19.8.3

19.8.3

Photo by Robert Angell

Fiscal Year 2000 Work Plan

January 2000

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

e:mail: restoration@oilspill.state.ak.us web site: www.oilspill.state.ak.us

---

This publication was released by the *Exxon Valdez* Oil Spill Trustee Council and produced at a cost of $2.67 per copy.

Fiscal Year 2000
Work Plan

January 2000

Prepared by:
Exxon Valdez Oil Spill
Trustee Council

BRUCE BOTELHO
Attorney General
State of Alaska

MICHELE BROWN
Commissioner
Alaska Department of
Environmental Conservation

MARILYN HEIMAN
Special Assistant
to the Secretary for Alaska
U.S. Department of the Interior

DAVE GIBBONS
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	Molly McCammon
Mail	*Exxon Valdez* 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
Web Page	www.oilspill.state.ak.us

Fiscal Year 2000 Work Plan

January 2000

Table of Contents

List of Tables

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 2000, and touches on the other activities of the Council as well.

FY 00 marks the beginning of the transition from the current restoration program to a program designed to ensure the long-term health and conservation of resources injured by the spill. In March 1999 the Trustee Council earmarked $55 million of Restoration Reserve funds for future habitat protection and the remainder in the Reserve, an estimated $115 million, for long-term research and monitoring in the spill area and adjacent northern Gulf of Alaska. Planning for the research and monitoring program (referred to as GEM, Gulf Ecosystem Monitoring) is currently underway (Project 00630). Several related projects that focus on specific elements of GEM (for example, developing cost-effective monitoring strategies for various species and a "strawman" data delivery system) are also underway in FY 00.

Synthesizing results of EVOS research conducted to date continues to be a priority. As in past years, a number of projects include funding for preparation of manuscripts to be submitted to independent peer-reviewed journals. To date, 325 EVOS manuscripts have been published. In FY 00, the Sound Ecosystem Assessment, one of the three major ecosystem studies, will be the topic of a special volume of the prestigious journal, *Fisheries Oceanography*. Funding is also provided (Project 00605) to increase public awareness of restoration activities through improvements to the Trustee Council's web site and to educate resource managers about new data and tools available through Council-funded projects.

The FY 00 Work Plan continues other themes begun in earlier years: monitoring the recovery status of species injured by the oil spill (such as the harlequin duck population surveys), researching factors that may be persisting in limiting the recovery of injured resources (such as the effects on pink salmon embryos of persistent oil at intertidal spawning sites), conducting research that should lead to long-term improvements in resource management (such as the pink salmon genome project), and direct restoration of injured resources (such as the Kametolook River coho salmon enhancement project).

The collection of projects funded in FY 00 continues the Trustee Council's commitment to community involvement in the restoration process. The Youth Area Watch program is being expanded from Prince William Sound and lower Cook Inlet to include the seven communities on Kodiak Island. The objectives of the Community Involvement Project will begin to shift toward long-term stewardship

activities, consistent with the restoration program's transition to long-term research and monitoring. Two new projects initiated by local communities will get underway in FY 00: Project 00481 will document impacts of the oil spill on subsistence use of intertidal resources in Chenega Bay and Ouzinkie; Project 00482 will contribute to development of a field test kit for detecting PSP (paralytic shellfish poisoning) in shellfish in the Kodiak area.

Also of interest, the FY 00 Work Plan includes eight 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.

An important continuing trend, integral to transitioning into a program of a size that is sustainable over the long term, is the decrease in the size of the research, monitoring, and general restoration program. Funding for research, monitoring, and general restoration activities will decline in FY 00 (from $11.5 million in FY 99 to $8.3 million in FY 00), as will the administrative costs of the program (from $2.5 million in FY 99 to $2.0 million in FY 00). Agency project management costs also will decline 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 current program to protect habitat important to the recovery of injured resources and services is nearly complete, with purchase of more than 640,000 acres of land and conservation easements. FY 00 funding will support the final steps of the protection process for several remaining small parcels. Also in FY 00, planning is underway for the Council's future habitat protection program, to be funded from the Restoration Reserve. Regarding the Reserve, the Council plans to make an additional $12 million deposit in FY 00, bringing the total in the Reserve to $84 million plus interest.

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 its Public Advisory Group, or if you have comments or suggestions on the Council's restoration efforts.

Sincerely,

Molly McCammon

Molly McCammon
Executive Director

The Work Plan Process

Table 1 describes milestones in development of the FY 00 Work Plan. 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 2000. A few funding decisions were deferred until December and January to allow time for review of results from the FY 99 field season or further deliberation on project objectives and work plan priorities.

Table 1. Milestones for FY 00 Work Plan

Feb. 15, 1999	*Invitation to Submit Restoration Proposals for Federal Fiscal Year 2000* was issued.
April 15, 1999	Restoration Office received 133 research, monitoring, and general restoration proposals requesting $16.4 million for FY 00.
May 16-19, 1999	Chief Scientist and core reviewers met to discuss the scientific and technical merits of proposals.
June 2, 1999	Executive Director discussed proposals with Chief Scientist, Public Advisory Group representatives, and Trustee agencies and formed preliminary recommendations.
June 17, 1999	*FY 00 Draft Work Plan* was distributed for public comment.
July 15, 1999	Public hearing was held on *FY 00 Draft Work Plan.*
July 16, 1999	Public Advisory Group met to advise Trustee Council on work plan.
Aug. 9, 1999	Trustee Council approved 64 research, monitoring, and general restoration projects totaling $7,321,600 for *FY 00 Work Plan*, and deferred projects that required further review or deliberation.
Oct. 1, 1999	Federal fiscal year 2000 (FY 00) began.
Dec. 16, 1999	Trustee Council approved 8 additional research, monitoring, and general restoration projects for *FY 00 Work Plan.* This action brought the FY 00 authorization total to $8,193,200.
Jan. 31, 2000	Trustee Council approved 3 additional research, monitoring, and general restoration projects for *FY 00 Work Plan.* This action brought the FY 00 authorization total to $8,307,900.

Summary of Fiscal Year 2000 Projects

For FY 00, the Trustee Council received 133 research, monitoring, and general restoration proposals requesting a total of $16.4 million. In August and December 1999 and January 2000, the Council authorized 75 projects totaling $8,307,900. 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 00. (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 the Trustee Council has not made a commitment to continue the project in future years because of uncertainty about its scope or its priority in terms of the overall restoration program.)

Many of the projects funded are the continuation of efforts funded in FY 99. 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	25	$2,014,800
Continuing Projects	50	$6,293,100

In addition to funding research, monitoring, and general restoration projects, the Trustee Council authorized funds for the administrative costs of the restoration program ($2.0 million for public information, independent scientific review, and operating expenses), funds for habitat protection support ($373,500, for services such as negotiations, land surveys, and appraisals), and the seventh $12 million payment to the Restoration Reserve.

Table 3. Summary of Funding by Resource Cluster

Resource Cluster	FY 00 Approved	FY 01 Estimate	FY 02 Estimate	Total FY00-02
Pink Salmon	$833.0	$403.1	$240.8	$1,476.9
Pacific Herring	$158.1	$81.7	$0.0	$239.8
SEA and Related Projects	$617.8	$362.5	$150.9	$1,131.2
Sockeye Salmon	$10.3	$0.0	$0.0	$10.3
Cutthroat Trout, Dolly Varden, and Other Fish	$106.1	$0.0	$0.0	$106.1
Marine Mammals	$834.9	$264.5	$0.0	$1,099.4
Nearshore Ecosystem	$840.1	$381.0	$371.0	$1,592.1
Seabird/Forage Fish and Related Projects	$2,143.7	$520.0	$75.0	$2,738.7
Archaeological Resources	$90.2	$0.0	$0.0	$90.2
Subsistence	$1,092.6	$635.6	$439.1	$2,167.3
Reduction of Marine Pollution	$0.0	$0.0	$0.0	$0.0
Habitat Improvement	$24.7	$0.0	$0.0	$24.7
Ecosystem Synthesis/GEM Transition	$1,107.9	$492.5	$25.0	$1,625.4
Public Information/Science Mgt./Admin.	$46.6	$0.0	$0.0	$46.6
Project Management	$401.9	$320.0	$280.0	$1,001.9
Total Research, Monitoring, and General Restoration Projects:	$8,307.9	$3,460.9	$1,581.8	$13,350.6
Habitat Protection/Acquisition Support	$373.5			$373.5
Public Information/Science Mgt./ Admin.	$2,033.9	$1,500.0		$3,533.9
Restoration Reserve	$12,000.0	$12,000.0	$12,000.0	$36,000.0
Other Projects	$0.0			$0.0
Total All Activities:	$22,715.3	$16,960.9	$13,581.8	$52,258.0

Description of Fiscal Year 2000 Projects

This section describes the research, monitoring, and general restoration projects funded by the Trustee Council for FY 00. 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 00. (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 the Trustee Council has not made a commitment to continue the project in future years because of uncertainty about its scope or its priority in terms of the overall restoration program.)

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 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 99) 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.

Restoration Strategies for Fiscal Year 2000

Research and Monitor the Toxic Effect of Oil

- Begin natal habitats project (00454), which will evaluate the recovery status of pink salmon at the stream level.
- Continue gamete viability project (00476), which is validating the effects of oil contamination on pink salmon reproduction.

Provide Management Information and Tools

- Continue genetic linkage project (00190), which will apply the newly developed linkage map for the pink salmon genome to questions related to pink salmon survival.
- Continue remote video and time-lapse recording project (00366), which is developing new techniques for estimating spawner abundance.

Supplement Populations

- Complete Port Dick Creek project (00139A2), which in FY 00 will evaluate the effects of improvements in spawning habitat for pink and chum salmon.

Investigate Ecological Factors that Influence Adult Pink Salmon Returns

- Complete SEA project (00320); this project is discussed in the Sound Ecosystem Assessment cluster.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00139A2	Port Dick Spawning Channel	$46.6	$10.0	$0.0	$56.6
00190	Genome Linkage Map	$331.0	$240.8	$240.8	$812.6
00366	Remote Video and Time-Lapse Recording	$46.5	$12.3	$0.0	$58.8
00454	Persistent Oil in Natal Habitats	$334.1	$104.0	$0.0	$438.1
00476	Effects of Oiled Incubation on Reproduction	$74.8	$36.0	$0.0	$110.8
	TOTAL	$833.0	$403.1	$240.8	$1,476.9

Restoration Strategies for Fiscal Year 2000

Investigate Herring Disease as a Cause of the 1993 Crash

- Continue monitoring project (00462), which is assessing whether disease continues to limit recovery of the Prince William Sound herring population.

Investigate Ecological Factors that Influence Populations of Pacific Herring

- Complete SEA project (00320); this project is discussed in the Sound Ecosystem Assessment cluster.
- Conduct coordination and planning project (00374), which will develop and prioritize future research needs for herring with the assistance of a working group.
- Complete egg distribution and ecology project (00375), which in FY 00 will prepare a manuscript relating available biological data about herring to oceanographic data for Prince William Sound.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00374	Coordination & Planning	$35.5	$0.0	$0.0	$35.5
00375	Egg Distribution & Ecology	$48.0	$0.0	$0.0	$48.0
00462	Disease & Recovery	$74.6	$81.7	$0.0	$156.3
	TOTAL	$158.1	$81.7	$0.0	$239.8

Restoration Strategies for Fiscal Year 2000

Investigate Ecological Factors that Influence Marine Productivity

- Complete Sound Ecosystem Assessment project (00320-BAA), which has studied the natural factors in Prince William Sound that influence the survival of juvenile pink salmon and herring.
- Begin 3-D ocean state simulation project (00389), which will improve understanding of larval herring transport, which is essential for predicting productivity in Prince William Sound.
- Conduct isotope publication project (00541-BAA), which will explore how differences in feeding might explain differences in pink salmon survival rates.

Develop Monitoring Techniques

- Continue pristane monitoring project (00195), which is developing a relatively inexpensive measure of marine productivity.
- Continue food web project (00393-BAA), which is using carbon and nitrogen stable isotope ratios to confirm the relative trophic status of species within the Prince William Sound ecosystem.
- Conduct trawl survey project (00493), which in FY 00 will review existing trawl data and develop a long-term sampling strategy for detecting ecosystem change.
- Begin oceanographic exchange project (00552-BAA), which will sustain data gathering and analysis from the Hinchinbrook Entrance buoy.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00195	Pristane Monitoring	$54.9	$55.0	$55.0	$164.9
00320	SEA	$120.0	$0.0	$0.0	$120.0
00389	3D Ocean State Simulations	$125.3	$72.2	$0.0	$197.5
00393	Food Webs	$153.7	$127.7	$0.0	$281.4
00493	Trawl Sampling Strategies	$34.5	$0.0	$0.0	$34.5
00541	Publication: Isotope Ecology	$15.0	$0.0	$0.0	$15.0
00552	Oceanographic Exchange	$114.4	$107.6	$95.9	$317.9
	TOTAL	$617.8	$362.5	$150.9	$1,131.2

Restoration Strategies for Fiscal Year 2000

Research Effects of Overescapement

- Complete historical analysis project (00048-BAA), which in FY 00 will prepare two manuscripts on the role of sockeye salmon escapements in determining productivity of some freshwater systems.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00048	Historical Analysis	$10.3	$0.0	$0.0	$10.3
	TOTAL	$10.3	$0.0	$0.0	$10.3

Restoration Strategies for Fiscal Year 2000

Provide Management Information

- Conduct satellite tagging project (00478), which is using halibut to test satellite tag technology for its utility in defining critical habitat.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00478	Testing Satellite Tags	$106.1	$0.0	$0.0	$106.1
	TOTAL	$106.1	$0.0	$0.0	$106.1

Restoration Strategies for Fiscal Year 2000

Research and Monitor Harbor Seal Populations

- Complete field monitoring project (00064), which in FY 00 will prepare a report that helps explain the decline in harbor seals in Prince William Sound and documents recent trends.
- Continue community-based biosampling project (00245); this project is discussed in the Subsistence cluster.
- Continue health project (00341), which is studying the effect of diet on the health and body condition of harbor seals under controlled conditions at the Alaska SeaLife Center.
- Continue stable isotope project (00371), which, in collaboration with 00341, will study how stable isotope ratios change over time in relation to diet.
- Continue lipid metabolism project (00441), which, in collaboration with 00341, will study how fatty acid profiles change over time in relation to diet.

Research and Monitor Killer Whale Populations

- Continue killer whale investigation (00012A-BAA), which is analyzing the long-term effects of the oil spill on resident and transient pods of killer whales.

Develop Monitoring Techniques

- Conduct experimental design project (00509), which will recommend improvements to strategies for surveying harbor seal population trends.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00012	Killer Whale Investigation	$82.9			$82.9
00064	Harbor Seal Monitoring	$129.4	$0.0	$0.0	$129.4
00341	Harbor Seal Health and Diet	$216.1	$90.1	$0.0	$306.2
00371	Harbor Seal Stable Isotopes	$163.1	$96.3	$0.0	$259.4
00441	Harbor Seal Lipid Metabolism	$191.6	$78.1	$0.0	$269.7
00509	Experimental Design for Monitoring Harbor Seals	$51.8	$0.0	$0.0	$51.8
	TOTAL	$834.9	$264.5	$0.0	$1,099.4

Restoration Strategies for Fiscal Year 2000

Monitor Recovery

- Complete mussel bed monitoring project (00090), which is evaluating an experimental restoration technique used to clean mussel beds in FY 94.
- Continue sea otter/harlequin duck project (00423), which is investigating evidence of ongoing injury to these two nearshore species.
- Complete Barrow's goldeneye project (00466), which is synthesizing 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 (00025), which in FY 00 will produce a series of manuscripts in the peer reviewed literature.
- Complete river otter project (00348), which in FY 00 will produce three manuscripts on the effects of oil contamination on river otters.
- Complete assessment of risk to residual oil project (00379), which is using two nearshore fishes as indicators of pathways of oil exposure.
- Begin harlequin duck monitoring project (00407), which will assess the recovery of harlequin duck populations inhabiting oiled areas.
- Conduct background hydrocarbon project (00598), which will produce a manuscript clarifying the relative contributions of *Exxon Valdez* oil and coal hydrocarbons to the hydrocarbons measured in Prince William Sound sediments after the spill.
- Conduct Yakataga oil seep project (00599), which will refine existing interpretations of hydrocarbon sources in Prince William Sound.

Monitor the Fate and Persistence of Oil

- Continue hydrocarbon database project (00290), which is analyzing hydrocarbon samples collected through other Trustee Council projects.
- Complete Gulf of Alaska residual oil project (00459), which is monitoring the persistence of oil along the coasts of Kenai Fjords and Katmai national parks.

Develop Monitoring Techniques

- Conduct intertidal project (00510-BAA), which will identify methods for long-term monitoring of intertidal communities.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00025	Nearshore Vertebrate Predators	$196.0	$0.0	$0.0	$196.0
00090	Oiled Mussel Bed Monitoring	$64.0	$0.0	$0.0	$64.0
00290	Hydrocarbon Database	$55.0	$35.0	$35.0	$125.5
00348	River Otter: Oil Contamination	$50.6	$0.0	$0.0	$50.6
00379	Risk Assessment: Residual Oil	$32.1	$0.0	$0.0	$32.1
00407	Harlequin Duck Populations	$63.8	$71.0	$71.0	$205.8
00423	Population Change: Nearshore Vertebrate Predators	$185.4	$265.0	$265.0	$715.4
00459	Residual Oil: Gulf of Alaska	$40.0	$0.0	$0.0	$40.0
00466	Barrow's Goldeneye Recovery	$14.8	$0.0	$0.0	$14.8
00510	Intertidal Monitoring	$48.8	$0.0	$0.0	$48.8
00598	Background Hydrocarbons	$13.5	$0.0	$0.0	$13.5
00599	Yakataga Oil Seeps: Evaluation	$75.6	$10.0	$0.0	$85.6
	TOTAL	$840.1	$381.0	$371.0	$1,592.1

Restoration Strategies for Fiscal Year 2000

Research Mechanisms Limiting Recovery of Seabird Populations

- Continue Alaska Predator Ecosystem Experiment (APEX, 00163), which is investigating the regulation of seabird populations in relation to the availability and quality of forage fish.
- Complete genetics project (00169), which is using genetic techniques to define regional populations of common murres, marbled and Kittlitz's murrelets, and pigeon guillemots.
- Conduct seabird/oceanographic relationships project (00287-BAA), which will study the distribution and abundance of seabirds relative to oceanographic processes.
- Complete sand lance project (00306), which in FY 00 will produce four manuscripts characterizing the ecology, distribution, and demographics of this forage fish.
- Continue pigeon guillemot project (00327), 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 (00338), which is exploring whether the availability and quality of forage fish influence the survival of adult murres and kittiwakes.
- Complete fatty acid/lipid analysis project (00347), which is examining the nutritional consequences of dietary differences in marine mammal prey.
- Continue food stress project (00479), which is exploring the use of corticosterone, a biochemical indicator of stress, as a tool to monitor seabird populations.
- Conduct murrelet habitat use project (00516-BAA), which will produce a manuscript on differences in at-sea habitat use by marbled and Kittlitz's murrelets.

Research and Monitor Seabird Populations

- Complete common murre project (00144A), which is conducting a census of the common murre colonies at the Barren Islands.
- Continue marine bird monitoring project (00159), which in FY 00 will conduct the seventh biennial survey of marine bird abundance in Prince William Sound.

Develop Monitoring Techniques

- Begin protocols project (00501), which will review and test strategies to increase the efficiency and effectiveness of monitoring seabird productivity and populations.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00144A	Common Murres	$15.4	$0.0	$0.0	$15.4
00159	Marine Bird Surveys	$233.6	$37.0		$270.6
00163	APEX	$1,230.1	$200.0	$0.0	$1,430.1
00169	Seabird Genetics	$19.2	$0.0	$0.0	$19.2
00287	Seabird/Oceanographic Relationships	$151.3	$0.0	$0.0	$151.3
00306	Sand Lance Ecology	$20.0	$0.0	$0.0	$20.0
00327	Pigeon Guillemot Research	$192.8	$93.0	$0.0	$285.8
00338	Adult Murre/Kittiwake Survival	$59.7	$46.4	$0.0	$106.1
00347	Fatty Acid/Lipid Analysis	$35.5	$0.0	$0.0	$35.5
00479	Effects of Food Stress	$125.2	$129.6	$75.0	$329.8
00501	Monitoring Protocols	$39.9	$14.0	$0.0	$53.9
00516	Murrelet Habitat Publication	$21.0	$0.0	$0.0	$21.0
	TOTAL	$2,143.7	$520.0	$75.0	$2,738.7

Restoration Strategies for Fiscal Year 2000

Monitor Archaeological Sites

- Complete index site monitoring project (00007A), which in FY 00 will synthesize the results of seven years of monitoring archaeological sites injured by vandalism and oiling related to the spill.

Protect Artifacts from Further Injury and Store Them in Facilities

- Continue archaeological repository project (99154). In January 1999, the Trustee Council authorized $2.8 million for a grant to Chugachmiut, Inc. to develop an archaeological repository in Seward, local display facilities in Chenega Bay, Tatitlek, Cordova, Valdez, Port Graham, Nanwalek, and Seldovia, and traveling exhibits. The purpose of this project is to provide appropriate facilities to store artifacts recovered from Prince William Sound and lower Cook Inlet during the spill response, damage assessment, and restoration efforts and to provide opportunities for people to view these articles and other materials with restoration value. The Council approved full funding for the project in FY 99. Work is expected to continue on the project through FY 02.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00007A	Index Site Monitoring	$90.2	$0.0	$0.0	$90.2
	TOTAL	$90.2	$0.0	$0.0	$90.2

Restoration Strategies for Fiscal Year 2000

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 (00127), which is creating a "put and take" coho salmon run near the community of Tatitlek.
- Complete Port Graham pink salmon project (00225), which is supplying pink salmon in the Port Graham area during the broodstock development phase of the Port Graham hatchery.
- Continue Kametolook River project (00247), which is enhancing a coho salmon run near the community of Perryville.
- Continue Solf Lake project (00256B), which is enhancing production of sockeye salmon in Solf Lake near the community of Chenega Bay.
- Complete Port Graham streams project (00263), which in FY 00 will monitor the success of habitat enhancements constructed in salmon streams near the community of Port Graham.
- Conduct PSP test kit project (00482-BAA), which in FY 00 will optimize the field test kit for the spectrum of Alaskan toxins present in shellfish at key subsistence harvest locations on Kodiak Island.

Enhance or Replace Lost or Reduced Services

- Complete surf scoter project (00273), which is studying the life history and ecology of surf scoters in Prince William Sound, which are important to the subsistence service.
- Continue spot shrimp project (00401), which is studying the abundance of spot shrimp in Prince William Sound, which are important to the subsistence service.

Increase Involvement of Subsistence Users in the Restoration Process

- Continue community involvement/traditional ecological knowledge project (00052), which is facilitating communication and interaction among the Trustee Council, scientists, and residents of communities impacted by the oil spill.
- Continue youth area watch project (00210), 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 (00245), which is collecting harbor seal tissue samples for use by ongoing EVOS projects that are seeking to explain why harbor seals are not recovering.
- Begin video project (00481), which will document impacts of the oil spill on subsistence use of intertidal resources in the Chenega Bay and Ouzinkie areas.
- Begin Kodiak Island youth area watch project (00610), which will extend the Youth Area Watch program to the seven communities on Kodiak Island.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00052	Community Involvement	$201.5	$200.0	$180.0	$581.5
00127	Tatitlek Coho Salmon Release	$11.4	$0.0	$0.0	$11.4
00210	PWS/Cook Inlet Youth Area Watch	$122.0	$107.0	$96.3	$325.3
00225	Port Graham Pinks	$75.0	$0.0	$0.0	$75.0
00245	Harbor Seal Biosampling	$56.5			$56.5
00247	Kametolook River	$23.2	$20.0	$28.0	$71.2
00256B	Solf Lake Stocking	$159.5	$40.0	$40.0	$239.5
00263	Port Graham Streams	$23.4	$0.0	$0.0	$23.4
00273	Surf Scoter Life History	$205.4	$0.0	$0.0	$205.4
00401	Spot Shrimp	$88.7	$95.0	$33.0	$216.7
00481	Intertidal Documentary	$8.6	$111.8	$0.0	$120.4
00482	PSP Test Kit Optimization	$55.6	$0.0	$0.0	$55.6
00610	Kodiak Youth Area Watch	$61.8	$61.8	$61.8	$185.4
	TOTAL	$1,092.6	$635.6	$439.1	$2,167.3

Restoration Strategies for Fiscal Year 2000

Improve Community Waste Management

- Complete lower Cook Inlet waste management project (00514). In FY 99, the Trustee Council funded this project to develop a plan for reducing marine pollution in Nanwalek, Port Graham, and Seldovia. Completion of this plan is expected in FY 00. Following review of the plan, the Council will likely consider a proposal later in FY 00 for implementation of the plan.

Funding Approved for Fiscal Year 2000

Funds (up to $800,000) are expected to be approved during FY 00 for implementation of Project 00514/Lower Cook Inlet Waste Management Plan, but have not yet been approved. [NOTE: This project will be funded outside of the regular FY 00 work plan of research, monitoring, and general restoration projects.]

Restoration Strategies for Fiscal Year 2000

Protect and Restore Habitat

- Complete Kenai habitat restoration project (00180), which is restoring habitat along the Kenai River for the benefit of fish species of commercial and recreational importance.
- Complete human use and wildlife disturbance project (00339), 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 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00180	Kenai River Restoration	$10.7	$0.0	$0.0	$10.7
00339	Human Use Model	$14.0	$0.0	$0.0	$14.0
	TOTAL	$24.7	$0.0	$0.0	$24.7

Restoration Strategies for Fiscal Year 2000

Develop Models of Research Results

- Complete mass-balance model project (00330-BAA), which in FY 00 will produce two manuscripts and distribute the CD-ROM created in FY 99.

Integrate and Synthesize Project Results

- Complete Kachemak Bay ecological characterization project (00278), which is developing a characterization of resources in the Kachemak Bay watershed that will contribute to more informed land use management decisions affecting injured resources.
- Continue Cook Inlet information management project (00391), which aims to improve management of injured and other marine natural resources by facilitating data sharing, resource management, and planning within the Cook Inlet watershed.
- Conduct "lessons learned" project (00530), which will evaluate the effectiveness of the sampling and other studies that were conducted following the oil spill.

Prepare for GEM (Long-Term Research and Monitoring Program)

- Continue long-term oceanographic monitoring project (00340), which is gathering temperature and salinity data that will help researchers evaluate changes in the ecosystem.
- Begin National Research Council project (00360-BAA), which will provide external review of GEM (Gulf Ecosystem Monitoring), the Trustee Council's long-term research and monitoring program.
- Conduct data system evaluation project (00455-BAA), which will investigate the issues related to the creation of a data delivery system for GEM (Gulf Ecosystem Monitoring), the Trustee Council's long-term research and monitoring program.
- Conduct contaminants project (00567), which will lay the groundwork for future monitoring of environmental contaminants under GEM (Gulf Ecosystem Monitoring), the Trustee Council's long-term research and monitoring program.
- Begin GEM planning project (00630), which will conduct the planning and public review necessary to develop GEM (Gulf Ecosystem Monitoring), the Trustee Council's long-term research and monitoring program).

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00278	Kachemak Bay NERRS	$44.1	$0.0	$0.0	$44.1
00330	Mass-Balance Model	$25.3	$0.0	$0.0	$25.3
00340	Oceanographic Monitoring	$65.9	$72.0	$0.0	$137.9
00360	Guidance for Future Research	$304.8	$131.5	$0.0	$436.3
00391	Cook Inlet Monitoring System	$361.0	$239.0	$0.0	$600.0
00455	Data System for GEM	$89.0	$0.0	$0.0	$89.0
00530	Evaluating Scientific Sampling	$78.4	$0.0	$0.0	$78.4
00567	Contaminant Monitoring	$54.7	$0.0	$0.0	$54.7
00630	Planning for GEM	$84.7	$50.0	$25.0	$159.7
	TOTAL	$1,107.9	$492.5	$25.0	$1,625.4

Restoration Strategies for Fiscal Year 2000

Provide Research Results to the Public and Others

- Conduct web project (00414-BAA), which will develop an interactive, we-based system for delivering EVOS research results to the public.
- Conduct information transfer project (00605), which will promote data and tools developed from EVOS research that are relevant to resource management.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00414	Web Project	$26.8	$0.0	$0.0	$26.8
00605	Information Transfer	$19.8	$0.0	$0.0	$19.8
	TOTAL	$46.4	$0.0	$0.0	$46.4

Project Management

The costs of project management in FY 00 are funded through project 00250. 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.

The FY 00 funding level represents a reduction from the amount approved for FY 99 ($454,200). The estimates of funding for FY 01 and FY 02 for project management (see below) also represent reductions, consistent with the reduction in the funding target for the overall work plan.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00250	Project Management	$401.9	$320.0	$280.0	$1,001.9
	TOTAL	$401.9	$320.0	$280.0	$1,001.9

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 00126 continues the support services necessary for these land acquisitions, such as realty staff, appraisals, title reports, on-site inspections, and hazardous materials surveys.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00126	Habitat Acquisition Support	$373.5			$373.5

As of January 2000, the Trustee Council has committed $343 million to protect 635,770 acres of land in large parcels (generally over 1,000 acres each), as follows. Interests in the lands protected by the Council range from acquisition of fee simple title to various forms of conservation easements.

- 23,800 acres within Kachemak Bay State Park, including a highly productive estuary and several miles of anadromous fish streams and intertidal shoreline, from Seldovia Native Association;
- 32,537 acres within the Kenai Fjords National Park and on adjacent islands within the Alaska Maritime National Wildlife Refuge, including valuable coastal habitat, from English Bay Corporation;
- 26,665 acres of prime habitat on Shuyak Island, at the northern tip of the Kodiak archipelago, from the Kodiak Island Borough;
- 41,549 acres of mature spruce forest and highly productive coastal habitat in the Kodiak archipelago, in what has now become Afognak Island State Park, from the Seal Bay Timber Company;
- 41,750 acres of land and conservation easements on northern Afognak Island, including buffers around Paul's and Laura lakes and some of the most highly ranked habitat in terms of restoration value in the spill region, from Afognak Joint Venture;
- 59,674 acres of prime habitat for salmon, bald eagles, bears, and other species in the Kodiak National Wildlife Refuge from Koniag, Inc.; negotiations continue with Koniag, Inc. to permanently protect an additional 55,402 acres of habitat along the Karluk and Sturgeon rivers that is currently protected through 2001 by a temporary nondevelopment easement;
- 115,973 acres within the Kodiak National Wildlife Refuge from Akhiok-Kaguyak, Inc.;
- 31,609 acres of land and conservation easements within the Kodiak National Wildlife Refuge from Old Harbor Native Corporation;

- 59,520 acres of land and conservation easements in Prince William Sound, including parcels at Eshamy Bay and Jackpot Bay, which have some of the highest restoration values in the spill area, from Chenega Corporation;
- 77,477 acres of land, conservation easements, and timber easements, including Port Gravina, Sheep Bay, and Windy Bay, which are considered among the most valuable parcels in Prince William Sound for recovery of species injured by the spill, from Eyak Corporation; and
- 69,814 acres of land and conservation easements, including Bligh Island and Two Moon Bay, which were the third and fourth highest ranked parcels in terms of restoration value in Prince William Sound, from Tatitlek Corporation.

In total, approximately 1,419 miles of coastline and 305 anadromous rivers, streams, and spawning areas have been protected.

The Trustee Council has also spent $19 million to acquire 7,200 acres of habitat in small parcels (generally under 1,000 acres each), and authorized $3.1 million to purchase an additional 1,446 acres in small parcels. These lands are typically located on coves, along important stretches of river, at the mouths of rivers, or adjacent to valuable tidelands, and are often close to spill area communities. These lands are acquired for their habitat qualities as well as their importance for subsistence and recreational use.

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 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.

PUBLIC INFORMATION/SCIENCE MANAGEMENT/ADMINISTRATION

The cost of the administrative functions necessary to efficiently implement the restoration program (project 00100) continues to decline, from a high of $4.1 million in FY 94 to roughly $2.0 million in FY 00. Further reductions are planned through FY 02, consistent with the planned transition to the Restoration Reserve in FY 03.

Project 00100 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.

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00100	Public Info/Science Mgt/ Administration	$2,033.9	$1,500.0		$2,033.9

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 00, the Council approved deposit of $12 million in the reserve account. This brings the total approved for the Reserve to $84 million. Annual deposits of $12 million in each of the next two years would provide a Reserve of $108 million plus interest. Together with other, non-earmarked restoration funds, the Council anticipates a Reserve of $170 million in October 2002.

In March 1999, the Council determined that the two primary uses of the Restoration Reserve funds will be a long-term research and monitoring program in the spill area and adjacent northern Gulf of Alaska and additional habitat protection, especially for small parcels (under 1,000 acres each). The Council earmarked $55 million for future habitat protection. The remainder, an estimated $115 million, was earmarked for research and monitoring. Planning for the long-term research and monitoring program (referred to as GEM, Gulf Ecosystem Monitoring) is currently underway (Project 00630). It is intended to ensure the long-term health and conservation of the spill-affected marine ecosystem, as well as the resources injured by the spill.

A draft of the GEM program was circulated for public review in October 1999 and will be submitted to the National Research Council for scientific peer review in March 2000 (Project 00360). Coincident with development of GEM, more specific efforts that focus on likely elements of the program are also underway in FY 00 (see projects 00340, 00455, 00501, 00509, 00510, 00552, and 00567).

Funding Approved for Fiscal Year 2000

Project Number and Title		FY 00 Approved	FY 01 Estimate	FY 02 Estimate	TOTAL 00-02
00424	Restoration Reserve	$12,000.0	$12,000.0	$12,000.0	$36,000.0

NOTE: During the fiscal years 1994 through 1999, the Trustee Council approved the deposit of $72 million in the Restoration Reserve. The additional $12 million approved for deposit in FY 00 and the $24 million in deposits projected for FY 01- 02 would bring the total in the year 2002 to $108 million plus interest.

How to Read Appendix A --
Description of Projects and Trustee Council Action

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 99. Also, what year FY 00 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 4-year project).
FY 00 Approved	The amount of funding approved by the Trustee Council for federal fiscal year 2000 (October 1, 1999 - September 30, 2000).
FY 01 Estimate	The estimated project cost for FY 01.
FY 02 Estimate	The estimated project cost for FY 02.
Total FY 00-02	Sum of the estimated project cost for all years, beginning in FY 00 and ending with FY 02 or the project's completion, whichever is sooner.
Abstract	A brief summary of the project.
Chief Scientist's Recommendation	The Chief Scientist's recommendation on the project's technical merit.
Trustee Council Action	The Trustee Council's decision on project funding for FY 00.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00007A-CLO	Archaeological Index Site Monitoring	D. Reger/ADNR	ADNR	Cont'd 6th yr. 6 yr. project	$90.2	$0.0	$0.0	$90.2

Project Abstract

Monitoring of archaeological sites on public land injured by vandalism and oiling concentrated on a sample of index sites in the three regions of the spill area. Oiled sites were tested for re-introduced oil. This closeout of the archaeological index site monitoring project will provide a final report of findings and conclusions for the life of the project. It will also see placement of artifact collections and documentation in appropriate repositories.

Chief Scientist's Recommendation

This closeout proposal will provide a valuable record of monitoring and is essential to documenting recovery and restoration activities at archaeological index sites. It is also essential that the final report be a synthesis of all seven years of previous site monitoring (1993-99), and this synthesis should be prepared to allow for presentation of project results at the Alaska Anthropological Association or similar conference. Fund.

Trustee Council Action

Fund revised proposal, which includes presentation of project results at the Alaska Anthropological Association annual conference (or similar conference) and completion of the Restoration Notebook manuscript. The final report will synthesize the results of seven years (1993-99) of monitoring archaeological sites injured by vandalism and oiling related to the oil spill. Collections and supporting documents will also be transferred to repositories for safe storage.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00012A-BAA	Photographic and Acoustic Monitoring of Killer Whales in Prince William Sound and Kenai Fjords	C. Matkin/North Gulf Oceanic Society	NOAA	Cont'd 8th yr. 9 yr. project	$82.9		$0.0	$82.9

Project Abstract

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 continues interpretation of previous data and data collected with matching funds. It provides for publication of the results from this multi-year examination of killer whale population biology, acoustics, trophic interactions, spatial and temporal distribution patterns, and contaminant accumulation.

Chief Scientist's Recommendation

This project will sustain monitoring of killer whales that has been ongoing since the spill. The AB pod has shown a net gain in individuals since 1994 when it reached its lowest level, but its recovery, as well as the status of the AT1 pod, continues to be of concern. The hydrophone at the Alaska SeaLife Center is a worthwhile educational undertaking. Fund, but funding should be contingent on delivery of the four manuscripts promised in FY 98 and FY 99 (critical habitats, genetic isolation, effective population sizes, and niche partitioning).

Trustee Council Action

Fund revised proposal, which deletes the genetics and call comparison components, contingent on submittal of the four manuscripts promised for FY 98 and FY 99, as outlined in the Chief Scientist's recommendation. Future funding will depend on review of the FY 00 results and progress on publishing manuscripts. 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.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00025-CLO	Mechanisms of Impact and Potential Recovery of Nearshore Vertebrate Predators (NVP)	L. Holland-Bartels/ USGS-BRD, et al	DOI	Cont'd 6th yr. 6 yr. project	$196.0	$0.0	$0.0	$196.0

Project Abstract

FY 00 will be dedicated to revising portions of the FY 99 final report for publication in peer reviewed journals. Nine manuscripts are slated to be published collectively and 13 additional manuscripts will be submitted to separate journals in FY 00. Funds will be used for responding to review comments, final analysis, and preparation of scientific journal articles. This six-year 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.

Chief Scientist's Recommendation

Publication of the synthesis manuscripts should be the primary focus for this project, with secondary consideration for other manuscripts and conference attendance, in that order. Fund.

Trustee Council Action

Fund. This will be the final Trustee Council contribution to this multi-year project, which is determining 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 final report was prepared in FY 99. FY 00 will be devoted to publication of manuscripts in the peer reviewed literature.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00048-BAA	Publication: Historical Analysis of Sockeye Salmon Growth Among Populations Affected by the Oil Spill and Large Spawning Escapements	G. Ruggerone/NRC, Inc., D. Rogers/Univ. Wash.	NOAA	Cont'd 2nd yr. 2 yr. project	$10.3	$0.0	$0.0	$10.3

Project Abstract

Trustee Council funded research by Ruggerone and Rogers (Project 96048) demonstrated that large spawning escapements can have long-term impacts on sockeye growth and adult returns. The findings have new and important consequences for stock-recruitment modeling, which is the basis for determining escapement levels that allow for maximum sustained harvest. The research also demonstrated that marine growth of sockeye salmon increased after the mid-1970s, corresponding to the increase in salmon production throughout Alaska and the ocean regime shift that has impacted numerous species. This project will fund preparation of two manuscripts for publication in peer reviewed journals.

Chief Scientist's Recommendation

This project has established the role of sockeye salmon escapements in determining productivity of some freshwater systems and documented lingering effects of the oil spill for up to three years. This extremely important evidence on growth and recruitment and ocean regime shifts needs to be published. Fund.

Trustee Council Action

Fund. The final report on the original project (96048, which established the role of salmon escapements in determining productivity of some freshwater systems) has been accepted by the Chief Scientist. FY 00 funding will provide for the project results to be published in the peer reviewed literature (two manuscripts will be prepared).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00052	Community Involvement/Traditional Ecological Knowledge	P. Brown- Schwalenberg/CRRC	ADFG	Cont'd 6th yr. 8 yr. project	$201.5	$200.0	$180.0	$581.5

Project Abstract

In FY 00, the Spill Area-Wide Coordinator will continue to actively involve residents of Tatitlek, Chenega Bay, Port Graham, Nanwalek, Cordova/Eyak, Seward, Seldovia, Valdez, Kodiak/Ouzinkie, and Chignik Lake in the restoration program through direct communication with a network of local facilitators. In addition, the project will initiate the process of integrating the duties of the Community Facilitators into the villages'Tribal Natural Resource Management Program. The Chugach Regional Resources Commission will work with five pilot communities (Eyak, Tatitlek, Ouzinkie, Port Graham, and Nanwalek) to initiate a stewardship program that will assist in the recovery of injured resources and services. This will be accomplished through two workshops, one involving Natural Resource Specialists from tribal organizations in Alaska and the nation and the other involving the Community Facilitators, Natural Resource Specialists, EVOS researchers, and Trustee Council staff.

Chief Scientist's Recommendation

This project involves subsistence users in the restoration program. The proposed integration of the EVOS Community Facilitators into tribal natural resource programs is also highly desirable. This proposal is well prepared and ambitious, and project personnel are strong. Last year future funding of this project was to be dependent on review of FY 99 results. The project has shown increased accountability in FY 99. Fund.

Trustee Council Action

Fund. This project, which in FY 00 would merge the objectives of projects /052A (Community Involvement) and /052B (Traditional Ecological Knowledge), addresses the Trustee Council's goal of facilitating communication among the Council, scientists, and residents of the spill area. In FY 00, objectives related to long-term stewardship of resources are added, with an emphasis in five pilot communities (Tatitlek, Port Graham, Ouzinkie, Nanwalek, Cordova/Eyak) on integrating the duties of the Community Facilitator with the functions of the villages' Natural Resource Specialists. These new objectives are designed with the Trustee Council's long-term research and monitoring program in mind.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00064-CLO	Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in Prince William Sound	K. Frost/ADFG	ADFG	Cont'd 6th yr. 6 yr. project	$129.4	$0.0	$0.0	$129.4

Project Abstract

This project is the final year of an effort to monitor the status of harbor seals in Prince William Sound and investigate the hypothesis that food limitation to pups and juveniles has caused the ongoing decline. Aerial surveys will be conducted during molting to determine whether the population continues to decline, stabilizes, or increases. Trend analysis using Bayesian statistics will be completed and a manuscript submitted for publication. No additional field work other than the aerial surveys will be conducted. Fatty acids analysis will be conducted on blubber samples collected during Summer 1999, and development of mathematical models will be continued to estimate seal diets and whether they have changed both within the 1990s and since the 1970s.

Chief Scientist's Recommendation

The majority of the remaining work to close out this project will be data analysis and manuscript preparation. Continued monitoring beyond FY 00 may be appropriate under a new project. Fund.

Trustee Council Action

Fund. This project has found that the decline in harbor seal populations has slowed in recent years and the Prince William Sound harbor seal population may be stabilizing. Project reports will help explain the decline in harbor seals in Prince William Sound and document recent trends. Study results will help resource managers, subsistence users and others focus their efforts to protect harbor seal populations on the most probable causes of the decline.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00090-CLO	Monitoring of Oiled Mussel Beds in Prince William Sound	P. Harris, C. Brodersen/NOAA	NOAA	Cont'd 2nd yr. 2 yr. project	$64.0	$0.0	$0.0	$64.0

Project Abstract

This project is assessing the recovery of 28 mussel beds in Prince William Sound that still had significant concentrations of oil when last sampled in 1995 or 1996. In FY 99, hydrocarbon concentrations are being measured in mussels, other invertebrates, and sediments and densities of mussels and other selected invertebrates are being monitored in these beds. Oiled sediments were replaced with clean sediments in 12 of the beds in 1994. Sampling in 16 beds that were not restored will document rates of natural recovery. In FY 00, the chemical analysis of samples collected in FY 99 will be completed and a final report prepared.

Chief Scientist's Recommendation

It is important to monitor hydrocarbon concentrations at oiled mussel beds, including those cleaned on an experimental basis. This work will be accomplished in FY 99, and the current proposal will analyze samples in the laboratory and prepare a final report. Fund.

Trustee Council Action

Fund, including analysis of sediment samples for variance within oiled beds as recommended by the peer reviewers. This project is evaluating an experimental restoration technique used to clean mussel beds in FY 94. In FY 00, samples collected in FY 99 will be analyzed and a final report and two manuscripts will be prepared.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00100	Public Information, Science Management, and Administration	All Trustee Council Agencies	ALL	Cont'd	$2,033.9	$1,500.0		$3,533.9

Project Abstract

This project provides overall support for science management, public involvement, and administration of the restoration program. This 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 active participation of the 17-member Public Advisory Group (PAG), and Trustee agency participation in the restoration program.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund. This project provides overall support for administration and implementation of the restoration program. The FY 00 budget is reduced from the FY 99 authorization of $2,495.7. [NOTE: This project will be funded outside of the regular FY 00 work plan of research, monitoring, and general restoration projects.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00126	Habitat Protection and Acquisition Support	C. Fries/ ADNR, K. Holbrook/USFS, G. Elison/DOI	ADNR	Cont'd	$373.5			$373.5

Project Abstract

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. The Council has completed acquisition packages with 11 large parcel landowners resulting in the protection of over 635,000 acres of land. Negotiations are continuing with Koniag, Inc. for acquisition of fee title to the 55,402 acres that are now under a limited conservation easement slated to expire in 2001. In addition, the Council has reached closure on the acquisition of 47 small parcels encompassing 7,240 acres. Negotiations and closing activities continue with multiple phases of several large parcel acquisitions and several small parcel landowners.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund. This project provides support for the habitat protection program, including negotiation staff, appraisals, closing costs, etc. A total of $770.4 was authorized for this purpose in FY 99; the Trustee Council's land acquisition effort will be scaled back significantly in FY 00, making a reduced budget appropriate. [NOTE: This project will be funded outside of the regular FY 00 work plan of research, monitoring, and general restoration projects.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00127	Tatitlek Coho Salmon Release	G. Kompkoff/Tatitlek IRA Council	ADFG	Cont'd 6th yr. 6 yr. project	$11.4	$0.0	$0.0	$11.4

Project Abstract

This project is creating a coho salmon return to Boulder Bay near Tatitlek village. Enough coho eggs to produce 50,000 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. FY 00 funding will extend the project for an additional year beyond the originally scheduled termination date. Funds for continuation of the project beyond FY 00 will be obtained from other sources.

Chief Scientist's Recommendation

This funding would extend this successful and popular subsistence project for one more year at a very nominal cost. Fund.

Trustee Council Action

Fund. Although the Trustee Council had initially planned to fund this temporary replacement project only through FY 99 (through one coho life cycle), one additional year of Council funding will keep the project going until funds from other sources become available in FY 01. Tatitlek residents report that the coho salmon produced through this project are being used by subsistence and sport fishermen.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00139A2	Port Dick Creek Tributary Restoration and Development	W. Bucher/ADFG	ADFG	Cont'd 5th yr. 6 yr. project	$46.6	$10.0	$0.0	$56.6

Project Abstract

Because Port Dick Creek experienced declines in total returns since 1987, the Alaska Department of Fish and Game conducted a five-year feasibility analysis and initiated Trustee Council funded efforts to restore spawning habitat in two former tributaries taken out of production by the 1964 Alaska earthquake. Approximately 3,000 cubic meters of material was excavated from both tributaries, and since 1996 over 3,300 pink and chum salmon have colonized and spawned in the new habitat. To date, spawning adults of both species potentially deposited over 5,000,000 eggs with over 458,000 fry estimated emerging from the tributaries. In FY 00, additional sedimentologic parameters (bedload transport, accumulated sediments and gravel/cobble transport rates) will be further evaluated to support the stability analyses of the project.

Chief Scientist's Recommendation

This proposal is for a final year of basic monitoring of a very successful stream-bed restoration project at Port Dick Creek. This monitoring should be carried out and a manuscript prepared summarizing the results. Fund.

Trustee Council Action

Fund. FY 00 will fund one additional year of streambed stability monitoring of habitat improvements made to Port Dick Creek as well as preparation of the final report and a manuscript for publication in a peer reviewed journal. The habitat improvements were designed to increase available spawning habitat and thus provide additional pink and chum salmon for commercial harvest as a replacement for salmon lost in the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00144A-CLO	Common Murre Population Monitoring	D. Roseneau/USFWS	DOI	Cont'd 5th yr. 5 yr. project	$15.4	$0.0	$0.0	$15.4

Project Abstract

This project will analyze Barren Islands murre census data collected in FY 99 and prepare a final report comparing FY 99 results with counts made during the 1993-97 Barren Islands murre population monitoring studies (projects 93049, 94039, 96144, 97144), the 1989-92 damage assessment and restoration studies (projects B3, R11), and 1990-92 Exxon-sponsored studies. The final report will contain data on murre productivity at the Barren Islands 1989-99, discuss these data in relation to trends in population size during the same interval of time, and discuss changes in numbers of birds that may have occurred at the nesting colonies because of recent El Nino and La Nina events.

Chief Scientist's Recommendation

This project will prepare a final report and manuscript integrating results from previous Barren Islands surveys with FY 99 data. Common murres were heavily impacted by the oil spill, and the work at the Barren Islands over the last decade has been essential to understanding injury to and recovery of this species. This study should be closed out, including publication of a manuscript in a peer reviewed journal. Fund.

Trustee Council Action

Fund. This project will conclude in FY 00 with production of a final report on the FY 99 census of common murres on the Barren Islands and a manuscript on post-spill trends in murre population numbers. The FY 97 census of murres on the Barren Islands provided convincing evidence that their populations were increasing. The final report on the FY 99 census and comparison of results with earlier studies will help determine if common murres have fully recovered from the effects of the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00159	Surveys to Monitor Marine Bird Abundance in Prince William Sound During Winter and Summer 2000	B. Lance, D. Irons/USFWS	DOI	Cont'd 7th yr. 9 yr. project	$233.6	$37.0		$270.6

Project Abstract

This project will conduct small boat surveys to monitor abundance of marine birds and sea otters in Prince William Sound during March and July 2000. Six previous surveys have monitored population trends for more than 65 bird and eight marine mammal species in Prince William Sound. Data collected in 2000 will be used to continue to examine trends from summer 1989-00 and from winter 1990-00 by determining whether populations in the oiled zone changed at the same rate as those in the unoiled zone. Overall population trends for Prince William Sound from 1989-00 will be examined. Data collected in 1998 indicate that none of the designated injured species showed evidence of recovery in either winter or summer populations from 1989-1998.

Chief Scientist's Recommendation

This project will conduct a seventh round of boat surveys for marine bird and mammal species. These surveys are a primary means of monitoring injury to and recovery of many injured species. The methods and data analysis are well established, and the principal investigators have done a good job publishing the survey results. Although the project is expensive, the cost per species is low. Fund.

Trustee Council Action

Fund. This project will conduct the seventh biennial survey of marine bird abundance in Prince William Sound. These surveys are the primary means of monitoring the recovery of several seabird species and other wildlife. Costs estimated for FY 01 include preparation of a report on the FY 00 survey. Funding requests for additional surveys (FY 02 and beyond) will be considered in the context of GEM (Gulf Ecosystem Monitoring, the Trustee Council's long-term research and monitoring program currently under development).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00163-CLO	Alaska Predator Ecosystem Experiment in Prince William Sound and the Gulf of Alaska (APEX)	D. Duffy/Paumanok Solutions, et al	NOAA	Cont'd 7th yr. 8 yr. project	$1,230.1	$200.0	$0.0	$1,430.1

Project Abstract

This project will close out (data analysis, final report writing, and some manuscript preparation) Project /163, which is using seabirds as probes of the trophic (foraging) environment of Prince William Sound and comparing their reproductive and foraging biologies, including diet, with similar measurements from Cook Inlet, an area with apparently a more suitable food environment. These measurements are being 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 is being used to detect shifts in forage fish abundance and to test hypotheses explaining such shifts.

Chief Scientist's Recommendation

In FY 00, this project will produce a final report consisting of individual subproject syntheses and including some manuscripts for publication. A modest amount of additional funding will be needed in FY 01 to prepare a synthesized report for publication in an appropriate journal. Fund.

Trustee Council Action

Fund closeout of this project. Work expected in FY 00 includes preparation of a final report, consisting in part of manuscripts to be submitted to peer reviewed journals. A proposal to fund revision of the final report following peer review and preparation of a set of synthesis manuscripts is expected in FY 01.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00169-CLO	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 4th yr. 4 yr. project	$19.2	$0.0	$0.0	$19.2

Project Abstract

Populations of common murres, pigeon guillemots, and marbled and Kittlitz's murrelets suffered high mortalities following the oil spill. In FY 00, this project will finish molecular analyses to measure genetic differentiation and gene flow among colonies of these species. The project will aid restoration by (a) determining the geographic limits of populations affected by the spill, (b) identifying sources and sinks, and (c) 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.

Chief Scientist's Recommendation

This project has the potential to significantly benefit assessment of the original injury to seabirds and to inform design of the Trustee Council's long-term monitoring program (GEM or Gulf Ecosystem Monitoring, which is currently under development). Preliminary results from this project are interesting and this closeout effort should be funded.

Trustee Council Action

Fund closeout (data analysis and preparation of a final report). 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 spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00180-CLO	Kenai Habitat Restoration and Recreation Enhancement	M. Rutherford/ADNR	ADNR	Cont'd 5th yr. 5 yr. project	$10.7	$0.0	$0.0	$10.7

Project Abstract

This project will fund final report writing for Project /180. Adverse impacts to the banks of the Kenai River total approximately 19 miles of the river's 166-mile shoreline. Included in this total are 5.4 river miles of degraded shoreline on public land. Riparian habitats have been impacted by trampling, vegetation loss and structural development. This riparian zone provides important habitat for pink salmon, sockeye salmon and Dolly Varden, species injured by the oil spill. The project's objectives were 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 included revegetation, streambank restoration, elevated boardwalks, floating docks, access stairs, fencing, signs, and educational interpretive displays.

Chief Scientist's Recommendation

This project will complete the final report on the Kenai River restoration work, in which the Trustee Council has made a substantial investment. Fund.

Trustee Council Action

Fund. FY 00 will be devoted to completion of the final report on this project, which since FY 96 has provided nearly $2 million to restore habitat along the Kenai River for the benefit of sockeye salmon and other fish species of commercial and recreational importance.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00190	Construction of a Linkage Map for the Pink Salmon Genome	F. Allendorf/Univ. Montana	ADFG	Cont'd 5th yr. 7 yr. project	$331.0	$240.8	$240.8	$812.6

Project Abstract

This project will continue experiments at the Alaska SeaLife Center that apply a genetic linkage map, which was constructed during the first four years of the project, 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 survival). The map will be used to evaluate the potential impact of hatchery-raised fish on the fitness of wild stocks. Sexually mature adults from the 1998 cohort produced from wild pink salmon collected from Likes Creek will return to the SeaLife Center in August 2000. Genotypes in released fry and returning adults will be compared to test for genetic differences in marine survival and other life history traits (e.g., body size, egg number, and egg size).

Chief Scientist's Recommendation

This project will apply the newly developed linkage map for the pink salmon genome to the question of what mapped traits or genomic regions confer maximal survival. This has direct applicability to determining the potential effects of intermingling of wild and hatchery-raised fish, as occurs in Prince William Sound. In the long term, the map provides a powerful means to test for traits and to map those traits that determine growth and survival. Fund.

Trustee Council Action

Fund. In FY 00, this project will apply the newly developed linkage map for the pink salmon genome to the question of what mapped traits or genomic regions confer maximal survival on pink salmon, a question of importance to fisheries managers. [NOTE: Funding includes $104.5 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00195	Pristane Monitoring in Mussels	J. Short, P. Harris/NOAA	NOAA	Cont'd 5th yr. 7 yr. project	$54.9	$55.0	$55.0	$164.9

Project Abstract

Comparison of marine survival determined from adults returning to hatcheries, with pristane concentration increases in mussels collected from sampling stations within 25 kilometers of hatcheries before and two to three weeks after release of juveniles, showed that 33 percent of the interannual survival variability is explained by pristane increases. This is sufficient to provide an independent basis for marine survival forecasts, which may be improved by additional monitoring stations to geographically optimize coverage near hatcheries. Beginning in FY 00, marine survival forecasts will be compared with actual survivals of hatchery-released juvenile pink salmon to evaluate the reliability of these forecasts as a salmon management tool. The applicability of these forecasts to wild-stock management will also be assessed, using hatchery survivals as a regional surrogate for wild-stock survivals.

Chief Scientist's Recommendation

This project will continue previously funded work on pristane concentrations in mussels as a tool for monitoring copepod concentrations available to pink salmon juveniles. Recent analyses have revealed a relationship between pristane concentrations in mussels near hatcheries and survival of hatchery-released pink salmon (as returning adults). The increase in the budget from the original request is justified based on the need for increased sampling to further refine the predictive relationships. Fund.

Trustee Council Action

Fund revised Detailed Project Description, which increases the sampling frequency during April and May and increases the density of monitoring stations near the hatcheries. The increase in scope will increase the precision of pristane monitoring as a forecasting tool. This project is developing a relatively inexpensive measure of marine productivity, thus allowing predictions about future fisheries production and harvest levels.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00210	Youth Area Watch	R. Sampson/Chugach School District	ADFG	Cont'd 5th yr. 7 yr. project	$122.0	$107.0	$96.3	$325.3

Project Abstract

This project links students in the oil spill impacted area with research and monitoring projects funded by the Trustee Council. The project involves students in the restoration process and provides these individuals the skills to participate in restoration now and in the future. Youth conduct research identified and delegated by principal investigators who have indicated interest in working with students. Youth Area Watch fosters long-term commitment to the goals set out in the restoration plan and is a positive community investment in that process. Participating communities in FY 00 will be Tatitlek, Chenega Bay, Cordova, Nanwalek, Port Graham, Seldovia, Seward, Valdez, Whittier and a

Chief Scientist's Recommendation

This is a highly successful project that involves young people from local communities in restoration projects. The proposers have reduced the budget as requested and have obtained significant cost sharing. Fund.

Trustee Council Action

Fund. This project is designed to involve local youth in restoration projects. In FY 00, youth in Chenega Bay, Cordova, Nanwalek, Port Graham, Seldovia, Seward, Tatitlek, Valdez, and Whittier will participate.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00225	Port Graham Pink Salmon Subsistence Project	E. Anahonak/Port Graham IRA Council	ADFG	Cont'd 5th yr. 5 yr. project	$75.0	$0.0	$0.0	$75.0

Project Abstract

This project is helping to 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 resources, are at low levels, pink salmon are being heavily relied on for subsistence. This project is helping to 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.

Chief Scientist's Recommendation

This project has been producing replacement fish for harvest, while a self-sustaining program is being developed for longer-term fisheries enhancement. The science underlying this project has been adequate, but it is disappointing that the promised thermal marking did not occur in FY 99. Fund.

Trustee Council Action

Fund. FY 00 will be the final year of Trustee Council contribution to this project, which 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. Broodstock development is expected to be completed in FY 00.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00245	Community-Based Harbor Seal Management and Biological Sampling	V. Vanek/ADFG, M. Riedel/Alaska Native Harbor Seal Commission	ADFG	Cont'd 7th yr. 9 yr. project	$56.5			$56.5

Project Abstract

Under this project, village-based technicians are selected by the Alaska Native Harbor Seal Commission and trained by the Alaska Department of Fish and Game to collect biological samples from harbor seals. The samples are transported to Anchorage or Kodiak for further sampling and distribution to participating scientists for analysis. In FY 00, the sample collection program in Prince William Sound, lower Cook Inlet, and around Kodiak Island will continue. A training initiative will take place in a Chignik area community (Alaska Peninsula). The Alaska Native Harbor Seal Commission will produce and distribute a newsletter with summaries of the biological sampling program.

Chief Scientist's Recommendation

This project involves communities and subsistence users in providing samples that could not otherwise be obtained by harbor seal scientists. The project is popular and meeting its objectives. Before there is a funding commitment beyond FY 00, there should be further review of this project and its significance for other harbor seal work sponsored by the Trustee Council. Fund.

Trustee Council Action

Fund. 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 restoration projects that seek to explain why harbor seals are not recovering. Funding in FY 01 and beyond should be contingent on review of this project and its relevance to future harbor seal restoration projects. FY 00 will be the final year of sampling for current harbor seal projects.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00247	Kametolook River Coho Salmon Subsistence Project	J. McCullough, L. Scarbrough/ADFG	ADFG	Cont'd 4th yr. 6 yr. project	$23.2	$20.0	$28.0	$71.2

Project Abstract

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 02 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, in conjunction with self-imposed harvest limits by subsistence users, to rebuild the depressed coho salmon stock needed for subsistence in the Kametolook River.

Chief Scientist's Recommendation

This ongoing project is proceeding as planned. Fund.

Trustee Council Action

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 other subsistence resources lost or reduced due to the oil spill. The project has a strong community involvement component. Trustee Council funding is expected through FY 02, at which time the run is expected to be self-sustaining.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00250	Project Management	All Trustee Council Agencies	ALL	Cont'd	$401.9	$320.0	$280.0	$1,001.9

Project Abstract

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. Tasks performed by project managers include coordinating activities between principal investigators and the Restoration Office, reviewing project expenditure activity, assisting in the development of project budgets, and tracking project reports.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund. The FY 00 funding level is a reduction from the amount approved for FY 99 ($454.2). Funding for project management in FY 01 and FY 02 is expected to decline further, consistent with the decline in the annual funding targets for the overall work plan. A decision on whether or not to provide any project management funds once funding has shifted to the Restoration Reserve (FY 03 and beyond) has not yet been made. Project management provides essential accountability for the work plan process.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00256B	Sockeye Salmon Stocking at Solf Lake	D. Gillikin/USFS, P. Shields/ADFG	USFS	Cont'd 5th yr. 7 yr. project	$159.5	$40.0	$40.0	$239.5

Project Abstract

This project will benefit subsistence, recreation, and commercial users of western Prince William Sound. There are two phases to the project: Phase 1, which began in FY 96, verified the ability of Solf Lake to support a sustainable population of sockeye salmon. Phase 2 included stocking the lake with approximately 100,000 sockeye salmon fry, then ensuring access to the lake for returning adult salmon. The stocking program began in 1998 along with modification to the two outlets to control water levels. However, further modifications to the eastern channel are still required to ensure adult returns to Solf Lake.

Chief Scientist's Recommendation

This is the proposed continuation of a sockeye supplementation project for Solf Lake. Enhanced production of sockeye salmon in the lake may be of importance to subsistence users, and should provide substantial recreational benefits for the expected increased number of visitors to Prince William Sound in the near future. Funds in FY 00 will be used to complete improvements to the channel providing access to Solf Lake for returning adults, to continue stocking the lake with sockeye fry, and to monitor food resources in the lake for rearing salmon. Project funding should be contingent on provision of detailed engineering drawings for the fish pass prior to construction. Fund.

Trustee Council Action

Fund contingent on (a) receipt of a letter from the state geneticist at the Alaska Department of Fish and Game explaining the genetic risks of the stocking under this project, which are considered to be very low and (b) provision of detailed engineering drawings of the fish pass prior to construction. This project is intended to provide sockeye salmon as a replacement for resources lost or reduced due to the oil spill. 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 FY 02. Recreational, commercial, and subsistence fishers should all benefit from this project.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00263	Assessment, Protection and Enhancement of Salmon Streams in Lower Cook Inlet	W. Meganack, Jr./Port Graham Corporation	ADFG	Cont'd 4th yr. 4 yr. project	$23.4	$0.0	$0.0	$23.4

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. In FY 98, two projects were constructed: a fish pass on the Port Graham River and rearing ponds for coho salmon on Windy Creek Left. In FY 99, vegetation is being planted around the rearing ponds. In FY 99 and FY 00, the success of the two projects will be monitored by surveying use by anadromous fish. Local subsistence users are being employed as technical assistants during construction and monitoring.

Chief Scientist's Recommendation

This project will produce a qualitative assessment of restoration undertaken in FY 98 to enhance anadromous fisheries. Fund.

Trustee Council Action

Fund revised proposal, which clarifies the methods to be used. FY 00 will be the final year of Trustee Council funding for this project, which is protecting and enhancing salmon streams important to the restoration of subsistence in the Port Graham area. FY 00 funding includes preparation of a final report.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00273	Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource	D. Rosenberg/ADFG	ADFG	Cont'd 3rd yr. 3 yr. project	$205.4	$0.0	$0.0	$205.4

Project Abstract

This project will study the life history and ecology of surf scoters that over-winter in or migrate through Prince William Sound. 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. To reduce mortality rates, scoters will be transported to the Alaska SeaLife Center for surgery and recuperation. Dialogue with community members will continue in order to collect traditional ecological knowledge and convey project information. Participation of local students will be encouraged through the Youth Area Watch project (/210).

Chief Scientist's Recommendation

This project aims to provide basic life history information on surf scoters, which are valuable subsistence resources in Prince William Sound and Cook Inlet. The principal investigator has done an excellent job of working with local communities and documenting traditional knowledge about this species. The first year of effort (FY 98) suggested that there may be linkages between migrant and/or wintering scoters in Prince William Sound and breeding areas as far away as the Canadian Arctic. The concern about high short-term mortality following transmitter implants has resulted in an alteration of study plans to ensure better survival. Now post-operative birds will be kept at the Alaska SeaLife Center. This has resulted in slightly higher costs, but they are justified. Fund.

Trustee Council Action

Fund revised proposal, which addresses the short-term mortality in birds in which transmitters have been implanted by arranging for the birds to be transported to the Alaska SeaLife Center for surgery and recuperation. This project is studying the life history and ecology of surf scoters in Prince William Sound 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 resources 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 service of subsistence. The principal investigator is to be commended for working closely with community residents on this project. [NOTE: Funding includes $23,900 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00278	Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet	G. Seaman/ADFG	ADFG	Cont'd 2nd yr. 2 yr. project	$44.1	$0.0	$0.0	$44.1

Project Abstract

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 (a) an ecosystem narrative description, (b) a spatial data component using a Geographic Information System (GIS), and (c) 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 (a) improve accessibility of ecological information to the public, researchers, and managers, (b) assist in the use and protection of land, (c) plan for a possible long-term ecological monitoring and research program in the Northern Gulf of Alaska, and (d) assist in agency management and planning for the lower Cook Inlet area.

Chief Scientist's Recommendation

This proposal completes a two-year project to develop a characterization of resources in the Kachemak Bay watershed that will contribute to more informed land use management decisions affecting injured resources. There is excellent collaboration and cooperation with scientists and stakeholders. Fund.

Trustee Council Action

Fund. This project is a part of the Kachemak Bay watershed management program being developed through the National Estuarine Research Reserve process. It will improve the ability to sustain fish and wildlife resources in the region and thus enhance resources and services injured by the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00287-BAA	Seabird-Oceanographic Relationships in the Northern Gulf of Alaska: Integration with NSF/NOAA Study GLOBEC	R. Day/ABR, Inc.	NOAA	New 1st yr. 1 yr. project	$151.3	$0.0	$0.0	$151.3

Project Abstract

This project will conduct a study of seabirds in the Northern Gulf of Alaska (Aialik Bay to Montague Island) by using a ship-of-opportunity sampling platform that is being used by the National Science Foundation/National Oceanographic and Atmospheric Administration project GLOBEC (U.S. Global Ocean Ecosystem Dynamics), which also will provide access to an extensive series of oceanographic data. This project is designed to identify ecological processes affecting temporal (seasonal and interannual) and geographic variability in the distribution and abundance of seabirds, including several species that were injured by the oil spill. It also will be useful to the restoration program by providing data on the year-round status of seabird populations and the processes that influence variability in their numbers.

Chief Scientist's Recommendation

This is a good basic project that ties data on the distribution and density of seabirds to environmental data in the Gulf of Alaska. The project takes advantage of a ship of opportunity supported by the GLOBEC (U.S. Global Ocean Ecosystem Dynamics) program. In addition, the proposer has funded gathering of these seabird data for two years of GLOBEC cruises. Thus, for one year of Trustee Council support, we can obtain three years of data. The project may be valuable in contributing to the development of a long-term monitoring program (GEM, Gulf Ecosystem Monitoring), and it will help plug information gaps about injured species, such as the Kittlitz's murrelet. Fund.

Trustee Council Action

Fund revised proposal, which deletes the August cruise. This project will study the distribution and abundance of seabirds relative to oceanographic processes. The proposed study will complement APEX (Project /163), contribute to the design of a long-term ecosystem monitoring program (currently under development by the Trustee Council as GEM, or Gulf Ecosystem Monitoring), and provide more information about the Kittlitz's murrelet, an injured species about which little is known. This project is also cost-effective in that the final report will summarize the results of three years of study, the first two of which were carried out without Trustee Council funding.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00290	Hydrocarbon Data Analysis, Interpretation, and Database Maintenance	J. Short, B. Nelson/NOAA	NOAA	Cont'd 9th yr. 11 yr. project	$55.5	$35.0	$35.0	$125.5

Project Abstract

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.

Chief Scientist's Recommendation

This project continues the hydrocarbon database. Although this project is decreasing in importance, it remains an essential part of the overall system for tracking injury and recovery of the ecosystem. This work should be sustained. Fund.

Trustee Council Action

Fund revised proposal, which deletes the database for fatty acids as it is not a priority at this time. This project is the ongoing analysis and interpretation of hydrocarbon data for other Trustee Council funded studies. In FY 01 and beyond, the level of funding will be determined following a review of the expected workload in future years.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00306-CLO	Ecology and Demographics of Pacific Sand Lance in Lower Cook Inlet	J. Piatt/USGS-BRD	DOI	Cont'd 4th yr. 4 yr. project	$20.0	$0.0	$0.0	$20.0

Project Abstract

This project will characterize the basic ecology, distribution, and demographics of sand lance in the Gulf of Alaska. 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. In FY 00, the project will focus on finishing reports and submitting publications to peer reviewed journals.

Chief Scientist's Recommendation

This is the final year of a project that will provide extremely valuable information on an ecologically important species and will produce several publications in the peer reviewed literature. Fund.

Trustee Council Action

Fund. This project will conclude in FY 00 with publication of a final report and four manuscripts, which will characterize the ecology, demographics and distribution of sand lance. Sand lance is a small forage fish of great ecological importance, especially to seabirds and marine mammals, species injured by the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00320-BAA	Sound Ecosystem Assessment (SEA): Publishing the Integrated Final Report and a Program Synthesis	J. Allen/PWSSC	NOAA	Cont'd 7th yr. 7 yr. project	$120.0	$0.0	$0.0	$120.0

Project Abstract

This project will provide coordination to print, copy and distribute the final report for Project /320 and to review, publish and distribute a project synthesis written for a dedicated volume of *Fisheries Oceanography*. The final report is expected to exceed 1,000 pages (some with color). The *Fisheries Oceanography* volume will be an externally peer-reviewed scientific treatise designed to address ecosystem-level aspects of Project /320 not covered adequately by the final report. These products represent the closeout documentation for SEA.

Chief Scientist's Recommendation

This project will complete publication of the SEA final report and a special issue of *Fisheries Oceanography*. The principal investigator and the special editor are very qualified, and high quality products can be expected with international distribution of the journal. Fund.

Trustee Council Action

Fund revised proposal, which provides for producing all but 33 copies of the final report on CD-ROM rather than in hard copy and reduces the number of copies of the *Fisheries Oceanography* volume, contingent on submittal of the SEA final report and synthesis manuscripts being prepared in FY 99. Funding in FY 00 will provide for revision and publication of the final report and publication of a special issue of *Fisheries Oceanography*. SEA, the five-year Sound Ecosystem Assessment project, has studied the dynamic processes influencing the survival of juvenile pink salmon and herring rearing in Prince William Sound in order to provide information to assist fisheries managers in understanding how environmental factors affect fish production from year to year.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00327	Pigeon Guillemot Restoration Research at the Alaska SeaLife Center	D. Roby/Oregon State Univ.	DOI	Cont'd 3rd yr. 4 yr. project	$192.8	$93.0	$0.0	$285.8

Project Abstract

This project tests the feasibility of restoration techniques for pigeon guillemots (e.g., installation of artificial nest sites, use of social attractants, captive propagation and release). It also includes controlled experiments crucial to two other restoration objectives: (a) development of nondestructive biomarkers of petroleum hydrocarbon contamination in seabirds and (b) understanding how dietary factors (prey species composition, prey size, lipid content, feeding frequency) constrain growth, development, and condition at fledging in guillemots and other fish-eating seabirds.

Chief Scientist's Recommendation

This project will test the feasibility of establishing a new breeding colony of free-flying pigeon guillemots at the Alaska SeaLife Center as well as test the effects of diet on chick growth and identify blood biomarkers indicating exposure to petroleum hydrocarbons. This proposal is for the third year of a four-year project. Fund.

Trustee Council Action

Fund revised proposal, which addresses the Chief Scientist's concerns about sample size. 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 $20.4 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00330-CLO	Mass-Balance Model of Trophic Fluxes in Prince William Sound	D. Pauly/UBC	NOAA	Cont'd 3rd yr. 3 yr. project	$25.3	$0.0	$0.0	$25.3

Project Abstract

This project will provide an additional year of funding for Project /330, under which a food-web model of Prince William Sound was constructed and initially disseminated. The food web model forms the core of a prototype CD-ROM, which also includes food web models from three other aquatic ecosystems of Alaska, user-friendly databases on the biology and local/traditional knowledge of the marine organisms of Prince William Sound, and links to related information and resource agencies. In FY 00, this project will (a) produce a final version of the CD-ROM and distribute it to resource managers, schools, communities, and the general public, (b) provide hands-on guidance and education on food-web based management approaches to resource managers and other potential users, and (c) publish several articles in peer reviewed scientific journals.

Chief Scientist's Recommendation

This project has been strong and well carried out, although it is currently behind schedule. The principal investigators should be commended for their efforts to translate their results for the benefit of educators and resource managers. Funding in FY 00 will close out the project. Fund.

Trustee Council Action

Fund. This project is developing a mass-balance model of trophic flows in the Prince William Sound food web. In FY 99, a final report, two manuscripts and a CD-ROM are being prepared. In FY 00, two additional manuscripts will be prepared and the CD-ROM will be refined and widely distributed. The project is making 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	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00338	Survival of Adult Murres and Kittiwakes in Relation to Forage Fish Abundance	J. Piatt/USGS-BRD	DOI	Cont'd 3rd yr. 4 yr. project	$59.7	$46.4	$0.0	$106.1

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 studies in Project /163 (APEX) 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

This is the third year of a three-year project that should be extended to a fourth year due to the impact of El Niño on the ability to band birds early in the project. The results of this project will likely benefit interpretation of the APEX project (/163) and generate valuable information about overwinter survival. Fund.

Trustee Council Action

Fund. This project will provide information on whether the availability and quality of forage fish influence the survival of adult murres and kittiwakes. The results of this study will contribute to understanding of the recovery of these species following the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00339-CLO	Western Prince William Sound Human Use and Wildlife Disturbance Model	L. Suring/USFS, K. Murphy/USFWS	USFS	Cont'd 3rd yr. 3 yr. project	$14.0		$0.0	$14.0

Project Abstract

This project is the continuation of the application of geographic information system (GIS) techniques to describe current human-use patterns in western Prince William Sound. A model of potential use patterns as a result of additional development (e.g., increased access) is also being developed. Funds for preparation of manuscripts for publication in professional journals may be requested in FY 01.

Chief Scientist's Recommendation

This project will complete the development of the human use model and provide a final report. The objective of preparing manuscripts for a journal has been delayed by the U.S. Forest Service and may be resubmitted in FY 01.

Trustee Council Action

Fund. In FY 00, this project will complete the final report. Originally scheduled to be completed in FY 99, the report has been delayed by the departure from the U.S. Forest Service of one of the principal investigators, as well as key staff from other agencies. Consider funding the manuscript component of this project in FY 01 after the final report has been completed and reviewed.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00340	Toward Long-Term Oceanographic Monitoring of the Gulf of Alaska Ecosystem	T. Weingartner/UAF	ADFG	Cont'd 3rd yr. 4 yr. project	$65.9	$72.0	$0.0	$137.9

Project Abstract

Interannual variations in the temperature and salinity of Gulf of Alaska shelf waters could significantly influence this ecosystem and, therefore, the recovery and restoration of organisms and services affected by the oil spill. This variability is best quantified from long time series such as that gathered over 29 years at a hydrographic station (GAK1) near Seward. This project will continue this time series to quantify variability on this shelf. First year results suggest that sea level might be an effective monitor of upper ocean summer salinity. The temperature-salinity correlation structure suggests causative mechanisms that will be explored as part of this project. The data and the analyses will aid in designing a cost-effective monitoring program.

Chief Scientist's Recommendation

Understanding seasonal, annual, interannual, and decadal changes in the Alaska Coastal Current may well be key to understanding how climate-forced biological changes are mediated through oceanographic processes, including nutrient recycling to the photic zone on the shelf. In addition to continued monitoring of GAK-1 on the Seward line, the proposed FY 00 work includes continued retrospective analysis of the 29-year data record at this station. Although the Trustee Council's long-term monitoring plan (GEM, Gulf Ecosystem Monitoring) has not yet been completed, it is hard to imagine that continuation of this data stream will not be part of that plan. The project is on track in terms of meeting its objectives and project personnel are excellent. Fund.

Trustee Council Action

Fund. The project will continue the existing 29-year time series of conductivity-temperature versus depth data collected at hydrographic station GAK1 on the northcentral Gulf of Alaska shelf and in FY 00 includes retrospective analysis of the data record at this station. The GAK1 dataset will be useful to the Trustee Council's long-term monitoring program (currently under development as GEM, Gulf Ecosystem Monitoring).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00341	Harbor Seal Recovery: Controlled Studies of Health and Diet	M. Castellini/UAF	ADFG	Cont'd 3rd yr. 4 yr. project	$216.1	$90.1	$0.0	$306.2

Project Abstract

This project will continue a long-term study currently underway at the Alaska SeaLife Center to quantify the impact of specific fish diets on the health and body condition of harbor seals. Even though health status biomarkers for marine mammals in Prince William Sound were established during field trials (Project /001), the critical test of how markers vary in an individual as a result of eating specific prey has not been conducted. The project will also establish whether specific diets are nutritionally adequate to maintain seal health by monitoring health parameters and measuring assimilation efficiency during feeding trials. While this project will focus on harbor seal health, the approach is applicable to other injured top predators.

Chief Scientist's Recommendation

This work will reveal the relative nutritional importance of representative forage fish species for harbor seals in order to better understand what periodic changes in forage fish populations may do to these species. The project appears to be on track for achieving its objectives. Fund.

Trustee Council Action

Fund. This project is investigating the effect of diet on the health and body condition of harbor seals under controlled conditions at the Alaska SeaLife Center. The results of this study will enable scientists to test the validity of results from field tests. [NOTE: Funding includes $94.9 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00347-CLO	Fatty Acid Profile and Lipid Class Analysis for Estimating Diet Composition and Quality at Different Trophic Levels	R. Heintz/NOAA	NOAA	Cont'd 3rd yr. 3 yr. project	$35.5	$0.0	$0.0	$35.5

Project Abstract

This is the closeout for the project which began the systematic development of fatty acid profiles and lipid class analysis to identify diet differences and quality in forage fish and their prey. Specifically, the spatial and temporal variability of fatty acid profiles in herring, sand lance, and zooplankton was examined and related to the nutritional condition of these forage fish. In FY 98, the spatial comparisons, which provided insight into the energetic differences in forage fish in disparate parts of Prince William Sound, were conducted. In FY 99, temporal comparisons which will provide information on the energetic changes that inevitably occur with seasonal, ontogenetic, and reproductive changes will be conducted. All these comparisons are based on samples collected by APEX (Project /163) investigators. In FY 00, closeout will entail a statistical analysis and report on the spatial, temporal, and ontogenetic variation of data.

Chief Scientist's Recommendation

This is an appropriate approach to closing out this interesting project, which began the systematic development of fatty acid profiles and lipid class analysis to identify diet differences and quality in forage fish and their prey. Fund.

Trustee Council Action

Fund closeout of this project, which is extending 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	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00348-CLO	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 3rd yr. 3 yr. project	$50.6	$0.0	$0.0	$50.6

Project Abstract

This project will complete data analyses and manuscript preparation for Project /348, which was designed to explore the effects of oil contamination on physiological responses in river otters. Fifteen captive otters were exposed to two levels of oil contamination under controlled conditions at the Alaska SeaLife Center. Samples of blood, tissues and feces were collected for analysis of biomarkers and for immunological examinations. A wealth of data was collected during the experiment phase. Completion of data analyses and publication of results are especially important in light of the recent listing by the Trustee Council of river otters as a recovered species.

Chief Scientist's Recommendation

This proposal will close out this project with a series of publications. The principal investigators have a good publication record and five additional publications are proposed. On review, the first three manuscripts, which relate most directly to the objectives of the original research, should be supported. In addition, analysis of samples for testosterone and stable isotope ratios should be a priority. Fund revised proposal, which reduces the scope of work as described above.

Trustee Council Action

Fund revised proposal, which reduces the scope of work as recommended by the Chief Scientist. In FY 99, a final report and three manuscripts are being prepared on this project, which has helped to interpret and validate the effects of oil contamination on river otters. FY 00 will be devoted to the preparation of additional manuscripts. The river otter was declared recovered by the Trustee Council in March 1999, and it is important that the extensive information gained through this project appear in the peer reviewed literature.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00350	Alaska SeaLife Center Bench Fees	All Trustee Council Agencies	ADFG	Cont'd				

Project Abstract

This project will pay for the use of labs and office space, as well as other direct expenses, at the Alaska SeaLife Center by the eight projects that will use the SeaLife Center in FY 00: 00190/Pink Salmon Genome, 00273/Scoter Life History and Ecology, 00327/Pigeon Guillemot Research, 00341/Harbor Seal Health and Diet, 00371/Harbor Seal Metabolism, 00423/Population Change in Selected Nearshore Vertebrate Predators, 00441/Effects of Diet on Harbor Seal Lipid Recovery, and 00478/Testing Satellite Tags. The cost is calculated by project on a per-square-foot basis; the cost is reflected in the individual project budgets.

Chief Scientist's Recommendation

This is an essential cost of doing business at the Alaska SeaLife Center. Fund.

Trustee Council Action

The Alaska SeaLife Center charges bench fees for use of its facilities by researchers. The bench fee charges have been added to the individual research projects which they support, as follows (the following figures include seven percent general administration costs for the Alaska Department of Fish and Game): 00190/Pink Salmon Genome $104.5, 00273/Scoter Life History and Ecology $23.9, 00327/Pigeon Guillemot Research $20.4, 00341/Harbor Seal Health and Diet $94.9, 00371/Harbor Seal Metabolism $58.2, 00423/Population Change in Selected Nearshore Vertebrate Predators $36.8, 00441/Effects of Diet on Harbor Seal Lipid Recovery $60.0, and 00478/Testing Satellite Tags on Halibut $29.1 (total, including GA, is $427.8).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00360-BAA	The *Exxon Valdez* Oil Spill: Guidance for Future Research Activities	C. Elfring/Polar Research Board, NRC	NOAA	New 1st yr. 2 yr. project	$304.8	$131.5	$0.0	$436.3

Project Abstract

The National Research Council's Polar Research Board and Board on Environmental Science and Toxicology will appoint a special committee to review the scope, content, and structure of the draft science plan the Trustee Council is preparing to guide long-term research and monitoring in the northern Gulf of Alaska. To provide context for reviewing the draft plan, the committee will become familiar with the overall program of damage assessment and restoration research and monitoring activities that has been sponsored by the Council. The committee will prepare a final report with the conclusions and recommendations intended to give guidance on the nature and scope of future research and monitoring activities in the northern Gulf of Alaska.

Chief Scientist's Recommendation

In this project, the National Research Council will become familiar with the entire scope of the Trustee Council's program, starting with the damage assessment, and then specifically review and make recommendations on a draft long-term monitoring and research program (GEM or Gulf Ecosystem Monitoring, currently under development). An external review of the long-term plan is an important exercise, both to improve its scope, content, and structure and also to increase the profile and credibility of the effort nationally. The participation of the BEST (Board on Environmental Science and Toxiology) is essential. In addition, the expertise of a conservation biologist should be included among the committee members. The draft of GEM to be made available to the National Research Council in FY 00 must be sufficiently detailed to justify the substantial expense of this project. Fund.

Trustee Council Action

Fund. A similar proposal submitted in FY 99 was not funded because the Trustee Council had not yet made a decision on use of the Restoration Reserve and because the Chief Scientist raised a number of technical concerns. The Council has now decided to establish a long-term research and monitoring program (currently under development as GEM, Gulf Ecosystem Monitoring) and the Chief Scientist's concerns have largely been addressed in the FY 00 proposal. External review of the GEM draft is an important step in its development. However, the timing of this project is important -- final authorization by the Executive Director should not occur until the GEM draft is sufficiently detailed to justify the expense of this project.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00366	Improved Salmon Escapement Enumeration Using Remote Video and Time-Lapse Recording Technology	E. Otis/ADFG	ADFG	Cont'd 2nd yr. 3 yr. project	$46.5	$12.3	$0.0	$58.8

Project Abstract

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.

Chief Scientist's Recommendation

In this project's first year (FY 99), the remote video technology was shown to be a promising tool for monitoring salmon escapements. Accuracy of salmon escapement estimations compared favorably with weir counts despite some interruptions in the video power supply. Continued improvement in power sources for the video cameras will allow further improvements in accuracy and reliability. Objectives in FY 00 include implementing microwave transmission to provide near real-time data on escapements. The project personnel should apprise those researchers monitoring marine mammals and seabirds of progress in implementing improvements in remote video techniques so that the fruits of this project will benefit a variety of wildlife monitoring efforts. Fund.

Trustee Council Action

This project is developing a new technique for estimating spawner abundance that could potentially advance salmon management. The technique was tested on Delight Creek (sockeye escapement in a small stream) in FY 99. Results have been promising, and warrant funding application of the technique to Port Dick Creek (pink and chum escapement in a tidally influenced stream) in FY 00. Also in FY 00, as recommended by the Chief Scientist, the principal investigator should apprise, perhaps by working with the agency liaison, those researchers monitoring marine mammals and seabirds of progress in implementing remote video techniques.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00371	Effects of Harbor Seal Metabolism on Stable Isotope Ratio Tracers	D. Schell/UAF	ADFG	Cont'd 2nd yr. 3 yr. project	$163.1	$96.3	$0.0	$259.4

Project Abstract

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 year three of the project.

Chief Scientist's Recommendation

This project maintains its potential to make basic contributions to understanding nutrition in harbor seals and how specific amino acids and their stable isotopes may serve as dietary markers in wild populations of harbor seals. Fund.

Trustee Council Action

Fund. This study will shed light on the effect of nutrition on the recovery of harbor seals. [NOTE: Funding includes $58.2 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00374	Coordination and Planning for Herring Research	B. Norcross/UAF	ADFG	New 1st yr. 1 yr. project	$35.5	$0.0	$0.0	$35.5

Project Abstract

There is much data already collected under EVOS funding on herring that needs to be analyzed. There are many components to herring research that need to be synthesized. This project will evaluate all aspects of past research including, but not limited to, stock structure, year-class strength, and disease structure. A workshop of herring researchers will be conducted to discuss ideas for additional herring research and monitoring. The results of the workshop and writings will be analyzed to identify important questions that remain about herring and to decide which ones can and cannot be addressed. Recommendations will be developed for priorities and research direction for herring in the future, which may serve as a basis for a science plan for herring.

Chief Scientist's Recommendation

The need for further synthesis and priority setting was apparent as a result of the November 1999 workshop on Pacific herring. The principal investigator will use and further develop a life-history-based model for the Prince William Sound herring population and prioritize research needs with the assistance of a working group. The focus of the effort should be the relationship between stock structure, spawning, and recruitment. Fund contingent on submittal of a revised set of objectives.

Trustee Council Action

Fund revised Detailed Project Description, which focuses on the synthesis and prioritization recommended by the Chief Scientist. This project will continue work on a key species injured by the oil spill and provide a firmer basis for future ecosystem-level work in GEM (Gulf Ecosystem Monitoring, the Council's long-term research and monitoring program currently under development) and for management of the fishery over the long term.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00375-CLO	Effect of Herring Egg Distribution and Ecology on Year-Class Strength and Adult Distribution	E. Brown, B. Norcross/UAF	ADFG	Cont'd 2nd yr. 2 yr. project	$48.0	$0.0	$0.0	$48.0

Project Abstract

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 will aid understanding of stock structure and population dynamics of herring in Prince William Sound. This information will facilitate area-specific targeting of catches and provide maximum conservation of the overall population. The methodology is applicable to other species and areas. This project will provide scientific documentation of unpublished fishery data.

Chief Scientist's Recommendation

This is an ongoing project that is synthesizing oceanographic and biological measurements to maximize application of existing data. Fund.

Trustee Council Action

Fund. This project will conclude in FY 00 with publication of a manuscript that relates available biological data about herring to oceanographic data for Prince William Sound. The findings of this study will refine understanding of herring population structure and population dynamics in Prince William Sound and thereby improve management of the herring fishery.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00379-CLO	Assessment of Risk Caused by Residual Oil in Prince William Sound Using P450 Activity in Fishes	S. Jewett/UAF	ADFG	Cont'd 2nd yr. 2 yr. project	$32.1	$0.0	$0.0	$32.1

Project Abstract

FY 00 funding will close out this project. A manuscript will be prepared as the final report, with three components: (a) the spatial extent of potential hydrocarbon exposure using cytochrome P450 (CYP1A) data in the nearshore fishes masked greenling and crescent gunnel, (b) the relationships between hydrocarbons in mussel bed sediments and CYP1A in fishes adjacent to mussel beds, and (c) the relationship between CYP1A induction and FACs in masked greenling.

Chief Scientist's Recommendation

Recently obtained data indicate that the nearshore fishes analyzed in the first year of this project had very low levels of exposure to contaminants. Some oiled areas showed declines and levels of enzyme induction are now similarly low across a series of oiled and reference stations in Prince William Sound. Although some induction may be occurring in selected oiled sites, induction does not appear to be widespread in western Prince William Sound and continued study of fish oil exposure is a lower priority for Trustee Council funding. Fund closeout only.

Trustee Council Action

Fund closeout of this project Preliminary results from FY 99 work do not indicate a level of contamination sufficient to justify another year of sampling.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00389	3-D Ocean State Simulations for Ecosystem Applications from 1995-98 in Prince William Sound	J. Wang/UAF	ADFG	New 1st yr. 2 yr. project	$125.3	$72.2	$0.0	$197.5

Project Abstract

Using the observed data collected from 1995-98 in Prince William Sound and the forcing of tide, coastal current inflow/outflow, freshwater discharge, and wind stress, a 3-D Prince William Sound model developed under the Sound Ecosystem Assessment project (SEA, /320) will be used to produce a continuous four year, 3-D fields of velocity, temperature, salinity and mixing coefficients for resource managers, fishing industry and biological applications (in SEA, only 1996 physical forcing has been provided). In addition, the interannual variability of Prince William Sound ocean circulation, temperature, and salinity due to interannually variable atmospheric forcing will be studied. This will allow identification of the key environmental parameters to be included in a long-term monitoring program to assist resource managers.

Chief Scientist's Recommendation

This project will simulate larval transport of herring during three of the years of the Sound Ecosystem Assessment project (/320). Further application and testing of this three-dimensional circulation model will likely provide a better understanding of larval herring dispersion under different annual conditions. The model could play an important role in monitoring of Prince William Sound in the future. Fund.

Trustee Council Action

Fund. This project will improve understanding of larval herring transport, which is essential for predicting productivity in Prince William Sound and which has been in demand by commercial fishers as well as fisheries managers. In addition, the project will contribute to development of a long-term monitoring program for the sound.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00391	CIIMMS: Cook Inlet Information Management/Monitoring System	K. Zeiner/ADNR, J. Hock/ADEC	ADNR	Cont'd 2nd yr. 3 yr. project	$361.0	$239.0	$0.0	$600.0

Project Abstract

The Cook Inlet Information Management/Monitoring System (CIIMMS) will provide a wide range of users the opportunity to share and access valuable information and data about the Cook Inlet watershed and Cook Inlet-related activities. CIIMMS potential users include educators, scientists, students, researchers, resource managers, private organizations and individual citizens. CIIMMS will provide an interactive website for the Cook Inlet community to efficiently and effectively contribute, identify and access relevant information from a distributed network of providers. The CIIMMS website is at *http://www.dec.state.ak.us/ciimms*.

Chief Scientist's Recommendation

This project has developed a very good prototype website for the Cook Inlet watershed that is an entry point to distributed information on the ecosystem. The web harvest approach uses a searchable metadata archive to index distributed data resources--an impressive feature and a cost-effective and efficient way to construct and maintain system capability by shifting the responsibility for data maintenance and access to the owners and generators of the data. This also makes the design of the interface between CIIMMS and the users a critical element. Continuing refinement of the user interface is in order to improve user friendliness and serviceability. The strategy of promoting system viability through wide user support is a good one for the long-term. Although the investigators have responded thoughtfully and substantively to previous reviews and suggestions, I still am greatly concerned that inadequate attention has been given to the long-term operation and maintenance (O&M) of the system. The current proposal indicates that developing an O&M plan is the final task for the project, but I would recommend that the O&M plan be developed jointly with the final design specifications in order to verify that the system as finally conceived can be adequately maintained by the departments of Environmental Conservation and Natural Resources. In addition, a number of very specific suggestions contained in the individual peer reviews should be considered by the project team. Fund.

Trustee Council Action

Fund revised Detailed Project Description, which (a) includes development of a long-range maintenance plan concurrent with development of the final system specifications and implementation plan and (b) shifts some additional tasks into FY 01. This project aims to improve management of injured and other marine natural resources by facilitating data sharing, resource management, and planning within the Cook Inlet watershed. The review of the prototype developed in Year 1 has been positive, with some specific recommendations for technical improvements outlined in the peer review memoranda. In addition, the project team is encouraged to continue its high-energy outreach efforts to ensure the system meets the needs of the broader user community.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00393-BAA	Prince William Sound Food Webs: Structure and Change	T. Kline/PWSSC	NOAA	Cont'd 2nd yr. 3 yr. project	$153.7	$127.7	$0.0	$281.4

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 (a) conduct retrospective analysis of Gulf of Alaska production shifts since the oil spill and (b) 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 is the second year of a three-year study that is exploring a potential tool for monitoring changes in productivity on the shelf of the Gulf of Alaska at Middleton Island. Use of mussel shell carbon and nitrogen stable isotope ratios offers a possible retrospective look at oceanographic conditions over the last decade in relation to productivity. Fund.

Trustee Council Action

Fund. This project is using carbon and nitrogen stable isotope ratios to confirm the relative trophic status of species within the Prince William Sound ecosystem. This method could be a valuable tool for the Trustee Council's long-term monitoring program (GEM, or Gulf Ecosystem Monitoring, currently under development).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00396	Diet, Trophic Interactions, and Historical Trends in Occurrence of Salmon Sharks, Sleeper Sharks, and Spiny Dogfish in Prince William Sound and the Eastern Gulf of Alaska	L. Hulbert/NOAA	NOAA	New 1st yr. 2 yr. project			$0.0	$0.0

Project Abstract

The revised proposal will investigate spatial and temporal movements, residency, diet composition, ecology, and trophic impacts of salmon sharks and Pacific sleeper sharks in Prince William Sound and will quantify refinements to shark parameters in the ECOPATH model (Project /330). The project will assess evidence of ecological implications of shark populations on the recovery of injured species through fatty acids and stable isotope tracer analyses and use of simulations based upon the refined ECOPATH model. Acoustic and satellite-linked telemetry will be utilized to determine shark movements and migrations, critical feeding areas and depths, and behavioral data. The research will address the role of the predominant shark species in the dynamic trophic structures in the Prince William Sound region.

Chief Scientist's Recommendation

This is a well conceived proposal for work on two species of sharks that appear to be of growing ecological importance in Prince William Sound. It is well integrated with other efforts in fisheries research. However, there is little ongoing ecological work to provide a larger context for the study results, rapid improvements in tag technology will make the work more useful at a later time, and more time is needed to determine whether sharks should be a component of GEM (Gulf Ecosystem Monitoring, the Council's long-term research and monitoring program that is currently under development). Do not fund.

Trustee Council Action

Defer decision on funding this project until a revised Detailed Project Description and budget are submitted and approved. The revised Detailed Project Description should focus on the predation role of sharks relative to other top-level predators in the Prince William Sound ecosystem, in particular the question of competition for prey, and should address the methodology questions raised by the Alaska Department of Fish and Game. The budget should not exceed the $86.0 originally proposed. Sharks appear to be of growing ecological importance in the sound.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00401	Assessment of Spot Shrimp Abundance in Prince William Sound	C. Hughey/ Valdez Native Tribe, C. O'Clair/ NOAA	NOAA	Cont'd 2nd yr. 4 yr. project	$88.7	$95.0	$33.0	$216.7

Project Abstract

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.

Chief Scientist's Recommendation

This project has the potential to provide useful information on a resource important to subsistence users and, potentially, to commercial fishers. It is unlikely that abundance information on spot shrimp will be available to subsistence users without this project. Fund.

Trustee Council Action

Fund. This project is studying 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 resources 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. The project is a joint effort of the Valdez Native Tribe and the National Oceanic and Atmospheric Administration's Auke Bay Lab.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00407	Harlequin Duck Population Dynamics	D. Rosenberg/ADFG	ADFG	New 1st yr. 3 yr. project	$63.8	$71.0	$71.0	$205.8

Project Abstract

Harlequin duck populations have not recovered from the effects of the oil spill. Populations are declining in oiled areas of Prince William Sound while increasing in unoiled areas. This project will conduct late-winter boat surveys to assess the recovery of ducks inhabiting oiled areas. Population structure, abundance and recruitment will be compared between oiled and unoiled areas in Prince William Sound to assess trends, population dynamics, and the progress of recovery.

Chief Scientist's Recommendation

The harlequin duck is one of the species that clearly has not recovered, based both on exposure to hydrocarbons and differences in population trends in oiled and unoiled areas. This project will carry out March population surveys, which provide the most relevant population data for over-winter survival. Fund.

Trustee Council Action

Fund revised proposal, which deletes the satellite tagging effort. This project will assess the recovery of harlequin duck populations inhabiting oiled areas. The harlequin duck is one of the species that is still not showing signs of recovery from the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00414-BAA	Development of a Web-Based System for Communicating Ecosystem Research Results to the Public	J. Allen/AK Digital Graphics	NOAA	New 1st yr. 1 yr. project	$26.8	$0.0	$0.0	$26.8

Project Abstract

Ten years after the oil spill there exists a compelling need for translation and communication of scientific results to stakeholders. Interactive web communications offer a powerful tool for information transfer. This project will develop an architecture and content for interactive, web-based, multimedia delivery of ecosystem research results to the public. The web display will present highlights from the restoration research projects with emphasis on ecosystem synthesis, using a format that is appealing, informative, and understandable. This work will be conducted in close consultation with Trustee Council staff. Products will reside as a linked modular unit on the Council's web site.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund. This project will develop an interactive, web-based system for delivering research results to the public. Highlights of restoration projects will be featured, with emphasis on ecosystem processes and cross-project syntheses. The proposer will work closely with EVOS principal investigators and Trustee Council staff in development of the material, which will be displayed on the EVOS web site. This project complements the Council's effort to update and revise the EVOS web site (see Project 00605) as part of the Council's ongoing commitment to inform the public about the progress of restoration.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00423	Patterns and Processes of Population Change in Selected Nearshore Vertebrate Predators	J. Bodkin, D. Esler/USGS-BRD, T. Dean/CRA, Inc.	DOI	Cont'd 2nd yr. 4 yr. project	$185.4	$265.0	$265.0	$715.4

Project Abstract

Sea otters and harlequin ducks have not fully recovered from the oil spill. This project will explore links between oil exposure and the lack of population recovery, with the intent of understanding constraints to recovery of these species and the nearshore environment. Sea otter work will include aerial surveys of distribution and abundance and estimation of abundance and size of green sea urchins. Harlequin duck work will include field and captive bird components. Harlequin field studies will examine the relationship between survival and CYP1A; captive experiments will examine the relationships between oil exposure and CYP1A induction, and metabolic and behavioral consequences of exposure.

Chief Scientist's Recommendation

This is the second year of a four-year project to investigate evidence of ongoing injury to harlequin ducks and sea otters. The work is following up on important findings of the Nearshore Vertebrate Predator project (/025). Fund.

Trustee Council Action

Fund revised proposal, which eliminates the new objectives related to sea otter field studies (CYP1A and mark-resighting). This project is an important extension of the Nearshore Vertebrate Predator (Project /025) work on two still-injured species, sea otters and harlequin ducks. [NOTE: Funding includes $36.8 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00424	Restoration Reserve	All Trustee Council Agencies	ALL	Cont'd	$12,000.0	$12,000.0	$12,000.0	$36,000.0

Project Abstract

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 Corporation in September 2001. The $12 million recommended for deposit in FY 00 will be the seventh deposit into the reserve account and will bring the total in the account to $84 million. Annual deposits of $12 million in each of the next two years will provide a reserve of $108 million plus interest (roughly $170 million). On March 1, 1999 the Council approved a spending plan for the future use of these funds.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund an additional $12 million deposit into the Restoration Reserve. The reserve will help ensure that restoration can continue beyond the time of the final payment from Exxon Corporation. [NOTE: This project will be funded outside of the regular FY 00 work plan of research, monitoring, and general restoration projects.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00441	Harbor Seal Recovery: Effects of Diet on Lipid Metabolism and Health	R. Davis/Texas A&M Univ.	ADFG	Cont'd 2nd yr. 3 yr. project	$191.6	$78.1	$0.0	$269.7

Project Abstract

Changes in food availability could be affecting harbor seal population recovery. To better understand the results from field studies of harbor seal health, body condition and feeding ecology, data is needed for seals 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 herring and pollock. In addition, the project 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 enhance understanding of the nutritional role and assessment of dietary fat for harbor seals.

Chief Scientist's Recommendation

This is a well conceived proposal for an ongoing project to ground-truth a promising monitoring technique that could be used to understand long-term trends in food availability to marine carnivores. The results of this study will be valuable for interpreting past and future measurements of fatty acids. Fund.

Trustee Council Action

Fund. This study will investigate the effect of diet on lipid metabolism and health in harbor seals. [NOTE: Funding includes $60.0 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00454	Evidence and Consequences of Persistent Oil Contamination in Pink Salmon Natal Habitats	S. Rice/NOAA	NOAA	New 1st yr. 2 yr. project	$334.1	$104.0	$0.0	$438.1

Project Abstract

This project will (a) examine the natal habitat of pink salmon in Prince William Sound for evidence of oil contamination in eggs and spawning redds, (b) measure cytochrome P4501A in field and laboratory exposed alevins to relate induction with biological consequences on growth and survival following PAH exposure, and (c) synthesize these results with past research and a reexamination of the recovery status of pink salmon and their spawning habitat. A combination of field and laboratory studies will be conducted for one year to complete the pink salmon toxicity story. Persistent oil reservoirs adjacent to natal streams will be reexamined for evidence of habitat recovery, and the hypothetical mechanism of hydrocarbon introduction into the streams (transfer of dissolved oil in pore water) will be quantified by use of collectors (SPMDs) buried in spawning habitat. The biomarker cytochrome P4501A will be measured in eggs and alevins from field and controlled laboratory exposures. The significance of the biomarker will be determined in measurements of marine growth and survival, using fish from brood year 1998 tests underway.

Chief Scientist's Recommendation

This proposal addresses a critical information need in determining the role of persistent oil in embryo mortality at intertidal locations in Prince William Sound. In addition to measurement of oil exposure biomarkers, the revised proposal includes collection of hydrologic data (i.e., spatially structured fredle index) to document transportation of hydrocarbons through groundwater into the streambed where the embryos incubate. Developing evidence through direct measurement of how subsurface hydrocarbons get to the redds through a tracer study will make the toxicological hypothesis more compelling, as will surveys of the beaches where embryo mortality has been occurring to verify the presence of subsurface oil. Fund.

Trustee Council Action

Fund revised proposal, which includes hydrologic component. This project, which responds to a request in the *FY 00 Invitation*, will allow for evaluation of the recovery status of pink salmon at the stream level.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00455-BAA	An Evaluation of the Data System for the EVOS Long-Term Monitoring Program	C. Falkenberg/Ecologic Corp.	NOAA	New 1st yr. 1 yr. project	$89.0	$0.0	$0.0	$89.0

Project Abstract

This project will report on the data system issues related to GEM (Gulf Ecosystem Monitoring), the Trustee Council's long-term monitoring and research program. In addition to the data collection effort, data delivery will prove to be a critical component of the success of GEM. Therefore, the data system issues need to be part of the planning process. This project will outline some of the key data and user issues and produce a report analyzing existing systems that deliver similar data. In addition, strawman proposals will be developed for a range of data systems that could meet the needs of the GEM program.

Chief Scientist's Recommendation

This is a timely proposal to examine the potential options for data and information management for GEM (Gulf Ecosystem Monitoring, the Trustee Council's long-term research and monitoring program, which is currently under development) and it addresses a critical need for planning. The fast pace of technological development in this discipline requires a careful assessment of options, and the "strawman" proposals to be generated by this project would be quite useful. The proposal recognizes that the data to be collected by GEM is unlikely to be unique, and many existing applications -- for example, from NODC (National Ocean Data Center), GLOBEC (U.S. Global Ocean Ecosystem Dynamics), and OCSEAP (Outer Continental Shelf Environmental Assessment Program) -- could be cost-effective alternatives for GEM to explore. It would be valuable to include some assessment of existing EVOS data systems and the migration of these systems toward what is proposed by this project, as it is likely that any GEM database will want to include certain existing data sets. Fund.

Trustee Council Action

Fund revised proposal, which adds as an objective assessing existing EVOS data systems and the migration of these systems toward the data system proposed by this project. This project is designed to ensure that data collected through the Trustee Council's long-term research and monitoring program (currently under development as GEM, Gulf Ecosystem Monitoring) is accessible to the widest number of users and applications. The project will investigate the issues related to the creation of a data delivery system for GEM and develop strawman proposals for a data system. This project was submitted under the Trustee Council's Broad Agency Announcement and will therefore be administered by the National Oceanic and Atmospheric Administration. However, the work of the principal investigator will be directed by the Council's Executive Director working with the Chief Scientist and an advisory group of experienced data managers to be named by the Executive Director.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00459-CLO	Residual Oiling of Armored Beaches and Mussel Beds in the Gulf of Alaska	G. Irvine/USGS-BRD	DOI	Cont'd 2nd yr. 2 yr. project	$40.0	$0.0	$0.0	$40.0

Project Abstract

During FY 00, this project will focus on data and hydrocarbon analyses, preparation of the final report, and preparation and submittal of two manuscripts. Funding is requested for presentation of study results at a professional meeting. In FY 99, boulder-armored beach sites and several oiled mussel beds in the Gulf of Alaska were resampled to determine whether oil persists.

Chief Scientist's Recommendation

This project is completing a revisitation of oiled sites on the Katmai Coast and will provide valuable information on the persistence of oil in the Gulf of Alaska environment. The proposed paper in FY 01 is not as compelling as the work in FY 00; the project should be closed out in FY 00.

Trustee Council Action

Fund FY 00 only. This project is monitoring the persistence of oil at sites previously monitored in FY 94 along the coasts of Kenai Fjords and Katmai national parks and will provide important status information ten years after the spill. FY 00 will consist of preparation of the final report and a manuscript for publication in the peer reviewed literature.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00462	Effect of Disease on Pacific Herring Population Recovery in Prince William Sound	G. Marty/Univ. of California Davis	ADFG	Cont'd 2nd yr. 3 yr. project	$74.6	$81.7	$0.0	$156.3

Project Abstract

The Pacific herring population of Prince William Sound has not recovered from severe population decline in 1993. Viral hemorrhagic septicemia virus and the fungus *Ichthyophonus hoferi* were identified as the two main diseases in these fish. Prevalence of *Ichthyophonus hoferi*decreased after 1995, but increased prevalence of viral hemorrhagic septicemia virus in 1997 and 1998 has been associated with delayed recovery. To determine if disease continues to impair recovery, and to document recovery when it occurs, this project will continue to monitor the prevalence of the two major diseases in Pacific herring in Prince William Sound in November 1999 and April 2000.

Chief Scientist's Recommendation

This project will continue to provide information on one factor that may be limiting Pacific herring population recovery. With support from the Trustee Council and National Science Foundation, this continues to be the most comprehensive study ever conducted on the effect of pathogens and disease in a wild fish population. Given the current depleted status of herring in Prince William Sound, we should continue to explore factors that limit their recovery and that may lead to improved management of the pound-type fishery. Fund.

Trustee Council Action

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. The results of the study so far have provided insight on management of the herring-pound fishery. A $286.4 grant from the National Science Foundation will enable the researchers to perform complementary analyses and population modeling.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00466-CLO	Recovery Status of Barrow's Goldeneyes	D. Esler/USGS-BRD	DOI	Cont'd 2nd yr. 2 yr. project	$14.8	$0.0	$0.0	$14.8

Project Abstract

Data available at the onset of this project (population trends and indices of contaminant exposure) raised concern that Barrow's goldeneye populations may have been injured by the oil spill, may not be fully recovered, and may continue to suffer deleterious effects of the spill. This project is designed to critically assess the recovery status of Barrow's goldeneye populations through assemblage and analysis of all existent, relevant data. This work will lead to definition of recovery status, identification of any data gaps limiting understanding of recovery status or impediments to recovery, and, if warranted, proposal of directed research to fill those gaps in subsequent years. Most data analyses were conducted during FY 99; FY 00 funds are requested for final data analyses and compilation of analysis results and other information into the final report and manuscripts.

Chief Scientist's Recommendation

This modest desk study should be completed properly. The appropriate material should be published and recommendations made in regard to the status of and future research on this potentially injured species. Fund.

Trustee Council Action

Fund. In FY 00, this project will complete work begun in FY 99 to gather information necessary for making a determination on adding the Barrow's goldeneye to the injured resources list. A final report consisting of two manuscripts will be prepared.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00476	Effects of Oiled Incubation Substrate on Pink Salmon Reproduction	R. Heintz/NOAA	NOAA	Cont'd 2nd yr. 3 yr. project	$74.8	$36.0	$0.0	$110.8

Project Abstract

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 project, 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. During FY 99, fry were exposed, marked and released. During FY 00, adults will be recovered and their gametes crossed to demonstrate their viability. In FY 01, estimates of viability will be obtained and used to complete a model of life cycle effects resulting from incubation of eggs in oiled gravel.

Chief Scientist's Recommendation

This proposal is for an ongoing project to test the impact of incubation in oiled substrate on reproductive success in pink salmon. Fund.

Trustee Council Action

Fund revised proposal, which deletes the contract for quantitative genetic analysis. This project is validating the effects of oil contamination on pink salmon, thus contributing to our understanding of the injury and recovery status of this injured species.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00478	Testing Satellite Tags as a Tool for Identifying Critical Habitat	J. Nielsen/USGS-BRD	DOI	New 1st yr. 1 yr. project	$106.1	$0.0	$0.0	$106.1

Project Abstract

The definition of "critical habitat" in the marine environment is essential to the development of reserves or protected areas in relationship to a sustainable commercial or sport fishery. This project will assess and test the application of satellite archive, pop-up tags on marine fishes of the Gulf of Alaska. Software and tag technology will be adapted and developed for geolocation tracking using light, depth, and bathometry data from satellite pop-up tags. Tag application and light-geolocation relationships will be tested on live halibut brought into husbandry at the Alaska SeaLife Center and kept under an accelerated solar-shift regime mimicking standard conditions in the gulf. These data will be compared to light and depth readings taken aboard boats on the gulf, where extreme crepuscular or solar light conditions predominate through much of the year. These developments will assist in multiple applications of this new tag technology in fisheries-independent habitat assessments for the nearshore and pelagic marine environments in the Gulf of Alaska.

Chief Scientist's Recommendation

This is a very good proposal by a highly qualified investigator. Satellite tag technology would contribute greatly to understanding more about important wide-ranging stocks of fish in the Gulf of Alaska and what is needed for their conservation. It is also apparent that tagging technology needs further laboratory-based validation for local application. Defer decision until results of upcoming symposium on tag technology are available.

Trustee Council Action

Fund contingent on submittal and approval of (a) a revised Detailed Project Description that emphasizes the development of light interpretive algorithms for the Gulf of Alaska, deletes the field work component, and reflects any relevant findings presented at the upcoming international symposium on tagging fish and (b) a revised budget that does not exceed $106.1 (including the $29.1 in Alaska SeaLife Center bench fees for this project). The project, which would test satellite tag technology for its utility in defining critical habitat, is intended to improve understanding of certain stocks of fish in the Gulf of Alaska. [NOTE: Funding includes $29.1 for Alaska SeaLife Center bench fees.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00479	Effects of Food Stress on Survival and Reproductive Performance of Seabirds	J. Piatt/USGS-BRD, A. Kitaysky/Univ. of Washington	DOI	Cont'd 2nd yr. 4 yr. project	$125.2	$129.6	$75.0	$329.8

Project Abstract

Traditional field methods of assessing effects of fluctuations in food supply on the survival and reproductive performance of seabirds may give equivocal results. This project will apply an additional tool: The measure of stress hormones in free-ranging seabirds. Food stress can be quantified by measuring base levels of stress hormones such as corticosterone in the blood of seabirds, or the rise in blood levels of corticosterone in response to a standardized stressor: capture, handling and restraint. These techniques will be applied to seabirds breeding in lower Cook Inlet and captive birds will be used for controlled experiments. This project provides a unique opportunity for a concurrent field and captive study of stress in seabirds.

Chief Scientist's Recommendation

This project is achieving very useful and interesting results that will have application in determining spatial and long-term interannual variability in food supply at seabird colonies in the northern Gulf of Alaska. Many of the objectives have been partly achieved already, although there appear to be few data yet on survival of tagged adults (Project \338) that can be related back to stress during chick rearing. Fund.

Trustee Council Action

Fund. This project is exploring the use of corticosterone, a biochemical indicator of stress, as a tool to monitor seabird populations.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00481	Documentary Film on the Oil Spill Impacts on Subsistence Use of Intertidal Resources	G. Evanoff/Chenega Bay IRA Council, P. Panamarioff/ Ouzinkie Tribal Council	ADFG	New 1st yr. 1 yr. project	$8.6	$111.8	$0.0	$120.4

Project Abstract

This project will produce a 27 minute documentary film on the impacts of the oil spill on the subsistence use of intertidal resources, including mussels, clams, chitons, and octopus, by residents of two predominantly Alaska Native communities: Chenega Bay in Prince William Sound and Ouzinkie on Kodiak Island. This project will build on two previous subsistence documentaries (projects 96214 and 98274) and will focus on the use of resources in the intertidal, the area hardest hit by oil, and broaden the discussion by bringing in the perspective of the residents of Chenega Bay, the first community directly in the path of the spilled oil, and Ouzinkie, the first Kodiak-area community to see the oil arrive. The documentary will compare the impact the spill has had on the use of intertidal resources in each community as well as the ongoing EVOS restoration efforts to help residents mitigate these impacts.

Chief Scientist's Recommendation

This project would document impacts of the oil spill on the subsistence use of intertidal resources in the Chenega Bay and Ouzinkie areas. The documentary film would supplement two previous films funded by the Trustee Council on the spill's impacts to harbor seals and Pacific herring. Fund if funds are available within the Council's target for the work plan.

Trustee Council Action

Fund revised proposal, which incorporates objectives of Project 00449. This project, which is patterned after two previous video projects funded by the Trustee Council (96214/Harbor Seals and 98274/Herring), is designed to contribute to the restoration of intertidal resources and subsistence uses by transmitting local knowledge about these resources to the scientific community and others. The earlier recommendation on this project was to postpone its consideration until FY 01 because some of the items to be addressed in the video (paralytic shellfish poisioning, residual oil in Prince William Sound) would be more appropriately addressed a year from now. However, providing a small amount of start-up funding in FY 00 will allow preproduction activities to take place so that production itself can get underway at the beginning of FY 01.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00482-BAA	Optimization of Rapid Diagnostic Test Kits for Paralytic Shellfish Poisoning and Amnesic Shellfish Poisoning	J. Jellett/Jellett Biotek Limited	NOAA	New 1st yr. 1 yr. project	$55.6	$0.0	$0.0	$55.6

Project Abstract

This project will optimize rapid screening tests to detect two marine biotoxins that affect the Alaskan shellfishery, amnesic shellfish poisoning (ASP) and paralytic shellfish poisoning (PSP). The tests will be optimized for subsistence harvest areas in the Kodiak Island area. ASP and PSP can cause sickness and even death in individuals who consume contaminated shellfish. With a reliable field testing method, coastal communities and shellfisheries will be able to ensure shellfish is safe to eat before harvesting. This will lead to safer subsistence harvesting of shellfish, which can replace the lost or decreased availability of injured resources such as harbor seals, sea lions, herring and ducks. In an attempt to make the rapid tests as simple as possible for beach monitoring, the tests will be optimized and validated to work without an acid extraction process, permitting raw shellfish tissues to be tested.

Chief Scientist's Recommendation

This project will optimize a test kit for determining PSP (paralytic shellfish poisoning) and ASP (amnesic shellfish poisoning) content of bivalves in the Kodiak Island area. Objectives include analysis of sets of split samples for the mouse bioassay now used in testing and the new test kit. There is excellent community involvement proposed for this project. Fund.

Trustee Council Action

Fund. The revised proposal limits the Trustee Council's contribution during the development phase of the test kit to optimization for the spectrum of Alaskan toxins present in shellfish at key subsistence harvest locations on Kodiak Island. Once the test kit is fully optimized to the toxicity profile in Alaskan waters, the Council may consider funding (in FY 01 or 02) for field trials with Kodiak subsistence users to prove the efficacy of the test kit in a beach monitoring application compared to currently accepted testing methods. The test kit being developed is a rapid screening test for PSP (paralytic shellfish poisoning) and ASP (amnesic shellfish poisoning) in shellfish. The test would be administered and read by shellfish consumers during harvesting, and is intended to increase subsistence users' confidence that resources injured by the oil spill, or other replacement subsistence resources, are safe to eat.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00493	Statistically-Based Sampling Strategies for Gulf of Alaska Ecosystem Trawl Survey Monitoring	P. Anderson/NOAA	NOAA	New 1st yr. 1 yr. project	$34.5	$0.0	$0.0	$34.5

Project Abstract

This project is an integrated study of mechanisms controlling changes in community structure in the Gulf of Alaska ecosystem. The major goal for this fiscal year is to review the existing Gulf of Alaska small-mesh trawl survey database and develop a statistically based and cost-effective strategy for long-term sampling and future monitoring. It is anticipated that any developed sampling scheme or strategy will then be employed in future monitoring survey designs. Proper and consistent sampling should lead to a more comprehensive understanding of biological-physical coupling and dynamics of the Gulf of Alaska ecosystem.

Chief Scientist's Recommendation

This project will analyze the large amount of data available from small-mesh trawl surveys on the northern Gulf of Alaska shelf in order to determine an optimal sampling program for detecting ecosystem change into the future. Fund.

Trustee Council Action

Fund revised proposal, which limits FY 00 tasks to review of existing trawl data and development of a long-term sampling strategy. The other concepts contained in the original proposal (sampling of megafauna and phyto- and zooplankton) may have a role in the Trustee Council's long-term research and monitoring program (currently under development as GEM, Gulf Ecosystem Monitoring). However, these concepts are premature until GEM is further developed.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00501	Protocols for Long-Term Monitoring of Seabird Ecology in the Gulf of Alaska	J. Piatt/USGS-BRD, G. Byrd, D. Roseneau/USFWS	DOI	New 1st yr. 2 yr. project	$39.9	$14.0	$0.0	$53.9

Project Abstract

Seabird populations will need to be monitored for many years to assess both recovery and ecological conditions affecting recovery. Detailed studies of individual seabird colonies and marine ecosystems in the Gulf of Alaska have been conducted by the U.S. Geological Survey and U.S. Fish and Wildlife Service under the auspices of damage assessment and restoration programs of the Trustee Council. Much has been learned about factors influencing seabird populations and their capacity to recover from the spill in the Gulf of Alaska. As the restoration program moves toward long-term monitoring of populations, however, protocols and long-term monitoring strategies that focus on key parameters of interest and that are inexpensive, practical, and applicable over a large geographic area need to be developed.

Chief Scientist's Recommendation

This project will review and test protocols and strategies to increase the efficiency and effectiveness of monitoring seabird productivity and populations, which could significantly improve the Trustee Council's long-term monitoring program (GEM or Gulf Ecosystem Monitoring, currently under development). Fund.

Trustee Council Action

Fund revised proposal, which eliminates the field work component and clarifies the sampling methodology. This project could significantly improve seabird productivity studies and the design of the Trustee Council's long-term monitoring program (GEM or Gulf Ecosystem Monitoring, currently under development).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00509	Long-Term Monitoring of Harbor Seal Populations: Development of an Experimental Design	R. Small, K. Frost/ADFG	ADFG	New 1st yr. 1 yr. project	$51.8	$0.0	$0.0	$51.8

Project Abstract

This project will develop an experimental design for a long-term monitoring program of harbor seal populations in the spill area. Current monitoring programs include aerial population trend and abundance surveys, and land-based counts at a key index site (Tugidak Island). These current monitoring programs will be evaluated based on sampling design, accuracy and precision, and their application to the management and conservation needs of harbor seals. Revisions to the methodology of current programs will be made based on new research results concerning stock structure, population trends, and life history characteristics, and advances in marine mammal survey and abundance assessment.

Chief Scientist's Recommendation

This project will review and recommend improvements to protocols and strategies for surveying harbor seal population trends and abundances. The results could significantly improve the long-term monitoring program that is now being developed by the Trustee Council (GEM or Gulf Ecosystem Monitoring). In order to ensure that harbor seal population data in the northern Gulf of Alaska is collected in the most efficient manner and is comparable through the range of the species, periodic review of progress will be required. Every effort should be made to standardize population survey methods among responsible agencies. Fund.

Trustee Council Action

Fund revised proposal, which describes the methodology for achieving the objectives of the proposed study and includes participation by a representative of the Alaska Native Harbor Seal Commission in this project. It is likely that long-term monitoring of harbor seals will be a feature of GEM (Gulf Ecosystem Monitoring, the Trustee Council's long-term research and monitoring program, currently under development). This project could significantly improve the methodology and cost-effectiveness of the current survey approach.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00510-BAA	Recovery of Intertidal Communities and Recommendations for Future Monitoring	T. Dean/CRA, Inc.	NOAA	New 1st yr. 3 yr. project	$48.8	$0.0	$0.0	$48.8

Project Abstract

This project will examine the state of recovery of key habitats and representative injured species within the intertidal zone in Prince William Sound. FY 00 will consist of a statistical comparison of the National Oceanographic and Atmospheric Administration (NOAA) Hazmat and Coastal Habitat (primarily Project CH1A) data and identification of cost effective measures for monitoring intertidal communities. FY 01 will consist of sampling at intertidal sites within the sheltered rocky habitat that were previously sampled as part of the Coastal Habitat Injury Assessment. In addition, sampling will be conducted at representative sites sampled by the NOAA Hazmat team. These data, along with those previously collected during the Coastal Habitat and NOAA Hazmat programs, will be evaluated to assess the status of recovery.

Chief Scientist's Recommendation

This proposal will conduct a study to determine the comparability of data collected by the National Oceanographic and Atmospheric Administration (NOAA) Hazmat program and the Coastal Habitat Injury Assessment program (primarily Project CH1A) using two different sampling designs. An additional objective of this project is to identify methods for cost-effective sampling for long-term change in intertidal communities. Fund.

Trustee Council Action

Fund revised proposal for FY 00 only. The revised proposal focuses on a study to determine the comparability of data collected previously and identification of methods for long-term monitoring of intertidal communities.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00514	Lower Cook Inlet Waste Management Plan Implementation	M. See/ADEC	ADEC	Cont'd 2nd yr. 2 yr. project		$0.0	$0.0	$0.0

Project Abstract

This project will address pollutants reaching the marine environment in proximity to the communities of Seldovia, Nanwalek, and Port Graham through implementation of recommendations developed in the Lower Cook Inlet Waste Management Plan, currently in preparation. Following the model of the Sound Waste Management Plan and the Kodiak Waste Management Plan, this project is designed to address marine pollution from land-based sources and identify methods to help restore vital injured resources in these coastal communities.

Chief Scientist's Recommendation

This proposal is based upon the successful Sound Waste Management Plan (Project /115). Pollution input to Kachemak Bay could be adversely affecting injured resources. The project has excellent community support, and is consistent with Trustee Council efforts to reduce marine pollution. However, the feasibility of this proposal cannot be evaluated until the Lower Cook Inlet Waste Management Plan is completed. Defer.

Trustee Council Action

Continue to defer decision on funding this project until the Lower Cook Inlet Waste Management Plan has been completed, peer reviewed, and endorsed by affected communities. The request is for $800.0; this is an estimate that will be refined once the plan is complete. This project would implement recommendations of the Lower Cook Inlet Waste Management Plan (Project 99514). The objective of the project is to reduce chronic marine pollution that may be inhibiting recovery of injured resources. [NOTE: This project would be considered a capital project and would be funded outside of the regular FY 00 work plan of research, monitoring, and general restoration projects.]

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00516-BAA	Publication: Comparative Habitat Use by Kittlitz's and Marbled Murrelets	R. Day/ABR, Inc.	NOAA	New 1st yr. 1 yr. project	$21.0	$0.0	$0.0	$21.0

Project Abstract

This project will analyze an existing data set and publish a paper on the comparative at-sea habitat use by Kittlitz's and marbled murrelets. Both species were classified as injured by the oil spill. At this time, nothing is known about at-sea ecological segregation and overlap in habitat use. An existing data set for both species will be ideal for examining these issues.

Chief Scientist's Recommendation

This project has developed unique and valuable data on a rare injured species, and it would be valuable to have this research published. Fund.

Trustee Council Action

Fund. This project will produce a manuscript on differences in at-sea habitat use by marbled murrelets and Kittlitz's murrelets, two species injured by the oil spill. There appears to be an overlap in habitat and therefore competition for food. Each species of murrelet may be hindering the recovery of the other species. The manuscript would yield insight on the recovery of these two species.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00530	Lessons Learned: Evaluating Scientific Sampling of Oil Spill Effects	M. See/ADEC	ADEC	New 1st yr. 1 yr. project	$78.4	$0.0	$0.0	$78.4

Project Abstract

In the eleven years following the oil spill, a substantial amount of scientific research has been conducted on the impacts of the spill. Despite this wealth of information, there has been no comprehensive evaluation and compilation to determine which sampling methods and studies were or were not effective. This project will review selected studies and methods to assess which ones provided effective means of documenting environmental impacts. To ensure that the proposed approach will be effective, the project will be structured as a pilot project.

Chief Scientist's Recommendation

This project will assemble a group of experts to evaluate study design and sampling efforts following the oil spill. Summarizing these efforts is an important step toward making the lessons learned from the spill available to the public and to resource managers. Fund.

Trustee Council Action

Fund revised proposal, which specifies the resources and services that will be the focus of this pilot effort and who will prepare the white paper on each resource/service. This project, which will evaluate the effectiveness of the sampling and other studies that were conducted following the oil spill, is responsive to the *FY 00 Invitation*, which invited proposals that synthesize and transfer study results to resource managers and stakeholders.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00541-BAA	Publication: Prince William Sound Isotope Ecology	T. Kline/PWSSC	NOAA	New 1st yr. 1 yr. project	$15.0	$0.0	$0.0	$15.0

Project Abstract

A crucial part of the scientific research process is dissemination of the results to the scientific community. This project will prepare and submit a paper on salmon for publication in FY 00.

Chief Scientist's Recommendation

This project will support publication of study results in the peer reviewed literature. Fund.

Trustee Council Action

Fund revised proposal, which provides for only one manuscript (Pacific salmon early marine life-history trophic shifts) in FY 00. The paper will explore how differences in feeding might explain differences in pink salmon survival rates, thus contributing to our understanding of the recovery of pink salmon.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00552-BAA	Exchange Between Prince William Sound and the Gulf of Alaska	S. Vaughn/PWSSC	NOAA	New 1st yr. 3 yr. project	$114.4	$107.6	$95.9	$317.9

Project Abstract

One of the least understood physical processes that influence the biological components of Prince William Sound is the exchange between the northern Gulf of Alaska and Prince William Sound. This project will document the interannual variability in water mass exchange between Prince William Sound and the adjacent northern Gulf of Alaska at Hinchinbrook Entrance, and identify mechanisms governing this exchange. The project will deploy an upward looking ADCP mooring in Hinchinbrook Entrance to create time series of velocities over the next three years. The mooring will be equipped with a CTD to create a time series of deep temperature and salinity. To identify the dominant factors that govern Prince William Sound/Gulf of Alaska exchange, the mooring velocity and deep temperature/salinity time series will be combined with additional data types collected under other research programs already in progress.

Chief Scientist's Recommendation

The information on oceanographic exchange between Prince William Sound and the Gulf of Alaska that this project would provide is important to development and implementation of a long-term monitoring program and should be funded. The proposal includes a single mooring. A second mooring would provide a wealth of additional and complementary information and the proposer is encouraged to seek other sources of funds for a second mooring. Fund.

Trustee Council Action

Fund revised proposal, which provides a conceptual framework to support the data to be gathered and the interpretation of those data, as well as more details on methods and location. This project responds to the *FY 00 Invitation*, which invited proposals to sustain data gathering and analysis from the Hinchinbrook Entrance buoy. This information is important to development and implementation of the Trustee Council's long term research and monitoring program (GEM, Gulf Ecosystem Monitoring).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00567	Monitoring Environmental Contaminants in the Northern Gulf of Alaska	M. See/ADEC	ADEC	New 1st yr. 1 yr. project	$54.7	$0.0	$0.0	$54.7

Project Abstract

This project will assess needs and priorities for monitoring environmental contaminants in the northern Gulf of Alaska, including the area directly affected by the oil spill. It will evaluate information on water quality, marine species' sensitivities to pollutants, and contaminants that pose potentially adverse effects to the ecosystem and to human health. Recommendations will specify priorities for monitoring of contaminants in order to track lingering oil spill injury, trends, and potential effects of pollutants.

Chief Scientist's Recommendation

This project will compile a literature database of existing data on the status and trends of anthropogenic contaminants in the ecosystem of the northern Gulf of Alaska and conduct a workshop to develop priorities regarding environmental contaminants in the gulf. This effort will lay the groundwork for future monitoring designed to track changes in such contamination and its potential effects. Fund.

Trustee Council Action

Fund. This project will contribute to development of a contaminants component for the Trustee Council's long-term monitoring program (GEM, or Gulf Ecosystem Monitoring).

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00598	Publication: Resolution of Mixtures Containing *Exxon Valdez* Oil and Regional Background Hydrocarbons in Subtidal Sediments	J. Short/NOAA	NOAA	New 1st yr. 1 yr. project	$13.5	$0.0	$0.0	$13.5

Project Abstract

Using existing hydrocarbon data, this project will report application of multivariate statistical methods to the problem of resolving a hydrocarbon mixture from two different sources in subtidal sediments of Prince William Sound, *viz., Exxon Valdez* oil and the regional background hydrocarbon pattern. Multivariate logistic and Dirichlet error distributions will be compared as bases for maximum likelihood mixture compositions, under the assumption that *Exxon Valdez* oil is time-varying in composition, and the regional background from coal is not. The hydrocarbon database produced under Project /290 will be used to evaluate the performance of these approaches. Results will be used to evaluate biases inherent in a previous bivariate approach to resolution of these mixtures, which had erroneously assumed that both hydrocarbon sources were time-varying, and had concluded that *Exxon Valdez* oil contributed a small increment on a large background in shallow subtidal sediments.

Chief Scientist's Recommendation

It is very important to follow up on the basic question of the source of background hydrocarbons in Prince William Sound sediments. This is a worthwhile proposal that should clarify the relative contributions of coal hydrocarbons and *Exxon Valdez* oil to the hydrocarbons measured in Prince William Sound sediments after the spill. Fund.

Trustee Council Action

Fund. This project will produce a manuscript that clarifies the relative contributions of *Exxon Valdez* oil and coal hydrocarbons to the hydrocarbons measured in Prince William Sound sediments after the oil spill.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00599	Evaluation of Yakataga Oil Seeps as Regional Background Hydrocarbon Sources in Benthic Sediments of the Spill Area	J. Short/NOAA	NOAA	New 1st yr. 2 yr. project	$75.6	$10.0	$0.0	$85.6

Project Abstract

This project will evaluate fluxes of crude oil from terrestrial oil seeps and of particulate coal near Yakataga into the northern Gulf of Alaska to delineate the extent of "natural oil pollution" in the area affected by the oil spill.

Chief Scientist's Recommendation

This project will supply additional geochemical data about sources of hydrocarbons in background contamination of Prince William Sound. This will refine existing interpretations of hydrocarbon sources. Fund.

Trustee Council Action

Fund. This project, which will study whether fauna showing induction of cytochrome-P450 in the spill area are responding to natural oil pollution rather than to residual *Exxon Valdez* oil, is designed to improve existing interpretations of hydrocarbon sources.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00605	Information Transfer to Resource Managers, Stakeholders, and General Public	Restoration Office	ALL	New 1st yr. 1 yr. project	$19.8	$0.0	$0.0	$19.8

Project Abstract

Public information is an integral part of Trustee Council activities. This project will increase public awareness and understanding of EVOS restoration activities through improvements to the EVOS web site, improve the ability of researchers to locate and order pertinent publications, and educate managers of fish, wildlife, land, and habitat about new data and new tools available to them through EVOS-funded projects.

Chief Scientist's Recommendation

Proposal not reviewed.

Trustee Council Action

Fund. This project will make the Trustee Council's bibliography of peer-reviewed publications and final reports available and easily searchable on the EVOS web site. In addition, a publication highlighting tools and data sets available for managers will be prepared. These new materials will be introduced at an open house in Spring 2000 designed to bring managers together with principal investigators for presentations and discussions on useful results of EVOS-funded projects. This project continues the Council's commitment to promote data and tools developed from EVOS research that are directly relevant to resource management.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00610	Kodiak Island Youth Area Watch	P. Brown-Schwalenberg/CRRC	ADFG	New 1st yr. 3 yr. project	$61.8	$61.8	$61.8	$185.4

Project Abstract

In FY 99, Chugach Regional Resources Commission collaborated with the Kodiak Island Borough School District to institute an internship program within the Community Involvement Project (/052A), involving one student from each of the following communities: Akhiok, Larsen Bay, Old Harbor, Port Lions, Kodiak and Karluk. This project will expand the involvement and objectives of the internship program by collaborating with four research projects on Kodiak Island: Project 00245/Harbor Seal Biosampling, Project 00482/PSP Field Test Kit, a yet-to-be identified project with the Fisheries Industrial Technical Center, and an algae testing project to find the origin of PSP with Dr. Gerry Plumley, University of Alaska Fairbanks, funded by the Alaska Science and Technology Foundation.

Chief Scientist's Recommendation

The Youth Area Watch has proven to be a popular and effective way of involving students in spill-area communities in restoration projects and in science more generally. The involvement of the Kodiak communities is important. Fund.

Trustee Council Action

Fund. This project will extend the Youth Area Watch program, which has been an effective means of involving youth from Prince William Sound and lower Cook Inlet in the restoration effort (Project /210), to seven communities on Kodiak Island (Akhiok, Larsen Bay, Old Harbor, Port Lions, Kodiak, Karluk, and Ouzinkie). The proposal has a high degree of public support in the Kodiak region and investigators on ongoing projects (00245/Harbor Seal Biosampling and others) have committed to working with participating youth.

Proj.No.	Project Title	Proposer	Lead Agency	New or Cont'd	FY00 Approved	FY01 Estimate	FY02 Estimate	Total FY00-02
00630	Planning for Long-Term Research and Monitoring Program	Restoration Office	ALL	New 1st yr. 3 yr. project	$84.7	$50.0	$25.0	$159.7

Project Abstract

In March 1999, the Trustee Council earmarked an estimated $115 million of Restoration Reserve funds for a long-term monitoring and research program in the spill area and adjacent northern Gulf of Alaska. Development of a draft plan for what is tentatively named the Gulf Ecosystem Monitoring (GEM) program was initiated in FY 99 and will continue through FY 02. In FY 00, the main steps will be to present a draft plan for comment by the general public and spill-area stakeholders, coordinate and refine the plan in association with such other large-scale programs as the U.S. Global Ocean Ecosystem Dynamics (GLOBEC) and the North Pacific Marine Science Organization (PICES), provide a revised draft plan for review by the National Research Council (see Project 00360), and contribute to development of the FY 01 invitation which will request proposals for projects needed to accomplish the transition to the long-term program. Project 00630 will be accomplished through the combined efforts of the Restoration Office and Chief Scientist.

Chief Scientist's Recommendation

The recovery, restoration, and conservation of injured resources beyond FY 02 will be the focus of the GEM (Gulf Ecosystem Monitoring) program. Alaska needs a long-term program to help manage its resources and this program could be of immeasurable value. Fund.

Trustee Council Action

Fund. This project will conduct the planning necessary to carry out the Trustee Council's decision to dedicate an estimated $115 million of Restoration Reserve funds in support of long-term monitoring and research in the spill area and adjacent northern Gulf of Alaska.