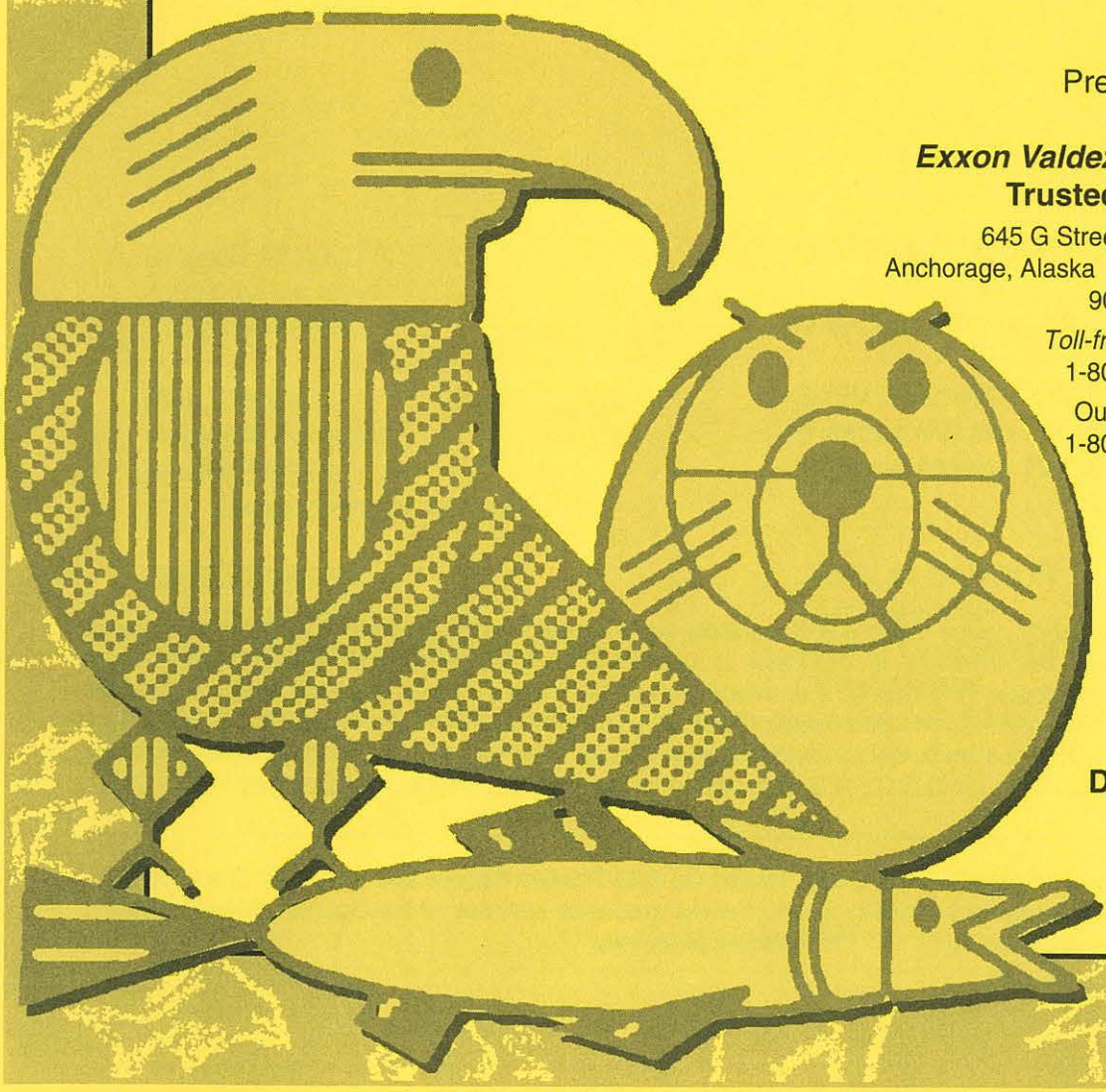
12.6.24

Fiscal Year 1995
Work Plan



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Fiscal Year 1995 Work Plan

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Table of Contents

Fiscal Year 1995 Work Plan

Introduction

This document presents the Trustee Council's Fiscal Year 1995 Work Plan. It describes the Trustee Council's fiscal year 1995 program to restore resources and services injured by the 1989 *Exxon Valdez* Oil Spill. The fiscal year of this work plan is the federal fiscal year -- from October 1, 1994 through September 30, 1995.

This work plan includes authorizations that the Trustee Council made on August 23, November 2-3, and December 2, 1994. It does not included recommendations for acquisition of habitat. Evaluation of habitat for restoration purposes is available in separate documents. Finally, the Trustee Council retains the flexibility to authorize additional expenditures at any time as necessary to restore resources and services injured by the spill.

The Fiscal Year 1995 Work Plan includes 84 projects with authorizations totalling $34,834,500 (including the Restoration Reserve). Funding for the 1995 Work Plan is summarized in the table below.

Restoration Category	No. of Projects	FY 1995 Authorization
General Restoration	28	$4,458,200
Monitoring	12	$3,472,300
Research	33	$8,904,300
Habitat Protection and Acquisition[1]	6	$1,744,300
Admin, Science Mgmt, & Public Information	4	$4,255,400
Restoration Reserve	1	$12,000,000
Total:	**84**	**$34,834,500**

[1] This amount does not include purchase costs for individual parcels.

When the Trustee Council authorized funding for projects described in this Work Plan, the Council conditioned the funding on the Executive Director's final approval following scientific and budget review of detailed project descriptions and budgets, and on compliance with National Environmental Policy Act requirements. In addition, individual projects may have specific conditions attached which are described in this Work Plan, in the summary spreadsheet that is Appendix A, or in a series of review memos by the Chief Scientist. The review memos were presented to the Trustee Council on November 2, 1994. They are not included in this Work Plan but are available from the Restoration Office.

Though not part of this Work Plan, on November 2, 1994, the Trustee Council authorized an amount up to $24,956,000 for development of Research Infrastructure Improvements affiliated with the Institute of Marine Sciences in Seward Alaska (known as the Alaska Sealife Center). The resolution authorizing this expenditure is Appendix C.

Solicitation and Review of Projects

In May 1994, the Trustee Council published an *Invitation to Submit Restoration Projects for Fiscal Year 1995*. One-hundred and eighty projects, with a total cost of over $71 million, were submitted.

The Trustee Council's Chief Scientist coordinated a preliminary scientific and technical review of the projects. The projects were also reviewed by the Executive Director, agency staff, and representatives of the Public Advisory Group. Legal staff provided preliminary review of some proposals.

In late August, all proposals and the results of the reviews were published in the *Draft Fiscal Year 1995 Work Plan*. The public comment period on the draft ran from late August until October 3, 1994. Approximately 73 people wrote letters, phoned the restoration office, or spoke at the public meeting about the draft Work Plan.

During the public review period, the Chief Scientist, peer reviewers, the Public Advisory Group, and others attended additional review sessions for groups of projects with integrated objectives. The reviews provided additional scientific and technical assessment, as well as further review of these projects' cost-effectiveness and integration. As a result of the reviews, changes were made in some projects' methodologies, objectives, or coordination with other projects.

Major Emphases of the Restoration Program

This section presents the emphases of the Fiscal Year 1995 Work Plan. These emphases include the efforts to restore pink salmon, sockeye salmon, herring, marine mammals, and subsistence. The section also discusses restoration planning that will occur this winter. In some cases, the Trustee Council may be asked to approve funding for additional projects developed through these planning efforts before the 1995 field season. The Trustee Council's largest research package — the Prince William Sound System Investigation — is discussed as a part of the Council's effort to restore pink salmon and herring.

Pink Salmon Restoration. In 1992 and 1993, wild and hatchery runs of Prince William Sound pink salmon were very poor, and fishing opportunities were severely curtailed. Stronger 1994 pink salmon runs are encouraging; however, wild stocks in the southwest district of the Sound, which were heavily oiled, only met escapement goals

because managers were able to use stock separation information from studies funded by the Trustee Council. Unusually high egg mortality continues in Prince William Sound pink salmon streams that were oiled by the spill.

Restoration of pink salmon is important to restore the resource itself, as well as the commercial fishing and subsistence uses that rely upon healthy pink salmon populations. Pink salmon projects in this Work Plan focus on understanding the reasons for run failures and continued egg mortality, and on obtaining information for management and protection of injured wild stocks. Planning money is also authorized to consider the potential benefits and consequences of supplementing wild stocks.

The total FY 95 cost of pink salmon restoration is $6,627,200. The majority of the cost is for the Prince William Sound System Investigation, which is also the Council's major research effort, and which addresses resources other than pink salmon.

- ***Prince William Sound System Investigation.*** This research group will conduct ecosystem research concerning natural and spill-related factors that may be constraining recovery of pink salmon and herring in Prince William Sound. It also provides information useful to other restoration activities such as those addressing marine mammals and seabirds. The program began in 1994, and fourteen projects in this Work Plan will continue at a cost of $4,612,800 in FY 95.

- ***Research concerning lingering, toxic effects of oil.*** Three studies address the possible lingering toxic effects of oil on pink salmon reproduction and straying. They include laboratory and field tests, and continue to monitor mortality of pink salmon eggs and alevins to determine whether some of the genetic damage caused by the spill is passed down to future generations. The cost of the three studies for FY 95 (95076, 95191A, and 95191B) is $775,900.

- ***Management information to protect wild stocks.*** The ability to manage mixed-stock fisheries to protect wild pink salmon stocks is crucial to the restoration of pink salmon in Prince William Sound. During the last two years, the Trustee Council, ADF&G, Prince William Sound Aquaculture Corporation, and Valdez Fisheries Development Association have contributed funding to mark and recover pink salmon using coded-wire tags. While this method has provided valuable information, it has a major shortcoming — only a fraction of the fish are tagged. Mass marking, both thermal (hatchery populations) and chemical (wild populations), will avoid the shortcomings and, after the first three years, decrease the cost.

  Transitional funding will aid these groups to begin an otolith mass marking system. Funding should be conditioned on a plan by these groups to fully assume long-term operation of the program after Fiscal Year 1997. This Work Plan also includes a third project which complements the marking program by defining the genetic structure of

pink salmon stocks to allow management decisions to be made on stock-specific information. The cost of the three projects for FY 95 (95320B, C, and D) is $1,138,500.

- *Replacement and enhancement activities.* The Prince William Sound Aquaculture Corporation in cooperation with the Native Village of Eyak proposed Project 95093 to actively restore injured stocks at three oiled streams; reduce harvest pressure on injured wild stocks by the use of remote-release hatchery fish; and enhance stocks at three streams important to subsistence users in order to provide replacement fish for subsistence. The project was the subject of a significant review involving PWSAC personnel, the Chief Scientist and peer reviewers, and ADF&G scientists and managers. The review concluded that significant work was required to adequately plan and develop the project including selecting streams and techniques, obtaining permits, and complying with the National Environmental Policy Act. One hundred thousand dollars is allocated to further develop these tasks. Additional funding in FY 95 may be appropriate depending on approval of a revised proposal.

Herring Restoration. Pacific herring are important to commercial fishing and subsistence, and are a key food source to many of the other resources injured by the spill. The 1992, 1993, and 1994 herring runs in Prince William Sound were substantially below the predicted level, and commercial fishing was severely curtailed in 1993 and eliminated in 1994. In both years, the returning herring had viral and fungal infections.

Herring strategies include investigating reasons for the failure of the herring runs; investigating problems caused by the viral and fungal infections; providing information to protect the injured stocks; and monitoring the population. The cost of the Prince William Sound System Investigation is included in the pink salmon discussion. The FY 95 cost of the remaining studies is $1,425,300.

- *Prince William Sound System Investigation.* As explained in the section describing pink salmon restoration, this Work Plan continues the multi-year Prince William Sound System Investigation in order to understand the natural and spill-related factors that are controlling the health and populations of Prince William Sound pink salmon and herring.

- *Research concerning lingering, toxic effects of oil.* Two projects specifically address reproductive impairment and disease that are thought to be caused by the oil spill and that may be continuing to affect the Prince William Sound herring populations. One project (95320S) provides $400,000 for a competitive request for proposals to investigate the herring disease problems that may be the result of exposure to oil. The second project (95074) costs $407,100 and focuses on possible reproductive impairment.

- *Management information to protect injured stocks.* One project (95165) investigates possible genetic differences among Prince William Sound herring stocks. The information will be used to assist in managing the harvest of healthy stocks while protecting those that are injured. The FY 95 cost of the project is $105,400.

- *Monitoring.* One additional project (95166) will monitor the recovery of Prince William Sound herring by measuring their abundance. Its FY 95 cost is $512,800.

Sockeye Salmon Restoration. In 1994, more sockeye salmon returned to the Kenai River than were expected, and the river system more than met escapement goals. Nevertheless, overwintering survival was only half of normal and the return was only half of what would be expected based on the number of 1989 spawners. In 1994, there was also an excellent outmigration of smolts. However, based on several different data sources, ADF&G predicts that in 1995 there may not be sufficient returns to the river system to meet a minimal escapement goal of 400,000 fish. ADF&G also reports that there is a significant margin of error in the prediction, and in fact, there may be some harvestable excess for the fisheries. If the predicted low run occurs, there would be severe consequences for the commercial and sport fisheries that rely upon the runs.

Sockeye runs in Red and Akalura Lakes in southern Kodiak were also injured by the oil spill. 1994 returns to these lakes were not sufficient to meet escapement goals and allow a harvest. However, the zooplankton appear to have returned to prespill levels in Red Lake. Early emergent fry densities in Red Lake in 1994 suggest that this sockeye run appears to be on the road to recovery. Akalura Lake has not demonstrated any recovery in juvenile fish production.

Restoration for sockeye salmon targets the runs to the Kodiak Island lakes, Kenai River Lakes, and Coghill Lake in Prince William Sound. Activities include three strategies at a total FY 95 cost of $1,569,700.

- *Monitoring.* One project (95258), continuing from last year, will monitor fry production, egg-to-spawner ratios, and various limnological parameters in lakes of the Kenai and southern Kodiak regions. Monitoring smolt outmigration has been dropped from the project this year because of problems with the Kenai River smolt counts. FY 95 will be the last year of funding for field data collection for the Kenai River component of Project 95258 if normal runs return in 1995, though laboratory analysis and final report writing may be requested in FY 96. If the 1995 Kenai River runs demonstrate the collapse suggested by low smolt numbers, continued field work may be necessary in future years. The FY 95 cost is $793,400.

- *Management information to protect injured Kenai stocks.* This is the fourth year of a five-year program (project 95255) to develop a genetic tool to help the ADF&G manage the mixed-stock Cook Inlet sockeye fisheries and protect the injured Kenai River stocks.

Development of the genetic tool is considered close to completion. If the Kenai River runs return at normal rates, FY 96 funding will be limited to sample analysis and final report preparation. The FY 95 cost is $502,700.

- ***Enhancement and replacement: Coghill Lake Restoration.*** Prior to its recent decline, Coghill Lake in northwest Prince William Sound was an important part of the region's commercial and sport fishery. FY 95 is the third year of a five-year program to fertilize the lake in order to return it to its previous productivity as a replacement fishery for commercial and sport fishing opportunities lost as a result of the spill. The Council may be asked to fund some portion of the fertilization and monitoring costs for FY 96 and 97. The first year-class affected by the fertilization produced approximately 39 sockeye smolts per spawner compared with an average of four smolts before fertilization. This activity, in addition to the recent Board of Fisheries action establishing a no-fishing corridor near Esther Island to minimize Coghill Lake sockeye inception, may return the lake to its previous importance and provide an important replacement resource for fishermen in Prince William Sound. The FY 95 cost of the project (95259) is $273,600.

Marine Mammal Research. Since the mid-1970s, some marine mammals and seabirds that feed in pelagic areas have been declining in the northern Gulf of Alaska and Prince William Sound. These include harbor seals, marbled murrelets, and pigeon guillemots as well as sea lions and kittiwakes. The decline is of great concern to the general public and, especially with respect to harbor seals, to subsistence users. In addition, the potential of the decline to trigger mechanisms of the Endangered Species Act also concerns some spill-area industries. For some resources, the oil spill may be a contributing factor in this continuing decline. For that reason, it is important to understand what factors are constraining recovery of these resources.

Marine mammal research projects address the questions that surround the decline in marine mammals by focusing initially on harbor seals. Collectively, the Marine Mammal Ecosystem Studies attempt a comprehensive approach by investigating harbor seal health, population status, food sources, and the effect of predation by killer whales which are the seals' major predator. The research effort will begin this year and is expected to run for three years. The FY 95 cost of the four projects (95001, 95012, 95064, and 95117-BAA) in the group is $913,200.

To be successful, the research also requires information from the Stable Isotope Project, 95320I, which is explained under "Other Research Projects" below on page 11.

Planning Future Restoration. The Chief Scientist and reviewers concluded that some proposals provided important restoration opportunities and addressed gaps in the FY 95 restoration program, but needed further work before Council funding. Six planning efforts will further develop these proposals. In some cases, the Trustee Council may be asked to approve funding for additional projects developed through these planning efforts before the 1995 field season.

These planning efforts will be coordinated in conjunction with the Trustee Council's workshop, scheduled for mid-January, 1995. As a key element of an adaptive management process, the workshop will focus on review of the results of the 1994 field season, possible modification of FY 95 projects, and planning for FY 96 and beyond.

- ***Project 95163I, Seabird/Forage Fish Interaction, $150,000.*** Populations of several fish-eating bird and mammal species have declined in Prince William Sound since 1972. However, species that feed on benthic invertebrates such as clams in nearshore areas have not declined. This pattern suggests marked changes in the forage fish community. Some forage fish — herring and juvenile salmon — are known to have been injured by the spill. If the spill or other factors disrupted the abundance or distribution of these fish, the changes may be constraining recovery of the pelagic-feeding injured resources including common murres, harbor seals, harlequin ducks, marbled murrelets, and salmon.

  A pilot forage fish study was funded in FY 94 for $606,600. Nine additional forage fish studies totalling approximately $3.2 million were submitted for consideration in FY 95. After a series of review sessions with agency and University of Alaska scientists, the Chief Scientist, and peer reviewers, the project authors developed the nine proposals into an integrated seabird/marine bird research package, rather than a series of independent and overlapping project proposals. The proposed budget for the package was reduced to $1.4 million.

  Review of the revised package by the Chief Scientist and peer reviewers indicated that excellent work resulted in important and useful progress, but that additional work was necessary to lay the groundwork for a successful and cost-efficient long-term research effort. Funding of $150,000 for Project 95163I will be used to hire a project director and begin the logistics and planning necessary for the project. It will begin with a series of workshops and review sessions during the late fall and winter. A revised seabird/forage fish research package may be available for Trustee Council action before the 1995 summer field season.

- ***Project 95025, Nearshore Package: Project Development, $130,000.*** Although other research efforts focus on the pelagic ecosystem, this project will provide funds to further develop a research package for nearshore areas. The nearshore proposals were

reviewed favorably by peer reviewers, but like the proposed forage fish package, need additional work.

The nearshore ecosystem includes the shallow-water areas where shoreline processes predominate. These areas are highly productive and include a wealth of organisms that are food for many of the top-level predators that are not currently recovering from the spill including sea otters, pigeon guillemots, and black oystercatchers. Nearshore areas are also the repository for most of the remaining oil spilled by the *Exxon Valdez.*

Eight projects comprise the nearshore package in the 1995 Work Plan. Collectively, the projects will test the status of recovery for nearshore feeding resources by looking at the abundance and distribution of their prey, such as sea urchins, clams, and mussels. They will also directly compare the fitness of the injured resources between selected oiled and unoiled areas. After review sessions with the Chief Scientist and peer reviewers, the revised package had a cost of approximately $1.2 million. $130,000 is authorized for further work to develop the research package, and begin the logistics and planning for individual projects necessary for the combined project. A revised, further integrated package may be available for Trustee Council action before the 1995 summer field season.

- ***Intertidal/Subtidal Community Structure, no additional funding.*** The intertidal/subtidal community consists primarily of the invertebrates of the nearshore ecosystem. Over the last three years, the Trustee Council has funded several million dollars in research and monitoring projects aimed at increasing understanding of the damages to and opportunities for restoration of the intertidal community. Currently, the lower intertidal zone and, to some extent, the middle intertidal zone are recovering. However, injuries persist in the upper intertidal zone, especially on rocky sheltered shores.

  Thirteen proposals addressing intertidal questions were submitted for the 1995 Work Plan. Following peer review of the proposals, the Chief Scientist concluded that a comprehensive review of restoration strategies and options in the intertidal/subtidal zone should be conducted. A workshop to accomplish this review will be conducted this winter under the direction of the Chief Scientist. Therefore, funding of the intertidal proposals is not at this time (except for Projects 95086C, 95106, and 95285-CLO, which comprise follow-up or close-out of prior years' work; see discussion under "Other Research" and "Other Monitoring"). No FY 95 funding is included for this workshop. It will be accomplished using funds from the peer review contract and from the administrative budget.

- ***Project 95093, PWSAC: Restoration of Pink Salmon Resources and Services, $100,000.*** Funding is authorized to further develop this general restoration project, explained under Pink Salmon Restoration, page 3. Several revisions of this project were reviewed by PWSAC personnel, the Chief Scientist and peer reviewers, and agency scientists and managers. Significant work still remains to adequately plan and prepare the project, including the selection of streams and techniques, obtaining permits, and complying with the National Environmental Policy Act. The Trustee Council authorized $100,000 for further work on these tasks. Additional funding in FY 95 may be appropriate depending on approval of a revised proposal.

- ***Project 95038, Symposium on Seabird Restoration, $74,400.*** Seabirds such as murres and oystercatchers were some of the spill's most-injured resources. Many projects have been submitted to research seabird-related issues, but few to accelerate their recovery. To determine whether cost-effective restoration is possible, funding is included for a project proposed by the Pacific Seabird Group. The group would hold a symposium on seabird restoration in Alaska to evaluate cost-effective techniques to restore seabird populations injured by the oil spill.

- ***Project 95139, Wild Stock Supplementation and Enhancement Workshop, $7,500.*** Examples of efforts to supplement wild fish stocks include constructing spawning channels, providing remote release fish runs, or supplementing an existing stock through egg boxes or net pens. Peer reviewers and other scientists have identified a number of important issues concerning the efficacy of, and potential environmental harm from efforts to supplement wild stocks. In some cases, scientists believed that these efforts could do more harm than good. In other cases, there was concern that the effort was not cost-effective.

  Because there is the potential for effective restoration, yet there also remain many important scientific questions, the Chief Scientist and peer reviewers strongly recommended that these issues be addressed through a comprehensive review rather than through individual project review. $7,500 is authorized to ADF&G for this workshop, though additional resources will be contributed by other agencies in personnel time and travel costs from other project funding, and by the Chief Scientist.

Subsistence Restoration. The effects of the oil spill remain a major concern of subsistence users, especially in Prince William Sound. In the Sound and especially in Chenega Bay, subsistence harvests remain below prespill levels, and users report that they must travel further and spend more time away from the village to acquire food, especially for harbor seals. There is also significant and often-voiced concern about the effects of the remaining oil that is visible on beaches near the village.

In the Kenai communities of Port Graham and Nanwalek, harvests for most resources have returned to prespill levels, but users continue to voice questions about the safety and availability of resources. In Kodiak, overall subsistence use in most communities is similar to prespill levels, though residents express concern over the residual effects of remaining oil.

In most subsistence communities in the spill area, residents say that maintaining their subsistence culture depends on the uninterrupted use of subsistence resources. They voice concern about the effect that the time spent away from subsistence activities has had on the culture, especially for their children.

Subsistence restoration in the 1995 Work Plan includes four strategies. The cost is $1,627,600 (not including the cost of restoration such as pink salmon restoration that is described elsewhere).

- ***Restoration, including research, of natural resources used for subsistence.*** This is the most important subsistence strategy, and the one with the largest expense. It includes all of the projects previously explained for herring and pink salmon, as well as other restoration actions for other species of salmon, harbor seals, and sea otters. This strategy also includes one project to assess possible damage to a subsistence resource: octopus. The project is 95009D, and costs $125,000.

- ***Shoreline cleanup and assessment.*** The presence and visual recognition of shoreline oil affects the safety and useability of subsistence resources. FY 95 projects include a final shoreline assessment for the Kodiak area. The last assessment on Kodiak occurred in 1990. In addition, the obvious presence of oil in southwest Prince William Sound is a continuing problem for the village of Chenega Bay, and has frustrated Trustee Council efforts to find cost-effective methods of removal. One project will review newly available oil removal technologies and, depending on the outcome, conduct a test on a beach near the village. Total cost of these projects (95027, 95266) for FY 95 is $620,700.

- ***Information, planning, and safety.*** Information about the safety and availability of subsistence resources, and the effects of restoration, are important for subsistence use and users. Five projects address these issues. One of them closes out a subsistence planning effort to identify community needs and priorities for restoration to subsistence resources and services injured by the spill. The others address various aspects of

community outreach and involvement. For FY 95, the five projects (95052, 95138, 95244, 95279, and 95428-closeout) collectively cost $602,800.

- ***Enhancement and replacement of subsistence resources.*** Three projects will provide replacement resources for subsistence use. They include providing the second year of a five year effort to create a remote-release run of chinook salmon near Chenega Bay; NEPA compliance activities for a remote-release run of coho salmon near Tatitlek; and a pilot project to test the feasibility of clam restoration using cultured clam stock for Nanwalek, Port Graham, and Tatitlek. The FY 95 cost of these projects (95127, 95131, and 95272) is $279,100.

Some subsistence projects not funded by the Trustee Council as part of the 1995 Work Plan are eligible for funding from $5 million appropriated by the Alaska Legislature from the *Exxon Valdez* criminal settlement. That appropriation is for grants to unincorporated rural communities in the oil spill area to restore, replace, or enhance subsistence resources or services injured or lost as a result of the oil spill.

Other Research Projects

This section describes research projects not listed above. The largest part of the cost is to close out projects funded in FY 94.

- ***Stable isotope and related analyses.*** Stable isotope analysis is a valuable research technique proposed for use by many of the research projects previously explained. The technique can be used to identify major shifts in food sources over the life of an individual animal by comparing older tissue to younger tissue. The information obtained is used for many research purposes — delineating food webs, understanding physiology, etc.

  A number of proposals that use stable isotope analysis were submitted. To ensure consistency in analysis and to lower costs, individual projects will maintain responsibility for collection of material, but that the stable isotope analysis be combined into a single project. That project, 95320I, is part of the Prince William Sound System Investigation at a cost of $200,000. In addition, Project 95121 will provide fatty acid analysis to support other research efforts. Its FY 95 cost is $30,000.

- *Common murres* (Project 95021, $54,000). Factors that may be limiting recovery of murres — one of the most injured resources of the spill area — include food limitation on reproduction or over-winter survival. To test that hypothesis, scientists must learn where murres from injured colonies forage. This study will use a new technology — satellite transmitters recently adapted for murres — to track murres from the Barren Islands colony. The study is a pilot project using six transmitters.

- *Marbled murrelets* (Project 95031, $250,000). This project develops a methodology to assess marbled murrelet reproductive success. The project is necessary if information from forage fish investigations (see page 7) is to be used for assessments of problems with marbled murrelet populations.

- *Closeout of last year's research projects.* Funding is provided for four research projects to enable them to finish data analysis and report writing from work completed in FY 94. In some cases field studies begun last year will be completed. The combined cost of these projects is $1,056,300
  - 95086C, Herring Bay Monitoring and Restoration Studies, $742,600. Data analysis, final report preparation, and closeout field work for a long-running project investigating intertidal resources near Herring Bay in Prince William Sound. The project's objectives and need for additional work will be reassessed as part of an intertidal workshop to be held this winter (see page 8).

  - 95102-CLO, Closeout: Murrelet Prey and Foraging Habitat In Prince William Sound, $63,800. Data analysis and final report preparation.

  - 95163A, Abundance and Distribution of Forage Fish and their Influence on the Recovery of Injured Resources, $194,800. This will complete a contract begun last year that will provide preliminary information, sampling techniques, and pilot methodologies for more comprehensive forage fish investigations. Additional funding concerning forage fish investigations may come before the Trustee Council at a later date for funding for the FY 95 field season. For more information, see page 7.

  - 95163F, Factors Affecting Recovery of Prince William Sound Pigeon Guillemot Populations, $55,100. Final analysis and report preparation.

Other Monitoring Projects

Monitoring the recovery of injured resources and services has been an important part of the restoration process since the spill occurred. Monitoring is likely to be needed for most resources, at least periodically until the resource recovers. The information monitoring provides is important in designing restoration activities and for determining which activities warrant funding.

Decisions concerning monitoring projects are based on:

- A preliminary monitoring schedule set out in the *Draft Fiscal Year 1995 Work Plan, Summary* (The preliminary monitoring schedule forecasts monitoring needs and frequency through 2001, the end of the settlement period. The table is preliminary and has not been subject to peer review. Peer review and statistical analysis of the schedule will be accomplished this coming winter, and the schedule may change.);
- Scientific review of individual monitoring proposals; and
- An assessment of other restoration needs and opportunities.

The table below lists the injured resources and services that are the primary target of the restoration program, and the projects to monitor them. Where no project is listed for this year, the table lists when the preliminary monitoring schedule forecasts a project to occur.

Monitoring in FY 95

Mammals	
Harbor Seal	Monitoring completed within the Marine Mammal Research Package, Project 95064, described on page 6.
Killer Whale	Monitoring completed within the Marine Mammal Research Package, Project 95012, described on page 6.
Sea Otter	Monitoring, if completed during FY 95, should be part of the Nearshore Investigations, see page 7.
River Otter	Monitoring, if completed during FY 95, should be part of the Nearshore Investigations, see page 7.
Birds	
Bald Eagle	95029, Population Survey of Bald Eagles in Prince William Sound, $48,700.
Black Oystercatcher	No project in FY 95. Monitoring expected in FY 96 (boat surveys).
Common Murre	Monitoring, if completed during FY 95, should be a part of the Revised Forage Fish Investigations, see page 7. However, to closeout FY 94 monitoring: Project 95039, Common Murre Productivity Monitoring, $30,500.
Harlequin Duck	95427, Harlequin Duck Recovery Monitoring, $226,900
Marbled Murrelet	No project in FY 95. Monitoring expected in FY 96 (boat surveys).
Pigeon Guillemot	No project in FY 95. Monitoring expected in FY 96 (boat surveys).

Fish and Shellfish

Cutthroat and Dolly Varden Trout:	No project submitted.
Herring	See 95166 in Herring Restoration, page 5.
Mussels	95090, Mussel Bed Restoration and Monitoring in PWS and Gulf of Alaska, $438,800.
Pink Salmon	For egg mortality information, monitoring is accomplished as part of 95191B; see Pink Salmon Restoration, page 3. Other information is collected by ADF&G as part of normal agency management.
Rockfish	No monitoring expected.
Sockeye Salmon	See 95258; Sockeye Salmon Restoration, page 5. Also, some information is collected by ADF&G as part of normal agency management.

Other Resources

Archaeology	95007A, Archaeological Site Restoration - Index Site Monitoring, $341,700; the project includes $191,700 to complete Historic Preservation Protection Plans for communities in the spill area.
Intertidal/Subtidal	95106, Subtidal Monitoring: Eelgrass Communities, $200,400. 95285-clo, Closeout: Subtidal Sediment Recovery Monitoring, $121,000. Other intertidal/subtidal monitoring may be a part of the Nearshore Investigation, see page 7.
Persistence of Oil	Shoreline of Kodiak monitored by 95027, see Subsistence Restoration, page 10. Prince William Sound shoreline assessment expected in FY 96. Also, 95026, Hydrocarbon Monitoring: Integration of Microbial and Chemical Sediment Data, $146,900.This project completes data analysis of past intertidal and subtidal monitoring data as recommended by peer reviewers.

Services For monitoring of services, see monitoring of individual resources they depend upon.

Other 95290, Hydrocarbon Data Analysis, Interpretation, and Database Maintenance for Restoration and NRDA Environmental Samples, $163,400. This project provides hydrocarbon data interpretation for all restoration projects.

Other General Restoration Projects

This section discusses general restoration projects not previously listed.

- *Archaeology* (Project 95007B, Archaeological Site Restoration, $116,000). This project will finish restoring the last identified archaeological site with severe damage.

- *Reduction of marine pollution.* Two projects address this objective:
  - 95115, Sound Waste Management Plan, $284,500. This project will fund development of a comprehensive plan to identify and remove the major sources of marine pollution and solid waste in Prince William Sound that may be affecting recovery of resources and services injured by the spill. Implementation of solutions to remove the waste will be funded mainly from other sources. Some solutions may be appropriate for funding from the civil settlement in future years.

  - 95417, Carry-forward: Waste Oil Disposal Facilities, $232,200. This project will create a waste oil recycling or disposal pilot program in approximately six communities, selected competitively. The project uses funds carried forward (i.e., authorized but not spent) from FY 94.

- *Finishing general restoration projects begun last year: in-stream enhancement of fish habitat.* A number of instream salmon enhancements were begun in FY 94 and will be completed in FY 95. They include Little Waterfall Creek Barrier Bypass which will enhance habitat for pink and chum salmon on Kodiak Island; pink and chum salmon enhancement in Otter and Shrode Creeks in Prince William Sound; and pink and coho salmon enhancement in the Lowe River near Valdez. An additional component will fund monitoring and evaluation of 25 to 30 structures installed on Montague Island that improve fish spawning and rearing habitat, prevent erosion, and restore natural streamflows. The last project of this type finishes rehabilitation of cutthroat Dolly Varden trout streams in eastern Prince William Sound. The FY 95 cost of these projects (95139A1, B, C1, and C2, and 95043B) is $446,300 much of which is funded with carry forward monies from FY 94.

  In addition, wild stock supplementation efforts will be the subject of a workshop this winter under the guidance of the Chief Scientist. (See project 95139, page 9.)

- *Other closeout projects.* Project 95137 will use $55,800 to finish analysis and report writing for a project that removed coded-wire tags from coho, chum, and chinook salmon in Prince William Sound. The information was used in 1994 for management of these resources. Project 95041 will use $66,500 for follow up surveys to ensure that a 1994 project to remove introduced predators from an island off the Alaska Peninsula was successful. The introduced predators were preying on seabird eggs, and the action will increase seabird populations in the spill area.

Habitat Protection and Acquisition

Habitat Protection and Acquisition are essential components of the Trustee Council's restoration effort. This section of the Work Plan discusses protection activities and those that support the habitat acquisition process. Representatives of the Trustee Council are currently negotiating with landowners for the purchase of land, or interest in land, to protect habitat needed for the recovery of injured resources and services. Purchase costs for individual parcels are ***not*** included in this Work Plan.

However, six projects that support habitat protection and acquisition efforts are funded in FY 95. The FY 95 cost of these project is $1,744,300. The majority of this cost lies within Project 95126 ($1,111,800) and 95126A ($328,700), which includes the agency and contractual support necessary to complete site-inspections, appraisals, and other activities necessary for negotiations and purchase agreements. Project 95126A carries forward funds authorized but not spent in 1994. A related project, 95110, will complete the evaluation of lands nominated for possible habitat acquisition in 1994, including small parcels. It also funds preparation of a final report with an FY 95 cost of $144,000.

Project 95058, Restoration Assistance to Private Landowners, will provide information and assistance to private landowners who wish to minimize impacts to injured resources and services from their on-going or proposed activities. The FY 95 cost is $115,800.

Project 95060, Spruce Bark Beetle Infestation on Injured Fish and Wildlife Species, will use a competitive solicitation to complete a literature search and compilation of existing information on spruce bark beetles. The FY 95 cost is $26,800.

Project 95505B completes a previously funded project for data analysis for existing stream habitat database. The FY 95 cost is $17,200.

Administration, Science Management, and Public Information

Funding is required to prepare work plans, provide independent scientific review, oversee projects and budgets, involve the public, and operate the restoration program. These necessary administrative expenses are not attributable to a particular project. The Public Information, Science Management, and Administration category includes these and other public information and outreach functions, including the Public Advisory Group.

Project 95100 contains the proposed FY 95 budget of $3,666,100 for Administration, Science Management, and Public Information. Project 95089 reflects a major attempt to integrate, synthesize, and make available the information generated by Trustee-sponsored research and restoration activities. It also continues operation of the Oil Spill Public Information Center which has been in existence since 1991. Its FY 95 cost is $522,800.

The one remaining project (95422-clo) provides $20,000 in closeout funding to complete the Environmental Impact Statement process for the *Exxon Valdez* Oil Spill Restoration Plan.

The total FY 95 cost of the three Administration, Science Management, and Public Information projects is $4,208,900. This represents a substantial reduction in costs relative to the FY 94 budget authorized at approximately $5.2 million.

Facility Improvements — Proposed Institute of Marine Science

One project provides closeout funding to complete the Environmental Impact Statement for the proposed facility improvements at the Institute of Marine Science in Seward, also called the Alaska Sealife Center. This project (95199-clo) has a FY 95 cost of $46,500. A proposal to fund the additional research facilities is not part of this Work Plan and was be presented separately to the Trustee Council. The resolution authorizing funding for the project is provided in Appendix C.

Restoration Reserve

Twelve million dollars is set aside for the Restoration Reserve in FY 95. One payment of $12 million was also authorized by the Trustee Council as part of the 1994 Work Plan. Additional deposits of $12 million in each of the remaining seven years of the settlement will provide a reserve of $108 million plus interest. These funds will be used to carry out long-term restoration activities needed after the final payment by Exxon in 2001.

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
PWS System Investigation			**$4,612.8**	*Funding subject to conditions in Chief Scientist's PWS System Investigation memo.*
95320A	Salmon Growth and Mortality	ADFG	**$267.8**	Sub-project of effort begun in FY94; extensive peer review of first year progress in October 1994.
95320E	Juvenile Salmon and Herring Integration	ADFG	**$943.1**	See 95320A.
95320G	Phytoplankton and Nutrients	ADFG	**$239.3**	See 95320A.
95320H	Role of Zooplankton in the PWS Ecosystem	ADFG	**$247.4**	See 95320A.
95320I	Isotope Tracers - Food Web Dependencies in PWS (Fish, Marine Mammals, and Birds)	ADFG	**$200.0**	Analysis and interpretation of stable isotope data will be consolidated in one lab to allow for consistent and less expensive analysis.
95320I(2)	Isotope Tracers - Food Webs of Fish	ADFG	**$30.0**	
95320J	Information Systems and Model Development	ADFG	**$836.2**	See 95320A.
95320K	PWSAC: Experimental Fry Release	ADFG	**$47.3**	See 95320A. EA was completed last year.
95320M	Observational Physical Oceanography in PWS and the Gulf of Alaska	ADFG	**$577.8**	See 95320A.
95320N	Nearshore Fish	ADFG	**$635.2**	See 95320A.
95320Q	Avian Predation on Herring Spawn	USFS	**$99.0**	See 95320A.
95320T	Juvenile Herring Growth and Habitat Partitioning	ADFG	**$340.3**	See 95320A. Includes development of herring stock structure model (in conjunction with 95166) as recommended by the Chief Scientist.
95320U	Somatic and Spawning Energetics of Herring/Pollock	ADFG	**$99.4**	See 95320A.
95320Y	Variation in Local Predation Rates on Hatchery-Released Fry	ADFG	**$50.0**	Budget reduced from original; will still allow primary objective to be met.
Other Pink Salmon Projects			**$2,104.4**	*Funding subject to conditions in Chief Scientist's pink salmon and genetics memos.*
95076	Effects of Oiled Incubation Substrate on Survival and Straying of Wild Pink Salmon	NOAA	**$179.9**	

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
95093	PWSAC: Restoration of Pink Salmon Resources and Services	ADFG	**$100.0**	Funding is for project planning and development under the guidance of the Chief Scientist. Includes funds for participation of PWSAC and the Native Village of Eyak Tribal Council, and NEPA work if necessary.
95139A1	Carry-forward: Salmon Instream Habitat and Stock Restoration -- Little Waterfall Creek Barrier Bypass	ADFG	**$90.0**	
95191A	Investigating and Monitoring Oil Related Egg and Alevin Mortalities	ADFG	**$265.0**	On-going study effort extensively peer reviewed in prior years.
95191B	Injury to Salmon Eggs and Pre-emergent Fry Incubated in Oiled Gravel (Laboratory Study)	NOAA	**$331.0**	On-going study effort extensively peer reviewed in prior years.
95320B	PWS Pink Salmon Stock Identification and Monitoring (CWT)	ADFG	**$260.5**	In conjunction with 95320C, project assists ADF&G in transition to improved tool for managing injured species. Funding conditional on ADF&G developing plan to phase in full agency management by FY98.
95320C	Otolith Thermal Mass Marking of Hatchery Reared Pink Salmon in PWS	ADFG	**$651.0**	See 95320B. Funding conditional on plan to phase in full agency management by FY98.
95320D	PWS Pink Salmon Genetics	ADFG	**$227.0**	
Other Herring Projects			**$1,425.3**	*Funding subject to conditions in Chief Scientist's herring and genetics memos.*
95074	Herring Reproductive Impairment	NOAA	**$407.1**	
95165	PWS Herring Genetic Stock Identification	ADFG	**$105.4**	
95166	Herring Natal Habitats	ADFG	**$512.8**	Includes development of stock structure model in conjunction with 95320T.
95320S	Disease Impacts on PWS Herring Populations (competitive solicitation under State of Alaska two-step, RFQ-RFP process)	ADFG	**$400.0**	Cost is estimate only, as the actual scope of the project will be determined through the RFP process.
Sockeye Salmon Program			**$1,569.7**	*Funding subject to conditions in Chief Scientist's sockeye and genetics memos.*
95255	Kenai River Sockeye Restoration	ADFG	**$502.7**	Scope of project reduced to development of in-season management tool. ADF&G to develop sockeye restoration plan. If Kenai River runs return at normal rates, FY96 funding will be limited to sample analysis and final report preparation.

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
95258	Sockeye Salmon Overescapement (Kenai/ Kodiak)	ADFG	$793.4	Funding for smolt portion of project not included. Funding conditional on development of plan to phase in full agency management.
95259	Restoration of Coghill Lake Sockeye	ADFG	$273.6	Funding conditional on development of plan to phase in full agency management after FY97. Project scaled back to fertilization and monitoring only.
Marine Mammal Ecosystem and Research Projects			$913.2	
95001	Condition and Health of Harbor Seals	ADFG	$172.8	Project targets an injured resource of importance to subsistence communities.
95012	Comprehensive Killer Whale Investigation	NOAA	$298.7	Addresses both recovery monitoring and killer whale predation on harbor seals.
95064	Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in PWS	ADFG	$347.1	Project targets an injured resource of importance to subsistence communities.
95117-BAA	Harbor Seals and EVOS: Blubber and Lipids as Indices of Food Limitation	NOAA	$94.6	Project targets an injured resource of importance to subsistence communities.
Seabird/Forage Fish Interaction			$429.9	
95121	Fatty Acid Signatures of Selected Forage Fish Species in PWS	NOAA	$30.0	
95163A	Abundance and Distribution of Forage Fish and their Influence on Recovery of Injured Species	NOAA	$194.8	See 95163I.
95163F	Factors Affecting Recovery of PWS Pigeon Guillemot Populations	DOI	$55.1	See 95163I.
95163I	Seabird/Forage Fish Interaction: Program Management and Integration	DOI	$150.0	Planning and development funds for a comprehensive, integrated seabird/forage fish package, including hiring of a project leader. Future funding dependent on approval of a revised package, to come before the Trustee Council at a later date.

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
Nearshore Ecosystem Studies			**$130.0**	
95025	Nearshore Package: Project Planning and Development	DOI	**$130.0**	Planning and development funds for a comprehensive, integrated nearshore package ($120,000 to NBS, $10,000 to NOAA). Future funding dependent on approval of a revised package, to come before the Trustee Council at a later date.
Intertidal/Subtidal Community Structure			**$1,064.0**	
95086C	Herring Bay Monitoring and Restoration Studies	ADFG	**$742.6**	Funds close-out of project, including *fucus* mat subproject (i.e., no new field work components).
95106	Subtidal Monitoring: Eelgrass Communities	ADFG	**$200.4**	
95285-CLO	Closeout: Subtidal Sediment Recovery Monitoring	NOAA	**$121.0**	
Subsistence Projects			**$1,627.6**	
95009D	Survey of Octopus and Chiton in Intertidal Habitats	USFS	**$125.0**	Funding is to consult with subsistence users, identify and survey harvest areas, and describe oiling history.
95027	Kodiak Shoreline Assessment: Monitoring Surface and Subsurface Oil	ADEC	**$447.8**	Funding is for final comprehensive assessment of Kodiak Island shoreline. Presence of oil is of concern to subsistence communities. Subsistence users will participate in assessment to determine final resolution.
95052	Community Interaction/Use of Traditional Knowledge	ADFG	**$152.0**	Project will increase outreach to spill area residents and communities, access traditional knowledge useful to restoration, and coordinate outreach efforts in other projects through the Anchorage Restoration Office.
95127	Tatitlek Coho Salmon Release Program	ADFG	**$5.0**	Funding is for NEPA compliance. If project meets NEPA approval, proposer may seek implementation funds from the Trustee Council at a later date.
95131	Clam Restoration (Nanwalek, Port Graham, Tatitlek)	ADFG	**$226.9**	Funding is for pilot project. Further expansion would depend on consistently successful production of littleneck clam seed on a small scale.

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
95138	Elders/Youth Conference	ADFG	$76.4	Conference focus will be discussion of means to assist in the recovery of injured resources. Conference will be coordinated under 95052.
95244	Seal and Sea Otter Cooperative Subsistence Harvest Assistance	ADFG	$93.9	Project would complete two-year effort. Outreach to be coordinated with 95052.
95266	Experimental Shoreline Oil Removal	ADEC	$172.9	Funding is for review of available treatment technologies, and a pilot test on an oiled beach near Chenega as appropriate.
95272	Chenega Chinook Release Program	ADFG	$47.2	EA approved. After four more years, operation will be financially self-sustaining.
95279	Subsistence Restoration Project - Food Safety Testing	ADFG	$180.6	Project completes effort undertaken in previous years. Outreach to be performed through 95052.
95428-CLO	Closeout: Subsistence Planning Project	ADFG	$99.9	Project to be coordinated through 95052.
Other Fish/Shellfish Projects			$419.6	
95043B	Carry-forward: Cutthroat and Dolly Varden Rehabilitation in Western PWS	USFS	$134.8	
95137-CLO	Closeout: Prince William Sound Salmon Stock Identification and Monitoring Studies	ADFG	$55.8	
95139	Wild Stock Supplementation Workshop	ADFG	$7.5	Funding is for ADFG to prepare and participate in workshop on wild stock supplementation efforts, to be held winter 1995.
95139B	Closeout: Otter Creek/Shrode Creek Instream Restoration	USFS	$5.2	
95139C1	Montague Riparian Rehabilitation	USFS	$46.2	Budget includes funding (approximately $7,500) for USFS participation in wild stock supplementation workshop to be held winter 1995 (see 95139). Balance of funding to monitor effectiveness of FY94 work.
95139C2	Carry-forward: Salmon Instream Habitat and Stock Restoration -- Lowe River	ADFG	$170.1	

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
Other Bird Projects			**$814.8**	
95021	Seasonal Movement and Pelagic Habitat Use by Common Murres from the Barren Islands	DOI	**$54.0**	Funding is for pilot project.
95029	Population Survey of Bald Eagles in PWS	DOI	**$48.7**	If population is determined to be stable, no further Trustee Council funding is appropriate.
95031	Reproductive Success as a Factor Affecting Recovery of Murrelets in PWS	DOI	**$250.0**	Funding is for pilot project to determine effectiveness of study techniques.
95038	Symposium on Seabird Restoration	DOI	**$74.4**	A more comprehensive assessment of what is possible in restoration of seabirds is needed. Funding is conditional on expansion of project objectives to include publication of conference proceedings.
95039	Common Murre Productivity Monitoring	DOI	**$30.5**	Additional funding for project will be considered with seabird/forage fish package.
95041	Introduced Predator Removal from Islands - Follow-up Surveys	DOI	**$66.5**	Project will allow measurable results to be obtained.
95102-CLO	Closeout: Murrelet Prey and Foraging Habitat in Prince William Sound	DOI	**$63.8**	
95427	Harlequin Duck Recovery Monitoring	ADFG	**$226.9**	Funding is for spring population composition and summer brood survey. This level of funding is needed only in FY95, FY98, and FY2001.
Oil Toxicity Projects			**$749.1**	
95026	Hydrocarbon Monitoring: Integration of Microbial and Chemical Sediment Data	ADEC	**$146.9**	Funding is to analyze and correlate existing data sets as recommended by peer reviewers.
95090	Mussel Bed Restoration and Monitoring in PWS and Gulf of Alaska	NOAA	**$438.8**	Important follow-up of prior work to determine effectiveness of techniques being used.
95290	Hydrocarbon Data Analysis, Interpretation, and Database Maintenance for Restoration and NRDA Environmental Samples Associated with the *Exxon Valdez* Oil Spill	NOAA	**$163.4**	Ongoing hydrocarbon interpretation and support services.

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
Reducing Marine Pollution			**$516.7**	
95115	Sound Waste Management Plan	ADEC	**$284.5**	Goal is to allow recovery of injured resources and services to proceed without the added interference of marine pollution.
95417	Carry-forward: Waste Oil Disposal Facilities	ADEC	**$232.2**	
Archaeology Projects			**$457.7**	
95007A	Archaeological Site Restoration - Index Site Monitoring	ADNR	**$341.7**	Recommend session with peer reviewers and archaeologists from involved agencies to develop less costly methodology for site monitoring. Project should involve local communities.
95007B	Archaeological Site Restoration	USFS	**$116.0**	Funding is for restoration of last identified site with severe damage. Future monitoring of this site, if necessary, is to be rolled into 95007A effort.
Habitat Protection/Acquisition			**$1,744.3**	
95058	Landowner Assistance Program	ADFG	**$115.8**	Fund pilot effort at USFS, ADNR, ADFG to provide restoration assistance to private landowners on an "as needed" basis. Agencies will work with willing landowners only, and restoration recommendations will be advisory only.
95060	Spruce Bark Beetle Impacts	ADEC	**$26.8**	Fund (through RFP) literature search and compilation of existing information on spruce bark beetle. Assessment of extent of infestation in the spill area is normal agency responsibility.
95110-CLO	Closeout: Habitat Protection and Acquisition	ADNR	**$144.0**	
95126	Habitat Protection and Acquisition Support	ADNR	**$1,111.8**	These funds, when combined with carry-forward funding in 95126A, reflect agencies' estimates of their FY95 needs for support of habitat acquisition efforts. These needs will be reevaluated after the current appraisal process is complete. Includes Habitat Work Group funding through January 1, 1995. Evaluation of parcels that come to Trustee agencies' attention after that date will be handled on an "as needed" basis.

APPENDIX A

1995 WORK PLAN -- AUTHORIZED PROJECT FUNDING

Proj. No.	Title	Lead Agency	FY95 Authorization	Conditions/Comments
95126A	Carry-forward: Habitat Protection and Acquisition Support	ADNR	$328.7	Carry-forward of appraisal funds authorized but not spent in FY94.
95505B	Data Analysis for Stream Habitat	USFS	$17.2	Project will complete data analysis for an existing stream habitat database.
Administration/Science Mgt./Public Info.			$4,208.9	
95089	Information Management System	Executive	$522.8	Fund development of information management plan and preliminary development of interactive computer program.
95100	Administration, Science Management and Public Information	All	$3,666.1	
95422-CLO	Closeout: Restoration Plan EIS/Record of Decision	USFS	$20.0	
Institute of Marine Science			$46.5	
95199-CLO	Institute of Marine Science - Seward Improvements EIS	ADFG	$46.5	
Restoration Reserve			$12,000.0	
95424	Restoration Reserve	All	$12,000.0	

Authorized for Restoration Projects:	**$22,834.5**
Authorized for Restoration Reserve:	**$12,000.0**
Total Authorized Funding:	**$34,834.5**
Total Number of Projects Authorized for Funding:	**84**

NOTE: All project funding is conditioned on the Executive Director's final approval following scientific and budget review of the detailed project descriptions and budgets, and on compliance with NEPA requirements.
Funding totals do not include funds authorized for development and construction of the Institute of Marine Science (a total of $24.9 million) or for actual acquisition of habitat. Funding total includes $955,600 in carry-forward of FY94 authorization.

Fiscal Year 1995 Work Plan
Authorized Restoration Projects by Resource and Service

This appendix identifies those projects that were authorized for funding by the Trustree Council as of December 2, 1994. Projects are organized according to the resource or service that the project would address. The project budget cited below reflects total authorized FY 95 costs.

This appendix lists resources and services alphabetically to make them easy to find as shown in the Table of Contents. For each injured resource or service, the following information is presented:

Recovery Status: The current condition of the resource or service based on information available at this time.

Recovery Objective: The definition of recovery for that resource or service.

Authorized Projects: A list of authorized FY 95 projects for that resource or service, including the project number, title, total FY 95 cost, and an identification of the project as one of the following six types:

A = Administration, Science Management, and Public Information;
GR = General Restoration;
H = Habitat Protection and Acquisition;
M = Monitoring;
R = Research; or
RR = Restoration Reserve.

Most restoration projects are associated with one or more injured resource or service while others support restoration of all or nearly all injured resources or services. Examples of projects that support restoration of nearly all resources or services include administration, science management, public information, and habitat protection. These projects are identified under the heading "Multiple Resource/Service Projects."

(Note: Because many individual projects address more than one resource or service, the budgets for authorized FY 95 Work Plan projects as shown in this appendix are not additive.)

Authorized Projects for FY 95
Restoration Projects by Resource and Service

Table of Contents

RESOURCE OR SERVICE

MULTIPLE RESOURCE/SERVICE PROJECTS

Archaeological Resources

Recovery Status: Injury to archaeological resources stems from increased looting and vandalism of sites and artifacts, and erosion within and around the sites resulting from cleanup activities. In addition, archaeological artifacts may have been oiled. Injuries attributed to looting and vandalism still occur. These injuries diminish the availability or quality of scientific data and opportunities to learn about the cultural heritage of people in the spill area.

Recovery Objective: Archaeological resources will be considered recovered when spill-related injury ends, and looting and vandalism are at or below pre-spill levels. Restoration cannot regenerate what has been destroyed, but it can prevent further degradation of sites as well as the scientific information that would otherwise be lost.

FY 95 Work Plan Authorization:

95007A	Archaeological Site Restoration /Index Site Monitoring	M	$ 341.7
95007B	Archaeological Site Restoration (Site SEW-488)	GR	116.0

Two archaeological resource projects are authorized for FY 95. One project would "close out" efforts initiated in FY 94, including the preparation of heritage site protection plans and reports for site specific restoration. Once heritage site protection plans are completed in May 1995, additional archaeological restoration projects may be proposed for FY 96. The FY 95 work would also stabilize and excavate an archaeological site in PWS and monitor other sites for continued vandalism and site erosion.

Bald Eagles

Recovery Status: Two hundred to 300 bald eagles may have been killed in the spill. However, population estimates made in 1989, 1990, and 1991 indicate that there may have been an increase in the PWS bald eagle population since the previous survey conducted in 1984. Productivity decreased in 1989, but appeared to have recovered by 1990.

Recovery Objective: Because population and productivity appear to have returned to pre-spill levels, bald eagles may have already recovered from the effects of the spill.

FY 95 Work Plan Authorization:

95029	Population Survey of Bald Eagles in PWS	M	$ 48.7

This project would monitor the recovery of bald eagles using a survey of population. If the bald eagle population is found to be stable or increasing, it would appear that no further Trustee Council funding for this effort would be required.

Black Oystercatchers

Recovery Status: Black oystercatchers are recovering, although oystercatchers may still be exposed to hydrocarbons when feeding in intertidal areas.

Recovery Objective: Black oystercatchers will have recovered when Prince William Sound populations attain pre-spill levels and when reproductive success of nests and growth rates of chicks raised in oiled areas are comparable to those in unoiled areas.

FY 95 Work Plan Authorization:

95041	Introduced Predator Removal - Surveys	GR	$ 66.5
95038	Symposium on Seabird Restoration	GR	74.4

This authorized project would follow up on a predator removal project initiated in FY 94. Funding for a symposium is authorized that would focus on possible marine bird restoration techniques that could also be of benefit to black oystercatchers.

Clams

Recovery Status: Littleneck clams and butter clams on sheltered beaches were killed by oiling and clean-up activities. In addition, growth appeared to be reduced by oil, but determination of sublethal or chronic effects is awaiting final analysis.

Recovery Objective: Clams will have recovered when populations and productivity have returned to levels that would have prevailed in the absence of the oil spill (pre-spill data or non-oiled control sites).

FY 95 Work Plan Authorization:

95131	Clam Restoration (Nanwalek, Pt. Graham, Tatitlek)	GR	$ 226.9

This pilot project for clam restoration would attempt to develop the technology needed to reestablish local clam populations near subsistence communities. (Additionally, there were other projects proposed for FY 95 that would address clams as part of an integrated study effort to understand recovery of vertebrate predators in

the nearshore ecosystem. The FY 95 Work Plan includes an authorization to further plan and develop the nearshore vertebrate predator project. See Project 95025.)

Commercial Fishing

Recovery Status: Commercial fishing was injured through injury to commercial fish species and also through fishing closures. Continuing injuries to commercial fishing may cause hardships for fishermen and related businesses. Each year that commercial fishing remains below pre-spill levels compounds the injury to the fishermen and, in many instances, the communities in which they live and work.

Recovery Objective: Commercial fishing will have recovered when the population levels and distribution of injured or replacement fish used by the commercial fishing industry match conditions that would have existed had the spill not occurred. Because of the difficulty of separating spill-related effects from other changes in fish runs, the Trustee Council may use pre-spill conditions as a substitute measure for conditions that would have existed had the spill not occurred.

FY 95 Work Plan Authorization:

95074	Herring Reproductive Impairment	R	$ 407.1
95076	Effect of Oiled Substrate on Survival and Straying of Pinks	R	179.9
95093	PWSAC: Restoration of Pink Salmon Resources andServices	GR	100.0 *
95139	Wild Stock Supplementation Workshop	GR	7.5 *
95139A1	Carry Forward: Instream Restoration/Little Waterfall	GR	90.0
95139B	Closeout: Instream Restoration/Otter Cr. - Shrode Cr.	GR	5.2
95139C1	Montague Riparian Rehabilitation/Follow-Up	GR	46.2
95139C2	Carry forward: Instream Restoration/Lowe River	GR	170.1
95165	PWS Herring Genetic Stock Identification	GR	105.4
95166	Herring Natal Habitats	M	512.8
95191A	Investigating Oil Related Egg-Alevin Mortality	R	265.0
95191B	Injury to Salmon Eggs and Pre-emergent Fry Incubated in Oiled Gravel (Lab Study)	R	331.0
95255	Kenai River Sockeye Restoration	GR	502.7
95258	Sockeye Salmon Overescapement	M	793.4
95259	Restoration of Coghill Lake Sockeye	GR	273.6
95320A	Salmon Growth and Mortality	R	267.8
95320B	PWS Pink Salmon Stock ID/Monitoring (CWT)	GR	260.5
95320C	Otolith Thermal Marking of Hatchery Pink Salmon	GR	651.0
95320D	PWS Pink Salmon Genetics	GR	227.0
95320E	Juvenile Salmon/Herring Integration	R	943.1
95320N	Nearshore Fish	R	635.2
95320Q	Avian Predation on Herring Spawn	R	99.0
95320S	Disease Impacts on PWS Herring Populations RFQ-RFP	R	400.0
95320T	Juvenile Herring Growth and Habitat Partitioning	R	340.3
95320U	Somatic and Spawning Energetics of Herring/Pollock	R	99.4

* Will include planning efforts during FY 95 to comprehensively address issues concerning the effectiveness and biological implications of in-stream enhancement and other wild stock supplementation efforts.

A great variety of projects are authorized for FY 95 to help restore the commercial fishing service. Many of the projects listed above address specific injured resources such as pink salmon, sockeye salmon or Pacific herring. Several of these are sub-projects within the PWS System Investigation effort (Project 95320) that was initiated in FY 94 to investigate various natural and human factors influencing the health and recovery of pink salmon and herring in PWS. Another focus of the authorized projects involves restoration of sockeye salmon in the Kenai River nursery lake system and other parts of the spill area. Other projects address ecotoxicological issues. Several projects involve improvements to the management of fisheries in order to alleviate pressure and help restore injured wild stocks.

In order to further address issues regarding the effectiveness and biological implications of in-stream restoration and hatchery related supplementation of wild stocks, it is recommended that the FY 95 science program include a workshop focused on these issues.

See also projects proposed for Pacific herring, pink salmon, and sockeye salmon.

Common Murres

Recovery Status: Productivity of common murres shows signs of recovery at some injured colonies (Barren Islands, Paule Bay) but post-spill population counts are still lower than pre-spill estimates and show no sign of recovery.

Recovery Objective: Common murres will have recovered when population trends are increasing significantly at index colonies in the spill area and when reproductive timing and success are within normal bounds. (Normal bounds will be determined by comparing productivity data with information from other murre colonies in the Gulf of Alaska and elsewhere.)

FY 95 Work Plan Authorization:

95021	Seasonal Movement/Pelagic Habitat Use by Common Murres from the Barren Islands	R	$ 54.0 *
95038	Symposium on Seabird Restoration	GR	74.4
95039	Common Murre Productivity Monitoring	M	30.5
95041	Introduced Predator Removal from Islands Follow-up Surveys	GR	66.5

* Funding to support a pilot project.

Authorized FY 95 projects include a pilot project using satellite tracking devices to identify both summer and winter feeding areas of common murres as well as follow-up surveys to assess the effectiveness of predator removal efforts supported by the Trustee Council in FY 94. In order to address questions raised about the effectiveness of innovative techniques such as chick transplantation, vocalization as means of attracting birds, and other strategies the FY 95 work plan includes funding for a symposium that would focus on marine bird restoration. (In addition to the specific projects above, there are a number of research proposals that would focus on issues surrounding forage fish resources that could have important implications for common murres. See Project 95163 under discussion of Multiple Resource/Service Projects: Forage Fish/Marine Bird Research.)

Cutthroat Trout

Recovery Status: Cutthroat trout have grown more slowly in oiled areas than in unoiled areas. Insufficient data are available to determine whether they are recovering.

Recovery Objective: Cutthroat trout will have recovered when growth rates within oiled areas are comparable to those for unoiled areas.

FY 95 Work Plan Authorization:

95043B	Carry-forward: Cutthroat and Dolly Varden Rehabilitation in Western PWS	GR	$134.8

Efforts initiated in FY 94 (but not yet completed) to improve Cutthroat trout habitat in a number of stream or lake systems in PWS would be continued in FY 95.

Designated Wilderness Areas

Recovery Status: The oil spill delivered oil in varying quantities to the waters adjoining the seven areas within the spill area designated as wilderness (including wilderness study areas). Oil was also deposited above the mean high tide line in these areas. During the intense clean-up seasons of 1989 to 1990, hundreds of workers and thousands of pieces of equipment were at work in the spill area. This activity was an unprecedented imposition of people, noise, and activity on the area's undeveloped and normally sparsely occupied landscape.

Recovery Objective: Designated Wilderness Areas will have recovered when oil is no longer encountered in these areas and the public perceives them to be recovered from the spill.

FY 95 Work Plan Authorization: Many projects would help restore designated wilderness areas by restoring injured resources within such areas. No projects that would only address Designated Wilderness Areas were proposed or authorized for FY 95.

Dolly Varden

Recovery Status: Dolly Varden have grown more slowly in oiled areas than in unoiled areas. Insufficient data are available to determine whether they are recovering.

Recovery Objective: Dolly Varden will have recovered when growth rates within oiled areas are comparable to those for unoiled areas.

FY 95 Work Plan Authorization:

95043B	Carry-forward: Cutthroat and Dolly Varden Rehabilitation in Western PWS	GR	$134.8

Efforts initiated in FY 94 (but not yet completed) to improve Dolly Varden habitat in a number of stream or lake systems in PWS will be continued in FY 95.

Harbor Seals

Recovery Status: Harbor seal numbers were declining in Prince William Sound (PWS) before the spill. The oil spill caused population level declines and sublethal or chronic injuries to harbor seals. Following the spill, seals in the oiled area had declined 43%, compared to 11% in the unoiled area. Counts made during the molt at trend count sites in Prince William Sound during 1990-1993 indicate that numbers may have stabilized. However, counts during pupping have continued to decline. It is not known which counts are the best indicator of population status. If the conditions that were causing the population to decline before the spill have improved, normal growth may replace the animals that were lost. However, if conditions continue to be unfavorable, the affected population may continue to decline. Harbor seals are a key subsistence resource in PWS and subsistence hunting is both affected by and may be affecting harbor seal status.

Recovery Objective: Recovery will have occurred when harbor seal population trends are stable or increasing.

FY 95 Work Plan Authorization:

95001	Condition and Health of Harbor Seals	R	$ 172.8
95064	Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in Prince William Sound	R	347.1

95117-BAA	Harbor Seals and EVOS: Blubber and Lipids as Indices of Food Limitation	R	94.6
95244	Seal and Sea Otter Cooperative Subsistence Harvest Assistance	GR	93.9
95320I	Isotope Tracers - Food Web Dependencies	R	200.0

Harbor seals are the focus of five authorized projects for FY 95. These projects include a complementary set of efforts that focus upon the health and condition of seals, as well as the role of harbor seals in the ecosystem both as a predator as well as a prey item. Authorized projects includes continuation of work with subsistence users to assess the impact of subsistence harvests on Harbor seals and to identify ways in which to reduce these impacts. (See also Project 95012 under the discussion of Killer Whale. In addition to the projects above, there are a number of research proposals that would focus on issues surrounding forage fish resources that could have important implications for harbor seals. See also Project 95163 under discussion of Multiple Resource/Service Projects: Forage Fish/Marine Bird Research.)

Harlequin Ducks

Recovery Status: There are indications of reduced densities of harlequins in the breeding season; a declining trend in the summer, post-breeding population; and very poor production of young in western Prince William Sound.

Recovery Objective: Harlequin ducks will have recovered when breeding and post-breeding season densities and production of young return to estimated pre-spill levels, or when there are no differences in these parameters between oiled and unoiled areas.

FY 95 Work Plan Authorization:

95025	Nearshore Ecosystem: Project Planning-Development	R	$ 130.0 *
95427	Harlequin Duck Recovery Monitoring	M	226.9

* Funding is for continued planning to address issues pertaining to nearshore vertebrate predators and the ecosystem upon which they depend.

Projects authorized for FY 95 include continuation of efforts initiated in FY 94 (Project 94427) for development of refined monitoring techniques to ensure accurate identification of harlequin population age/sex structure. Additionally, planning funds are authorized for a continued effort to develop a nearshore vertebrate predator ecosystem project that could provide important insights into the reasons that harlequin ducks are not recovering.

Intertidal Organisms

Recovery Status: The lower intertidal zone and, to some extent, the middle intertidal zone are recovering. However, injuries persist in the upper intertidal zone, especially on rocky sheltered shores. Recovery of this zone appears to depend, in part, on the return of adult *Fucus* in large numbers.

Recovery Objective: Each intertidal elevation (lower, middle, or upper) will have recovered when community composition, population abundance of component species, age class distribution and ecosystem functions and services in each injured intertidal habitat have returned to levels that would have prevailed in the absence of the oil spill.

FY 95 Work Plan Authorization:

95009D	Survey and Experimental Enhancement of Octopuses in Intertidal Habitat	R	$ 125.0
95025	Nearshore Ecosystem: Project Planning-Development	R	130.0 *
95026	Hydrocarbon Monitoring: Integration of Microbial and Chemical Sediment Data	M	146.9
95027	Kodiak Shoreline Assessment	M	447.8
95086C	Herring Bay Monitoring and Restoration Studies of Injured Nearshore Vertebrate Predators	R	742.6
95090	Mussel Bed Restoration and Monitoring in PWS and Gulf of Alaska	M	438.8
95266	Experimental Shoreline Oil Removal	GR	172.9

* Funding for continued planning of integrated project to address issues pertaining to nearshore vertebrate predators and the ecosystem upon which they depend.

FY 95 project funding for continued work at the Herring Bay monitoring site is authorized with the understanding that a focused science management workshop will be conducted during the winter to assess the future direction of intertidal work. Other authorized projects include follow-up of mussel bed restoration work initiated in FY 94; a Kodiak shoreline assessment effort that will work with communities in the Kodiak area to identify the presence of shoreline oiling remaining from the spill; a review and assessment of available hydrocarbon removal and cleansing techniques; and a data integration effort. Additionally, funding is authorized for continued planning of a project to address issues pertaining to nearshore vertebrate predators and the ecosystem upon which they depend.

Killer Whales

Recovery Status: Thirteen whales disappeared from one pod in Prince William Sound between 1988 and 1990. The injured pod is growing again.

Recovery Objective: Killer whales will have recovered when the injured pod grows to at least 36 individuals (1988 level).

FY 95 Work Plan Authorization:

95012	Comprehensive Killer Whale Investigation	R	$ 298.7

The authorized project would address issues pertaining to the prey resources being consumed by killer whales (including harbor seals), an effort to determine whether there are distinct genetic stocks of killer whales in PWS, and continued monitoring of recovery through photographic identification.

Marbled Murrelets

Recovery Status: It has been estimated that 8,000 to 12,000 murrelets may have been killed by the oil spill (about 5-10% of the current population in the affected area). Marbled murrelet populations in Prince William Sound were in decline before the spill. The oil spill probably increased the pre-spill rate of decline for this species in the spill area, although the incremental injury is difficult to estimate. The causes of the pre-spill decline are unknown.

Recovery Objective: Marbled murrelets will have recovered when population trends are increasing.

FY 95 Work Plan Authorization:

95031	Reproductive Success as a Factor Affecting Recovery of Murrelets in PWS	R	$ 250.0
95038	Symposium on Seabird Restoration	GR	74.4
95102-CLO	Closeout: Murrelet Prey and Foraging Habitat in PWS	R	63.8

Authorized projects include continuation and closeout of research regarding murrelet prey and foraging habitat and initiation of a further effort in FY 95 to examine murrelet reproductive success as a factor that may be limiting recovery.

Pacific Herring

Recovery Status: Pacific herring studies have demonstrated egg mortality and larval deformities. Populations may have declined, but there is uncertainty as to the full extent and mechanism of injury. However, the stocks and dependent fisheries in Prince William Sound are not healthy, as indicated by the low spawning biomass in 1993 and 1994 and the resultant elimination of the fisheries in those years.

Recovery Objective: Pacific herring will have recovered when populations are healthy and productive and exist at pre-spill abundance.

FY 95 Work Plan Authorization:

95074	Herring Reproductive Impairment	R	$407.1
95165	PWS Herring Genetic Stock Identification	GR	105.4
95166	Herring Natal Habitats	M	512.8
95320E	Juvenile Salmon and Herring Integration	R	943.1
95320N	Nearshore Fish	R	635.2
95320Q	Avian Predation on Herring Spawn	R	99.0
95320S	Disease Impacts on PWS Herring Populations/RFQ-RFP	R	400.0
95320T	Juvenile Herring Growth and Habitat Partitioning	R	340.3
95320U	Somatic and Spawning Energetics of Herring/Pollock	R	99.4

Authorized projects FY 95 include nine projects that directly or indirectly address restoration of Pacific herring. These include six sub-projects within the PWS System Investigation (Project 95320) and a closely related investigation of herring natal habitats that would provide information about herring egg survival. Another project (initially authorized in FY 94 but delayed due to a failure of the herring run in 1994) would attempt to identify herring stock structure as a means to improve harvest management.

Passive Use

Recovery Status: Passive use of resources includes the appreciation of the aesthetic and intrinsic values of undisturbed areas, the value derived from simply knowing that a resource exists, and other non-use values. Injuries to passive uses are tied to public perceptions of injured resources.

Recovery Objective: Passive uses will have recovered when people perceive that aesthetic and intrinsic values associated with the spill area are no longer diminished by the oil spill.

FY 95 Work Plan Authorization: Any project that aids the recovery of injured resources or prevents further injuries will assist in the recovery of passive use values. No FY 95 project proposals were submitted that address only passive use. Because the recovery of passive uses requires that people know when recovery has

occurred, public information efforts will continue to play an important role in the restoration of passive uses. In this way, public information elements of the Administration budget support recovery of passive use.

Pigeon Guillemots

Recovery Status: It has been estimated that between 1,500-3,000 pigeon guillemots may have been killed by the oil spill (perhaps 10-15% of the pigeon guillemot population in the Gulf of Alaska). The pigeon guillemot population in Prince William Sound was in decline before the spill. The oil spill probably increased the rate of decline for this species in the spill area, although the magnitude of the incremental injury is difficult to estimate. The causes of the pre-spill decline are unknown.

Recovery Objective: Pigeon guillemots will have recovered when populations are stable or increasing.

FY 95 Work Plan Authorization:

95025	Nearshore Package: Project Planning and Development	R	$ 130.0 *
95038	Symposium on Seabird Restoration	GR	74.4
95041	Introduced Predator Removal from Islands–Surveys	GR	66.5
95163F	Factors Affecting Recovery of PWS Pigeon Guillemots (formerly 95173)	R	55.1
95163I	Seabird-Forage Fish Interaction: Program Management and Integration	R	150.0 **

* Funding for continued planning to address issues pertaining to nearshore vertebrate predators and the ecosystem upon which they depend. This planning effort includes consideration of Pigeon guillemots as a bioindicator of ecosystem health.

** Funding for continued planning to address issues pertaining to seabird and forage fish interactions.

Authorized FY 95 Work Plan efforts include follow-up surveys to document the success of predator removal efforts undertaken in FY 94. Other authorized efforts include funding for two planning efforts pertaining to restoration of nearshore vertebrate predators and the ecosystem upon which they depend (Project 95025) and another effort pertaining to seabird/forage fish interactions (Project 95163I). Additionally, authorized FY 95 work includes funding for a symposium that would focus on possible seabird restoration techniques.

Pink Salmon

Recovery Status: Pink salmon studies have demonstrated egg mortality, fry deformities, and reduced growth in juveniles. Populations may have declined, but there is uncertainty as to the full extent and mechanism of injury. However, there is evidence of continued damage in some stocks from exposure to oil, and there has been a precipitous decline to both wild and hatchery stocks of pink salmon in Prince

William Sound since 1991.

Recovery Objective: Pink salmon will have recovered when populations are healthy and productive and exist at pre-spill abundance (an indication of recovery is when egg mortalities in oiled areas match pre-spill level or levels in unoiled areas.)

FY 95 Work Plan Authorization:

95076	Effects of Oiled Incubation Substrate on Survival and Straying of Wild Pink Salmon	R	$ 179.9
95093	PWSAC: Restoration of Pink Salmon Resources and Services	GR	100.0 *
95137-CLO	Closeout: PWS Salmon Stock Identification and Monitoring Studies	GR	55.8
95139	Wild Stock Supplementation Workshop	GR	7.5 *
95139A1	Carry-forward: Salmon Instream Restoration Little Waterfall Barrier Bypass	GR	90.0
95139B	Closeout: Instream Restoration/Otter Cr. - Shrode Cr.	GR	5.2
95139C1	Carry-forward: Instream Restoration - Lowe River	GR	170.1
95191A	Investigating and Monitoring Oil Related Egg and Alevin Mortalities	R	265.0
95191B	Injury to Salmon Eggs and Pre-emergent Fry Incubated in Oiled Gravel (Lab Study)	R	331.0
95320A	Salmon Growth and Mortality	R	267.8
95320B	PWS Pink Salmon Stock Identification and Monitoring (CWT)	GR	260.5
95320C	Otolith Thermal Mass Marking of Hatchery Reared Pink Salmon in Prince William Sound	GR	651.0
95320D	PWS Pink Salmon Genetics	GR	227.0
95320E	Juvenile Salmon and Herring Integration	R	943.1
95320N	Nearshore Fish	R	635.2
95320Y	Variation in Local Predation Rates on Hatchery-Released Fry	R	50.0

* Will include planning during FY 95 to comprehensively address issues concerning the effectiveness and biological implications of in-stream enhancement and other wild stock supplementation efforts.

Projects authorized for FY 95 involve a combination of research and general restoration efforts including continuation of ecotoxicological investigations regarding long-term heritable genetic damage in pink salmon due to oil exposure; a project to examine the effect of oiling on straying among pink salmon; and several interrelated sub-projects that are part of the PWS System Investigation (95320). Additionally, a number of proposals for FY 95 involved wild stock in-stream restoration or other proposed efforts involving wild stock supplementation, many of which called for release of hatchery-reared fish. Funding is authorized to continue peer review and planning related to such proposals over the coming year (see Projects 95093 and 95139). It is intended that a science management workshop be held to comprehensively address issues concerning the effectiveness of in-stream restoration and other supplementation efforts as well as the biological implications to wild stocks.

Recreation and Tourism

Recovery Status: The spill disrupted use of the spill area for recreation and tourism. Resources important for wildlife viewing include killer whales, sea otters, harbor seals, bald eagles, and various seabirds. Residual oil exists on some beaches with high value for recreation and it may decrease the quality of recreational experiences and discourage recreational use of these beaches. Closures on sport hunting and fishing also affected use of the spill area for recreation and tourism. Sport fishing resources include salmon, rockfish, Dolly Varden, and cutthroat trout. Harlequin duck are hunted in the spill area, although in some areas hunting has been restricted. Recreation was also affected by changes in human use in response to the spill. For example, displacement of use from oiled areas to unoiled areas increased management problems and facility use in unoiled areas. Some facilities like the Green Island cabin and the Fleming Spit camp area were injured by clean-up workers.

Recovery Objective: Recreation and tourism will have recovered, in large part, when the fish and wildlife resources on which they depend have recovered, recreation use of oiled beaches is no longer impaired, and facilities and management capabilities can accommodate changes in human use.

FY 95 Work Plan Authorization:

95043B	Cutthroat and Dolly Varden Rehabilitation in Western PWS	GR	$ 134.8
95266	Experimental Shoreline Oil Removal	GR	172.9

While numerous authorized projects have important implications for the restoration of Recreation and Tourism services, there are two projects with particular significance for this service. These include on-going in-stream restoration efforts to improve Cutthroat and Dolly Varden sport fishing and an experimental shoreline oil removal project to evaluate current techniques and technology that are available to remove residual oil in the spill area.

River Otters

Recovery Status: River otters have suffered sublethal effects from the spill and continuing exposure to hydrocarbons.

Recovery Objectives: Indications of recovery are when habitat use, food habitat, and physiological indices have returned to pre-spill conditions.

FY 95 Work Plan Authorization:

95025	Nearshore Ecosystem: Project Planning - Development	R	$ 130.0

Funding is authorized for planning pertaining to nearshore vertebrate predators and the ecosystem upon which they depend, including consideration of River otters as a bioindicator of ecosystem health.

Rockfish

Recovery Status: Dead adult rockfish were recovered following the oil spill. Other rockfish were exposed to hydrocarbons and showed sublethal effects. Furthermore, closures to salmon fisheries increased fishing pressures on rockfish which may be affecting their population. However, the extent and mechanism of injury to this species are unknown.

Recovery Objective: Without further study, recovery cannot be defined.

FY 95 Work Plan Authorization: No projects are authorized for funding in FY 95. The final damage assessment report (ST6/Rockfish Damage Assessment) for this resource should be completed and approved by the Chief Scientist before further commitment of Trustee Council funding. A maximum sustained yield for rockfish needs to be determined before a restoration objective can be defined.

Sea Otters

Recovery Status: Sea otters do not appear to be recovering, but are expected to eventually recover to their pre-spill population. Exactly what population increases would constitute recovery is uncertain, as there is no population data from 1986 to 1989, and the population may have been increasing in Eastern Prince William Sound during that time. In addition, only large changes in the population can be reliably detected with current measuring techniques. However, there are recent indications that the patterns of juvenile and mid-aged mortalities are returning to pre-spill conditions.

Recovery Objective: Sea otters will be considered recovered when population abundance and distribution are comparable to pre-spill abundance and distribution, and when all ages appear healthy.

FY 95 Work Plan Authorization:

95025	Nearshore Ecosystem: Planning - Development	R	$ 130.0
95244	Seal and Sea Otter Cooperative Subsistence Harvest Assistance	GR	93.9

Authorized projects includes continuation of on-going work with subsistence users to assess the impact of subsistence harvests on sea otters and to identify ways to reduce these impacts. Sea otter research is also an integral part of a collection of

projects proposed to address issues pertaining to nearshore vertebrate predators and ecosystem health. Funding is authorized for further project planning and development.

Sockeye Salmon

Recovery Status: Sockeye salmon in Red Lake, Akalura Lake, and lakes in the Kenai River system declined in population because of adult overescapement. The Red Lake system may be recovering because the plankton has recovered, and fry survival improved in 1993. However, Akalura Lake and Kenai River lakes have not recovered: smolt production has continued to decline from these lakes. In the Kenai River lakes, for example, smolt production has declined from 30 million in 1989 to 6 million in 1990, and to less than 1 million in 1992 and 1993.

Recovery Objective: Sockeye salmon in the impacted lakes will have recovered when populations are able to support overwinter survival rates and smolt outmigrations comparable to pre-spill levels.

FY 95 Work Plan Authorization:

95139	Wild Stock Supplementation Workshop	GR	$ 7.5 *
95255	Kenai River Sockeye Restoration	GR	502.7
95258	Sockeye Salmon Overescapement	M	793.4
95259	Restoration of Coghill Lake Sockeye	GR	273.6

* Will include planning efforts during FY 95 to comprehensively address issues concerning the effectiveness and biological implications of in-stream enhancement and other wild stock supplementation efforts.

Authorized projects include continued work on Kenai River sockeye to collect genetic stock information for use as a management tool; continued investigation of overescapement impacts on sockeye nursery lakes; and further fertilization efforts at Coghill Lake. Additionally, as a result of peer review of several proposed FY 95 projects that called for enhancement of wild fish stocks using in-stream restoration and/or hatchery supplementation a workshop (Project 95139) was authorized to comprehensively address issues concerning the effectiveness of these efforts as well as the biological implications to wild stocks prior to proceeding with these projects.

Subsistence

Recovery Status: Subsistence users say that maintaining their subsistence culture depends on uninterrupted use of subsistence resources. The more time users spend away from subsistence activities, the less likely they will return to the activities. Continuing injury to natural resources used for subsistence may affect the way of life of entire communities.

Recovery Objective: Subsistence will have recovered when injured subsistence resources are healthy and productive and exist at pre-spill levels and people are confident that the resources are safe to eat. One indication that recovery has occurred is when the cultural values provided by gathering, preparing, and sharing food are reintegrated into community life.

FY 95 Work Plan Authorization:

95009D	Survey and Experimental Enhancement of Octopuses in Intertidal Habitats	R	$ 125.0
95027	Kodiak Shoreline Assessment: Monitoring Surface and Subsurface Oil	M	447.8
95052	Community Interaction/Use of Traditional Knowledge	GR	152.0
95093	PWSAC: Restoration of Pink Salmon Resources and Services	GR	100.0 *
95127	Tatitlek Coho Salmon Release Program	GR	5.0 **
95131	Clam Restoration (Nanwalek, Pt Graham, Tatitlek)	GR	226.9
95138	Elders/Youth Conference	GR	76.4
95139	Wild Stock Supplementation Workshop	GR	7.5 *
95244	Seal and Sea Otter Cooperative Subsistence Harvest Assistance	GR	93.9
95266	Experimental Shoreline Oil Removal	GR	172.9
95272	Chenega Chinook Release Program	GR	47.2
95279	Subsistence Restoration -- Food Safety Testing	GR	180.6
95428-CLO	Closeout: Subsistence Planning	GR	99.9

* Will support planning during FY 95 to comprehensively address issues concerning the effectiveness and biological implications of in-stream enhancement and other wild stock supplementation efforts.
** Funding for NEPA compliance efforts only authorized.

Authorized FY 95 projects that would advance restoration of the subsistence service include several projects identified through the subsistence planning project initiated in FY 94. Authorized projects include continued work with subsistence users of harbor seals and sea otters; conclusion of a subsistence food safety testing program; continuation of the Chenega chinook release project initiated in FY 94; funding for NEPA compliance work concerning a proposed Tatitlek coho release project; a pilot project involving clam restoration (seed development) in the PWS area; a project to assess declines in octopus as a subsistence resource in PWS; a final Kodiak oiled shoreline assessment to be undertaken in consultation with subsistence users; a project to evaluate current techniques available to clean oiled shorelines; and initiation of an effort to more fully engage traditional subsistence users in research and monitoring efforts in order to take advantage of historical knowledge as well as better communicate restoration research findings. Another effort authorized in FY 95 with significance for subsistence users is the on-going review of possible wild stock supplementation proposals (see Projects 95139 and 95093). Although not specifically identified above, a large number of other restoration projects authorized for FY 95 that address other injured subsistence resources (e.g., restoration of harbor seals, herring and pink salmon) will also help restore subsistence services. That is,

all projects that aid the recovery of injured resources important to subsistence, or prevent further injuries to those resources as in the case of habitat protection efforts, will aid the recovery of subsistence.

Subtidal Organisms

Recovery Status: Certain subtidal organisms, like eelgrass and some species of algae, appear to be recovering. Other subtidal organisms, like leather stars and helmet crabs, show little signs of recovery.

Recovery Objective: Subtidal communities will have recovered when the community composition, age class distribution, population abundance of component species, and ecosystem functions and services in each injured subtidal habitat have returned to levels that would have prevailed in the absence of the oil spill.

FY 95 Work Plan Authorization:

95026	Hydrocarbon Monitoring: Integration of Microbial and Chemical Sediment Data	M	$ 146.9
95027	Kodiak Shoreline Assessment	M	447.8
95106	Subtidal Monitoring: Eelgrass Communities	M	200.4
95285-CLO	Closeout: Subtidal Sediment Recovery Monitoring	M	121.0

Authorized FY 95 projects include an integration of existing data as well as several monitoring efforts. During the FY 95 proposal peer review process, it became evident that there was a need for a focused workshop on issues pertaining to intertidal/subtidal restoration research and monitoring. This workshop will be conducted under the direction of the Chief Scientist during FY 95 to help guide future restoration efforts in this area.

MULTIPLE RESOURCE - SERVICE PROJECTS

In addition to the FY 95 Work Plan projects identified above, there are several projects authorized for FY 95 that would address a variety of resources or services simultaneously. These include:

- **administration, science management and public information** projects;
- **habitat protection and acquisition** projects;
- **seabird - forage fish interaction research** efforts;
- **PWS System Investigation** projects that address multiple resources;
- **pollution prevention projects** that would prevent further injury to marine resources as a means of promoting recovery;
- **improvements affiliated with the Institute of Marine Science at Seward** to provide needed research infrastructure that can be used for investigations to

address a variety of injured resources;
— **other, miscellaneous** resource or service proposals; and
— the **Restoration Reserve.**

Administration, Science Management and Public Information

FY 95 Work Plan Authorization:

95089	Information Management System	A	$ 522.8
95100	Administration, Science Management and Public Information	A	3,666.1
95199-CLO	Closeout: EIS for Institute of Marince Science - Seward	A	46.5
95422-CLO	Closeout: Restoration Plan EIS/Record of Decision	A	20.0

Authorized funding is required to prepare annual work plans, provide independent scientific review, oversee project budgets, solicit public involvement, and other administration, science management and public information efforts. The funding of $3.66 million for overall FY 95 Trustee Council program administration, science management and public information represents a substantial reduction in cost relative to the authorized FY 94 budget of $5.25 million. Authorized funding includes continuation of the Oil Spill Public Information Center (OSPIC) as well as an expanded information management effort for FY 95 that would integrate, synthesize and make more widely available Trustee Council sponsored research and restoration information. Also authorized are closeout projects for the Restoration Plan NEPA/EIS and the NEPA/EIS for facility improvements affiliated with the Institute of Marine Science at Seward.

Habitat Protection and Acquisition

FY 95 Work Plan Authorization:

95058	Restoration Assistance to Private Landowners	H	$ 115.8
95060	Spruce Bark Beetle Infestation Impacts on Injured Fish and Wildlife Species of the *Exxon Valdez* Oil Spill	H	26.8
95110-CLO	Closeout: Habitat Protection and Acquisition	H	144.0
95126	Habitat Protection and Acquisition Support	H	1,111.8
95126A	Carryforward: Habitat Protection - Acquisition Support	H	328.7
95505B	Data Analysis for Stream Habitat	H	17.2

Authorized projects for FY 95 include technical support for habitat protection and acquisition (e.g., site inspections, title searches, appraisals, parcel evaluations, etc.), as well as a new effort to provide technical assistance to private landowners who may wish to reduce impacts to injured resources resulting from on-going or proposed development; and data collection projects in support of habitat protection efforts.

Seabird - Forage Fish Interaction Research

Approximately a dozen projects were initially proposed for FY 95 that involved some aspect of forage fish as a prey resource and the implications for recovery of injured marine resources, especially sea birds. As a result of on-going review under the guidance of the Chief Scientist, these various individual research proposals are being developed and reformulated into a comprehensive, integrated seabird - forage fish interaction project. (Note: As a result of these on-going efforts, project numbers have changed since they were first published as part of the *Draft FY 95 Work Plan* in August 1994.)

FY 95 Work Plan Authorization:

95121	Fatty Acid Signatures of Selected Forage Fish Species in PWS	R	$ 30.0
95163A	Abundance/Distribution of Forage Fish and Influence on Recovery of Injured Species (former 95163) Forage Fish Species in PWS (former 95120-BAA)	R	194.8 *
95163F	Factors Affecting Recovery of PWS Pigeon Guillemots (formerly 95173)	R	55.1
95163I	Marine Bird-Forage Fish Interaction: Program Management and Integration	R	150.0 *

* Authorized funding would provide for continued planning regarding seabird - forage fish interactions.

Authorized FY 95 funding will allow continued development of the sea bird - forage fish interaction project effort. Additionally, a limited effort is authorized in FY 95 regarding fatty acid signatures of selected forage fish.

PWS System Investigation Research

As a multi-disciplinary, integrated research effort focused on trying to understand the natural and human factors that may be limiting the recovery of pink salmon and herring, the PWS System Investigation (Project 95320) includes approximately a dozen "core" sub-projects. Six of those sub-projects have implications for a wide variety of injured resources and services beyond the primary focus of pink salmon and herring.

FY 95 Work Plan Authorization:

95320G	Phytoplankton and Nutrients	R	$ 239.3
95320H	Role of Zooplankton in the PWS Ecosystem	R	247.4
95320I	Isotope Tracers - Food Webs Dependencies in PWS Using Stable Isotopes: Marine Mammals and Bird Relationships (former 95320I(1) and 95320I(2))	R	200.0
95320I(2)	Isotope Tracers - Food Webs of Fish	R	30.0 *
95320J	Information Systems and Model Development	R	836.2
95320K	PWSAC: Experimental Fry Release	R	47.3 **
95320M	Observational Physical Oceanography in PWS and the Gulf of Alaska	R	577.8

* Interim funding authorized for this project.
** Experimental release of fry as part of the PWS System Investigation research effort.

These authorized projects include oceanography research, investigations involving lower trophic level prey resources (phytoplankton, zooplankton), and broader scale food web relationships, as well as data synthesis, modeling and analysis across a range of research disciplines. See also discussion of pink salmon and Pacific herring.

Pollution Prevention

Two authorized projects, including one project that would carry forward funding initially authorized in FY 94, would help restore injured resources by allowing recovery to proceed without the added stress of marine pollution.

FY 95 Work Plan Authorization:

95115	Sound Waste Management Plan	GR	$ 284.5
95417	Carry-forward: Waste Oil Disposal Facilities	GR	232.2

Other Miscellaneous Projects

Miscellaneous projects that could benefit multiple injured resources or services include the three projects shown below.

FY 95 Work Plan Authorization:

95038	Symposium on Seabird Restoration	GR	$ 74.4
95052	Community Interaction and Use of Traditional Knowledge	GR	152.0
95290	Hydrocarbon Data Analysis, Interpretation and Database Maintenance for Restoration and NRDA Samples Associated with the *Exxon Valdez* Oil Spill	M	163.4

Research Infrastructure Improvements

FY 95 Work Plan Authorization:

95199-CLO	Institute of Marine Science Seward Improvements/EIS	A	$ 46.5
Resolution	Institute of Marine Science Seward Improvements	R	24,956.0 *

* See November 2, 1994 Trustee Council resolution (Appendix C).

Authorized projects for FY 95 include closeout of the NEPA/EIS for the research infrastructure improvements affiliated with the Institute of Marine Science in Seward. Additionally, the Trustee Council adopted a resolution (Appendix C) that conditionally authorized funding up to $24,956,000 for construction of the facilities.

Restoration Reserve

FY 95 Work Plan Authorization:

95424	Restoration Reserve	RR	$12,000.0

An additional allocation of $12 million to the Restoration Reserve was authorized to build the reserve to $24 million.

RESOLUTION
of the
Exxon Valdez Oil Spill Trustee Council

Research Infrastructure Improvements
affiliated with the
School of Fisheries and Ocean Sciences
Institute of Marine Science
in Seward, Alaska

WHEREAS, on January 31, 1994 the Trustee Council directed the Executive Director to prepare a formal recommendation concerning the proposed research infrastructure improvements affiliated with the Institute of Marine Science in Seward (hereafter, "the facility") and specifically indicated that the Executive Director should:

- take needed steps to secure compliance under the National Environmental Policy Act (NEPA);
- consult with appropriate entities, including the University of Alaska, the City of Seward, the Seward Association for the Advancement of Marine Science and Trustee Agencies to review the assumptions relating to the proposed improvements and capital and operating budgets;
- develop an integrated funding approach which assures that the use of trust funds is appropriate and legally permissible under the terms of the Memorandum of Agreement and Consent Decree; and
- prepare a recommendation of the appropriate level of funding for consideration by the Trustee Council that would be legally permissible under terms of the Memorandum of Agreement and Consent Decree; and

WHEREAS, since that time, the Trustee Council has been provided with detailed briefings and informational updates that address the issues identified in its January 31, 1994 directive to the Executive Director; and

WHEREAS, a detailed *Project Description and Supplemental Materials* document dated September 26, 1994 has been prepared (hereafter *Project Description*), the proposed project has been subjected to a full Environmental

Impact Statement (EIS) review under NEPA, and on behalf of the Trustee Council, the Department of the Interior has adopted a Record of Decision (ROD) for the EIS which has been concurred in by the federal trustee department and each of the State Trustees; and

WHEREAS, the *Executive Director's Recommendation and Findings Regarding Infrastructure Improvements Affiliated with the Institute of Marine Science in Seward, Alaska* has been prepared; and

WHEREAS, the Executive Director has reviewed the *Project Description* and, together with the Chief Scientist, finds that:

- the proposed facility improvements would provide needed research infrastructure for conducting long-term marine mammal, seabird, and fishery genetics research pertaining to species identified as injured by the oil spill in order to effectively restore those injured resources and that the facility has been designed to allow for adaptation to future restoration research needs;

- the capabilities of other coastal research facilities in Alaska have been assessed and that there are no existing facilities in Alaska to adequately address the identified and anticipated restoration research needs;

- the proposed research facility will make an important contribution to implementation of the ecosystem approach to restoration and that the facility would play a vital role in making it possible to understand the ecosystem relationships that may influence or control the recovery of injured resources;

- investment of settlement funds in the proposed research infrastructure would provide a needed facility for the Trustee Council restoration mission in a cost-efficient manner reflecting a reasonable balance between costs and benefits; and

WHEREAS, the Trustee Council's Public Advisory Group (PAG) has reviewed the *Project Description* and formally expressed its support for the facility at its October 13, 1994 meeting; and

WHEREAS, the Executive Director finds that a realistic construction plan for the proposed facility has been developed that will provide for the successful completion of the needed research facility within the budget identified (a copy of the capital budget from the *Project Description* is provided as an attachment);

THEREFORE BE IT RESOLVED, that the Trustee Council hereby concurs with and adopts the findings of the Executive Director and authorizes funding for

the project in an amount up to $24,956,000 to support development of the research components of the facility subject to the following provisions:

1. approval by the Executive Director of a detailed construction budget and a detailed operating plan that reflects a realistic cash flow for the successful construction and operation of the research facility;

2. approval by the Executive Director of an agreement to be entered into by the State of Alaska (Alaska Department of Fish and Game) and the City of Seward providing that the facility will be owned by the City and that the City will provide for the operation and maintenance of the facility for the practical life of the facility;

3. approval by the Executive Director of a showing by the City of Seward that future mitigation measures identified for the construction and operation of the facility will be given due consideration and implemented to the extent practicable;

4. approval by the Executive Director of a detailed governing and management structure for the facility that clearly identifies the role of the University of Alaska in providing the scientific leadership at the facility and ensures the facility is managed so that research activities appropriately serve the Trustee Council's restoration mission; and

5. annual financial reports and project status reports will be submitted to the Trustee Council by the City of Seward and the Executive Director will carefully monitor the construction of the facility and provide regular updates to the Trustee Council regarding the project's progress.

AND BE IT FURTHER RESOLVED, that it is the intent of the Trustee Council that funds for the project be transferred from the civil settlement to the Alaska Department of Fish and Game which shall, in turn, transfer capital funds to the City of Seward in a manner that is appropriate and timely to supplement the project funding previously appropriated by the Alaska State Legislature. Subject to the provisions identified above, the Alaska Department of Law and the Assistant Attorney General for the Environment and Natural Resources Division of the U.S. Department of Justice are hereby requested to petition the United States District Court for the District of Alaska for withdrawals in an amount of $12,500,000 on September 15, 1995 and an additional withdrawal of $12,456,000 on September 15, 1996 in accordance with the funding approvals contained herein.

AND BE IT FURTHER RESOLVED, that in authorizing funding for this project, the Trustee Council adopts the following policy: Consistent with this facility's unique capabilities for marine mammal, seabird and fishery genetics research, it is the policy of the Trustee Council to concentrate its EVOS-

funded laboratory research projects and resources at the IMS facility to the maximum extent practicable. Approval of individual laboratory research projects, including the facilities at which they will be located, will be based on the resources required for that project and its cost-effectiveness, including the cost-savings available to the Trustee Council at the IMS facility as a result of this capital investment.

Phil Janik, Regional Forester
Alaska Region
USDA - Forest Service

for Bruce Botelho, Attorney General
State of Alaska

George T. Frampton, Jr., Assistant Secretary
for Fish and Wildlife and Parks
U.S. Department of the Interior

John A. Sandor, Commissioner
Alaska Department of
Environmental Conservation

Steve Pennoyer, Director
Alaska Region
National Marine Fisheries Service

Carl L. Rosier, Commissioner
Alaska Department of Fish & Game

adopted November 2, 1994

Capital Budget

	CONSTR. COST	DESIGN 15%	PA/PM 10%	CONT. 10%	ENVPLAN 2%	TOTAL
RESEARCH COMPONENT						
1. MAIN BUILDING	$9,815,000	$1,472,000	$981,000	$981,000	$196,000	$13,445,000
2. HABITAT	$8,204,000	$1,230,000	$820,000	$820,000	$164,000	$11,238,000
3. LIFE SUPPORT	$4,108,000	$616,000	$411,000	$411,000	$82,000	$5,628,000
4. SITE DEVELOPMENT	$2,319,000	$348,000	$232,000	$232,000	$47,000	$3,178,000
5. FF & EQUIPMENT	$2,560,000	$384,000	$256,000	$256,000	$51,000	$3,507,000
Subtotal	$27,006,000	$4,050,000	$2,700,000	$2,700,000	$540,000	$36,996,000
EDUCATION COMPONENT						
1. MAIN BUILDING	$5,713,000	$857,000	$571,000	$571,000	$114,000	$7,826,000
2. HABITAT	$1,017,000	$153,000	$102,000	$102,000	$20,000	$1,394,000
3. LIFE SUPPORT	$175,000	$26,000	$18,000	$18,000	$4,000	$241,000
4. SITE DEVELOPMENT	$420,000	$63,000	$42,000	$42,000	$8,000	$575,000
5. FF & EQUIPMENT	$309,000	$47,000	$31,000	$31,000	$6,000	$424,000
Subtotal	$7,634,000	$1,146,000	$764,000	$764,000	$152,000	$10,460,000
TOTAL PROJECT						
1. MAIN BUILDING	$15,528,000	$2,329,000	$1,553,000	$1,553,000	$310,000	$21,273,000
2. HABITAT	$9,221,000	$1,383,000	$922,000	$922,000	$184,000	$12,632,000
3. LIFE SUPPORT	$4,283,000	$643,000	$428,000	$428,000	$86,000	$5,868,000
4. SITE DEVELOPMENT	$2,739,000	$411,000	$274,000	$274,000	$55,000	$3,753,000
5. FF & EQUIPMENT	$2,869,000	$430,000	$287,000	$287,000	$57,000	$3,930,000
Total	$34,640,000	$5,196,000	$3,464,000	$3,464,000	$692,000	$47,456,000