparation of a comprehensive restoration plan before there has been an opportunity to fully evaluate NRDA study results;

-State involvement: The State's Trustee must be involved fully in the development and presentation of a restoration plan and schedule;

-joint resources: Resources to be restored in the spill area are a mixture of State, Federal, and privately owned; any restoration plan must be a joint State-Federal effort; and

-credibility: A restoration plan must be scientifically and legally defensible; premature publication of a draft plan would challenge the credibility of the Trustees and not serve the interests and needs of the public.

State-Federal Issues

Both State and Federal representatives recognized at the outset of the discussions the need to address:

-funding of restoration projects undertaken before settlement or recovery from Exxon;

-the relationship of a restoration plan to the NRDA science process; Although data from the 1989 field season have been analyzed for most studies, data from the 1990 season have only just become available. For some particularly crucial studies, such as Coastal Habitat, we do not yet even have a full analysis of 1989 data;

-the effects of a restoration plan on the NRDA legal case; and

-the implications of referring in the FR notice to a "restoration plan."

Basic Agreements: Content of a Draft Plan for Restoration

We agreed that subject to the approval of the State and Federal Trustees or their representatives, a notice in the FR could be published, announcing the intent to prepare a document that will:

-discuss restoration methodologies (direct restoration, replacement, and acquisition of equivalent resources);

-consistent with advice of legal counsel, and using such data as are available, tie together damage assessment and restoration planning; and

-describe possible restoration projects for 1991 in the areas of direct restoration and habitat protection (i.e., acquisition of equivalent resources).

The document may also include:

-criteria used to select recommended projects (e.g., technical feasibility, public support, completeness of NRDA support data, cost, etc.);

-feasibility projects and related studies for 1991;

-plans in 1991 for:

-public participation;

-publication of a redrafted document, to be announced in a spring FR notice;

-a timeline for restoration planning; and

-further evaluation of restoration options in the August 1990 Progress Report;

-reports on 1990 feasibility studies; and

-summary of RPWG program to date.

As has been true in the past in other forums, the terminology for this proposed restoration planning document was at issue in our discussions. The problem, we believe, is based on two different perceptions of what the term "draft restoration plan" means. To the people involved in the NRDA process, the term has a legal meaning that suggests procedural and substantive requirements. From their perspective a less precise use of the term could be misleading by suggesting a degree of completeness or a point in the process that has not yet been reached.

On the other hand, people who are not involved in the NRDA process use the phrase, "draft restoration plan", in a nontechnical sense to suggest a dynamic planning guide. We recommend that both perspectives be respected and that the opportunity to go forward jointly with a FR notice this year announcing accelerated restoration activities should not be jeopardized by disputes over terminology. When appropriate, we recommend use of the phrase "draft plan for restoration," but that the actual document in the FR notice should be called "draft restoration work plan."

We agreed on a timetable that would allow for publication of the FR notice in December, as close to November 16, 1990 as we believe possible in terms of resources, project evaluation, and data analyses. This schedule will still allow us to publish a second FR notice in late March or early April. To meet this schedule, EPA will manage the FR process, write background sections, circulate drafts for review, incorporate comments, and, with respect to the Federal trustee agencies, resolve policy issues.

The Restoration Planning Work Group will concentrate on assessing the 1990 feasibility studies, recommending restoration feasibility projects for 1991, making preliminary recommendations on projects, and writing summaries of these projects for the FR notice. Since the final review of restoration projects for 1991 has been scheduled for completion in mid-November under the schedule established by the Management Team, the December date is achievable. Since the Work Group's present activities are executed under the immediate direction of the Management Team, we propose that the Management Team continue to direct and work with RPWG for purposes of the objectives set forth in this memorandum.

In order to meet the schedule proposed above, we recognize that additional staff resources are required. Such resources are needed to supplement RPWG's substantive, editorial, and logistical capabilities.

Benefits of this Approach

In the approach outlined above, we strove to responds to the needs and wishes of the Washington Policy Group and address the practical and legal concerns raised by the State. We believe that publishing a FR notice containing or announcing availability of the Restoration Work Plan and 1991 Restoration Program would achieve the following:

-preserve State-Federal cooperation on NRDA science and restoration activities;

-provide both substantive and symbolic value;

-show that State-Federal governments are moving ahead with the task of restoration rather than awaiting the conclusion of protracted litigation;
-demonstrate that, notwithstanding Exxon's intensive news media campaign, there are in fact damages to restore;

-take an ecosystem approach to restoration; and

-integrate the results of NRDA science studies with restoration planning.

Questions for Resolution

During the course of our discussions, we identified the following legal and procedural questions. We are preparing to bring them to our counsels and managers.

(1) What National Environmental Protection Act, Coastal Zone Management Act, or other state or federal requirements apply to restoration activities proposed for the field? What time schedules and procedural steps do they impose?

(2) Under NRDA procedures, are the parties constrained from spending money on restoration projects before a settlement or court award?

(3) What effect will publication of a working restoration plan in the FR have on the needs or constraints of the Exxon Valdez litigation? Are these impacts acceptable to management?

(4) How will proposed 1991 restoration projects be funded? Can the government directly bill Exxon? Do State and Federal governments have the ability to fund restoration projects now?

(5) What will be the procedure for review of this proposal within the federal government and between the State and Federal governments?

(6) How will the State Trustee's participation in further decisions be assured?

(7) What is the mechanism for issuing a joint Federal-State FR notice?

(8) In light of the process we have proposed for your review in this memorandum, will additional help be made available to the Restoration Planning Work Group?

(9) As there probably will be continued beach cleanup of oiled beached in FY 1991, how will this restoration work plan be integrated with cleanup and response activities?

Next Steps

We have developed a preliminary schedule of milestones for accomplishing the publication of the autumn FR notice. With the agreement of the Washington Policy Group and State Trustee, we will refine it, circulate a draft schedule to management and the RPWG by October 9, 1990, and continue to work toward the publication of the FR notice.

Distribution:

Washington Policy Group:
Alan Raul
Tom Campbell
George Van Cleve
Dan Esty
Marty Suuberg

Trustee Council:
Walt Stieglitz
Don Collinsworth
Steve Pennoyer
Mike Barton
Al Ewing

Management Team:
Gregg Erickson
Byron Morris
Paul Gertler
Cordell Roy
Susan MacMullin
Dave Gibbons

RPWG
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MEMORANDUM 21 SEPTEMBER 1990

TO: Management Team
FR: Restoration Planning Work Group (RPWG) CONFIDENTIAL

RE: Draft Restoration Plan

In response to your request made earlier today, we present here a brief review of the implications of and concerns about the possibility of a "draft restoration plan" prepared for release to the public this autumn.

We have many questions about what is intended in terms of the nature and scope of a draft restoration plan. Obviously, the answers to these questions have different implications for RPWG. For purposes of this discussion, we assume two possibilities: (1) a substantive plan (e.g., containing actual recommendations about or full evaluations of restoration options), and (2) a plan which focuses more on the process (e.g., essentially an update of the August 1990 progress report).

One problem common to both types of plans is that, given RPWG's limited time and resources, preparation of a plan document would disrupt--if not suspend--the activities currently underway. This problem is particularly acute because, even without changes in our work plan, we will have difficulty meeting the 28 November deadline for submitting reports on the 1990 feasibility studies and 1991 work plan and budget to the Management Team. These activities are fundamental to the long-term restoration process, including:

1) preliminary evaluation of the restoration options presented in the matrices (August 1990 progress report);

(2) evaluation of 1990 feasibility studies, including the involvement of agency personnel and outside peer reviewers;

(3) development of feasibility study proposals and technical support projects for 1991, including the involvement of agency personnel and outside peer reviewers;

(4) completion of scoping meetings in rural villages in the oil spill area;

(5) planning for meaningful public participation in the future; and

(6) preparation of a 1991 work plan and budget for consideration by the Management Team and Trustee Council.

There are several problems that arise from preparation of a substantive restoration plan this autumn. Fundamentally, our

concern is that the resulting product would not withstand public scrutiny. Such a document, would reflect badly on the credibility of the entire NRDA and restoration planning process. Specific concerns include:

(1) no chance to review and incorporate results of 1990 damage assessment studies;

(2) no chance to review and incorporate results of 1990 restoration feasibility studies;

(3) no chance to involve peer reviewers and non-NRDA agency personnel in development of the draft restoration plan;

(4) no chance to evaluate and incorporate considerations about "natural recovery" times (which is required by CERCLA);

(5) no chance to systematically complete the information base which is ultimately required to fully evaluate restoration options (matrices). This information base includes such items as cost and technical feasibility, but also a synthesis of the nature, extent, and distribution of injured resources and habitats throughout the oil spill area;

(6) no chance to adequately plan 1991 feasibility and technical support projects before releasing them to the public; and

(7) potential to negatively affect prospects of a negotiated settlement by presenting publicly only a limited list of restoration projects.

With respect to a strictly process-oriented draft restoration plan, such a document might amount to little more than an update of the August 1990 progress report. Many of the concerns expressed above apply in this case as well. Additional concerns include:

(1) the prospect of wasting time on a duplicative exercise, when RPWG is already hard-pressed to meet the Management Team's 28 November deadline;

(2) release of two, similar, closely-timed reports to the public will result in confusion and diminish the credibility of the process;

(3) a lack of clearcut need and purpose for release of the proposed document this autumn; and

(4) the effort required to prepare the plan will consume

time and resources that could have been used to advance the substantive program in which RPWG is engaged.

Although RPWG's time and resources are limited, there is the possibility that our staff could be supplemented for purposes of preparing a draft restoration and continuing our on-going activities. While this may seem to be an attractive option, we think it is unrealistic in that it does not take into account the learning curve necessary to contribute substantively to the restoration planning process. Simply adding "bodies" with the expectation that quality work will be performed in a short time will not be productive. In fact, it would require even additional energy and time on the part of RPWG members.

We would be happy to explore these concerns further as well as discuss ways in which the shared objectives of the state and federal agencies can be achieved. In the meantime, we are standing by until further guidance is received.

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The document may also include:

-criteria used to select recommended projects (e.g., technical feasibility, public support, completeness of NRDA support data, cost, etc.);

-feasibility projects and related studies for 1991;

-plans in 1991 for:

-public participation;

-publication of a redrafted document, to be announced in a spring FR notice;

-a timeline for restoration planning; and

-further evaluation of restoration options in the August 1990 Progress Report;

-reports on 1990 feasibility studies; and

-summary of RPWG program to date.

- 1991 studies
- criteria for matrice
- exercises need to be done for evalu matrice

As has been true in the past in other forums, the terminology for this proposed restoration planning document was at issue in our discussions. The problem, we believe, is based on two different perceptions of what the term "draft restoration plan" means. To the people involved in the NRDA process, the term has a legal meaning that suggests procedural and substantive requirements. From their perspective a less precise use of the term could be misleading by suggesting a degree of completeness or a point in the process that has not yet been reached.

On the other hand, people who are not involved in the NRDA process use the phrase, "draft restoration plan", in a nontechnical sense to suggest a dynamic planning guide. We recommend that both perspectives be respected and that the opportunity to go forward jointly with a FR notice this year announcing accelerated restoration activities should not be jeopardized by disputes over terminology. When appropriate, we recommend use of the phrase "draft plan for restoration," but that the actual document in the FR notice should be called "draft restoration work plan."

We agreed on a timetable that would allow for publication of the FR notice in December, as close to November 16, 1990 as we believe possible in terms of resources, project evaluation, and data analyses. This schedule will still allow us to publish a second FR notice in late March or early April. To meet this schedule, EPA will manage the FR process, write background sections, circulate drafts for review, incorporate comments, and, with respect to the Federal trustee agencies, resolve policy issues.

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Proposed Contents for Restoration Work Plan and 1991 Restoration Program

Executive Summary *3 pgs.*

I. Intro **2.5 pgs.**

1) Purpose of document
2) Summary of 1990 RPWG activities to date
   - reports/events
   - public participation (comments)

II. 1990 Feasibility Studies Reports **7pgs.**

1) Feasiblity Study #1 - Fucus
   Description
   Preliminary results
   Status

2) Feasibility Study #2 - Critical Fauna
   Description
   Preliminary results
   Status

3) Feasibility Study #3 - Beach Wildrye
   Description
   Preliminary results
   Status

4) Feasibility Study #4 - Upland Habitats
   Description
   Preliminary results
   Status

5) Feasibility Study #5 - Land Status
   Description
   Preliminary results
   Status

6) Technical Support Study #1 - Planning '91 Feas.Studies
   Description
   Preliminary results
   Status

7) Technical Support Study #2 - Peer Review Process
   Description
   Preliminary results
   Status

8) Technical Support Study #3 - Beach Segment Survey
   Description
   Preliminary results
   Status

III. Methods for Evaluation of Restoration Alternatives ("Criteria") 4pgs.

1) Introduction (relationship to NRDA, response)
2) Restoration projects
3) Feasibility projects

IV. Proposed 1991 Restoration Program 7 pgs.

1) Restoration Projects
   a) coastal resources
   b) fish/shellfish
   c) birds
   d) mammals
   e) recreational resources
   f) cultural resources
2) Feasibility Projects
   a) coastal resources
   b) fish/shellfish
   c) birds
   d) mammals
   e) recreational resources
   f) cultural resources
3) Literature Reviews
4) Public Participation
   Comments
   Meetings (proposed)
5) Technical Review/Reporting
   Peer review
   Monitoring

V. Future Restoration Process 3 pgs.

1) Timeline
2) Public Participation
   (do we want to list options, decide on one or ignore?)
3) Technical Review
4) Other?