



FISCAL YEAR 1999

WORK PLAN

December 1998

Prepared by:

**Exxon Valdez Oil Spill
Trustee Council**

645 G Street, Suite 401
Anchorage, Alaska 99501-3451
907/278-8012



Toll-free in Alaska

1-800-478-7745

Outside Alaska

1-800-283-7745

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BRUCE BOTELHO
Attorney General
State of Alaska

MICHELE BROWN
Commissioner
Alaska Department of
Environmental Conservation

DEBORAH WILLIAMS
Special Assistant to the Secretary
for Alaska
U.S. Department of the Interior

JIM WOLFE
U.S. Forest Service Representative
Alaska Region
U.S. Department of Agriculture

STEVE PENNOYER
Director, Alaska Region
National Marine Fisheries Service

FRANK RUE
Commissioner
Alaska Department of Fish & Game



For More Information...

For more information about projects in this Work Plan or for general information about the activities of the *Exxon Valdez* Oil Spill Trustee Council, contact the Council's Anchorage Restoration Office:

Executive Director	Ms. Molly McCammon
Mail	<i>Exxon Valdez</i> Oil Spill Trustee Council Anchorage Restoration Office 645 G Street, Suite 401 Anchorage, AK 99501
Telephone	In Anchorage 278-8012 Toll free in Alaska 1-800-478-7745 Toll free outside Alaska 1-800-283-7745
Fax	(907) 267-7178
E-mail	restoration@oilspill.state.ak.us

Fiscal Year 1999 Work Plan

December 1998

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Dear Reader,

Each year the *Exxon Valdez* Oil Spill Trustee Council funds activities to restore the resources and services injured by the 1989 *Exxon Valdez* oil spill. This Work Plan describes the research, monitoring, and general restoration projects funded by the Council for federal fiscal year 1999, and touches on the other activities of the Council as well.

FY 99 marks the 10-year anniversary of the oil spill. The Work Plan includes funds for a major symposium to be held March 23-27, 1999 at the Egan Convention Center in Anchorage. The symposium will provide an opportunity for the Trustee Council to report to the public about the status of recovery a decade after the oil spill, as well as provide an accounting of the restoration program's activities. In conjunction with this event, the status of the resources and services injured by the spill will be formally updated in FY 99.

The FY 99 Work Plan also continues themes begun in earlier years: monitoring the recovery status of species injured by the oil spill (such as the marine bird boat surveys), researching factors that may be persisting in limiting the recovery of injured resources (such as studies of harbor seal health and diet), and conducting research that should lead to long-term improvements in resource management (such as the pink salmon genome project). With an eye toward 2001, when the final payment from Exxon Corporation will be received, in FY 99 the Trustee Council will deliberate on whether and how the Restoration Reserve might be used to support restoration of injured resources in the future.

The collection of projects funded in FY 99 continues the Trustee Council's commitment to community involvement in the restoration process. The Youth Area Watch, which involves local youth in ongoing restoration projects, and the Community Involvement Project, which funds a network of local liaisons in oil spill communities, are both funded again in FY 99. A new research project, the population dynamics of spot shrimp, will be conducted in part by local subsistence users. Several of the projects funded (for example, the investigation of surf scoters, the Sound Ecosystem Assessment herring component, and the harbor seal biosampling effort) include traditional and local knowledge in their study designs.

Also of interest, the FY 99 Work Plan includes seven projects that will be conducted at the Alaska SeaLife Center in Seward. The SeaLife Center, which was funded in part by the Trustee Council, opened in May 1998. It provides unique, technologically advanced facilities for research on marine mammals, fish and seabirds.

A continuing trend worth highlighting is the decrease in the size of the research, monitoring, and general restoration program. The Trustee Council has adopted a declining schedule of expenditures through the year 2002 to coincide with the final payment from Exxon Corporation in 2001. This means that the research, monitoring, and general restoration activities are declining (from \$14 million in FY 98 to \$11.5 million in FY 99), as are the administrative costs of the program (from \$2.8 million in FY 98 to \$2.5 million in FY 99). Agency project management costs also have declined accordingly.

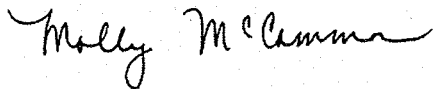
A final comment concerns activities that are not funded through the Work Plan, but which help to complete the picture of the Trustee Council's restoration effort.

- The Council's efforts to protect habitat important to the recovery of injured resources and services continue. Recent actions include final closing on a \$34.6 million package to protect 69,814 acres of land owned by the Tatitlek Corporation and on a package with Afognak Joint Venture to protect about 41,750 acres of land on northern Afognak Island for \$70.5 million.

- The Council will deposit an additional \$12 million into the Restoration Reserve in FY 99, bringing the total in the reserve account to \$72 million plus interest. In FY 98, the Council undertook an extensive outreach effort to solicit public comment on use of the reserve. In all, over a thousand comments were received and are currently under consideration by the Council.

Public interest and input are essential to the Trustee Council process. Please feel free to contact me if you would like more information on the activities of the Council or if you have comments or suggestions on the Council's restoration efforts.

Sincerely,



Molly McCammon
Executive Director

The Work Plan Process

Table 1 describes milestones in development of the FY 99 Work Plan. The work plan process began with a restoration workshop in January 1998. The Trustee Council made most of its funding decisions in August so that projects could begin on October 1, the first day of federal fiscal year 1999. A few funding decisions were deferred until December to allow time for review of results from the FY 98 field season or further deliberation on project objectives and work plan priorities.

Table 1. Milestones for FY 99 Work Plan

Jan. 29-30, 1998	Annual Restoration Workshop discussed results of FY 97 work and directions for FY 99.
Feb. 15, 1998	<i>Invitation to Submit Restoration Proposals for Federal Fiscal Year 1999</i> was issued.
April 15, 1998	Restoration Office received 142 research, monitoring, and general restoration proposals requesting \$25.6 million for FY 99.
May 17-19, 1998	Chief Scientist and core reviewers met to discuss the scientific and technical merits of proposals.
May 28, 1998	Executive Director discussed proposals with Chief Scientist, Public Advisory Group representatives, and Trustee agencies and drafted preliminary recommendations.
June 2, 1998	Public Advisory Group discussed proposals and preliminary recommendations and advised Executive Director.
June 17, 1998	<i>FY 99 Draft Work Plan</i> was distributed for public comment.
July 27, 1998	Public hearing was held on <i>FY 99 Draft Work Plan</i> .
July 28, 1998	Public Advisory Group met to advise Trustee Council on final work plan.
Aug. 13, 1998	Trustee Council approved 70 research, monitoring, and general restoration projects totaling \$10,272,200 for <i>FY 99 Work Plan</i> , and deferred projects that required further review or deliberation.
Oct. 1, 1998	Federal fiscal year 1999 (FY 99) began.
Dec. 15, 1998	Trustee Council approved 10 additional research, monitoring, and general restoration projects for <i>FY 99 Work Plan</i> . This action brought the FY 99 authorization total to \$11,545,900.

Summary of Fiscal Year 1999 Projects

For FY 99, the Trustee Council received 142 research, monitoring, and general restoration proposals requesting a total of \$25.6 million. In August and December 1998, the Council authorized 80 projects totaling \$11,545,900. The table on the following page (Table 3) summarizes the Trustee Council's funding decisions by "resource cluster," as well as the expected cost of completing the projects authorized in FY 99. (Note: Regarding future year costs, a "\$0" in the table means that no funding is expected. A blank space means that the estimated funding level is not known or that a tentative decision on future funding has not been made.)

Many of the projects funded are the continuation of efforts funded in FY 98. As illustrated in Table 2, several new projects also were funded.

Table 2. New and Continuing Projects

	Number of Projects Funded	Total Cost of Projects Funded
New Projects	27	\$2,609,000
Continuing Projects	53	\$8,936,900

In addition to funding research, monitoring, and general restoration projects, the Trustee Council authorized funds for the administrative costs of the restoration program (\$2.5 million, primarily for public information, independent scientific review, and operating expenses), funds for habitat protection support (\$770,400, for services such as negotiations, land surveys, and appraisals), and the sixth \$12 million payment to the Restoration Reserve. The Council also authorized funds for two capital construction projects. These are discussed on page 28 of this document.

Table 3. Summary of Funding by Resource Cluster

Resource Cluster	FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	Total FY99-02
Pink Salmon	\$917.5	\$355.8	\$58.3	\$5.0	\$1,336.6
Pacific Herring	\$506.3	\$126.7	\$84.8	\$0.0	\$717.8
SEA and Related Projects	\$1,190.6	\$201.1	\$181.8	\$0.0	\$1,573.5
Cutthroat Trout, Dolly Varden, and Other Fish	\$367.9	\$0.0	\$0.0	\$0.0	\$367.9
Marine Mammals	\$983.9	\$487.4	\$187.1	\$0.0	\$1,658.4
Nearshore Ecosystem	\$1,387.8	\$82.5	\$0.0	\$0.0	\$1,470.3
Seabird/Forage Fish and Related Projects	\$2,731.2	\$1,331.6	\$224.7	\$75.0	\$4,362.5
Archaeological Resources	\$166.7	\$0.0	\$0.0	\$0.0	\$166.7
Subsistence	\$1,271.6	\$566.4	\$442.0	\$362.3	\$2,642.3
Reduction of Marine Pollution	\$63.7	\$0.0	\$0.0	\$0.0	\$63.7
Habitat Improvement	\$466.3	\$0.0	\$0.0	\$0.0	\$466.3
Ecosystem Synthesis	\$672.4	\$35.0	\$0.0	\$0.0	\$707.4
Public Information/Science Mgt./Admin.	\$365.8	\$0.0	\$0.0	\$0.0	\$365.8
Project Management	\$454.2				\$454.2
Total Research, Monitoring, and General Restoration Projects:					
	\$11,545.9	\$3,186.5	\$1,178.7	\$442.3	\$16,353.4
Habitat Protection/Acquisition Support	\$770.4				\$770.4
Public Information/Science Mgt./ Admin.	\$2,495.7				\$2,495.7
Restoration Reserve	\$12,000.0	\$12,000.0	\$12,000.0	\$12,000.0	\$48,000.0
Other Projects	\$2,638.4	\$0.0	\$0.0	\$0.0	\$2,638.4
Total All Activities:					
	\$29,450.4	\$15,186.5	\$13,178.7	\$12,442.3	\$70,257.9

Description of Fiscal Year 1999 Projects

This section describes the research, monitoring, and general restoration projects funded by the Trustee Council for FY 99. It also includes a brief description of the Council's other activities.

RESEARCH, MONITORING, AND GENERAL RESTORATION PROJECTS

The research, monitoring, and general restoration projects described on the following pages are arranged by "resource cluster." Each cluster description includes the Trustee Council's restoration strategies (which were established in the *Restoration Plan* and are updated as needed each year through the work plan), the projects authorized to implement those strategies, and the expected cost of completing the projects authorized in FY 99. (Note: Regarding future year costs, "\$0" means that no funding is expected. A blank space means that the estimated funding level is not known or that a tentative decision on future funding has not been made.)

Appendix A contains a numerical listing of all projects funded by the Trustee Council. It contains the text of the Chief Scientist's technical review of each project and the Trustee Council's decision for each project. It also indicates who proposed each project, which Trustee agency is responsible for project management, and whether the project is continuing (i.e., also was funded by the Council in FY 98) or new.

A detailed project description (DPD) and budget are on file at the Anchorage Restoration Office for each of the projects summarized in this section.

Pink Salmon

Restoration Strategies for Fiscal Year 1999

Research and Monitor the Toxic Effect of Oil

- Complete embryo mortality project (99191A), which is monitoring recovery of pink salmon embryo mortality and examining whether genetic damages occurred as a result of exposure to oil during early life stages.
- Complete pink salmon synthesis project (99329), which is synthesizing the results of five studies funded by the Trustee Council to examine possible long-term damage to pink salmon of the toxic effects of crude oil.
- Begin gamete viability project (99476), which will validate the effects of oil contamination on pink salmon reproduction.

Provide Stock Separation and Management Information and Tools

- Complete otolith thermal mass marking project (99188), which is supporting implementation of otolith marking as a more effective tool than coded wire tags for identifying hatchery salmon for management purposes.
- Continue genetic linkage project (99190), which is constructing a genetic map that will aid understanding of marine survival, run timing, size, and other traits of pink salmon.
- Complete genetic stock identification project (99196), which is examining the geographic extent of genetic differences in Prince William Sound pink salmon.
- Begin remote video and time-lapse recording project (99366), which will develop new techniques for estimating spawner abundance.
- Begin fisheries synthesis project (99367), which in FY 99 will produce four manuscripts on EVOS studies for publication in the peer reviewed literature.

Supplement Populations

- Continue Port Dick Creek project (99139A2), which in FY 99 will evaluate the effects of improvements in spawning habitat for pink and chum salmon.

Investigate Ecological Factors that Influence Adult Pink Salmon Returns

- Continue SEA project (99320); this project is discussed in the Sound Ecosystem Assessment cluster.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99139A2	Port Dick Spawning Channel	\$85.8	\$47.0	\$10.0	\$5.0	\$147.8
99188	Otolith Thermal Marking	\$185.2	\$0.0	\$0.0	\$0.0	\$185.2
99190	Genome Linkage Map	\$270.0	\$187.3	\$0.0	\$0.0	\$457.3
99191A	Oil Related Embryo Mortality	\$58.4	\$0.0	\$0.0	\$0.0	\$58.4
99196	Genetic Structure	\$50.0	\$0.0	\$0.0	\$0.0	\$50.0
99329	Synthesis of Toxicological Impacts	\$68.9	\$0.0	\$0.0	\$0.0	\$68.9
99366	Remote Video and Time-Lapse Recording	\$52.0	\$46.5	\$12.3	\$0.0	\$110.8
99367	Fish Synthesis/Publication	\$73.1				\$73.1
99476	Effects of Oiled Incubation on Reproduction	\$74.1	\$75.0	\$36.0	\$0.0	\$185.1
TOTAL		\$917.5	\$355.8	\$58.3	\$5.0	\$1,336.6

Pacific Herring

Restoration Strategies for Fiscal Year 1999

Investigate Herring Disease as a Cause of the 1993 Crash

- Complete herring disease project (99162A&B), which in FY 99 will produce nine manuscripts on disease in Prince William Sound herring, including its role in the population crash in 1993 and potential links to oil exposure.
- Begin synthesis project (99328), which will synthesize results of previous toxicological work on Pacific herring and recent disease studies, and compare Trustee-sponsored conclusions to those of Exxon investigators.
- Begin monitoring project (99462), which will assess prevalence of two major diseases in Pacific herring and whether disease continues to limit recovery of the Prince William Sound herring population.

Provide Management Information

- Begin acoustic target strength project (99468-BAA), which will define the acoustic strength of different age classes of herring and sand lance.

Investigate Ecological Factors that Influence Populations of Pacific Herring

- Complete herring productivity project (99311), which is examining how changes in carbon flow between Prince William Sound and the Gulf of Alaska affect herring recruitment.
- Continue SEA project (99320); this project is discussed in the Sound Ecosystem Assessment cluster.
- Begin egg distribution and ecology project (99375), which will relate herring egg distribution and ecology to oceanographic factors in the sound.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99162AB	Disease Manuscripts	\$72.0	\$0.0	\$0.0	\$0.0	\$72.0
99311	Productivity Dependencies	\$90.0	\$0.0	\$0.0	\$0.0	\$90.0
99328	Synthesis of Impacts	\$46.1	\$0.0	\$0.0	\$0.0	\$46.1
99375	Egg Distribution & Ecology	\$76.5	\$48.2	\$0.0	\$0.0	\$124.7
99462	Disease & Recovery	\$75.1	\$78.5	\$84.8	\$0.0	\$238.4
99468	Acoustic Target Strength	\$146.6	\$0.0	\$0.0	\$0.0	\$146.6
TOTAL		\$506.3	\$126.7	\$84.8	\$0.0	\$717.8

Sound Ecosystem Assessment (SEA) and Related Projects

Restoration Strategies for Fiscal Year 1999

Investigate Ecological Factors

- Complete Sound Ecosystem Assessment project (99320), which is exploring and developing models of the processes influencing the survival and recruitment of pink salmon and Pacific herring in Prince William Sound.
- Conduct model validation project (99320M-BAA), which will complete the validation of SEA's circulation model.
- Conduct acoustic assessment project (99320N-BAA), which will complete SEA's macrozooplankton, salmon predator, and herring observation databases.
- Continue long-term oceanographic monitoring project (99340), which is gathering temperature and salinity data that will help researchers evaluate changes in the ecosystem.
- Conduct graphical synthesis project (99361-BAA), which will develop a presentation on SEA for public dissemination by the Restoration Office.

Develop Monitoring Techniques

- Continue pristane monitoring project (99195), which is collecting and measuring pristane in mussels as a measure of marine productivity.
- Begin food web project (99393-BAA), which will use carbon and nitrogen stable isotope ratios to confirm the relative trophic status of species within the Prince William Sound ecosystem.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99195	Pristane Monitoring	\$96.7				\$96.7
99320	SEA	\$738.3		\$0.0	\$0.0	\$738.3
99320M	Observational Oceanography	\$62.5	\$0.0	\$0.0	\$0.0	\$62.5
99320N	Acoustic Assessments	\$51.1	\$0.0	\$0.0	\$0.0	\$51.1
99340	Long-Term Oceanographic Monitoring	\$91.4	\$57.5	\$67.2	\$0.0	\$216.1
99361	Graphical Techniques	\$25.6	\$0.0	\$0.0	\$0.0	\$25.6
99393	Food Webs	\$125.0	\$143.6	\$114.6	\$0.0	\$383.2
TOTAL		\$1,190.6	\$201.1	\$181.8	\$0.0	\$1,573.5

Cutthroat Trout, Dolly Varden, and Other Fish

Restoration Strategies for Fiscal Year 1999

Research and Monitor Populations

- Complete population research project (99145), which is determining relationships between resident and anadromous forms of Dolly Varden and cutthroat trout in Prince William Sound.

Provide Management Information

- Continue genetics project (99252), which is exploring genetic stock structures of rockfish and pollock in the Gulf of Alaska.

Supplement Populations

- Complete habitat improvement project (99043B), which is monitoring the effectiveness of cutthroat trout and Dolly Varden habitat improvement structures installed at four sites in Prince William Sound in FY 95.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99043B	Habitat Improvement	\$9.5	\$0.0	\$0.0	\$0.0	\$9.5
99145	Relationships Among Forms	\$50.1	\$0.0	\$0.0	\$0.0	\$50.1
99252	Genetic Investigations of Rockfish and Pollock	\$308.3				\$308.3
TOTAL		\$367.9	\$0.0	\$0.0	\$0.0	\$367.9

Marine Mammals

Restoration Strategies for Fiscal Year 1999

Research and Monitor Harbor Seal Populations

- Continue field monitoring project (99064), which is monitoring the status of harbor seals in Prince William Sound and investigating the hypothesis that food limitation to pups and juveniles is causing the ongoing decline of harbor seal populations.
- Continue community-based biosampling project (99245); this project is discussed in the Subsistence cluster.
- Continue health project (99341), which is studying the blood chemistry and other health parameters of harbor seals in relation to changing diet under controlled conditions at the Alaska SeaLife Center.
- Begin stable isotope project (99371), which, in collaboration with 99341, will study how stable isotope ratios change over time in relation to diet.
- Begin lipid metabolism project (99441), which, in collaboration with 99341, will study how fatty acid profiles change over time in relation to diet.

Research and Monitor Killer Whale Populations

- Continue killer whale investigation (99012A-BAA), which is analyzing the long-term effects of the oil spill on resident and transient pods of killer whales in Prince William Sound.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY02 Estimate	TOTAL 99-02
99012	Killer Whale Investigation	\$85.4				\$85.4
99064	Harbor Seal Monitoring	\$263.3	\$130.0	\$0.0	\$0.0	\$393.3
99341	Harbor Seal Health and Diet	\$356.8	\$124.1	\$85.4	\$0.0	\$566.3
99371	Harbor Seal Stable Isotopes	\$120.0	\$101.7	\$101.7	\$0.0	\$323.4
99441	Harbor Seal Lipid Metabolism	\$158.4	\$131.6	\$0.0	\$0.0	\$290.0
TOTAL		\$983.9	\$487.4	\$187.1	\$0.0	\$1,658.4

Nearshore Ecosystem

Restoration Strategies for Fiscal Year 1999

Monitor Recovery

- Begin mussel bed monitoring project (99090), which will evaluate an experimental restoration technique used to clean mussel beds in FY 94.
- Complete black oystercatcher project (99289-BAA), which is assessing the recovery status of black oystercatchers in Prince William Sound.
- Complete manuscript project (99325-BAA), which in FY 99 will prepare two additional manuscripts on results of intertidal studies previously funded by the Trustee Council.
- Begin sea otter population change project (99423), which will track possible progress toward sea otter recovery in the Knight Island archipelago.
- Begin Barrow's goldeneye project (99466), which will synthesize existing data necessary for making a determination on adding this species to the injured resources list.

Research Mechanisms Limiting Recovery

- Complete nearshore vertebrate predator project (99025), which is determining whether sea otters, river otters, harlequin ducks, and pigeon guillemots are recovering from the oil spill and what factors might be limiting recovery.
- Complete river otter project (99348), which is using facilities at the Alaska SeaLife Center to validate the effects of oil contamination on river otters.
- Begin assessment of risk to residual oil project (99379), which will use two nearshore fishes as indicators of pathways of oil exposure.

Monitor the Fate and Persistence of Oil

- Continue hydrocarbon database project (99290), which is analyzing hydrocarbon samples collected through other Trustee Council projects.
- Begin Gulf of Alaska residual oil project (99459), which will monitor the persistence of oil along the coasts of Kenai Fjords and Katmai national parks.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99025	Nearshore Vertebrate Predators	\$500.0		\$0.0	\$0.0	\$500.0
99090	Oiled Mussel Bed Monitoring	\$150.0		\$0.0	\$0.0	\$150.0
99289	Status of Black Oystercatchers	\$8.6	\$0.0	\$0.0	\$0.0	\$8.6
99290	Hydrocarbon Database	\$58.9				\$58.9
99325	Intertidal/Subtidal Manuscripts	\$41.1	\$0.0	\$0.0	\$0.0	\$41.1
99348	River Otter: Oil Contamination	\$316.6	\$0.0	\$0.0	\$0.0	\$316.6
99379	Risk Assessment: Residual Oil	\$115.5	\$28.3	\$0.0	\$0.0	\$143.8
99423	Population Change: Nearshore Vertebrate Predators	\$60.0				\$60.0
99459	Residual Oil: Gulf of Alaska	\$124.9	\$40.0	\$0.0	\$0.0	\$164.9
99466	Barrow's Goldeneye Recovery	\$12.2	\$14.2	\$0.0	\$0.0	\$26.4
TOTAL		\$1,387.8	\$82.5	\$0.0	\$0.0	\$1,470.3

Seabird/Forage Fish and Related Projects

Restoration Strategies for Fiscal Year 1999

Research Mechanisms Limiting Recovery of Seabird Populations

- Continue Alaska Predator Ecosystem Experiment (APEX, 99163), which is investigating the regulation of seabird populations in relation to the availability and quality of forage fish.
- Continue genetics project (99169), which is using genetic techniques to define regional populations of common murre, marbled and Kittlitz's murrelets, and pigeon guillemots.
- Continue sand lance research project (99306), which is studying the basic ecology, distribution, and demographics of this forage fish in lower Cook Inlet.
- Continue pigeon guillemot project (99327), which is conducting research at the Alaska SeaLife Center on how diet and oil affect the growth and physiology of nestling guillemots, and testing techniques to establish a new guillemot colony.
- Continue murre/kittiwake project (99338), which is exploring adult survival as one mechanism by which forage fish availability may be affecting the recovery of seabirds.
- Continue fatty acid/lipid analysis project (99347), which is examining the nutritional consequences of dietary differences in marine mammal prey.
- Begin food stress project (99479), which will explore the use of corticosterone, a biochemical indicator of stress, as a tool to monitor seabird populations.

Research and Monitor Seabird Populations

- Continue common murre project (99144A), which in FY 99 will recensus the common murre colonies at the Barren Islands.
- Continue marine bird monitoring project (99159), which in FY 99 will report on the results of FY 98 boat surveys of marine birds and sea otters in Prince William Sound.
- Complete sand lance publication project (99346), which is creating an annotated bibliography and synthesis chapters about this species.
- Begin northeastern Prince William Sound project (99381), which will collect information on several small seabird colonies on lands being transferred into public ownership.
- Begin East Amatuli Island video link project (99434), which will place remotely operated video cameras in the Barren Islands seabird colonies as a research and educational tool.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99144A	Common Murres	\$72.6	\$23.0	\$0.0	\$0.0	\$95.6
99159	Marine Bird Surveys	\$37.0				\$37.0
99163	APEX	\$1,986.1	\$900.1	\$0.0	\$0.0	\$2,886.2
99169	Seabird Genetics	\$92.7	\$13.8	\$0.0	\$0.0	\$106.5
99306	Sand Lance Ecology	\$30.0	\$20.0	\$0.0	\$0.0	\$50.0
99327	Pigeon Guillemot Research	\$178.4	\$167.7	\$95.1	\$0.0	\$441.2
99338	Adult Murre/Kittiwake Survival	\$57.9	\$45.0	\$0.0	\$0.0	\$102.9
99346	Sand Lance Publication	\$10.4	\$0.0	\$0.0	\$0.0	\$10.4
99347	Fatty Acid/Lipid Analysis	\$92.6	\$35.8	\$0.0	\$0.0	\$128.4
99381	Status of Seabird Colonies	\$13.0	\$1.0	\$0.0	\$0.0	\$14.0
99434	East Amatuli Island Video Link	\$75.8	\$0.0	\$0.0	\$0.0	\$75.8
99479	Effects of Food Stress	\$84.7	\$125.2	\$129.6	\$75.0	\$414.5
TOTAL		\$2,731.2	\$1,331.6	\$224.7	\$75.0	\$4,362.5

Archaeological Resources

Restoration Strategies for Fiscal Year 1999

Monitor Archaeological Sites

- Continue index site monitoring project (99007A), which is periodically checking on sample ("index") sites to detect further damage from vandalism and looting and to gauge the effect of oiling on archaeological deposits.

Restore and Protect Archaeological Sites

- Complete site stewardship project (99149), which is training and coordinating volunteers to monitor vandalized archaeological sites in the spill area.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99007A	Index Site Monitoring	\$151.5				\$151.5
99149	Site Stewardship	\$15.2	\$0.0	\$0.0	\$0.0	\$15.2
TOTAL		\$166.7	\$0.0	\$0.0	\$0.0	\$166.7

Note: In December 1997 the Trustee Council approved a resolution setting aside \$2.8 million for an archaeological repository in the Prince William Sound/lower Cook Inlet region, artifact display facilities in each of the eight communities in the region, and development of a traveling exhibit. A request for proposals to construct these archaeological facilities was issued in April 1998. The proposals are currently being evaluated.

Subsistence

Restoration Strategies for Fiscal Year 1999

Restore Injured Resources Used for Subsistence

In general, all projects which address resources used by subsistence harvesters are subsistence restoration projects in that they restore the injured resources upon which subsistence depends.

Enhance or Replace Injured Resources

- Complete Tatitlek remote release project (99127), which is creating a "put and take" coho salmon run near the community of Tatitlek.
- Complete clam restoration project (99131), which is working to enhance populations of littleneck clams on beaches near Port Graham, Nanwalek, and Tatitlek.
- Continue Port Graham pink salmon project (99225), which is supplying pink salmon in the Port Graham area during the broodstock development phase of the Port Graham hatchery.
- Continue Kametolook River project (99247), which is enhancing a coho salmon run near the community of Perryville.
- Continue Solf Lake project (99256B), which is stocking Solf Lake near the community of Chenega Bay with sockeye salmon.
- Continue Port Graham streams project (99263), which in FY 99 will monitor the success of habitat enhancements constructed in salmon streams near the community of Port Graham.
- Conduct Port Graham hatchery reconstruction project (99405); this project is discussed in the Other Projects section.

Enhance or Replace Lost or Reduced Services

- Continue surf scoter project (99273), which is studying the life history and ecology of surf scoters in Prince William Sound.
- Begin spot shrimp project (99401), which will study the abundance of spot shrimp in Prince William Sound.

Increase Involvement of Subsistence Users in the Restoration Process

- Continue community involvement project (99052A), which is facilitating communication and interaction among the Trustee Council, scientists, and residents of communities impacted by the oil spill.
- Continue traditional ecological knowledge (TEK) project (99052B), which is facilitating the use of TEK in the restoration process.
- Continue youth area watch project (99210), which is involving junior high and

- high school students from Chenega Bay, Tatitlek, Cordova, Whittier, Valdez, Seward, Port Graham, Nanwalek, and Seldovia in restoration projects
- Continue harbor seal biosampling project (99245), which is training village-based technicians to collect harbor seal tissue samples for use by ongoing EVOS projects that are seeking to explain why harbor seals are not recovering.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99052A	Community Involvement	\$243.4	\$180.0	\$180.0	\$180.0	\$783.4
99052B	Traditional Knowledge	\$38.9				\$38.9
99127	Tatitlek Coho Salmon Release	\$10.7	\$0.0	\$0.0	\$0.0	\$10.7
99131	Clam Restoration	\$306.2	\$0.0	\$0.0	\$0.0	\$306.2
99210	Youth Area Watch	\$150.4	\$123.1	\$107.0	\$96.3	\$476.8
99225	Port Graham Pinks	\$75.6	\$75.0	\$0.0	\$0.0	\$150.6
99245	Community Harbor Seal	\$70.7	\$55.0	\$40.0	\$25.0	\$190.7
99247	Kametolook River	\$20.8	\$20.0	\$20.0	\$28.0	\$88.8
99256B	Solf Lake Stocking	\$68.3				\$68.3
99263	Port Graham Streams	\$42.1	\$23.5	\$0.0	\$0.0	\$65.6
99273	Surf Scoter Life History	\$206.2		\$0.0	\$0.0	\$206.2
99401	Spot Shrimp	\$38.3	\$89.8	\$95.0	\$33.0	\$256.1
TOTAL		\$1,271.6	\$566.4	\$442.0	\$362.3	\$2,642.3

Reduction of Marine Pollution Projects

Restoration Strategies for Fiscal Year 1999

Reduce Residual Oil

- Complete Chenega shoreline residual oiling reduction project (99291), which in FY 99 will prepare a final report and present results to the community of Chenega Bay.

Improve Community Waste Management

- Complete Kodiak waste management project (99304); this project is discussed in the Other Projects section.
- Begin lower Cook Inlet waste management planning project (99514), which is intended to improve handling of used oil in the spill-affected villages of Port Graham, Nanwalek, and Seldovia.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99291	Chenega Cleanup	\$9.2	\$0.0	\$0.0	\$0.0	\$9.2
99514	Lower Cook Inlet Waste Mgt. Plan	\$54.5	\$0.0	\$0.0	\$0.0	\$54.5
TOTAL		\$63.7	\$0.0	\$0.0	\$0.0	\$63.7

Habitat Improvement Projects

Restoration Strategies for Fiscal Year 1999

Protect and Restore Habitat

- Complete Kenai River restoration project (99180), which is restoring degraded habitat along the banks of the Kenai River for the benefit of sockeye salmon and other fish species.
- Conduct Homer Mariner Park project (99314), which will produce a feasibility study and environmental review for restoration of an intertidal area damaged through spill response efforts.
- Complete human use and wildlife disturbance project (99339), which is developing and testing a model for projecting and managing impacts of human use on injured species in Prince William Sound.
- The Trustee Council's program to acquire land and conservation easements as a means of protecting the habitat of injured resources is discussed in the Habitat Protection and Acquisition section.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99180	Kenai Habitat Restoration	\$299.6		\$0.0	\$0.0	\$299.6
99314	Homer Mariner Park	\$99.5	\$0.0	\$0.0	\$0.0	\$99.5
99339	Human Use Model	\$67.2	\$0.0	\$0.0	\$0.0	\$67.2
TOTAL		\$466.3	\$0.0	\$0.0	\$0.0	\$466.3

Ecosystem Synthesis

Restoration Strategies for Fiscal Year 1999

Develop Models of Research Results

- Complete mass-balance model project (99330-BAA), which is constructing a model of trophic interactions among the organisms of Prince William Sound to aid in the synthesis of results of studies funded by the Trustee Council.

Integrate and Synthesize Project Results

- Begin Kachemak Bay ecological characterization project (99278), which will develop a GIS-based spatial data set and an annotated bibliography for the Kachemak Bay watershed management program initiated through the National Estuarine Research Reserve process.
- Complete synthesis project (99300), which is working with EVOS principal investigators, ecological modelers, and long-time peer reviewers to synthesize data collected through EVOS studies and is developing concepts for a potential long-term research and monitoring program.
- Conduct environmentally sensitive areas mapping project (99368), which will integrate and depict information generated through the EVOS damage assessment and restoration programs on a series of maps identifying "environmentally sensitive areas" in Prince William Sound.
- Begin Cook Inlet information management project (99391), which in FY 99 will develop a prototype system for Internet access to widely scattered databases on water quality and related information in the Cook Inlet watershed.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99278	Kachemak Bay NERRS	\$70.0	\$35.0	\$0.0	\$0.0	\$105.0
99300	Ecosystem Synthesis	\$80.3	\$0.0	\$0.0	\$0.0	\$80.3
99330	Mass-Balance Model	\$149.8	\$0.0	\$0.0	\$0.0	\$149.8
99368	ESI Maps	\$37.3	\$0.0	\$0.0	\$0.0	\$37.3
99391	Cook Inlet Monitoring System	\$335.0		\$0.0	\$0.0	\$335.0
TOTAL		\$672.4	\$35.0	\$0.0	\$0.0	\$707.4

Public Information, Science Management, Administration Projects

Restoration Strategies for Fiscal Year 1999

Disseminate Information to the Public

- Conduct 10 Years After symposium and related events and activities (99470).

Reevaluate and Update Injury Assessments

- Conduct services update project (99471), which will update the status of subsistence, commercial fishing, recreation/tourism, and passive use prior to the 10 Years After symposium.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99470	10 Years After <i>Exxon Valdez</i>	\$170.8	\$0.0	\$0.0	\$0.0	\$170.8
99471	Update Status of Services	\$195.0	\$0.0	\$0.0	\$0.0	\$195.0
	TOTAL	\$365.8	\$0.0	\$0.0	\$0.0	\$365.8

Project Management

The costs of project management in FY 99 are funded through project 99250. Project management is provided by resource managers in the six trustee agencies and provides essential accountability to the work plan process. It includes such functions as tracking the progress of restoration projects; ensuring that projects meet their stated goals, objectives, and schedules; monitoring project expenditures; and ensuring that all reports and other contract deliverables are properly performed. Prior to FY 97, project management funds were included in each individual restoration project's budget.

Although an estimate of future years' funding for project management has not been developed, it is expected to decline consistent with the decline in the annual funding targets for the overall work plan. The FY 99 funding level represents a reduction from the amount approved for FY 98 (\$560,100).

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99250	Project Management	\$454.2				\$454.2
	TOTAL	\$454.2				\$454.2

HABITAT PROTECTION AND ACQUISITION

The *Exxon Valdez* Trustee Council funds the acquisition and protection of land in order to protect the habitat of injured resources. Project 99126 continues the support services necessary for these land acquisitions, such as negotiations staff, appraisals, title reports, on-site inspections, and hazardous materials surveys.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99126	Habitat Acquisition Support	\$770.4				\$770.4

As of December 1998, the Council has committed \$340 million to protect 636,000 acres of land in large parcels, including inholdings in Kachemak Bay State Park, land adjacent to Seal Bay/Tonki Cape on Afognak Island, commercial timber rights on land along Orca Narrows, a parcel on Shuyak Island, and lands owned by Afognak Joint Venture, Akhiok-Kaguyak, Inc., Old Harbor Native Corporation, Koniag, Inc., Chenega Corporation, Eyak Corporation, English Bay Corporation, and Tatitlek Corporation. Negotiations continue with Koniag, Inc. to protect additional habitat that is currently protected through a temporary conservation easement.

The Council has also spent \$18.5 million to acquire 7,000 acres of habitat in small parcels, and authorized \$2.5 million to purchase an additional 1,200 acres in small parcels.

Restoration efforts in the Pacific Northwest have taught us that habitat protection is essential to the health of salmon species. Researchers have concluded that depleted salmon populations cannot rebuild if any habitat that is critical during any of their life stages is seriously compromised. This lesson extends as well to the other fish, birds, and mammals injured by the oil spill that nest, feed, molt, winter, and seek shelter in the habitat protected through the Council's habitat protection and acquisition program.

Interests in the lands protected by the Council range from acquisition of fee simple title to various forms of conservation easements.

PUBLIC INFORMATION/SCIENCE MANAGEMENT/ADMINISTRATION

The cost of the administrative functions necessary to efficiently implement the restoration program (project 99100) continue to decline, from a high of \$4.1 million in FY 94 to \$2.5 million in FY 99. Further reductions are expected through FY 2002, consistent with the planned transition to the Restoration Reserve in FY 2003.

Project 99100 includes funds for the independent scientific review of project proposals and results, the Trustee Council's 17-member Public Advisory Group (PAG), maintenance and management of the *Exxon Valdez* oil spill collection at the Alaska Resources Library and Information Services (ARLIS), the Council's Annual Restoration Workshop, public meetings and other communication efforts such as the Council's newsletter, operations and staff support for the Trustee Council itself, an annual financial audit, and a variety of smaller items. In FY 99, funds are also included for the additional public information efforts related to the 10th anniversary of the oil spill.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99100	Public Info/Science Mgt/ Administration	\$2,495.7				\$2,495.7

RESTORATION RESERVE

In recognition of the fact that complete recovery from the oil spill may not occur for decades, the Trustee Council established the Restoration Reserve to hold funds to be used for restoration after the last annual payment is received from Exxon Corporation in September 2001. For FY 99, the Trustee Council approved deposit of \$12 million in the reserve account. This brings the total approved for the reserve account to \$72 million. Annual deposits of \$12 million in each of the next three years would provide a reserve of \$108 million plus interest.

Funds in the Restoration Reserve will be used for restoration activities, but allocation of the funds to specific activities has not yet occurred. During FY 98, the Trustee Council solicited public input from throughout the spill area on possible uses of the funds. The Council will likely make a decision on future uses of the Restoration Reserve during FY 99.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99424	Restoration Reserve	\$12,000.0	\$12,000.0	\$12,000.0	\$12,000.0	\$48,000.0

NOTE: During the fiscal years 1994 through 1998, the Trustee Council approved the deposit of \$60 million in the Restoration Reserve. The additional \$12 million approved for deposit in FY 99 and the \$36 million in deposits projected for FY 2000-2002 would bring the total in the year 2002 to \$108 million plus interest.

OTHER PROJECTS

In addition to the projects and activities described on the preceding pages, the Trustee Council also authorized funds for two proposals submitted for capital construction projects. These "other projects" are summarized below, and described in more detail in Appendix A.

- Complete Kodiak waste management project (99304), which in FY 99 will upgrade land fills and disposal sites, construct and install used oil and hazardous waste storage and disposal facilities, and provide for systems maintenance for seven communities on Kodiak Island.
- Conduct Port Graham hatchery project (99405), which will contribute funding to reconstruct the salmon hatchery that was destroyed by fire in January 1998.

Funding Approved for Fiscal Year 1999

Project Number and Title		FY 99 Approved	FY 00 Estimate	FY 01 Estimate	FY 02 Estimate	TOTAL 99-02
99304	Kodiak Waste Mgt. Plan	\$1,857.1	\$0.0	\$0.0	\$0.0	\$1,857.1
99405	Port Graham Hatchery	\$781.3	\$0.0	\$0.0	\$0.0	\$781.3
	TOTAL	\$2,638.4	\$0.0	\$0.0	\$0.0	\$2,638.4

Appendix A -- Description of Projects and Trustee Council Action

How to Read Appendix A:

Proposer	The individual, organization, or Trustee agency that submitted the project proposal.
Lead Agency	The Trustee agency (USFS, NOAA, DOI, ADFG, ADEC, or ADNR) to which the project has been assigned for project management purposes.
New or Cont'd	Whether or not the project is the continuation of a project funded by the Trustee Council in FY 98. Also, what year FY 99 is in the Council's funding of the project, followed by the total number of years Council funding is expected to be sought (e.g., 3rd year of a 5-year project).
FY 99 Approved	The amount of funding approved by the Trustee Council for federal fiscal year 1999.
FY 00 Estimate	The estimated project cost for FY 2000.
FY 01 Estimate	The estimated project cost for FY 2001.
FY 02 Estimate	The estimated project cost for FY 2002.
Total FY 99-02	Sum of the estimated project cost for all years, beginning in FY 99 and ending with FY 2002 or the project's completion, whichever is sooner.
Abstract	A brief summary of the project.
Chief Scientist's Recommendation	The Chief Scientist's review of the project's technical merit.
Trustee Council Action	The Trustee Council's decision on project funding for FY 99.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99007A	Archaeological Index Site Monitoring	D. Reger/ADNR	ADNR	Cont'd 5th yr. 8 yr. project	\$151.5				\$151.5

Project Abstract

Chief Scientist's Recommendation

Trustee Council Action

Monitoring of archaeological sites on public land injured by vandalism and oiling will concentrate on a sample of index sites in the three regions of the spill area. Oiled sites will be tested for reintroduced oil. A total of 11 sites will be visited in FY 99. Scattered instances of vandalism continue and monitoring will continue with return to sites initially identified but not recently monitored.

This project has been conducting ongoing evaluation of damage to archaeological sites from oil or vandalism. There has been no evidence showing that oil has migrated onto any of these sites, and after nine years it is justified to ask if any vandalism can still be considered a by-product of the oil spill. I recommend that this project be carefully evaluated in FY 99 prior to continued funding in FY 00. Fund.

Fund. This project monitors archaeological sites injured by vandalism and oiling. However, because nine years have elapsed since the spill, any injuries being detected may have little relevance to the spill. Funding beyond FY 99 should be based on a careful evaluation of the restoration value of this project.

99012A-BAA	Comprehensive Killer Whale Investigation in Prince William Sound	C. Matkin/North Gulf Oceanic Society	NOAA	Cont'd 7th yr. 9 yr. project	\$85.4			\$0.0	\$85.4
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Project Abstract

Chief Scientist's Recommendation

Trustee Council Action

This project will continue the monitoring of the damaged AB pod and other Prince William Sound/Kenai Fjords killer whales that has occurred on a yearly basis since 1984. Methods include the photo identification of individual whales and acoustic monitoring with remote and vessel-based hydrophone systems. The project will finalize interpretation and provide for publication of the results of a multi-year examination of killer whale population biology, genetics, acoustics, trophic interactions, spatial and temporal distribution patterns, and contaminant accumulation.

This is a good project that has produced consistently high-quality data on killer whales, which continues to be a species of concern. The principal investigator is excellent, and it is hard to imagine a way to carry out this work for less money. Fund.

Fund. This project is providing valuable information about the long-term effects of the oil spill on resident and transient pods of killer whales in Prince William Sound. Funding for FY 2000 will be considered following review of the results of the ongoing work.

APPENDIX A: DESCRIPTION OF PROJECTS AND TRUSTEE COUNCIL ACTION

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99025-CLO	Mechanisms of Impact and Potential Recovery of Nearshore Vertebrate Predators (NVP)	L. Holland-Bartels, et al/USGS-BRD	DOI	Cont'd 5th yr. 5 yr. project	\$500.0		\$0.0	\$0.0	\$500.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
FY 99 will be dedicated to production of the final report for the Nearshore Vertebrate Predator project. Funds for this year are for data analysis, final report writing, and poster/presentation preparation for the 10 Years After symposium. The Nearshore Vertebrate Predator project is making an integrated assessment of trophic, health, and demographic factors across a suite of apex predators injured by the spill to determine mechanisms constraining recovery and to improve knowledge of the status of recovery. Primary hypotheses are: (1) Recovery of nearshore resources injured by EVOS is limited by recruitment processes; (2) Initial and/or residual oil in benthic habitats and in or on benthic prey organisms has had a limiting effect on the recovery of benthic foraging predators; and (3) EVOS-induced changes in populations of benthic prey species have influenced the recovery of benthic foraging predators.		Proper closeout of this project, which is fundamental to evaluation of progress toward EVOS recovery objectives, is essential. The project has the potential to synthesize important questions that will be very timely for the 10th anniversary. Fund revised proposal, which reduces the budget significantly from the original request.		Fund closeout (final data analysis and report writing) of this project, which has undertaken a four-year field effort to determine whether sea otters, river otters, harlequin ducks, and pigeon guillemots are recovering from the oil spill and whether recruitment processes, continuing exposure to oil, or food availability are limiting recovery. A proposal to fund revision of the final report following peer review and preparation of additional manuscripts is expected in FY 2000.					
99043B-CLO	Monitoring of Cutthroat Trout and Dolly Varden Habitat Improvement Structures	D. Gillikin/USFS	USFS	Cont'd 6th yr. 6 yr. project	\$9.5	\$0.0	\$0.0	\$0.0	\$9.5
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will prepare the final report and analysis of data collected from 1995 to 1998. Sixty-three habitat improvement structures were installed in 1995 under Project 95043B. At that time there were concerns raised that habitat structures may inadvertently increase coho salmon populations, thereby increasing competitive stress on Dolly Varden and cutthroat trout populations. The final report will address the five working null hypotheses presented in previous proposals to determine if the improvements were a benefit to cutthroat trout and Dolly Varden.		Monitoring the success of the previously installed habitat improvements is necessary to evaluate success. Fund this final year of monitoring.		Fund closeout of this project, which has monitored the effectiveness of habitat improvement structures that were installed in FY 95 to restore and enhance populations of cutthroat trout and Dolly Varden. This information will aid fisheries management in gauging the success of this project and in applying the results to other situations.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99052A	Community Involvement	P. Brown- Schwalenberg/CRRC	ADFG	Cont'd 5th yr. 8 yr. project	\$243.4	\$180.0	\$180.0	\$180.0	\$783.4

Project Abstract

Chief Scientist's Recommendation

Trustee Council Action

This project will increase community involvement in the restoration process. The Spill Area-Wide Coordinator's work will continue through a contract with the Chugach Regional Resources Commission (CRRC). Through direct communication with a network of local facilitators, the Spill Area-Wide Coordinator will continue to actively involve local residents in the restoration program. (Local facilitators are located in Tatitlek, Chenega Bay, Port Graham, Nanwalek, Cordova, Seward, Seldovia, Valdez, Ouzinkie, and Chignik Lake.) In FY 99, a network of high school interns will be created in the Kodiak Island region. In cooperation with CRRC, the Kodiak Island Borough School District will select one high school student from each of six communities (Port Lions, Larsen Bay, Karluk, Akhiok, Old Harbor, Kodiak City) to serve as local facilitators. In addition, the interns will facilitate school and community discussions about the restoration program.

This project continues to be a priority with the spill-area communities. However, although communications seem to have improved during the past year and the Community Facilitators' monthly reports are being submitted in a more timely fashion, accountability remains an issue. For example, proposals from the communities could be improved and overdue local resource inventories should be supplied. To improve accountability, future quarterly and annual reports should provide a more thorough accounting of the status of the Community Facilitators' monthly reports and other efforts. The use of student interns in Kodiak Island communities seems like an appropriate approach, but clear tasks for the interns must be identified and their performance evaluated regularly to ensure that project objectives are being met. Fund, but consider future budget reductions if accountability is not improved.

Fund, including addition of student interns in Kodiak Island communities. This project, which is designed to facilitate communication and interaction among the Trustee Council, scientists, and residents of communities impacted by the oil spill, responds to an important goal of the Trustee Council. Villages in the spill region have said that this project is of the highest importance because it gives them a voice in the restoration process. In FY 99, the quarterly reports submitted by the Spill Area Wide Coordinator to the Restoration Office should contain a more complete accounting of each Community Facilitator's efforts. In FY 2000 and beyond, the Trustee Council contribution to this project will be reduced consistent with the overall reduction in the restoration program.

APPENDIX A: DESCRIPTION OF PROJECTS AND TRUSTEE COUNCIL ACTION

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99052B	Traditional Ecological Knowledge	P. Brown- Schwalenberg/CRRRC, H. Huntington	ADFG	Cont'd 3rd yr.	\$38.9				\$38.9

Project Abstract

This project will fund a TEK (Traditional Ecological Knowledge) specialist to (1) provide technical assistance to Project 99320T-Supp/Herring TEK, (2) provide technical training to community members to build local capacity for research and management involving TEK, (3) organize and facilitate synthesis workshops between principal investigators and community experts, and (4) serve as a contact point for spill area communities, the Community Facilitators and Spill Area-Wide Coordinator hired under Project /052A, and principal investigators on issues related to TEK.

Chief Scientist's Recommendation

The goal of this project, which is the exchange of knowledge from traditional and local sources and scientific studies, is worthy. However, the project has now been funded for three years and has achieved few concrete results. When this project was funded in FY 98, it was with the understanding that funding in FY 99 would be contingent upon a favorable review of FY 98 results. My review of the annual report for FY 97 and preliminary information on the project in FY 98 indicates that this is still a weak project in terms of producing concrete results. However, it is clear this effort enjoys substantial support in the communities (e.g., the seaduck synthesis workshop in Tatitlek). I can support only limited funding in FY 99, including for several more synthesis workshops.

Trustee Council Action

Fund. In FY 99 this project will provide technical assistance to principal investigators (primarily Project 99320T-Supp), conduct informational workshops between principal investigators and community experts, and conduct a technical training workshop. At the technical training workshop, the purpose and methods of TEK research will be introduced to give selected community members an understanding of how and why TEK research is conducted. A proposal to hold additional training sessions that focus on specific research ideas will likely be submitted in FY 2000. This project is designed to explore and facilitate the use of traditional knowledge in the restoration of injured resources, which is an important goal of the Trustee Council. Funding beyond FY 99 will be considered following a review of the FY 99 effort.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99064	Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in Prince William Sound	K. Frost/ADFG	ADFG	Cont'd 5th yr. 6 yr. project	\$263.3	\$130.0	\$0.0	\$0.0	\$393.3
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will monitor the status of harbor seals in Prince William Sound and investigate the hypothesis that food limitation to pups and juveniles is causing the ongoing decline. Aerial surveys will be conducted during molting to determine whether the population continues to decline, stabilizes, or increases. Seal pups will be satellite-tagged to describe and compare their movements, hauling out, and diving behavior to older seals and seals in other areas. Deuterium oxide will be used to examine annual variations in the nutritional status of pups and yearlings, as indicated by body fat content. Fatty acids analysis will be conducted on recent and archived blubber samples and mathematical models will be developed to estimate seal diets and whether they have changed since the 1970s.		This continuing project is providing valuable information to assess the recovery of harbor seals. The fatty acid research has begun to elucidate trophic trends, but needs more groundtruthing with laboratory experiments using captive animals (see Project 99371). If juvenile mortality is the key factor influencing recruitment, past experience from other areas suggests it will be difficult to measure directly. Fund.		Fund. This project will help explain the long-term decline in harbor seals in Prince William Sound. The results of the study will enable resource managers, subsistence users, and others to focus their efforts and concern on the most probable causes of harbor seal population decline.					
99090	Monitoring of Oiled Mussel Beds in Prince William Sound	P. Harris, C. Brodersen/NOAA	NOAA	New 1st yr. 2 yr. project	\$150.0		\$0.0	\$0.0	\$150.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will monitor mussel densities and hydrocarbon concentrations in mussels and sediments in 28 mussel beds in Prince William Sound. Twelve of these beds were restored in 1994; mussel hydrocarbon concentrations decreased significantly and replaced sediments remained clean through 1995. However, 1996 samples indicated recontamination of the replaced sediments and the potential for recontamination of mussels in some restored beds. To compare the efficacy of restoration efforts to long-term natural recovery, the project will monitor an additional 16 beds that were untreated and remained oiled when they were last sampled (1995). To complete the design, two unoiled reference beds will also be re-sampled.		In 1994, the Trustee Council funded a project to experimentally clean several oiled mussel beds. These beds were last visited in 1995, and it is now timely to revisit them to assess concentrations of remaining oil and also the integrity of the mussel beds themselves. In order to evaluate a restoration technique, this work needs to be done. Fund contingent on submittal of overdue final report (Project 95090).		Fund contingent on submittal of the Project 95090 final report. This project, which was called for in the FY 99 <i>Invitation</i> , will evaluate an experimental restoration technique used to clean mussel beds in FY 94. Twelve beds restored in 1994 and sixteen untreated beds that remained oiled when last sampled in 1995 will be surveyed.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99100	Administration, Science Management, and Public Information	All Trustee Council Agencies	ALL	Cont'd	\$2,495.7				\$2,495.7
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project provides overall support for science management, public involvement, and administration of the restoration program through the Restoration Office. It includes funding for the Trustee Council staff working at the direction of the Executive Director, the scientific peer review process, public involvement efforts including the 17-member Public Advisory Group (PAG), and support for Trustee agency participation in the restoration program as part of the Restoration Work Force.		Proposal not reviewed.		Fund. This project provides overall support for administration and implementation of the restoration program. The FY 99 budget represents a reduction from the FY 98 authorization of \$2,796,300. [NOTE: This project will be funded outside of the regular FY 99 work plan of research, monitoring, and general restoration projects.]					
99126	Habitat Protection and Acquisition Support	C. Fries/ADNR, D. Gibbons/USFS, G. Elison/DOI	ADNR	Cont'd	\$770.4				\$770.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project provides negotiation support to the Trustee Council in order to reach closure on habitat protection priorities. This support includes title reports, appraisals, on-site inspections, hazardous materials surveys, land surveys, timber cruises and reviews, and other services necessary for the successful completion of habitat protection negotiations.		Proposal not reviewed.		Fund. The Old Harbor/Sitkalidak land exchange to be funded under this project is contingent on completion of a conservation easement by Old Harbor on Sitkalidak Sound. This project provides support for the habitat protection program, including negotiation staff, appraisals, closing costs, etc. A total of \$1,282,600 was authorized for this purpose in FY 97; \$851,400 was authorized in FY 98. [NOTE: Funds for this project are provided through the Trustee Council's habitat protection program, not through the regular FY 99 work plan of research, monitoring, and general restoration projects.]					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99127	Tatitlek Coho Salmon Release	G. Kompkoff/Tatitlek IRA Council	ADFG	Cont'd 5th yr. 5 yr. project	\$10.7	\$0.0	\$0.0	\$0.0	\$10.7
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will create a coho salmon return to Boulder Bay near the village of Tatitlek. Enough coho eggs to produce 20,000 smolt will be collected from an Alaska Department of Fish and Game approved stream, incubated and reared to smolt at the Solomon Gulch Hatchery, transported, and held for two weeks in net pens in Boulder Bay before release. Release will produce a 2,000 to 3,000 adult return to Boulder Bay for harvest in a subsistence fishery.		This is the final year of an apparently successful project to provide temporary replacement resources. Fund.		Fund final year of this project (one more year of smolt production/release as well as preparation of final report). The project is creating a "put and take" coho salmon run near Tatitlek as a replacement resource for subsistence resources injured by the oil spill. Twenty thousand smolt are released annually in Boulder Bay for each year in which the project is carried out. Coho are currently returning to Tatitlek and are being used by subsistence and sport fishermen.					
99131	Chugach Native Region Clam Restoration	P. Brown- Schwalenberg/ CRRC	ADFG	Cont'd 5th yr. 5 yr. project	\$306.2	\$0.0	\$0.0	\$0.0	\$306.2
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Cost effective procedures for establishing easily accessible subsistence clam populations near Alaska Native villages in the oil spill region will be established. In FY 99 the scope of work will be confined to developing effective, standardized techniques for producing littleneck clam seed at the Qutekcak Hatchery and analyzing growth and mortality of this seed placed on the beaches in FY 96, FY 97 and FY 98. Total seeded area during the project will not exceed five hectares. Follow-up research on success of seeding will be conducted. Growout development work will be confined to areas near the Native villages of Tatitlek, Nanwalek and Port Graham. Nursery and growout work will be emphasized in FY 99.		This project has achieved tremendous success after transferring operations to the new clam hatchery and implementing new protocols for spawning clams. Large numbers of seed are being produced in the hatchery and emphasis is now shifting toward improving the protocols for the growout of seed in the outside pond and for juveniles in the field. The revised proposal includes funds to install several large outdoor tanks to replace the rearing ponds, which are needed to assure good spring and summer growth. An experimental design must be submitted for review by March 12, 1999 that shows how various factors affecting beach growout success will be evaluated. Fund as now proposed.		Fund. FY 99 is the final year of Trustee Council contribution to this project, which aims to enhance local clam populations as replacements for subsistence resources injured by the oil spill. In FY 99, the emphasis will be on the development of standardized techniques for the hatchery production of littleneck clams and on analyzing growth and mortality of the seed planted on beaches in prior years. Additional clam seed will be planted on project beaches (Port Graham, Nanwalek, Tatitlek) in FY 99 in order to maintain the development schedule for enhancing local populations.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99139A2	Port Dick Creek Tributary Restoration and Development	W. Bucher/ADFG	ADFG	Cont'd 4th yr. 7 yr. project	\$85.8	\$47.0	\$10.0	\$5.0	\$147.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
<p>This project will restore the native Port Dick Creek salmon stocks which were exposed to moderate to heavy oiling. Actual restoration of the spawning habitat took place in June 1996. Natural colonization rates were adequate to fully seed the newly restored spawning habitat. Water temperature, water level, salinity, and stream velocity will be monitored as these parameters are well correlated in the literature with spawning success and egg-to-fry survival. Additional sedimentologic parameters (bedload transport, accumulated sediments, and gravel/cobble transport rates) will also be analyzed. These activities as well as evaluation studies will be conducted annually from FY 96 to FY 2000, with possible extension of minor monitoring through FY 2002 for streambed stability research.</p>		<p>This is a solid example of a practical fisheries restoration and enhancement project. It has successfully created salmon habitat which previously had been destroyed. The basic observations of geomorphology and hydrology, and particularly the stability of the streambed, are something that has not been well addressed in the scientific literature on salmon restoration. Also, the partitioning of effects between fresh and marine survival helps determine the effectiveness of stream restoration. The additional season of monitoring is appropriate. However, I encourage the investigators to include in their FY 99 work preparation and submission of a manuscript to a peer reviewed journal. Fund.</p>		<p>Fund. This project will continue to evaluate the effects of improvements on Port Dick Creek, which are designed to increase available spawning habitat and thus provide additional pink and chum salmon for harvest as a replacement for salmon lost in the oil spill. In the spring of 1997, the first year the number of fry produced by the project was measured, field staff enumerated a combined total of 324,889 pink and chum fry from the creek, which resulted in an estimated egg-to-fry survival rate of 42%. In FY 99, monitoring of spawning success and monitoring of streambed stability to ensure optimal spawning habitat over the long term will continue in order to evaluate project success. Also in FY 99, the principal investigator is encouraged to prepare and submit a manuscript to a peer reviewed journal.</p>					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99144A	Common Murre Population Monitoring	D. Roseneau/USFWS	DOI	Cont'd 4th yr. 5 yr. project	\$72.6	\$23.0	\$0.0	\$0.0	\$95.6

Project Abstract

This project will recensus the Barren Islands murre colonies in FY 99. The recensus had been scheduled for FY 2000 or FY 2001. However, returning 3-, 4-, 5-, and 6-year-old birds from the strong 1993-96 chick cohorts will provide an excellent opportunity to determine whether population increases documented in FY 97 are continuing, and if they are, to obtain the information needed to satisfy the remaining recovery goal for this injured species in the spill area (a potential finding appropriate for the 10th anniversary of the spill).

Chief Scientist's Recommendation

Common murres experienced significant mortality at the time of the oil spill, and the Trustee Council has funded a series of studies that have closely monitored the Barren Islands colonies to document their recovery status. Previously, the plan had been to conclude Barren Islands censuses in FY 97 and to census the Chiswells in FY 98. However, there now is concern about the effects of the recent observed mortality of murres in the Gulf of Alaska, especially at a time when young murres born since 1993 (when productivity returned to normal) should now be returning to the colony and being recruited into the breeding population. This is an important time in the recovery of this species, and continued monitoring at the Barren Islands is necessary. Fund.

Trustee Council Action

Fund. Murres were severely injured by the oil spill, and this project extends population monitoring of the Barren Islands colonies. Productivity first returned to normal at the Barren Islands in 1993, and there now is concern about the effects of a murre die-off at a time when the young produced since 1993 should be recruited into the breeding population. Thus, this project is important to follow-through on the entire sequence of post-spill injury and recovery.

99145-CLO	Cutthroat Trout and Dolly Varden: Relation Among and Within Populations of Anadromous and Resident Forms	G. Reeves/USFS, K. Currens/Northwest Indian Fisheries Commission	USFS	Cont'd 4th yr. 4 yr. project	\$50.1	\$0.0	\$0.0	\$0.0	\$50.1
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Project Abstract

This project is determining the relation between resident and anadromous forms of Dolly Varden and cutthroat trout within the same watershed and between watersheds in Prince William Sound. In FY 99, analysis will continue of genetic, meristic, and life-history features of each group, which were sampled in FY 96 and FY 97. This project received closeout funds in FY 98; this one-year extension is requested because it has taken longer to complete the genetic analysis than originally thought. Results from this study will allow development of a long-term, comprehensive and ecologically sound restoration strategy for these fish.

Chief Scientist's Recommendation

This work is important to more fully understand development of the injury and recovery status of Dolly Varden and cutthroat trout. The new information gained about the biology of these species will also aid management in Prince William Sound. The investigators need to fully analyze and explore the data relative to possible recent severe population bottlenecks and to fully interpret the lack of congruence between the mtDNA and microsatellite results. I recommend funding of \$50,000 toward the full analysis of genetic data and production of a manuscript suitable for publication.

Trustee Council Action

Fund project closeout (final data analysis, report writing, and manuscript preparation). This project is evaluating genetic and other relationships between resident and anadromous forms of cutthroat trout and Dolly Varden in Prince William Sound. Although scheduled to close-out in FY 98, the project has been slowed by the need to develop additional tools for the analysis of mtDNA and microsatellite DNA, and funding in FY 99 is necessary to complete data analysis and prepare a final report. This project will aid understanding of injury to and recovery of these fish species, and has important implications for restoration and management.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99149-CLO	Archaeological Site Stewardship	D. Reger/ADNR	ADNR	Cont'd 4th yr. 4 yr. project	\$15.2	\$0.0	\$0.0	\$0.0	\$15.2
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The archaeological site stewardship program has been aimed at providing training and coordination for a cadre of volunteers to monitor vandalized sites in the oil spill area beyond the ability of agency monitoring. Volunteer site stewards have monitored damaged sites on the Kenai Peninsula, Kachemak Bay, Uganik Bay, Uyak Bay, and the Chignik area of the Alaska Peninsula. Closeout of the project will summarize accomplishments of the past three years of activity, outline conclusions about usefulness and structure of the program, and identify future directions for similar programs.		This is the closeout for the project. Fund.		Fund closeout (report writing) of this project. This pilot project has trained and coordinated volunteers to monitor vandalized archaeological sites in the spill area.					
99159	Surveys to Monitor Marine Bird Abundance in Prince William Sound During Winter and Summer: Report and Publication Writing	B. Lance, D. Irons/USFWS	DOI	Cont'd 6th yr. 9 yr. project	\$37.0				\$37.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Small boat surveys to monitor abundance of marine birds in Prince William Sound were conducted during March 1990, 1991, 1993, 1994, 1996, and 1998 and July 1989, 1990, 1991, 1993, 1996, and 1998. This project will use the data to examine trends by determining whether populations in the oiled zone changed at the same rate as those in the unoled zone. It will also examine overall population trends for Prince William Sound from 1989-98, and prepare an annual report and a paper for publication.		This project will analyze, interpret, and report on data from marine bird boat surveys conducted in FY 98. These surveys are the basic tool for monitoring the recovery status of a suite of marine birds, and the results of this project are needed in advance of the 10 Years After symposium. Fund.		Fund contingent on submittal to a peer-reviewed journal of the manuscript previously promised under Project 97159. This project will report on the results of FY 98 boat surveys of marine birds and mammals in Prince William Sound. These surveys are important because they are the primary means of monitoring an entire suite of coastal birds and other wildlife. This information will be very timely for the 10 Years After symposium. Funding for FY 2000 will be considered following an analysis of the FY 98 survey results.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99162A	Investigation of Disease Factors Affecting Declines of Pacific Herring Populations: Manuscripts/Conference Attendance (Part A)	R. Kocan/Univ. Washington	ADFG	Cont'd 5th yr. 5 yr. project	\$58.6	\$0.0	\$0.0	\$0.0	\$58.6
	<u>Project Abstract</u>	<u>Chief Scientist's Recommendation</u>			<u>Trustee Council Action</u>				
	This project will prepare at least five manuscripts dealing with the research activities funded by the Trustee Council under Project /162. At least five additional subjects are covered by the existing data: (1) survival of viral hemorrhagic septicemia (VHS) virus in sea water, (2) the natural history of VHS in wild herring, (3) serologic conversion and immunity in wild herring following an epizootic of VHS, and (4) age-related immunity demonstrated in laboratory-reared herring. Additional publications on the effect of net pens on VHS transmission and the presence of VHS-RNA in wild herring tissues as demonstrated by PCR (polymerase chain reaction) are anticipated, depending on results of FY 98 studies.	In many instances, research results gathered in a multiyear project are not properly synthesized. This has been an excellent project and the principal investigators have very good records of achievement in EVOS studies. This material has important implications for herring management and it should be published. This project will accomplish that end. Fund.			Fund. This project, which is closing out in FY 98 (final data analysis and preparation of a final report), has investigated the potential link between oil exposure and disease in herring, and between disease and the herring population decline in Prince William Sound. FY 99 funding will produce a minimum of five manuscripts based on study results related to disease transmission.				
99162B	Investigations of Disease Factors Affecting Declines of Pacific Herring Populations: Manuscripts/Conference Attendance (Part B)	J. Kennedy/Simon Fraser Univ.	ADFG	Cont'd 5th yr. 5 yr. project	\$13.4	\$0.0	\$0.0	\$0.0	\$13.4
	<u>Project Abstract</u>	<u>Chief Scientist's Recommendation</u>			<u>Trustee Council Action</u>				
	This project will publish and present manuscripts of the results of Project /162 as they relate to effects of environmental contamination and disease on herring fitness. The effects of viral hemorrhagic septicemia (VHS) virus, <i>Ichthyophonus hoferi</i> , and hydrocarbon exposure were examined to determine their role in population declines experienced by Pacific herring populations in Prince William Sound in 1993 and 1994. Both adult and juvenile herring were used to determine the effects of biochemistry, immunocompetence, performance and reproduction.	In many instances, research results gathered in a multiyear project are not properly synthesized and this proposal will accomplish that goal for the several years of work on herring disease. This has been an excellent project and the principal investigators have excellent track records in EVOS studies. This material has important implications for herring management and it should be published so it can be widely available. Fund.			Fund. This project, which is closing out in FY 98 (final data analysis and preparation of a final report), has investigated the potential link between oil exposure and disease in herring, and between disease and the herring population decline in Prince William Sound. FY 99 funding will produce four manuscripts based on study results related to the effect of oil on herring swimming physiology.				

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99163	APEX: Alaska Predator Ecosystem Experiment in Prince William Sound and the Gulf of Alaska	D. Duffy/Paumanok Solutions	NOAA	Cont'd 6th yr. 7 yr. project	\$1,986.1	\$900.1	\$0.0	\$0.0	\$2,886.2
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project uses seabirds as probes of the trophic (foraging) environment of Prince William Sound and compares their reproductive and foraging biologies, including diet, with similar measurements from Cook Inlet, an area with apparently a more suitable food environment. These measurements will be compared with hydroacoustic, aerial, and net sampling of fish to calibrate seabird performance with fish distribution and abundance. This will allow a determination of the extent to which food limits the recovery of seabirds from the oil spill. Historical data from a variety of sources will be used to detect shifts in forage fish abundance and to test hypotheses explaining such shifts.		This project is producing important results that can have immediate application to management and restoration of injured species. This project was recently the subject of a detailed scientific review. Key technical issues raised in the review include (1) adequate groundtruthing of aerial surveys and (2) refocusing the acoustic program on the key issues of multi-species assessment and herring target strength determination. Delays in supplying properly scaled hydroacoustic estimates of fish abundance are a major concern for principal investigators in making their conclusions about fish-bird relationships. These issues should be addressed in FY 99. Fund.		Fund. The APEX project is investigating the regulation of seabird populations in relation to the availability and quality of forage fish, such as herring and sand lance. This ecosystem-scale project has important implications for the recovery of several seabird species injured by the oil spill, and it already has yielded insights about long-term changes in the Gulf of Alaska ecosystem. The project leadership has made good use of adaptive management in FY 98, although there continue to be some technical concerns, particularly in regard to the analysis and application of hydroacoustic data on fish abundance. The APEX project leaders also must plan now for the orderly closeout of this work in FY 2000, not in FY 2001 as has been indicated by some of the subproject principal investigators.					
99169	A Genetic Study to Aid in Restoration of Murres, Guillemots, and Murrelets in the Gulf of Alaska	V. Friesen/Queen's Univ., J. Piatt/USGS-BRD	DOI	Cont'd 3rd yr. 4 yr. project	\$92.7	\$13.8	\$0.0	\$0.0	\$106.5
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Populations of common murres, pigeon guillemots, and marbled and Kittlitz's murrelets suffered high mortalities following the spill. This project will continue the analyses of mitochondrial DNA, microsatellites, and introns to measure genetic differentiation and gene flow among colonies of these species. This project will aid restoration by (1) determining the geographic limits of populations affected by the spill, (2) identifying sources and sinks, and (3) identifying appropriate reference or 'control' sites for monitoring. As incidental results, it will also reveal cryptic species and subspecies, indicate the importance of inbreeding and small effective population sizes in restricting recovery, and suggest suitable source colonies for translocations.		This is a well configured and cost-effective proposal for continued funding of a project that may provide information useful to management of seabird populations in the Gulf of Alaska. There are some uncertainties regarding how methods will be calibrated to allow effective application of coalescence theory, but this issue should be able to be addressed as the project goes forward. Fund.		Fund. This project is exploring genetic variations and relationships among seabirds both within and beyond the oil-spill area. This information will help in the development of appropriate strategies for the restoration and long-term management of seabirds, including clarifying the geography of populations affected by the oil spill.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99180	Kenai Habitat Restoration and Recreation Enhancement	A. Weiner/ADNR, K. Kromrey/USFS	ADNR	Cont'd 4th yr. 4 yr. project	\$299.6		\$0.0	\$0.0	\$299.6
<p><u>Project Abstract</u></p> <p>Adverse impacts to the banks of the Kenai River total approximately 19 miles of the river's 166-mile shoreline, including 5.4 river miles of public land. Riparian habitats have been impacted by trampling, vegetation loss and structural development. The project's objectives are to restore injured fish habitat, protect fish and wildlife habitat, enhance and direct recreation, and preserve the values and biophysical functions that the riparian habitat contributes to the watershed. Restoration/enhancement techniques will include revegetation, streambank restoration, elevated boardwalks, floating docks, access stairs, fencing, signs, and educational interpretive displays.</p>			<p><u>Chief Scientist's Recommendation</u></p> <p>This project will complete the fourth and final year of habitat restoration on public lands along the Kenai River. With this project, the Trustee Council will have invested nearly \$2 million in Kenai River restoration, which, in combination with the millions spent on habitat acquisitions and sockeye salmon research and management, represent a major contribution to Kenai River commercial, recreational, and subsistence fisheries. I support funding this final year of work in FY 99 and look forward to seeing the results of monitoring efforts over the longer term. Fund.</p>			<p><u>Trustee Council Action</u></p> <p>Fund final year of Trustee Council contribution to habitat restoration along the Kenai River. In FY 99, funds are being provided to finish the Slikok Creek and Russian River projects, which received partial funding from the Council in FY 98. Although FY 99 is scheduled to be the closeout year for this project, a small amount of funds may be requested in FY 2000 to complete the final report. In general, the habitat restoration efforts along the Kenai River will benefit sockeye salmon and other fish species of commercial and recreational importance.</p>			
99188-CLO	Otolith Thermal Mass Marking of Hatchery Reared Pink Salmon In Prince William Sound	T. Joyce/ADFG	ADFG	Cont'd 5th yr. 5 yr. project	\$185.2	\$0.0	\$0.0	\$0.0	\$185.2
<p><u>Project Abstract</u></p> <p>This project closes out the Trustee Council's support for development of otolith mass marking as a technology for identification of hatchery pink salmon returning to Prince William Sound. The otoliths of all pink salmon reared at Prince William Sound hatcheries were thermally marked in the fall from 1995 through 1998. Blind tests were conducted to determine the ability of otolith readers to successfully determine the origin of randomly selected otoliths. During pink salmon commercial fisheries, approximately 100 otoliths were processed from each fishery opening to estimate stock composition. Generated estimates were provided to fishery managers within 36 hours of the closure of a fishing period. In post-season analysis, a Bayesian dynamic sample size allocation scheme was invoked to maximize sampling efficiency.</p>			<p><u>Chief Scientist's Recommendation</u></p> <p>This study has carefully documented, developed, and applied a new tool for managing mixed stock salmon fisheries and hatchery activities in Prince William Sound on a scale never before attempted. Fund.</p>			<p><u>Trustee Council Action</u></p> <p>Fund closeout of this project. This project has supported the development and implementation of otolith marking as a technology for identification of hatchery pink salmon returning to Prince William Sound. The information provided by otolith marking, which is a more accurate and less expensive technology than its predecessor coded wire tags, allows fisheries managers to vary the timing and location of the commercial harvest to protect injured wild stocks of pink salmon.</p>			

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99190	Construction of a Linkage Map for the Pink Salmon Genome	F. Allendorf/Univ. Montana	ADFG	Cont'd 4th yr. 5 yr. project	\$270.0	\$187.3	\$0.0	\$0.0	\$457.3
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will complete a genetic linkage map for pink salmon in FY 98. The first primary aspect of the project in FY 99 is to add additional markers, consolidate linkage groups using gene-centromere mapping, and add additional anchor loci. The second primary aspect is to continue experiments at the Alaska SeaLife Center that use the linkage map to test for organismal effects of regions of the genome on phenotypes that affect traits that are important to recovery of pink salmon (e.g., growth and disease resistance). The project also will test whether there are regions of the genome that are affected by natural selection resulting in differential marine survival of individuals with different genotypes.		This is a forward-looking and scientifically sophisticated project by a talented principal investigator and his team. The objective of the project is to construct a genetic linkage map for pink salmon. The project was successfully reviewed in FY 98. The emphasis in FY 99 will be on mapping traits that are of potential adaptive significance to pink salmon, such as run timing and temperature tolerance. Fund.		Fund revised proposal, which focuses on mapping traits that are of potential adaptive significance to pink salmon. This project, which is being conducted in part at the Alaska SeaLife Center, is designed to improve understanding of genetic variation in pink salmon and how such variation relates to marine survival, run timing, size, and other traits that are important from the standpoint of salmon restoration, management, and harvest. [NOTE: Funding includes \$82,700 for Alaska SeaLife Center bench fees.]					
99191A-CLO	Field Examination of Oil-Related Embryo Mortalities in Pink Salmon Populations in Prince William Sound	M. Willette/ADFG	ADFG	Cont'd 8th yr. 8yr. project	\$58.4	\$0.0	\$0.0	\$0.0	\$58.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Embryo mortality was elevated in oil-affected streams during the falls of 1989, 1990, 1991, 1992, and 1993 (P less than 0.023 for all years). However, no statistical difference was observed in the falls of 1994, 1995, and 1996 (P greater than 0.473). In 1997, elevated mortalities in oil-affected streams were again seen (P=0.033). Possible causes for this result are currently being investigated. The purpose of this project is to monitor the recovery of pink salmon embryos in the field. This is the closeout year for the project.		This is an excellent project, which is needed for completion of damage assessment studies on early life stages of salmon. Fund revised proposal, which references the analysis of egg mortality through 1997.		Fund closeout (final data analysis and report writing) of this project, which represents the major monitoring effort for the ongoing injury to and recovery of pink salmon. The final report will summarize results from ten years of monitoring embryo mortality rates in oiled and nonoiled streams.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99195	Pristane Monitoring in Mussels	J. Short, P. Harris/NOAA	NOAA	Cont'd 4th yr. 5 yr. project	\$96.7				\$96.7

Project Abstract

Chief Scientist's Recommendation

Trustee Council Action

This project will monitor pristane in-mussels through the spring production cycle as an indirect index of predation by juvenile salmon, herring, and nearshore forage fish on *Neocalanus spp.* zooplankton. This index may provide a forecast of poor recruitment for pink salmon or herring caused by poor feeding conditions during the early marine residence portions of their life-cycles.

Tracking pristane concentrations in mussels may be a useful tool for monitoring the transfer of energy from copepods to juvenile salmon, and this approach may have a place in a long-term monitoring program. However, the potential of this tool has not been fully established and it is now timely to address the strength of the correlations with salmon production, which can be done through cross-correlations with SEA (Project /320) and hatchery data. The revised proposal includes testing for correlations with marine survival of hatchery-reared salmon. I recommend funding this project in FY 99.

Fund revised proposal, which includes analysis of the relationship between salmon production and the pristane level in mussels. If successful, this project could provide a relatively inexpensive measure of marine productivity, thus allowing predictions about future fisheries production and harvest levels. Funding for FY 2000 will be considered following review of the preliminary results of the FY 99 work.

99196-CLO	Genetic Structure of Prince William Sound Pink Salmon	C. Habicht/ADFG	ADFG	Cont'd 6th yr. 6 yr. project	\$50.0	\$0.0	\$0.0	\$0.0	\$50.0
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Project Abstract

Chief Scientist's Recommendation

Trustee Council Action

Previous work found that wild-stock pink salmon suffered direct lethal and sublethal injuries as a result of the oil spill. An understanding of the population structure of pink salmon in Prince William Sound is essential to assess the impact of these injuries on a population basis and to devise and implement management strategies for sustained conservation. Results to date from this study suggest gene flow between pink salmon spawning aggregates can be restricted both spatially (regional and upstream-tidal) and temporally (early-late) within the sound. This proposal covers the final year of laboratory analysis and the statistical analysis of year-three allozyme and mtDNA data.

This project has produced a picture of variability in pink salmon genetics that lays the groundwork for work on gene flow and its future management applications. The activities proposed for FY 99 to close out this project are reasonable. Fund.

Fund closeout (final data analysis and report writing) of this project. This project is determining the degree and extent of geographic differences among pink salmon in Prince William Sound based on genetics. Knowing if there are one or multiple stocks among pink salmon in the sound will enable fisheries managers to refine management units and practices to better protect injured wild stocks.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99210	Youth Area Watch	R. Sampson/Chugach School District	ADFG	Cont'd 4th yr. 7 yr. project	\$150.4	\$123.1	\$107.0	\$96.3	\$476.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The Youth Area Watch project links students in the oil spill impacted area with research and monitoring projects funded through the Trustee Council. The goal is to involve students in the restoration process, and give these individuals the skills to participate in oil spill restoration activities now and in the years to come. Youth conduct research identified by EVOS principal investigators who have indicated interest in working with students in oil spill impacted communities. Youth Area Watch serves as a positive example of community investment in the restoration process. Participating communities in FY 99 will be Tatitlek, Chenega Bay, Cordova, Seward, Valdez, Whittier, Port Graham, Nanwalek, and Seldovia.		This project continues to do a good job of meeting its goal of involving youth in the restoration process and should be funded again in FY 99. Fund, including addition of students from lower Cook Inlet.		Fund revised proposal, which includes the addition of students from Port Graham, Nanwalek, and Seldovia as proposed in Project 99410. This project is designed to involve local youth in restoration projects. Youth in Chenega Bay, Tatitlek, Cordova, Whittier, Valdez, Seward also participate in the program.					
99225	Port Graham Pink Salmon Subsistence Project	E. Anahonak/Port Graham IRA Council	ADFG	Cont'd 4th yr. 5 yr. project	\$75.6	\$75.0	\$0.0	\$0.0	\$150.6
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will help supply pink salmon for subsistence use in the Port Graham area during the broodstock development phase of the Port Graham hatchery. Because local runs of coho and sockeye salmon, the more traditional salmon subsistence resource, are at low levels, pink salmon are being heavily relied on for subsistence. This project will help ensure that pink salmon remain available for subsistence use until the more traditional species are rejuvenated. Two strategies are being employed: increasing fisheries management surveillance to maximize use of the adult pink salmon return and increasing marine survival of hatchery produced pink salmon.		This project has been making satisfactory progress toward its objectives. However, the loss in a fire of the Port Graham hatchery could make it difficult to achieve this project's objective of providing pink salmon for local subsistence use. A temporary alternative building has been identified, which may allow project completion. Fund.		Fund. This project is supplying pink salmon in the Port Graham area during the broodstock development phase of the Port Graham hatchery, replacing runs of coho and sockeye salmon depleted since the oil spill. Although a January 1998 fire destroyed the hatchery facility, steps have since been taken through the reprogramming of Project 98225 funds and a grant from the State's EVOS criminal fund to set up a temporary incubation facility. This should allow the broodstock development process to stay on track. Trustee Council funding will end in FY 2000, which is when the broodstock development phase is to be complete.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99245	Community-Based Harbor Seal Management and Biological Sampling	J. Fall/ADFG, M. Riedel/Alaska Harbor Seal Commission	ADFG	Cont'd 1st yr. 4 yr. project	\$70.7	\$55.0	\$40.0	\$25.0	\$190.7
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will continue the harbor seal biological sample collection program begun under Project /244. The program was initiated in FY 96 and expanded in FY 97 in Prince William Sound, lower Cook Inlet, and Kodiak Island. Under the biosampling program, village-based technicians are selected by the Alaska Native Harbor Seal Commission and trained by the Alaska Department of Fish and Game to collect samples. The samples are transported to Anchorage or Kodiak for further sampling and distribution to participating scientists for analysis. Under Project 99245, the Alaska Native Harbor Seal Commission will also organize a two-day workshop, and produce and distribute a newsletter with summaries of the biological sampling program.		This project has been a highly successful effort to obtain harbor seal tissue samples through the efforts of subsistence hunters, with participation by students in the Youth Area Watch. The samples obtained have been useful to harbor seal researchers. In addition, the educational work and the involvement and active cooperation with community residents will undoubtedly benefit harbor seals over the long term. The draft final report on the pilot project (/244) indicates there has been progress with respect to management of the growing tissue database. There has been less progress in development of a long-range funding plan. My recommendation is to fully fund this project in FY 99 and to phase out funding over a two-to-three year period.		Fund full request in FY 99. Funding will be reduced in subsequent years to reflect transition of the project to other funding sources. This project will enable the Alaska Native Harbor Seal Commission to continue its biological sample collection program for harbor seals in Prince William Sound, lower Cook Inlet, and the Kodiak area. These samples are provided to ongoing EVOS projects which seek to explain why harbor seals are not recovering.					
99247	Kametolook River Coho Salmon Subsistence Project	J. McCullough, L. Scarbrough/ADFG	ADFG	Cont'd 3rd yr. 6 yr. project	\$20.8	\$20.0	\$20.0	\$28.0	\$88.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Subsistence users from the Alaska Peninsula Native Village of Perryville have noted significant declines in the coho salmon run in the nearby Kametolook River since the oil spill. Criminal settlement funds were used in FY 96 to determine what method would best restore the river's coho salmon stock to historic levels. This project will provide funding through FY 2002 for the Alaska Department of Fish and Game to try conservative and safe restoration methods. Instream incubation boxes have been evaluated and selected as the primary restoration tool to rebuild the depressed coho salmon stock needed for subsistence in the Kametolook River.		This continuing project is meeting its objectives. Fund.		Fund. This project is using instream incubation boxes to enhance a small coho salmon run near the Alaska Peninsula village of Perryville as a replacement for subsistence resources injured by the oil spill. Trustee Council funding is anticipated through FY 2002, at which time the run is expected to be self-sustaining.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99250	Project Management	All Trustee Council Agencies	ALL	Cont'd	\$454.2				\$454.2
	<u>Project Abstract</u>	<u>Chief Scientist's Recommendation</u>			<u>Trustee Council Action</u>				
	Project management represents those costs incurred by the state and federal Trustee agencies in fulfilling their responsibility to ensure that individual projects are managed consistent with the Memorandum of Agreement and Consent Decree, the Restoration Plan, and Trustee Council authorization.	Proposal not reviewed.			Fund. The FY 99 funding level is a reduction from the amount approved for FY 98 (\$560,100), consistent with the decline in the funding target for the FY 99 work plan. Future years' funding is expected to decline further, as the annual work plan funding target continues to decline. Project management provides essential accountability for the work plan process.				
99252	Investigations of Genetically Important Conservation Units of Rockfish and Walleye Pollock	J. Seeb, L. Seeb/ADFG	ADFG	Cont'd 2nd yr. 5 yr. project	\$308.3				\$308.3
	<u>Project Abstract</u>	<u>Chief Scientist's Recommendation</u>			<u>Trustee Council Action</u>				
	This project will consolidate an array of requests from the commercial fisheries industry for discrete stock research into a single proposal for work that the Alaska Department of Fish and Game will conduct at its Anchorage genetics laboratory. Also, the Alaska Department of Fish and Game proposes to develop experimental fish runs at the Alaska SeaLife Center; these are essential for study of genetics, physiology, or diseases of anadromous fish proposed by the University of Montana, University of Alaska, or the Alaska Department of Fish and Game and other principal investigators seeking to conduct research at the Alaska SeaLife Center.	This project was funded in FY 98 recognizing that measures of possible genetic differences within fish stocks are an important starting point for a better understanding of population genetics and, eventually, how to best manage the fishery to protect genetic diversity. Although preliminary work is underway on rockfish and pollock, the proposal for FY 99 work needs to be strengthened. It is recommended that the project be funded contingent on receipt of a revised proposal that is favorably reviewed. The revised proposal should address (1) the relationship among any genetically important "units" and the production and health of the population in the Gulf of Alaska, (2) more interpretation of the recent and expanding literature on microsatellites and population structure in fishes relative to the goals and methods for this project, (3) elaboration of reasonable and testable hypotheses, (4) specifically how the results of this study might be incorporated into better management of these species, and (5) other reviewer comments as outlined in my August 18, 1998 letter to the Trustee Council.			Fund contingent on (1) approval of a revised Detailed Project Description that addresses the Chief Scientist's concerns and (2) submittal of late reports (97165, 97191A). This project, which is being conducted in part at the Alaska SeaLife Center, is exploring genetic stock structures of rockfish and pollock in the Gulf of Alaska. Rockfish were injured by the oil spill, and a pollock fishery has developed in Prince William Sound to replace other lost fishing opportunities. [NOTE: Funding includes \$108,300 for Alaska SeaLife Center bench fees.]				

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99256B	Sockeye Salmon Stocking at Solf Lake	D. Gillikin/USFS, P. Shields/ADFG	USFS	Cont'd 4th yr. 7 yr. project	\$68.3				\$68.3

Project Abstract

This project will benefit subsistence users of Prince William Sound, focusing on residents of Chenega Bay. Solf Lake has been recognized for many years as an excellent opportunity to reestablish a self-sustaining sockeye salmon run lost as a result of an earthquake in the 1930's. Initial investigations, beginning in FY 96, indicate the lake is still capable of supporting a harvestable population of salmon provided access to migratory fish is improved. Work proposed for FY 99 includes finalizing the design on the migration channel, collecting eggs, rearing and releasing sockeye fry, and monitoring fish out-migration and the limnological characteristics of the lake.

Chief Scientist's Recommendation

This continuing project is meeting its objectives, and could produce long-term benefits to the local community of Chenega Bay. Fund, but reevaluate after the FY 2000 construction estimate is refined.

Trustee Council Action

Fund FY 99. Funding for FY 2000 and beyond will be considered once the fishway survey and engineering are complete and the construction cost estimate is refined. This project is intended to provide sockeye salmon as a replacement for subsistence fishing resources injured by the oil spill, particularly for the residents of Chenega Bay. The Alaska Department of Fish and Game has determined that Solf Lake can support a sustainable run of 10,000 sockeye salmon. Stocking began in FY 98; the first adult sockeye are expected to return in 2002.

99263	Assessment, Protection and Enhancement of Salmon Streams in Lower Cook Inlet	W. Meganack, Jr./Port Graham Corporation	ADFG	Cont'd 3rd yr. 4 yr. project	\$42.1	\$23.5	\$0.0	\$0.0	\$65.6
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Project Abstract

This project will replace lost subsistence services by constructing enhancement projects on two of the major salmon streams in the lower Cook Inlet spill area. Port Graham Corporation, with advice from an Alaska Department of Fish and Game fisheries specialist, is supervising the project and coordinating with a professional fisheries scientist and resource consultants. Local subsistence users were employed as technical assistants during the field survey and construction of the habitat improvement structures. In FY 98, two projects were implemented: construction of a fish pass on the Port Graham River and a rearing pond on Windy Creek Left. In FY 99, the success of these two projects will be monitored and vegetation will be planted around the rearing ponds.

Chief Scientist's Recommendation

Design and construction objectives were met in FY 98. The methods proposed to measure success are appropriate for the short-term commitment of the Trustee Council. A two-year period of Council support, FY 99 and FY 2000 only, is appropriate. Any longer-term effort at monitoring progress, funded from other sources, should include a component to track development of riparian vegetation. Fund.

Trustee Council Action

Fund, including revised monitoring scheme. Funding in FY 99 includes new objective to plant vegetation around the rearing ponds on Windy Creek Left. The goal of this project is to protect and enhance salmon streams important to the restoration of subsistence in the Port Graham area.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99273	Surf Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource	D. Rosenberg/ADFG	ADFG	Cont'd 2nd yr. 3 yr. project	\$206.2		\$0.0	\$0.0	\$206.2

Project Abstract

This project will study the life history and ecology of surf scoters that over-winter in or migrate through Prince William Sound and lower Cook Inlet. This information will be integrated with traditional ecological knowledge. Scoter populations in Alaska are declining. Communities in Prince William Sound and lower Cook Inlet harvest scoters for subsistence purposes. Scoters are among the least studied of North American waterfowl and little is known of their life history, ecology, and distribution. Scoters will be marked with surgically implanted satellite transmitters to define the breeding areas, molting areas, and wintering areas. Local participation will be solicited and information will be conveyed to local residents through the Chugach School District and Youth Area Watch project (1210).

Chief Scientist's Recommendation

This is the second year of a three-year project to document breeding areas of Prince William Sound scoters, which are important to subsistence users. In FY 98, the principal investigator outfitted a sample of scoters with transmitters. He also has worked hard and closely with community residents, which is to be commended. Fund.

Trustee Council Action

Fund revised proposal, which eliminates objectives related to the Barrow's goldeneye. The principal investigator is to be commended for working closely with community residents on this project. For FY 99, the investigator will pursue hiring local residents as field assistants. This project is studying the life history and ecology of surf scoters (in Prince William Sound in FY 98; sites in lower Cook Inlet will be added in FY 99) as the first step in determining the cause of their suspected population decline and developing conservation and management strategies to ensure the long-term health of the population. Surf scoters are not on the injured species list. However, the Trustee Council's Restoration Plan allows restoration actions to address resources not on the list if the action will benefit an injured resource or service; this project would benefit the service of subsistence.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99278	Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet	G. Seaman/ADFG	ADFG	New 1st yr. 2 yr. project	\$70.0	\$35.0	\$0.0	\$0.0	\$105.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will develop an ecological characterization and site profile to collect, synthesize, analyze, and document available physical, biological, and human or socioeconomic information on the Kachemak Bay/lower Cook Inlet area. The project will result in the development of a database management system with products produced in electronic format and on paper. Project components include (1) an ecosystem narrative description, (2) a spatial data component using a Geographic Information System (GIS), and (3) an annotated bibliography and research summary/tracking system. Trustee Council funds will focus on the spatial data component and annotated bibliography. The products will be used to (1) identify future restoration opportunities, (2) assist in the use and protection of land, (3) plan for a possible long-term ecological monitoring and research program in the Northern Gulf of Alaska, and (4) assist in agency management and planning for the lower Cook Inlet area.		This proposal is a significant improvement over the version submitted last year, and the principal investigators have worked hard to address the concerns previously raised. The project will be most useful to making local resource management decisions, and the value of the digital products, aside from the GIS, is not established well in the proposal. It does seem likely that a watershed management program for Kachemak Bay will improve our ability to sustain fisheries and wildlife in the region, and thus enhance resources and services injured by the spill. The proposal demonstrates excellent cost sharing with the National Oceanic and Atmospheric Administration, which is appropriate given the objectives of the project. The objectives establishing a GIS-based spatial data set and producing an annotated bibliography, as are now in the revised Detailed Project Description, appear to be the most valuable and should be funded.		Fund revised Detailed Project Description, which limits the Trustee Council contribution to objectives 2 and 3, the GIS-based spatial data set and the annotated bibliography. The Kachemak Bay watershed management program being developed through the National Estuarine Research Reserve process, of which these products are a part, will improve the ability to sustain fish and wildlife resources in the region, and thus enhance resources and services injured by the oil spill.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99289-BAA	Status of Black Oystercatchers in Prince William Sound	S. Murphy/ABR, Inc.	NOAA	Cont'd 2nd yr. 2 yr. project	\$8.6	\$0.0	\$0.0	\$0.0	\$8.6
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will close out the FY 98 assessment of the status of the breeding population of black oystercatchers in Prince William Sound nine years after the oil spill. Closeout will include preparation of a final report and manuscript, as well as a poster for presentation at the 10 Years After symposium.		Funding additional work on black oystercatchers in FY 99 was contingent on evaluating a preliminary report on the status of this species from field studies in FY 98 (Project 98289). I have reviewed the preliminary report, which generally indicates that spill-related effects found previous to 1991 are not now evident, there is no avoidance of oiled areas, and the population and nesting effort of oystercatchers is either stable or increasing in the spill area. Pending completion and review of the final report, it does not appear necessary to fund a second year of studies on this shorebird. However, a small amount of additional funds may be necessary in FY 99 to properly close out this project.		Fund project closeout (preparation of final report and manuscript, and presentation at 10 Years After symposium). The preliminary results of the FY 98 study (Project 98289) indicate that spill-related effects are not now evident and that population and nesting effort is either stable or increasing in the spill area. Therefore, it does not appear necessary to fund additional studies on the black oystercatcher at this time.					
99290	Hydrocarbon Data Analysis, Interpretation, and Database Maintenance	J. Short, B. Nelson/NOAA	NOAA	Cont'd 8th yr. 11 yr. project	\$58.9				\$58.9
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project is a continuation of the Natural Resource Damage Assessment and restoration database management, sample storage, and interpretive service. New data will continue to be incorporated into the Trustee Council hydrocarbon database. Updated summary reports for investigators and managers will be produced along with an electronic copy of the data for all data queries. A database for pristane sample collection and analysis information will be maintained and a database will be initialed for fatty acid/lipid class composition sample collection and analysis for Auke Bay Lab projects funded by the Council.		This ongoing project proposes to expand the database to include pristane monitoring data and fatty acid analyses. I recommend the project be funded, provided a recommendation to the Chief Scientist be developed during FY 99 regarding the long-term management (including potential disposal) of the environmental samples in the archive.		Fund. In FY 99, two objectives are added: maintenance of a pristane database (relative to Project /195) and identification of fatty acid/lipid data which potentially would be included in a database. In addition, a recommendation should be developed during FY 99 regarding the long-term management (including potential disposal) of the environmental samples in the archive. In FY 2000 and beyond, the level of funding will be determined following a review of the expected workload in future years. This project is the ongoing analysis and interpretation of hydrocarbon data for other Trustee Council funded studies.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99291-CLO	Chenega Shoreline Residual Oiling Reduction: Final Report Writing	A. Viteri/ADEC	ADEC	Cont'd 4th yr. 4 yr. project	\$9.2	\$0.0	\$0.0	\$0.0	\$9.2

Project Abstract

This project provides funds for completion of the final report on the Chenega shoreline cleanup effort, including a presentation of the report to the community of Chenega Bay in February 1999. The report, which is being jointly prepared by the Alaska Department of Environmental Conservation and the National Oceanic and Atmospheric Administration/Auke Bay Lab, will be submitted by December 31, 1998. The Chenega shoreline cleanup was approved as a three-year project by the Trustee Council in FY 96 (Project 96291), with funds scheduled to lapse September 30, 1998. Field work was performed during the summer of 1997 and final monitoring was performed in the summer of 1998. The final report is currently being written and these additional funds will allow for its completion.

Chief Scientist's Recommendation

Fund. This project simply extends funding through completion of the final report on the Chenega shoreline cleanup effort.

Trustee Council Action

Fund. This project will allow for completion of a final report on the Chenega shoreline cleanup effort and presentation of project results to the community of Chenega Bay. The report, which is being jointly prepared by the Alaska Department of Environmental Conservation and the National Oceanic and Atmospheric Administration/Auke Bay Lab, is to be submitted by December 31, 1998.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99300	Synthesis of the Scientific Findings from the <i>Exxon Valdez</i> Oil Spill Restoration Program	R. Spies/Applied Marine Sciences	ADNR	Cont'd 3rd yr. 3 yr. project	\$80.3	\$0.0	\$0.0	\$0.0	\$80.3
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Research sponsored by the Trustee Council has provided an astonishing amount of information on the ecology of the spill area and represents the largest single infusion of data on natural resources in the northern Gulf of Alaska. There is an urgent need to synthesize the information across projects to realize its maximum benefit to the public and management agencies, and to provide a cogent demonstration of the overall value of the restoration program. It is the goal of this project to have made substantial progress on such a synthesis in time for the 10 Years After symposium, and to use this synthesis to build the foundation for long-term monitoring in the spill area. The specific objectives involve coordinating work on synthesis products, facilitating the efforts to develop and apply food-web models of the spill area ecosystem, and developing a long-term plan for research and monitoring in the spill area.		Proposal not reviewed.		Fund. This project will continue the Chief Scientist's work with principal investigators who are providing input into development of an ecological synthesis model (Project 99330) and with long-time peer reviewers who are preparing synthesis manuscripts on impacts to intertidal communities and commercially important fish species. This project also will support further development of preliminary concepts for a potential long-term research and monitoring program. All of these efforts are timely and necessary, not only as the restoration program enters the 10th year after the spill, but also as the Trustee Council considers recovery needs and enhancement opportunities in the closing years of the current restoration program.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99304	Kodiak Island Borough Master Waste Management Plan	J. Selby/Kodiak Island Borough	ADEC	Cont'd 2nd yr. 2 yr. project	\$1,857.1	\$0.0	\$0.0		\$1,857.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will address marine pollution derived from land-based sources and waste management practices of the remote communities of Kodiak Island. A master waste management plan developed in Phase I (Project 97304) addressed community-based sources of marine pollution and resulted in four recommended initiatives. Phase II will provide a portion of the funding needed to implement the recommendation selected by the communities as the highest priority -- Systems Development: Fixing What is There. This comprehensive initiative of systems development will provide capital improvements to existing waste management systems and will promote local responsibility.		As a result of an initial planning effort sponsored by the Trustee Council, the Kodiak Borough and seven Kodiak Island communities have put together what seems like an effective plan for reduction of marine pollution through improved handling and disposal of community wastes, such as oil. This proposal now seeks funds to implement aspects of the plan. There is significant cost sharing from the Kodiak Island Native Association and others, and a similar project has been planned and implemented in Prince William Sound. The amount of funds requested is substantial, and it is my understanding this would be funded separate from the FY 99 work plan. Fund.		Fund revised proposal, which provides greater detail on technical service and personnel needs and the like. This project will upgrade and improve landfills, disposal sites and solid waste management, construct and install used oil and hazardous waste storage and disposal facilities and equipment, and provide for systems maintenance and repairs for seven communities on Kodiak Island. Trustee Council funds will be used only for those activities that are not legal requirements of the Kodiak Island Borough or the city governments. The project has the potential to improve water quality in the coastal waters near these villages. [NOTE: This project will be funded outside of the regular FY 99 work plan of research, monitoring, and general restoration projects.]					
99306	Ecology and Demographics of Pacific Sand Lance in Lower Cook Inlet	J. Piatt/USGS-BRD	DOI	Cont'd 3rd yr. 4 yr. project	\$30.0	\$20.0	\$0.0	\$0.0	\$50.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will characterize the basic ecology, distribution, and demographics of sand lance in lower Cook Inlet. Recent declines of upper trophic level species in the Northern Gulf of Alaska have been linked to decreasing availability of forage fishes. Sand lance is the most important forage fish in most nearshore areas of the northern gulf. Despite its importance to commercial fish, seabirds, and marine mammals, little is known or published on the basic biology of this key prey species.		This project is producing valuable information on sand lance, which is a forage fish of fundamental importance to many species of seabirds and other predators. The student and his advisors who are preparing this work are excellent, and the cost is low relative to the amount of work being performed. Fund.		Fund. This project is yielding valuable information about sand lance, a small forage fish that is of great ecological importance, especially to seabirds and marine mammals injured by the oil spill. The work is very cost effective, and the results will be very helpful to APEX (Project /163) researchers as well as to other projects.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99311	Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined with Natural Stable Isotope Tracers	T. Kline/PWSSC	ADFG	Cont'd 2nd yr. 2 yr. project	\$90.0	\$0.0	\$0.0	\$0.0	\$90.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The advective regime connecting the northern Gulf of Alaska with Prince William Sound may affect recruitment and nutritional processes in Pacific herring. The Sound Ecosystem Assessment (SEA, Project 1320) has shown that herring have significant dependence on Gulf of Alaska carbon. Herring are subject to changes in carbon flow occurring between the Gulf of Alaska and Prince William Sound. The first step in understanding how this fundamental environmental process affects herring recruitment is to isotopically analyze a time series of herring for which energetic data have been collected. This will expand upon the data series available from SEA, providing a total four-year time period.		This is the second year of a two-year project that has the possibility of showing the contribution of productivity in the Gulf of Alaska to productivity in Prince William Sound. Information linking the two systems is critical to interpreting how nutrients and carbon from the Alaska Coastal Current may be imported and incorporated in Prince William Sound organisms. This information will be important to long-term management of Prince William Sound fisheries. The cost of the project has increased, in part due to the necessary inclusion of Spring 1995 archived samples. Fund.		Fund. FY 99 will be the final year of this two-year project and will include preparation of a final report. This project examines the link between productivity in the Gulf of Alaska and productivity in Prince William Sound and could benefit management of fisheries in Prince William Sound.					
99314	Homer Mariner Park Habitat Assessment and Restoration Design	J. Cushing/City of Homer	ADNR	New 1st yr. 1 yr. project	\$99.5	\$0.0	\$0.0	\$0.0	\$99.5
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
In its present state, Mariner Park is a highly stressed marine habitat in decline. The area is experiencing a dramatic reduction in marine biota and shorebird populations while incompatible and environmentally destructive human uses flourish. From the results of a comprehensive feasibility study that includes botanical, biological, and hydrological field studies coupled to community information it is possible to develop a comprehensive habitat restoration and enhancement plan. This plan will establish the optimal hands-on restoration program to increase and diversify the intertidal fauna, which, in turn, will benefit migrating shorebirds and promote recreationally compatible use of the area by residents and tourists.		This is a community-based general restoration project for a basic environmental assessment and feasibility study for the restoration of intertidal habitats in Mariner Park, at the base of Homer Spit. This may be one of the few opportunities in the spill area for direct restoration of intertidal resources, if this project is indeed feasible and ultimately carried out. Fund.		Fund. This project will produce a feasibility study and environmental review for restoration of an intertidal area damaged as a result of spill response efforts. Funding of the study phase of the project is not a commitment for Trustee Council funding to implement the project.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99320-CLO	Sound Ecosystem Assessment (SEA)	T. Cooney, et al/UAF	ADFG	Cont'd 6th yr. 6 yr. project	\$738.3		\$0.0	\$0.0	\$738.3
<u>Project Abstract</u> This project is an integrated, multi-component study of processes influencing the annual survival of juvenile pink salmon and herring rearing in Prince William Sound. Support in FY 99 provides the means to close out the project. Closeout includes the submittal of a final report and a synthesis volume written as a single journal volume for the journal <i>Fisheries Oceanography</i> . Project support will also provide the means for individual principal investigators to address revisions to reports and manuscripts in FY 99. A nominal amount is signaled to the Trustee Council for clean up of revisions and page charges that hang over into FY 2000. These tasks will be supervised by an in-house editor and the project's lead scientist.			<u>Chief Scientist's Recommendation</u> The science in this project is top quality and the plan for production of journal manuscripts appears feasible. The final documents produced by this project must integrate all of the data collected so that scientists and managers can judge whether or not measuring synoptic properties of the coastal ocean can really improve fisheries management. The synthesis should also reach out to other data sets (e.g., jellyfish predation data from APEX, Project /163) as necessary. Notwithstanding these concerns, the SEA project is outstanding and I look forward to seeing final products in FY 99. Fund.			<u>Trustee Council Action</u> Fund revised proposal, which includes funds for maintaining the project's computer network. This project will close out the five-year Sound Ecosystem Assessment study, which is formulating interacting numerical models designed to simulate the dynamic processes influencing the survival of juvenile pink salmon and herring rearing in Prince William Sound each year. These models will assist fisheries managers in understanding how environmental factors affect production from year to year, and should enable appropriate levels of harvest to be applied to allow stock response in the face of continually changing natural conditions. In FY 99, a final report and a synthesis volume for the journal <i>Fisheries Oceanography</i> will be prepared. In FY 2000, a small amount of additional funding may be requested to cover costs of final revisions and edits to the final report and manuscript.			
99320M-CLO	Sound Ecosystem Assessment (SEA): Observational Oceanography in Prince William Sound and the Gulf of Alaska	S. Vaughan/PWSSC	NOAA	Cont'd 6th yr.	\$62.5	\$0.0	\$0.0	\$0.0	\$62.5
<u>Project Abstract</u> The model validation portion of Project 97320M/SEA - Observational Oceanography has not been completed. Model validation is required before the model can be used for hypothesis testing by any of the other SEA subprojects. Funds were remaining in the Project 97320M budget at the end of the year, but these funds have now lapsed. This proposal is for funding, in the amount remaining in FY 97, to cover salaries of personnel responsible for circulation model validation and zooplankton seeding/flushing hypothesis testing.			<u>Chief Scientist's Recommendation</u> This project is necessary to complete work on objectives previously requested by the reviewers. Fund.			<u>Trustee Council Action</u> Fund. This project will complete work previously approved by the Trustee Council as part of SEA (Project /320). The work, which is integral to the SEA hypotheses, includes validation of the circulation model and testing of the zooplankton seeding/flushing hypothesis.			

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99320N-BAA	Acoustic Assessment of Pink Salmon Predators, Macrozooplankton Prey and Juvenile Herring in Prince William Sound	G. Thomas/PWSSC	NOAA	Cont'd 6th yr.	\$51.1	\$0.0	\$0.0	\$0.0	\$51.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will support the processing, analysis and reporting of FY 96-97 surveys of salmon predators, macrozooplankton prey and juvenile herring in Prince William Sound. This request is consistent with other projects (/320M, Oceanography and /320I, Isotopes) which have been compensated for additional field and analytical work that occurred with the expansion of the Juvenile Herring Growth and Habitats project (/320T). Scheduled analysis and reporting of the Nekton and Plankton Acoustics project (/320N) has been delayed because of this increased work load. Also, the funds that are requested were originally budgeted for the Nekton and Plankton Acoustics project but were underspent in FY 96-97. We were asked to submit a new proposal to recapture these funds after requesting a no-cost extension.		There is concern about the timetable of progress toward integration of acoustics into the SEA project (/320). However, this work is essential to proper completion of SEA. Fund FY 99 only.		Fund FY 99 only. This project will complete work previously approved by the Trustee Council as part of SEA (Project /320). The work, which is integral to the SEA hypotheses, includes completion of the macrozooplankton, salmon predator, and herring observation data bases.					
99325-BAA	Assessment of Injury to Intertidal and Nearshore Subtidal Communities Following EVOS: Preparation of Manuscripts for Publication	T. Dean/Coastal Resources Associates, Inc.	NOAA	Cont'd 2nd yr. 2 yr. project	\$41.1	\$0.0	\$0.0	\$0.0	\$41.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will prepare manuscripts for publication in scientific journals based on previous Trustee Council funded evaluations of injury to, and restoration of, coastal habitats (intertidal and subtidal communities).		Considering the severe impact of the oil spill on intertidal communities and the tremendous investment in intertidal studies during the damage assessment phase and early years of the restoration program, it is highly desirable and essential that these results get published in the peer reviewed literature. Fund.		Fund contingent on submittal of the 95086C final report. This project will prepare two additional manuscripts in FY 99 on results of intertidal studies previously funded by the Trustee Council (projects CH1, /086C, /106, and others). Preparation of six manuscripts was funded in FY 98 (Project 98325).					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99327	Pigeon Guillemot Restoration Research at the Alaska SeaLife Center	D. Roby/Oregon State Univ.	DOI	Cont'd 2nd yr. 4 yr. project	\$178.4	\$167.7	\$95.1	\$0.0	\$441.2
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will test the feasibility of direct restoration techniques for pigeon guillemots (e.g., installation of artificial nest sites, use of social attractants, captive propagation and release). While raising young guillemots in captivity, it will also be possible to conduct controlled experiments crucial to two other restoration objectives: (1) development of nondestructive biomarkers of petroleum hydrocarbon contamination, and (2) understanding how dietary factors (prey species composition, prey size, lipid content, feeding frequency) constrain growth, development, and condition at fledging in guillemots.		This proposal will provide a second year of support for work on pigeon guillemots at the Alaska SeaLife Center. The project is testing the feasibility of establishing a wild guillemot colony as a restoration technique, and it will develop information on blood biomarkers in response to oil exposure and examine the effects of diet on the growth of nesting guillemots. The principal investigators are excellent, and establishment of a wild guillemot colony at the Alaska SeaLife Center presents excellent opportunities for involvement by local students. Fund.		Fund. This project will test a restoration method for pigeon guillemots and develop information on the effects of diet and oil on the blood chemistry and growth of nestling guillemots. [NOTE: Funding includes \$17,800 for Alaska SeaLife Center bench fees.]					
99328	Synthesis of the Toxicological and Epidemiological Impacts of the Oil Spill on Pacific Herring	M. Carls/NOAA	NOAA	New 1st yr. 1 yr. project	\$46.1	\$0.0	\$0.0	\$0.0	\$46.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will synthesize results of toxicological and epidemiological damage to Pacific herring (but not the ecological research still in progress), and compare Trustee-sponsored conclusions to those of Exxon investigators. EVOS researchers concluded that exposure to oil caused egg mortality, morphological and cytogenetic abnormalities, reduced growth, and immunosuppression in adults, but that effects on the population level were unknown. Exxon investigators concluded that the spill had a minor impact on herring eggs, and that the population did not decrease. A monograph for publication will be prepared and presented at the 10 Years After symposium.		Synthesis of toxicological and epidemiological damage to Pacific herring will be quite valuable to the restoration effort. Fund.		Fund. This project responds to the <i>FY 99 Invitation's</i> request for proposals for synthesis of herring toxicological and disease studies and presentation of results at the 10 Years After symposium and in a refereed journal.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99329	Synthesis of the Toxicological Impacts on Pink Salmon	S. Rice/NOAA	NOAA	Cont'd 2nd yr. 2 yr. project	\$68.9	\$0.0	\$0.0	\$0.0	\$68.9
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will synthesize results of all Trustee Council sponsored studies related to the toxicological damage to pink salmon. Since 1989, five separate Council-sponsored projects have individually advanced understanding of the effects of the oil spill on pink salmon: past and present potential for oil exposure (Project /194), effects on egg/embryo survival (Project /191A&B), juvenile feeding and growth (Project FS4B), marine survival and straying of returning adults (Project /076). Data from these studies will be drawn upon in order to construct synthetic conclusions regarding the injury to and subsequent recovery of pink salmon. The results of contracted studies by Exxon will be compared with the Trustee Council studies.		This project will provide a valuable contribution to the efforts to synthesize Natural Resource Damage Assessment work. Since this proposal was first considered last spring, additional funds have been requested to cover unanticipated costs associated with analysis of original data from Exxon-sponsored studies and with travel to meetings in spill-area communities. I support this additional funding. Fund.		Fund. In FY 99, this project will complete the synthesis of five separate studies funded by the Trustee Council (FS4B, /076, /191A, /191B, /194) to examine the possible long-term damage to pink salmon of the toxic effects of crude oil; the synthesis will consider additional studies sponsored by Exxon. Products will be a monograph for publication in a peer reviewed journal and a presentation at the 10 Years After symposium.					
99330-BAA	Mass-Balance Models of Trophic Fluxes in EVOS-Impacted Areas	D. Pauly/UBC, S. Pimm/U. Tenn	NOAA	Cont'd 2nd yr. 2 yr. project	\$149.8	\$0.0	\$0.0	\$0.0	\$149.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will construct, validate, and disseminate whole food-web models of Prince William Sound and adjacent marine areas affected by the oil spill. These mass-balance models of flows among trophic levels and among ecosystem components are ideally suited to synthesize the extensive information gathered by various research groups since the spill. The FY 99 effort will consist of two main components: (1) the production of a CD-ROM for the public domain, incorporating an interactive graphic version of the Prince William Sound trophic model developed during FY 98 as well as user-friendly databases on the biology and local/traditional knowledge of the marine organisms of Prince William Sound and beyond; and (2) refinements of the shelf model based on preliminary application and user suggestions.		This project is off to a successful start, and it should prove to be a very useful tool for integrating a great deal of data generated by EVOS studies. Application of this tool should allow very worthwhile exploration of possible natural/anthropogenic perturbations that will aid restoration and long-term management. Fund completion of Prince William Sound component; reconsider work on Cook Inlet/Shelikoff Strait component in FY 2000 after concluding the present Prince William Sound project.		Fund completion of Prince William Sound model. Initiation of Cook Inlet/Shelikoff Strait model may be reconsidered in FY 2000. This project, through the use of food web modeling techniques, will make an important contribution to the Trustee Council's effort to synthesize research and monitoring results from other Council-funded projects.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99338	Survival of Adult Murres and Kittiwakes in Relation to Forage Fish Abundance	J. Piatt/USGS-BRD	DOI	Cont'd 2nd yr. 3 yr. project	\$57.9	\$45.0	\$0.0	\$0.0	\$102.9

Project Abstract

Some seabird populations damaged by the oil spill continue to decline or are not recovering. In order to understand the ultimate cause of seabird population fluctuations, productivity, recruitment, and adult survival must be measured. Current APEX (Project /163) studies are focused on measuring productivity only. Recruitment measurement demands an unrealistic study duration. This project will augment current studies in lower Cook Inlet that relate breeding success and foraging effort to fluctuations in forage fish density by using banding and resighting to quantify the survival of adult common murres and black-legged kittiwakes.

Chief Scientist's Recommendation

The proposal is for a second year of support to relate the survival of adult murres and kittiwakes in lower Cook Inlet to the abundance of forage fish. This project complements ongoing APEX (Project /163) work, and, indeed, the results of this project are very important for full interpretation of the APEX data. The project is relatively inexpensive and the principal investigator is excellent. Fund.

Trustee Council Action

Fund. This project will provide information on whether the availability and quality of forage fish influence the survival of adult seabirds. The results will complement and be very important to the ongoing work in APEX (Project /163), which focuses on the influence of forage fish on annual reproductive success and productivity. In combination, this project and APEX will contribute to our understanding of seabird recovery (or lack of recovery) following the oil spill.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99339	Western Prince William Sound Human Use and Wildlife Disturbance Model	K. Murphy, L. Suring/USFS	USFS	Cont'd 2nd yr. 2 yr. project	\$67.2	\$0.0	\$0.0	\$0.0	\$67.2

Project Abstract

This project will use geographic information system (GIS) techniques to describe current human-use patterns in western Prince William Sound and to model potential changes in those use patterns as a result of additional development. Maps of present and projected human-use patterns will be incorporated with maps of the distribution of injured resources. This will provide a basis to identify areas where there may be conflicts between human use and wildlife concentrations resulting in disturbance. Disturbance of injured wildlife may result in decreased productivity, exacerbating the effects of the oil spill and prolonging the time to recover. Identification of potential areas of disturbance will allow development of recommended management practices that may eliminate or minimize the negative effects of increasing human use. All injured resources and subsistence species will be addressed in a general approach but specific management recommendations will be developed for harbor seal, pigeon guillemot and cutthroat trout.

Chief Scientist's Recommendation

This proposal is for the second and final year of a project to model human uses and wildlife disturbance in western Prince William Sound and to develop corresponding management recommendations for a suite of EVOS-injured species. This work is important, both because of the relevance to recovery and because this pilot effort may have applicability elsewhere. Fund.

Trustee Council Action

Fund. This project will develop and test in western Prince William Sound a model for projecting future impacts of human use on resources injured by the oil spill. Work to be conducted in FY 99 includes completion of the model and a final report.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99340	Toward Long-Term Oceanographic Monitoring of the Gulf of Alaska Ecosystem	T. Weingartner/UAF	ADFG	Cont'd 2nd yr. 4 yr. project	\$91.4	\$57.5	\$67.2	\$0.0	\$216.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The 28-year time series of temperature and salinity data from hydrographic station GAK1 near Seward shows substantial interannual and interdecadal variability that could influence the Gulf of Alaska shelf ecosystem. This project will continue this time series and quantify the interannual and interdecadal variability of this shelf. A related goal is to better resolve the time and vertical structure of this variability at periods ranging from the tidal to the interannual. This information will aid in assessing progress in the recovery and restoration of resources and services affected by the oil spill, and will aid in designing a long-term, cost-effective ecosystem monitoring program for this shelf.		I support the continuation of this project, although it will be important to evaluate how completely the physical oceanographic data being collected will support an understanding of all the factors forcing biological production in the Alaska Coastal Current. Despite the fact that the potential EVOS long-term monitoring program is not yet explicitly developed, the continuation of the GAK1 data set is very useful, and the joint development of this data set with the U.S. Global Ocean Ecosystem Dynamics (GLOBEC) program is valuable for coordination of their work with the Trustee Council. Fund.		Fund. This project will continue the existing 28-year time series of conductivity-temperature versus depth data collected at hydrographic station GAK1 on the northcentral Gulf of Alaska shelf. The GAK1 data set is useful to our evaluation of changes in the ecosystem (projects SEA/320, APEX/163, and NVP/025) and will be useful to the potential EVOS long-term monitoring program. The U.S. Global Ocean Ecosystem Dynamics (GLOBEC) program also contributes funding to this project.					
99341	Harbor Seal Recovery: Controlled Studies of Health and Diet	M. Castellini/UAF	ADFG	Cont'd 2nd yr. 4 yr. project	\$356.8	\$124.1	\$85.4	\$0.0	\$566.3
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will continue a long-term study to quantify the impact of specific fish diets on the health and body condition of harbor seals. The ability to conduct such investigations under controlled conditions is now available at the Alaska SeaLife Center. This project will establish whether specific diets are nutritionally adequate to maintain seal health. Even though health status biomarkers for marine mammals in Prince William Sound were established during field trials (Project /001), the critical test of how each marker varies in an individual as a result of a specific prey item has not been established. While this project will focus on the issue of harbor seal health, the approach is potentially applicable to any of the injured top predators.		The principal investigator has carried out a strong program in the field to assess the health status of harbor seals. However, to realize the full benefit of these field studies, they must be complemented by studies on harbor seal health in relation to diet in a controlled setting. This work is essential to the full evaluation of current hypotheses about limitations to the recovery of harbor seals. The revised proposal contains more specific information on experimental design and methods of data analysis. Fund.		Fund revised proposal, which amplifies the experimental design/data analysis methods. This project will investigate the blood chemistry and other health parameters of harbor seals in relation to changing diet under controlled conditions at the Alaska SeaLife Center and enable scientists to test the validity of results from field studies. [NOTE: Funding includes \$231,700 for Alaska SeaLife Center bench fees.]					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99346	Publication of an Indexed Bibliography of the Genus Ammodytes (Sand Lance)	R. Armstrong/UAA, M. Willson/USFS, H. Robards/DOI	USFS	Cont'd 2nd yr. 2 yr. project	\$10.4	\$0.0	\$0.0	\$0.0	\$10.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This is a request for additional funding to cover the cost of publication because the bibliography is much larger than originally estimated (about three times larger). The manuscript includes about 2,000 references and will total about 440 pages, single spaced. The final publication will include two additional chapters, in addition to the bibliography -- a review of sand lance biology and sand lance as a cornerstone species. Both of these review chapters should enhance the value of the bibliography considerably. The manuscript will be published as a General Technical Report by the U.S. Forest Service, Pacific Northwest Research Station.		The aim of this project is to publish a bibliography and synthesis chapters regarding the life history and ecology of sand lance, a key forage fish species for seabirds and marine mammals. The principal investigators have requested additional support because of a much larger than anticipated number of references that need to be included. Compiling and publishing this bibliography will provide a valuable service to EVOS researchers (e.g., in the APEX/163 project). Fund.		Fund. This project will result in publication of an annotated bibliography and synthesis chapters on the life history and ecology of sand lance, which is a small forage fish of great ecological importance in the spill area. The project was funded as a one-year project in FY 98. However, the principal investigators found many more citations than they had anticipated and need additional funds for printing costs. The results of this project will directly benefit the work of EVOS researchers in several projects (e.g., APEX/163).					
99347	Fatty Acid Profile and Lipid Class Analysis for Estimating Diet Composition and Quality at Different Trophic Levels	R. Heintz/NOAA	NOAA	Cont'd 2nd yr. 3 yr. project	\$92.6	\$35.8	\$0.0	\$0.0	\$128.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will begin the systematic development of fatty acid profiles and lipid class analysis to identify diet differences and quality in forage fish and their prey. The spatial and temporal variability of fatty acid profiles in herring, sand lance, and zooplankton will be examined and related to the nutritional condition of these forage fish. The spatial comparisons, which began in FY 98, will provide insight into the energetic differences in forage fish in disparate parts of Prince William Sound. These comparisons are based on samples collected by APEX (Project /163). In FY 99, temporal comparisons will be made, which will provide information on the energetic changes that inevitably occur with seasonal, ontogenetic, and reproductive changes.		This project will provide information on variability in the fatty acid signatures of forage fish (herring and sand lance), which, in turn, will help interpret the fatty acid signatures of top predators, such as harbor seals and seabirds. This information will aid understanding of food limitations on the recovery of these predators. There was concern that research on the fatty acid signatures of the forage fishes' zooplankton prey was not likely to produce useful results, but the revised proposal limits FY 99 zooplankton work to statistical analysis of previously gathered data. Thus, this project can be funded as now proposed.		Fund. This project will extend work on fatty acids as a tool to identify the diets of seabirds and marine mammals. These data will help evaluate whether the availability and quality of prey are limiting recovery of several injured species.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99348	Responses of River Otters to Oil Contamination: A Controlled Study of Biological Stress Markers	M. Ben-David, T. Bowyer, L. Duffy/UAF	ADFG	Cont'd 2nd yr. 2 yr. project	\$316.6	\$0.0	\$0.0	\$0.0	\$316.6
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will explore the effects of oil contamination on physiological and behavioral responses in river otters experimentally. Fifteen captive otters will be exposed to two levels of oil contamination under controlled conditions in captivity. Samples of blood, tissues, and feces will be collected for analysis of biomarkers and immunological examinations.		This is the second year of a two-year project to experimentally determine the biochemical and physiological responses of river otters to oil contamination. This project is needed in order to determine if measurements of potential markers in field-captured animals are consistent with oil exposure. Fund.		Fund, including preparation of a final report by September 1999. This project is using facilities at the Alaska SeaLife Center to validate the effects of oil contamination on river otters, thus contributing to our understanding of the injury to and recovery status of this injured species. [NOTE: Funding includes \$109,200 for Alaska SeaLife Center bench fees.]					
99361-BAA	Dynamic Graphical Techniques for Ecosystem Synthesis, Communication and Product Delivery	J. Allen/PWSSC, T. Cooney/UAF	NOAA	New 1st yr. 1 yr. project	\$25.6	\$0.0	\$0.0	\$0.0	\$25.6
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
As the tenth anniversary of the oil spill approaches and restoration research efforts draw to a close, there is an increasing need for information synthesis, translation, and communication. Transfer of ecosystem-level research results to the public, resource managers, policy makers and the wider scientific community remains a critical challenge. This project will augment existing synthesis efforts by focusing on graphical approaches, including advanced computer imaging and multimedia presentation technology. The utility of these technologies will be demonstrated by means of a high impact, dynamic, graphical presentation of the synthesized results of SEA (Project /320). It is anticipated that techniques developed and refined during this work will have direct application to larger-scale synthesis, communication, and technology transfer tasks facing the Trustee Council in the near future.		In general, the application of computer presentation technology has the potential to enhance communication of important synthesis objectives and link multiple elements of the restoration program. The principal investigators are very strong, and the presentation of SEA (Project /320) results at the 1998 Restoration Workshop was an example of how sophisticated scientific information can be conveyed to the public in a compelling fashion. This work needs to be updated and enhanced for presentation at the 10 Years After symposium and recorded in video format for extended use. Fund.		Fund revised proposal, which is scaled down significantly from the original proposal. This project will develop a presentation on SEA (Project /320), one of the Trustee Council's primary ecosystem projects which is closing out in FY 99, for the 10 Years After symposium. In an effort to facilitate broader dissemination of the results of the SEA project, the presentation will be aimed at lay audiences and will include a video version. Fifty copies of the video will be provided to the Restoration Office for dissemination to the public. The principal investigator should provide the Restoration Office an opportunity to review the content of the video at an early stage in its development.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99366	Improved Salmon Escapement Enumeration Using Remote Video and Time-Lapse Recording Technology	E. Otis/ADFG	ADFG	New 1st yr. 3 yr. project	\$52.0	\$46.5	\$12.3	\$0.0	\$110.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Salmon resources and services within the spill area, and particularly within Prince William Sound, were injured by the oil spill and have not fully recovered. To monitor the recovery of salmon stocks in the spill area and improve escapement information used to set spawning escapement goals, this project will develop remote video and time-lapse recording technology for enumerating salmon escapement. Remote video has the potential to provide accurate, archivable documentation of salmon escapements well beyond the capacity of aerial survey indices, and well below the cost of weir and sonar projects. Videotapes can be retrieved and reviewed weekly to facilitate in-season management of commercial fisheries.		The goal of this project, which is to improve the accuracy of estimates of spawner abundance as a management tool, is worthy. The experimental design includes an independent check on video counts with standard counts from a weir. The revised proposal includes some cost sharing by the Alaska Department of Fish and Game to support operation of the weir. Fund.		Fund revised proposal, which addresses Chief Scientist's concern regarding the video counts and includes cost sharing by the Alaska Department of Fish and Game. This project will develop new techniques for estimating spawner abundance that could potentially advance salmon management.					
99367	Synthesis and Publication of Fisheries Research	M. Willette/ADFG	ADFG	New 1st yr. 4 yr. project	\$73.1				\$73.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Many EVOS reports written by Alaska Department of Fish and Game staff provide key information on injured resources. However, some do not form stand-alone publications, and some contain information suitable for more than one article or are too bulky for publication in their current form. Additional synthesis and editing are needed to move these from report status to publication in the peer-reviewed literature. In this project, Alaska Department of Fish and Game staff will synthesize research reports into manuscripts that will then undergo peer review for consideration in the leading fisheries journals in North America.		It is important to publish the results of earlier EVOS studies conducted by the Alaska Department of Fish and Game, including studies that document straying of tagged hatchery-produced fry into Prince William Sound pink salmon streams. I support such an effort with the inclusion of the principal investigators who performed the earlier studies. Fund.		Fund. In FY 99, this project will produce four manuscripts on various issues related to pink salmon and Pacific herring. The project addresses one of the Trustee Council's priorities, which is publication of research results. Funding in FY 2000 will depend on the project's progress to date and the availability of funds. [NOTE: After this project was approved by the Trustee Council, the proposer submitted a revised budget at a slightly lower amount, \$72,900. The excess funds will lapse at the end of FY 99.]					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99368	Maps Depicting Environmentally Sensitive Areas in Prince William Sound (Summary Seasonal Maps Only)	J. Whitney/NOAA	NOAA	New 1st yr. 1 yr. project	\$37.3	\$0.0	\$0.0	\$0.0	\$37.3
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
A series of seasonal maps depicting environmentally sensitive areas in Prince William Sound will be produced in both hardcopy and digital formats. A previous series was produced in paper format in 1988. However, these maps need to be updated with new information on the distribution, abundance, life history, and sensitivity of the natural resources in Prince William Sound. This project will integrate and depict the most current information onto an updated series of maps, produced at a scale of 1:250,000 (previous maps were at 1:333,300). The maps will be produced as posters, folded maps, and a digital product.		This proposal to update summary-level "environmental sensitivity index" maps for Prince William Sound responds directly to a request in the <i>FY 99 Invitation</i> . These maps were prepared in 1988, before the oil spill, and preparing an updated version will allow integration of a wealth of EVOS data, which will aid synthesis and application of these data for restoration and management. The agency and principal investigator are experienced with preparation of maps of this type, and the proposal anticipates cooperation with most of the relevant agencies and sources of data. Fund.		Fund revised proposal, which includes a description of the type of digital information that will be produced. This project, which will integrate and depict information generated through the EVOS damage assessment and restoration programs on a new series of seasonal maps identifying "environmentally sensitive areas" in Prince William Sound, will aid synthesis and application of this information for restoration and spill response purposes. In developing the maps, the National Oceanic and Atmospheric Administration should work directly with the principal investigators of the three ecosystem projects (SEA/320, NVP/025, APEX/163) and should structure the review phase of the project to provide the maximum opportunity for agency review of the maps. Prince William Sound communities should also be invited to participate in the review phase of the project.					
99371	Effects of Harbor Seal Metabolism on Stable Isotope Ratio Tracers	D. Schell/UAF	ADFG	New 1st yr. 3 yr. project	\$120.0	\$101.7	\$101.7	\$0.0	\$323.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
A major concern with the use of stable isotope tracers in ecosystem studies is the fidelity with which ratios are transferred up food chains. Use of specific habitats or prey cannot be assessed if geographic gradients in isotope ratios are laid on top of trophic effects and/or prey switching. To remove these problems, this project will seek specific conservative biomarkers such as essential amino acids or fatty acids that carry isotope ratios unmodified by metabolism. Amino acids labeled with 15N and 13C will be used to follow transamination and carbon relocation during metabolic processes in the seals at the Alaska SeaLife Center. Specific fatty acid isolation and determination of suitability as habitat biomarkers will follow in years two and three of the project.		This project will provide detailed information at the level of specific amino and fatty acids about isotope effects in trophic transfer and provide insight into which compounds are synthesized and which can be acquired in the diet. The results of this project will improve the trophic tracer methodology. The revised proposal adds expertise in biochemistry, metabolism, and nutrition. Fund.		Fund revised proposal, which adds expertise in biochemistry, metabolism, and nutrition. The results of this project will enable researchers to better understand the effects of diet on the recovery of harbor seals. [NOTE: Funding includes \$14,100 for Alaska SeaLife Center bench fees.]					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99375	Effect of Herring Egg Distribution and Ecology on Year-Class Strength and Adult Distribution	E. Brown, B. Norcross/UAF	ADFG	New 1st yr. 2 yr. project	\$76.5	\$48.2	\$0.0	\$0.0	\$124.7
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will examine the effect of Pacific herring egg distribution and abundance as well as oceanographic processes on year-class strength and adult distribution. Existing data will be used in the analysis. The findings of this study will aid in understanding stock structure and population dynamics of herring in Prince William Sound. This information will facilitate area-specific targeting of catches and provide scientific documentation of unpublished fishery data.		This project will analyze 20 years of historical data on herring egg distribution and ecology and compare them to oceanographic factors in Prince William Sound. This project has high potential, although I have some question about the reliability and variability of the historical data and the strengths of the relationships to the physical data. These questions can only be resolved by undertaking the project. Fund.		Fund. This project has the potential to relate herring egg distribution and ecology to oceanographic factors in Prince William Sound and thereby contribute to improved fisheries management.					
99379	Assessment of Risk Caused by Residual Oil in Prince William Sound Using P450 Activity in Fishes	S. Jewett/UAF	ADFG	New 1st yr. 2 yr. project	\$115.5	\$28.3	\$0.0	\$0.0	\$143.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
This project will determine the spatial extent of potential exposure to hydrocarbons in western Prince William Sound by examining P450 activity in two coastal fishes, masked greenling and crescent gunnel. These fishes live and feed in the nearshore zone, and provide an index of exposure for fishes and other vertebrates. In addition, the project will examine the relationship between P450 levels in these fishes, hydrocarbon concentrations in sediments, and hydrocarbon metabolites in these fishes to help determine if exposure is from residual oil from the Exxon Valdez spill.		This project will provide more information on the induction of oil-sensitive enzymes in nearshore fishes in the oiled areas of Prince William Sound. Preliminary studies in 1997 indicate induction in the kelp greenling eight years after the spill, and this proposal will provide similar information on one other species in a wider area in FY 99. Sampling of nearshore fishes will be linked to monitoring of oiled mussel beds (Project 99090) and will include analysis of hydrocarbons and their metabolites in bile. Fund.		Fund. This project will use two nearshore fishes -- masked greenling and crescent gunnel -- as indicators of pathways of oil exposure.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99381	Status of Seabird Colonies in Northeastern Prince William Sound	M. Bishop/USFS	USFS	New 1st yr. 2 yr. project	\$13.0	\$1.0	\$0.0	\$0.0	\$14.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>			<u>Trustee Council Action</u>				
With the most recent colony data from 6-24 years old, current documentation on seabird colonies in northeastern Prince William Sound may not reflect recent changes in size, species composition, and location that may have occurred since the oil spill. Areas around northeastern Prince William Sound (Port Gravina to Orca Inlet) are pending purchase by the Trustee Council to aid in the restoration of injured species. These lands may be subject to increased human pressure that may increase human/wildlife interactions. This project will establish current population data for the seven known colonies in these areas and survey the coastline for suspected and unknown seabird colonies. Acquisition of this information is necessary to minimize human disturbance of injured species.		This inexpensive project will collect information about the size and composition of several small seabird colonies on lands in northeastern Prince William Sound currently owned by Eyak Corporation that will potentially be transferred into public ownership. This information will be useful as the agencies develop management plans for these lands. Fund.			Fund. This project will collect information on several small seabird colonies located on lands in northeastern Prince William Sound that will potentially be transferred into public ownership. The information will benefit development of appropriate management plans				

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99391	Cook Inlet Information Management/Monitoring System	J. Hock/ADEC, C. Fries/ADNR	ADNR	New 1st yr. 2 yr. project	\$335.0		\$0.0	\$0.0	\$335.0

Project Abstract

This project will develop an integrated database containing digital environmental and spatial data for the Cook Inlet watershed. The system will facilitate access to data from a wide variety of sources about the resources and services injured by the spill as well as base data sets important to understanding the environment of the watershed. This database will support monitoring, management, and restoration. The system will provide access through the Internet to the public and private sectors. Water quality data sets derived from the watershed will provide the cornerstone of this system thereby facilitating monitoring of both baseline parameters and chronic sources of marine pollution. From both public policy and natural resources management perspectives, this project will protect the governments' investment in restoration by making information derived from restoration activities and water quality monitoring programs available for management of the watershed in a manner that will promote the recovery of the injured resources and services.

Chief Scientist's Recommendation

No recommendation from the Chief Scientist due to possible conflict of interest with indirectly related non-EVOS work for which the Chief Scientist is on contract. [NOTE: The project was sent out for independent peer review; the comments of the reviewers are reflected in the Executive Director's recommendation.]

Trustee Council Action

Fund. Funds will be released in two phases: Phase 1 (\$171,000) will consist of a user needs assessment and metadatabase development. Phase 2 (\$164,000), to be authorized by the Executive Director following completion and satisfactory review of Phase 1 and a presentation to the full Trustee Council, will consist of prototype development. This project aims to improve management of injured and other marine natural resources by facilitating access to widely scattered databases on water quality, pollution sources, land uses, and related information in the Cook Inlet watershed. Year 1 objectives include assessing the needs of public stakeholders and agency resource managers, developing a metadatabase, and developing a prototype system for Internet access to data, graphics, images, text, and documents. The peer reviewers found the revised proposal greatly improved over the original, but continue to raise significant questions, such as whether a centralized vs distributed database is most appropriate and cost effective. In addition, there are concerns about the project's scope, ambitious schedule, relationship to other EVOS data management needs, and high cost. Cost sharing should be obtained to replace at least part of Phase II costs--this project would substantially serve ongoing agency needs and goals as well as contribute to the Council's restoration objectives by facilitating improved management of the marine habitats on which injured resources rely. Funding the project in two phases will allow these issues to be resolved before making decisions on subsequent steps.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99393-BAA	Prince William Sound Food Webs: Structure and Change	T. Kline/PWSSC	NOAA	New 1st yr. 3 yr. project	\$125.0	\$143.6	\$114.6	\$0.0	\$383.2

Project Abstract

Recent research has shown that the oceanographic conditions connecting the northern Gulf of Alaska with Prince William Sound may affect recruitment and nutritional processes in fishes. Accordingly, food webs are subject to changes in carbon flow occurring between the Gulf of Alaska and Prince William Sound. This project seeks to (1) conduct retrospective analysis of Gulf of Alaska production shifts since the oil spill and (2) address Ecopath model validation data gaps. These analyses will enable a better understanding of the ecological role of regime shift processes conjectured to be impeding the natural restoration of populations in Prince William Sound affected by the oil spill.

Chief Scientist's Recommendation

This project as originally proposed had a variety of objectives involving application of carbon and nitrogen stable isotope ratios to ecological questions. In response to peer review comments, the revised proposal focuses on two applications: (1) the possibility that there may be an isotopic record back to 1989 in bivalve shells from the Gulf of Alaska and (2) confirmation of trophic position of a variety of marine organisms for the purposes of refining the Ecopath model (Project \330). Fund revised proposal.

Trustee Council Action

Fund. This project will use carbon and nitrogen stable isotope ratios to confirm the relative trophic status of species within the Prince William Sound ecosystem. Because this information will be useful in validating the food web model being developed under Project /330, funding in FY 99 is appropriate.

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99401	Assessment of Spot Shrimp Abundance in Prince William Sound	C. Hughey/ Valdez Native Tribe, C. O'Clair/ NOAA	NOAA	New 1st yr. 4 yr. project	\$38.3	\$89.8	\$95.0	\$33.0	\$256.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
<p>This project will estimate the abundance of spot shrimp and determine the structure of the spot shrimp population in western Prince William Sound. The project will augment current Alaska Department of Fish and Game surveys to determine whether the spot shrimp population is recovering from depletion. To maintain consistency with the timing of Alaska Department of Fish and Game surveys, the first full sampling cruise will take place in October 1999. In year one, western Prince William Sound will be surveyed for study sites. In years two and three, spot shrimp relative abundance, population structure and reproductive potential will be estimated at the study sites. An added objective in year three will be an estimate of recruitment potential achieved by expanding the depth range of the sampling into shallow water to assess the relative abundance of juveniles. Year four will be closeout, production of manuscripts, and providing input into the development of a shrimp management plan with the Alaska Department of Fish and Game.</p>		<p>The revised proposal is a well-planned effort to better identify the potential for recovery of the spot shrimp population in Prince William Sound in cooperation with the Valdez Native Tribe. Although there is no evidence that the spot shrimp was injured by the oil spill, its population in Prince William Sound is at a low level due to ecological change and other factors. The proposal will expand the geographic scope of the Alaska Department of Fish and Game surveys in Prince William Sound. Fund.</p>		<p>Fund. Concerns over the declining number of shrimp have been raised repeatedly by subsistence users. Since the oil spill, shrimp harvest seasons have diminished to the point of closure. This project will study the abundance of spot shrimp in Prince William Sound to determine whether the population can sustain seasonal openings for subsistence, personal use, and commercial fishing. Shrimp are not on the injured species list. However, the Trustee Council's Restoration Plan allows restoration actions to address resources not on the list if the action will benefit an injured resource or service; this project will benefit the services of subsistence and commercial fishing.</p>					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99405	Port Graham Salmon Hatchery Reconstruction	E. McMullen/Port Graham Village Council	ADFG	New 1st yr. 1 yr. project	\$781.3	\$0.0	\$0.0	\$0.0	\$781.3

Project Abstract

This project will help rebuild the Port Graham salmon hatchery that was destroyed by fire on January 13, 1998. The Port Graham hatchery was involved in the rehabilitation and enhancement of local pink salmon, sockeye salmon and coho salmon stocks for the benefit of both the local subsistence and commercial fisheries. These stocks are of major social, cultural and economic importance to the area and sustained injuries resulting from oil spill clean-up efforts. This project will contribute partial funding for construction of a salmon hatchery to replace the one that was destroyed in the fire.

Chief Scientist's Recommendation

I have been informed that all necessary permits have been obtained from the Alaska Department of Fish and Game and other agencies and that the Regional Planning Team (RPT) has given its approval to the hatchery. The permits and the RPT process are designed to ensure proper fishery management, including the use of the local wild stock to avoid introduction of fish with exotic genetic makeup or new disease. The results of the planning and permitting process were not included in the Detailed Project Description (DPD) so were not part of my review, but the fisheries management plan approved by the RPT should become part of the DPD. It will provide a record of the specific measures that are in place to guarantee the long-term health of the wild runs of salmon from which the hatchery stock is to be taken and ensure that measures necessary to avoid problems that have negatively affected wild stocks in other areas where hatcheries exist will be avoided. The Trustee Council has been assured by the Alaska Department of Fish and Game that an otolith marking program is in place that will allow differentiation of hatchery and wild run fish, so when the hatchery completes its current brood stock development program, the necessary measures, including stock identification in the potential fishery and enumeration of wildstock escapement, will be implemented. Fund.

Trustee Council Action

Fund, with funding for all but National Environmental Policy Act (NEPA) compliance work contingent on adequate funds from other sources being in place. This project will contribute \$725,000 to the \$2.2 million reconstruction of the Port Graham hatchery, which was destroyed by fire in January 1998. Funds for the construction phase of the project are also contingent upon NEPA compliance documentation being in place and review and approval by the Alaska Department of Fish and Game of the final engineering plans and specifications for the new hatchery. In addition, the grant to the Port Graham Village Council should be conditioned on the hatchery being fully insured. The Trustee Council has supported the hatchery's programs for several years in an effort to rehabilitate and enhance the pink, coho, and sockeye salmon runs in the Port Graham and Nanwalek areas. The hatchery has provided additional fish for subsistence and commercial use, as well as providing an opportunity to reduce harvest pressure on the wild stocks. The Council's support of Project 99405 is not a commitment to support ongoing long-term hatchery operations, should it be proposed at a later date. [NOTE: This project will be funded outside of the regular FY 99 work plan of research, monitoring, and general restoration projects.]

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99423	Pattern and Processes of Population Change in Sea Otters	J. Bodkin/USGS-BRD, T. Dean/Coastal Resource Associate	DOI	New 1st yr. 4 yr. project	\$60.0				\$60.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Prior research has identified sensitive variables for assessing recovery of the nearshore ecosystem in western Prince William Sound through populations of sea otters and their invertebrate prey. Core data collection includes annual surveys of sea otter distribution and abundance and estimates of abundance and size classes of green sea urchins, a key sea otter prey. This project will monitor an injured population and an ecological process to address questions central to recovery of the nearshore ecosystem and will test new approaches to ecosystem monitoring.		As originally proposed, this project was an important extension of Nearshore Vertebrate Predator (Project /025) work on two prominent, still-injured species -- sea otters and harlequin ducks. Work on these species could be part of a long-term monitoring program, but apart from that possibility, some continued work on sea otters can be justified on the basis of assessing their recovery status. Continued work on harlequin ducks may be needed after Project /025 is completed and the status of this species is reviewed. The principal investigators are strong, and I recommend funding the revised proposal in order to track possible progress toward sea otter recovery in the Knight Island archipelago.		Fund revised proposal, which reduces the project's scope to aerial surveys of sea otters and surveys of green sea urchins in FY 99 only. Additional work on sea otters and harlequin ducks may be considered in FY 2000, once Project /025 (Nearshore Vertebrate Predator) is completed and the status of these species is reviewed.					
99424	Restoration Reserve	All Trustee Council Agencies	ALL	Cont'd	\$12,000.0	\$12,000.0	\$12,000.0	\$12,000.0	\$48,000.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
In recognition of the fact that complete recovery from the oil spill may not occur for decades, the Trustee Council established the Restoration Reserve to hold funds to be used for restoration after the last payment is received from Exxon in September 2001. The \$12 million recommended for deposit in FY 99 will be the sixth deposit approved for the reserve account and will bring the total in the account to \$72 million. Annual deposits of \$12 million in each of the next three years will provide a reserve of \$108 million plus interest. These funds will be used for restoration activities. A decision by the Trustee Council on allocation of the funds to specific activities has not yet been made.		Proposal not reviewed.		Fund an additional \$12 million deposit to the Restoration Reserve. The Reserve will help ensure that restoration can continue beyond the time of the final payment from Exxon. [NOTE: This project will be funded outside of the regular FY 99 work plan of research, monitoring, and general restoration projects.]					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99434	East Amatuli Island Remote Video Link	M. O'Meara/Pratt Museum	DOI	New 1st yr. 1 yr. project	\$75.8	\$0.0	\$0.0	\$0.0	\$75.8
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Under this project, a microwave link will transmit live images and audio from East Amatuli Island to the Pratt Museum in Homer. Two cameras on the island will be used to test remote collection of data on seabird breeding parameters (e.g., nest attendance) as a supplement to monitoring programs, provide a vehicle for student involvement in restoration monitoring, and allow members of the general public to view spill area resources and restoration research projects. Users at the Pratt Museum will pan, tilt, and zoom cameras to observe murre and kittiwakes. The cameras' computer control system will be programmed to store precise nest locations that can be revisited upon command, or automatically at specified intervals, to record images on video tape.		The Pratt Museum has demonstrated the educational and public relations value of this technique by installing a remotely operated video camera on Gull Island, and it is now proposing to investigate this technique as a long-term monitoring tool for the Barren Islands. There are many excellent parts of this proposal, including the willingness of the educational specialists to do rigorous assessment of the value of this product. Fund.		Fund. This project will place remotely operated video cameras in the Barren Islands seabird colonies as both a research and educational tool. A similar set-up now in place at Gull Island (near Homer) is producing exciting results. There is potential interest in this technology as a cost-effective monitoring tool, and implementing it while APEX (Project /163) is still in the field (FY 99 is the final year of field work for APEX) will allow validation of this potentially cost-effective approach to monitoring colony activity. The proposal has significant cost sharing from other sources.					
99441	Harbor Seal Recovery: Effects of Diet on Lipid Metabolism and Health	R. Davis/Texas A&M Univ.	ADFG	New 1st yr. 2 yr. project	\$158.4	\$131.6	\$0.0	\$0.0	\$290.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
To better understand the results from field studies of harbor seal health, body condition, and feeding ecology, data are needed on diets that vary in nutritional composition. Working with the Alaska SeaLife Center, this project will determine how fatty acid profiles in the blubber of captive harbor seals change over time during controlled diets of pollock and herring. In addition, it will assess the aerobic capacity and lipid metabolism of skeletal muscle in harbor seals fed controlled diets and in wild harbor seals in Prince William Sound. The results will augment already funded investigations of diet and health to provide a more in-depth understanding of the nutritional role and assessment of dietary fat for harbor seals.		This is an important project, in that other studies have examined fatty acid signatures of harbor seals in the field, but there is need for controlled studies with animals of known history. This project will use facilities at the Alaska SeaLife Center to address this gap. The principal investigator is very strong, and this is important and timely work. The revised proposal includes presentation of details about the sample design, particularly the feeding regime. Fund.		Fund revised Detailed Project Description, which amplifies the sample design. This project will study the effects of diet on lipid metabolism and health in harbor seals. [NOTE: Funding includes \$26,800 for Alaska SeaLife Center bench fees.]					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99459	Residual Oiling of Armored Beaches and Mussel Beds in the Gulf of Alaska	G. Irvine/USGS-BRD, D. Mann/UAF, J. Short/NOAA	DOI	New 1st yr. 2 yr. project	\$124.9	\$40.0	\$0.0	\$0.0	\$164.9
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
For at least five years after the spill, oil mousse persisted on the exposed rocky shores of the Alaska and Kenai peninsulas in a remarkably unweathered state. This project will resample these boulder-armored beach sites that were last studied in 1994. In addition, several oiled mussel beds in the Gulf of Alaska that had relatively high levels of oiling in 1993 will be resampled, to compare residual oiling of these with oiled mussel beds in Prince William Sound. A mixture of qualitative and semi-quantitative approaches will be used.		The possible continued presence of oil on what many people consider one of the greatest wilderness coasts in the National Park System may represent continuing injury from the oil spill. The proposal has been revised to document any continued oiling with mostly qualitative techniques. This work needs to be done within a year or two, and if sufficient funds are available, I recommend that it be carried out in FY 99.		Fund. This project will monitor the persistence of oil at sites previously monitored in FY 94 along the coasts of Kenai Fjords and Katmai national parks, which will provide important status information ten years after the spill. In the Kodiak region, the final round of shoreline monitoring took place in FY 95. In Prince William Sound, shoreline sites cleaned in FY 97 near the community of Chenega Bay were revisited in FY 98 (Project /291). It may be appropriate to conduct another, more comprehensive round of shoreline monitoring in Prince William Sound in two to three years.					
99462	Effect of Disease on Pacific Herring Population Recovery in Prince William Sound	G. Marty/Univ. of California Davis	ADFG	New 1st yr. 3 yr. project	\$75.1	\$78.5	\$84.8	\$0.0	\$238.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The Pacific herring population of Prince William Sound has not recovered from severe population decline in 1993. Viral hemorrhagic septicemia (VHS) virus and the fungus <i>Ichthyophonus hoferi</i> were identified as the two main diseases during a multi-year research project that closed out in FY 98 (Project /162). Prevalence of <i>Ichthyophonus</i> decreased after 1995, but an unexpected increase in the prevalence of VHS virus in 1997 might delay recovery. To determine if disease continues to impair recovery, and to document recovery when it occurs, this project will monitor prevalence of the two major diseases in Pacific herring in Prince William Sound twice annually, from October 1998 through April 2001.		Recovery objectives for Pacific herring have not been achieved, and there is evidence that disease occurrence continues at significant levels. This project, which will be carried out in conjunction with other work being funded by the National Science Foundation, will help define the role of disease in regulating populations of a pelagic marine fish. This work has important implications for management of this keystone species. The work is cost effective and the principal investigator is excellent. Fund.		Fund. By monitoring the health of the herring population for a three-year period, this project will help determine whether disease continues to limit recovery of the Prince William Sound herring population.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99466	Recovery Status of Barrow's Goldeneyes	D. Esler/USGS-BRD	DOI	New 1st yr. 2 yr. project	\$12.2	\$14.2	\$0.0	\$0.0	\$26.4
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
Although Barrow's goldeneyes are not on the list of resources injured by the oil spill, some recently collected evidence suggests that goldeneyes may have been injured and populations may not be fully recovered. Due to these concerns, this proposal will critically assess the status of recovery of Barrow's goldeneye populations from the oil spill through assemblage and analysis of all existent, relevant data. This will be accomplished through analyses of data collected for other objectives within the Nearshore Vertebrate Predator project (/025) and compilation of existing information from other sources. This work will lead to the definition of recovery status, identification of any data gaps limiting our understanding of recovery status or impediments to recovery, and, if warranted, proposal of directed research to fill those gaps during FY 2000 and beyond.		Although Barrow's goldeneye is not formally considered to be an injured species, there was some initial mortality to this duck and evidence of possible injury lingering in 1998. The review proposed in this project will synthesize existing information, which, in combination with the results of ongoing studies such as the Nearshore Vertebrate Predator project (/025), should clarify the status of the Barrow's goldeneye with respect to prior and lingering injury. This modest project should provide a firm basis for a formal determination on listing this species as injured and for recommendations on restoration and research priorities, if appropriate. Fund.		Fund. Although the Barrow's goldeneye is not on the injured resources list, the Nearshore Vertebrate Predator project (/025) and the marine bird boat surveys (Project /159) have found evidence of new and ongoing injury to this species. This project will provide additional information necessary for making a determination on adding the species to the injured resources list.					
99468-BAA	FEATS: Fundamental Estimations of Acoustic Target Strength	J. Kirsch, G. Thomas/PWSSC	NOAA	New 2nd yr. 2 yr. project	\$146.6	\$0.0	\$0.0	\$0.0	\$146.6
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
To scale acoustic survey data from relative units (dB) to absolute units (kg/m3), knowledge of the individual fish's target strength (TS) by size is required. This project will conduct experiments to measure the TS of Pacific herring and sand lance in Prince William Sound. FY 99 will concentrate on the development of experimental apparatus and experimental logistics and the application of these to measure Pacific herring TS and sand lance TS. TS-to-length regressions will be calculated and applied to past surveys in Prince William Sound to obtain more accurate density and biomass estimates, and will serve future acoustic survey efforts of these species in coastal Alaska.		This proposal responds directly to a need identified in the <i>FY 99 Invitation</i> . Obtaining better definitions of target strength for forage fish is essential to completion of work on SEA (Project /320) and APEX (Project /163). The science proposed here is appropriate and strong. A small portion of this project was started in FY 98, and I recommend funding in FY 99.		Fund revised proposal, which focuses on herring and sand lance only. This proposal responds to the <i>FY 99 Invitation's</i> request for proposals for research defining the acoustic strengths of different age classes of herring and other schooling forage fishes. It is essential that this work be done as soon as possible because it is essential to final evaluation of the data collected through the APEX project (/163). The Trustee Council approved a small amount of start-up costs for the project in July 1998. In general, results of this research will improve the assessment of the biomasses of these fish.					

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99470	10 Year Symposium and Related Events and Materials	Restoration Office	ALL	New 1st yr. 1 yr. project	\$170.0	\$0.0	\$0.0	\$0.0	\$170.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
In March 1999, the 10th anniversary of the oil spill, the Trustee Council will sponsor a five-day symposium in Anchorage. The Alaska Sea Grant Program and the Prince William Sound Regional Citizens' Advisory Council will be cosponsors. This public symposium will open with an overview session on the oil spill and the restoration program, followed by more technical sessions. The symposium will be the centerpiece of several related efforts, including a traveling exhibit in spill-region communities and a special edition of the annual status report. This project also includes funding support for two activities of the Oil Pollution Prevention Education Program, an art and essay contest and an informational newspaper. The art and essay contest will be open to school children throughout the spill area. The newspaper will be distributed through school districts in the spill area and at the Alaska SeaLife Center as part of the EVOS exhibit.		Proposal not reviewed.		Fund. This project will fund the Trustee Council's symposium, Legacy of an Oil Spill: 10 Years After Exxon Valdez, scheduled for March 23-27, 1999. Funds are included to conduct an art and essay contest among school children in the spill area, print an informational newspaper for distribution to school districts in the spill area and at the Alaska SeaLife Center, and reproduce and distribute the Council's video on its restoration efforts to school districts statewide.					
99471	Updating the Status of Services Reduced or Lost Due to the Oil Spill	Restoration Office	ADFG	New 1st yr. 1 yr. project	\$195.0	\$0.0	\$0.0	\$0.0	\$195.0
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
The Restoration Plan (1994) identifies four services as lost or reduced by the oil spill -- subsistence, commercial fishing, recreation/tourism, and passive use -- and a recovery objective for each. Although the status of these services was discussed briefly in the <i>Update on Injured Resources and Services</i> (1996), no formal studies have been sponsored by the Trustee Council to measure their recovery. With an eye to the 10 Years After symposium, this project will evaluate the status of each service. Methods include reviewing existing information provided through ongoing EVOS research as well as gathering additional information.		Proposal not reviewed.		Fund. This project will update the status of the reduced/lost services prior to the 10 Years After symposium. The information compiled or collected under this project will be used to revise the Trustee Council's <i>Update on Injured Resources and Services</i> . In addition, study findings will be presented in one or more presentations during the symposium.					

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99476	Effects of Oiled Incubation Substrate on Pink Salmon Reproduction	R. Heintz/NOAA	NOAA	New 1st yr. 3 yr. project	\$74.1	\$75.0	\$36.0	\$0.0	\$185.1
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
<p>This project will examine the effects of oil exposure during embryonic development on the gamete viability of pink salmon that survive to spawn. The objective is to determine if exposure to oil during incubation could explain the reduced gamete viability reported for pink salmon in Prince William Sound under Project /191A. In that study, gametes taken from pink salmon returning to oiled streams had higher mortality rates than gametes taken from salmon in unoiled streams. These data suggest a dramatic effect of oil on vertebrate reproduction that has not previously been described. The plausibility of reduced gamete viability is indicated by the effects demonstrated by Project /191B, which include reduced marine survival and growth of returning adults. However, this effect still requires unequivocal demonstration. This study is designed to make the demonstration and complete a model of life cycle impacts from incubating eggs in oiled gravel.</p>		<p>Although previous attempts to investigate this critical issue have been only partially successful, I support this project because of the importance of testing the effects of oil under controlled laboratory conditions to understand possible damages to pink salmon. The project has been strengthened by a commitment to obtain further assistance in fish reproductive biology to ensure high reproductive success in untreated control group fish. Alternative exposure methods, including use of exposures in the field, should also be investigated thoroughly. The proposal demonstrates excellent cost-sharing. Fund.</p>		<p>Fund revised proposal, which includes the participation of an expert in the reproductive biology of fish. This project will validate the effects of oil contamination on pink salmon, thus contributing to our understanding of the injury to and recovery status of this injured species.</p>					
99479	Effects of Food Stress on Survival and Reproductive Performance of Seabirds	J. Piatt/USGS-BRD, A. Kitaysky/Univ. of Washington	DOI	New 1st yr. 4 yr. project	\$84.7	\$125.2	\$129.6	\$75.0	\$414.5
<u>Project Abstract</u>		<u>Chief Scientist's Recommendation</u>		<u>Trustee Council Action</u>					
<p>This project will measure the rise in blood levels of stress hormones such as corticosterone in response to a standardized stressor: capture, handling and restraint. This well-known response (found throughout vertebrates from fish to mammals) provides a strong assessment of whether or not a free-living population is chronically stressed or, if baseline levels of corticosterone appear normal, the stress-induced increase in corticosterone indicates potential for stress. This "field endocrinology" approach provides exact information on current stress status and the potential for stress in relation to quality and abundance of food. The project will investigate seabirds breeding in lower Cook Inlet.</p>		<p>The original proposal was not viewed as a priority for funding, but corticosterone data that became available this summer from experimental and pilot studies in lower Cook Inlet indicates that blood concentrations of corticosterone in both murrelets and black-legged kittiwakes can reflect food stress. It may be possible, therefore, to estimate food stress in seabird colonies in future studies of the northern Gulf of Alaska. The possible cost efficiencies over establishing long-term field camps to track food availability in nesting seabirds are potentially very significant. Fund.</p>		<p>Fund revised proposal, which deletes Alaska SeaLife Center component in FY 99. This project will explore the use of corticosterone, a biochemical indicator of stress, as a tool to monitor seabird populations. This project will supplement data on food limitations being gathered in the APEX project (/163) and may lead to development of an effective and efficient monitoring technique.</p>					

APPENDIX A: DESCRIPTION OF PROJECTS AND TRUSTEE COUNCIL ACTION

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Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY99 Approved	FY00 Estimate	FY01 Estimate	FY02 Estimate	Total FY99-02
99514	Lower Cook Inlet Waste Management Plan	A. Viteri/ADEC	ADEC	New 1st yr. 1 yr. project	\$54.5	\$0.0	\$0.0	\$0.0	\$54.5

Project Abstract

This project will assess the pollutants reaching the marine environment in proximity to the communities of Port Graham, Nanwalek, and Seldovia and draft recommendations to address each of the identified problems. Following the model of the Sound Waste Management Plan (Project /115) and the Kodiak Island Waste Management Plan (Project /304), this project is designed to address marine pollution from land-based sources and identify methods to help restore injured resources in these coastal communities.

Chief Scientist's Recommendation

As originally proposed, this project would have extended proven waste management strategies to the outer Kenai Peninsula communities. It would first be prudent to conduct a more careful planning effort, and this is what the revised proposal does. Fund.

Trustee Council Action

Fund revised proposal, which reduces the scope of the FY 99 effort to planning and engineering only. The Trustee Council may consider a proposal to contribute to implementation of the project after evaluation of the planning and engineering report. This project is designed to improve handling of used oil in spill-affected villages on the southern Kenai Peninsula. The purpose of the planning and engineering effort will be to document the nature of the problem and customize solutions to the needs of each community and to their commitment to ongoing maintenance.