FY 99 WORK PLAN - INDEX OF DETAILED PROJECT DESCRIPTIONS

FY 99 WORK PLAN - INDEX OF DETAILED PROJECT DESCRIPTIONS

FY 99 WORK PLAN - INDEX OF DETAILED PROJECT DESCRIPTIONS

FY 99 WORK PLAN - INDEX OF DETAILED PROJECT DESCRIPTIONS

FY 99 WORK PLAN - INDEX OF DETAILED BUDGETS

Proj.No.	Project Title
99007A	Archaeological Index Site Monitoring
99012A-BAA	Comprehensive Killer Whale Investigation in Prince William Sound
99025-CLO	Mechanisms of Impact and Potential Recovery of Nearshore Vertebrate Predators (NVP)
99043B-CLO	Monitoring of Cutthroat Trout and Dolly Varden Habitat Improvement Structures
99052A	Community Involvement
99052B	Traditional Ecological Knowledge
99064	Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in Prince William Sound
99090	Monitoring of Oiled Mussel Beds in Prince William Sound
99100	Administration, Science Management, and Public Information
99126	Habitat Protection and Acquisition Support
99127	Tatitlek Coho Salmon Release
99131	Chugach Native Region Clam Restoration
99139A2	Port Dick Creek Tributary Restoration and Development
99144A	Common Murre Population Monitoring
99145-CLO	Cutthroat Trout and Dolly Varden: Relation Among and Within Populations of Anadromous and Resident Forms
99149-CLO	Archaeological Site Stewardship
99159	Surveys to Monitor Marine Bird Abundance in Prince William Sound During Winter and Summer: Report and Publication Writing
99162A	Investigation of Disease Factors Affecting Declines of Pacific Herring Populations: Manuscripts/Conference Attendance (Part A)
99162B	Investigations of Disease Factors Affecting Declines of Pacific Herring Populations: Manuscripts/Conference Attendance (Part B)
99163	APEX: Alaska Predator Ecosystem Experiment in Prince William Sound and the Gulf of Alaska
99169	A Genetic Study to Aid in Restoration of Murres, Guillemots, and Murrelets in the Gulf of Alaska
99180	Kenai Habitat Restoration and Recreation Enhancement
99188-CLO	Otolith Thermal Mass Marking of Hatchery Reared Pink Salmon In Prince William Sound
99190	Construction of a Linkage Map for the Pink Salmon Genome

FY 99 WORK PLAN - INDEX OF DETAILED BUDGETS

Proj.No.	Project Title
99191A-CLO	Field Examination of Oil-Related Embryo Mortalities in Pink Salmon Populations in Prince William Sound
99195	Pristane Monitoring in Mussels
99196-CLO	Genetic Structure of Prince William Sound Pink Salmon
99210	Youth Area Watch
99225	Port Graham Pink Salmon Subsistence Project
99245	Community-Based Harbor Seal Management and Biological Sampling
99247	Kametolook River Coho Salmon Subsistence Project
99250	Project Management
99250(am)	Project Management
99252	Investigations of Genetically Important Conservation Units of Rockfish and Walleye Pollock
99256B	Sockeye Salmon Stocking at Solf Lake
99263	Assessment, Protection and Enhancement of Salmon Streams in Lower Cook Inlet
99273	Surf Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource
99278	Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet
99289-BAA	Status of Black Oystercatchers in Prince William Sound
99290	Hydrocarbon Data Analysis, Interpretation, and Database Maintenance
99291-CLO	Chenega Shoreline Residual Oiling Reduction: Final Report Writing
99300	Synthesis of the Scientific Findings from the *Exxon Valdez* Oil Spill Restoration Program
99304	Kodiak Island Borough Master Waste Management Plan
99306	Ecology and Demographics of Pacific Sand Lance in Lower Cook Inlet
99311	Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined with Natural Stable Isotope Tracers
99314	Homer Mariner Park Habitat Assessment and Restoration Design
99320-CLO	Sound Ecosystem Assessment (SEA)
99320M-CLO	Sound Ecosystem Assessment (SEA): Observational Oceanography in Prince William Sound and the Gulf of Alaska

FY 99 WORK PLAN - INDEX OF DETAILED BUDGETS

Proj.No.	Project Title
99320N-BAA	Acoustic Assessment of Pink Salmon Predators, Macrozooplankton Prey and Juvenile Herring in Prince William Sound
99325-BAA	Assessment of Injury to Intertidal and Nearshore Subtidal Communities Following EVOS: Preparation of Manuscripts for Publication
99327	Pigeon Guillemot Restoration Research at the Alaska SeaLife Center
99328	Synthesis of the Toxicological and Epidemiological Impacts of the Oil Spill on Pacific Herring
99329	Synthesis of the Toxicological Impacts on Pink Salmon
99330-BAA	Mass-Balance Models of Trophic Fluxes in EVOS-Impacted Areas
99338	Survival of Adult Murres and Kittiwakes in Relation to Forage Fish Abundance
99339	Western Prince William Sound Human Use and Wildlife Disturbance Model
99340	Toward Long-Term Oceanographic Monitoring of the Gulf of Alaska Ecosystem
99341	Harbor Seal Recovery: Controlled Studies of Health and Diet
99346	Publication of an Indexed Bibliography of the Genus Ammodytes (Sand Lance)
99347	Fatty Acid Profile and Lipid Class Analysis for Estimating Diet Composition and Quality at Different Trophic Levels
99348	Responses of River Otters to Oil Contamination: A Controlled Study of Biological Stress Markers
99361-BAA	Dynamic Graphical Techniques for Ecosystem Synthesis, Communication and Product Delivery
99366	Improved Salmon Escapement Enumeration Using Remote Video and Time-Lapse Recording Technology
99367	Synthesis and Publication of Fisheries Research
99368	Maps Depicting Environmentally Sensitive Areas in Prince William Sound (Summary Seasonal Maps Only)
99371	Effects of Harbor Seal Metabolism on Stable Isotope Ratio Tracers
99375	Effect of Herring Egg Distribution and Ecology on Year-Class Strength and Adult Distribution
99379	Assessment of Risk Caused by Residual Oil in Prince William Sound Using P450 Activity in Fishes
99381	Status of Seabird Colonies in Northeastern Prince William Sound
99391	Cook Inlet Information Management/Monitoring System
99393-BAA	Prince William Sound Food Webs: Structure and Change
99401	Assessment of Spot Shrimp Abundance in Prince William Sound

FY 99 WORK PLAN - INDEX OF DETAILED BUDGETS

Approved TC 8-13-98

Kametolook River Coho Salmon Subsistence Project

Project Number:	99247
Restoration Category:	General Restoration
Proposer:	Perryville Village Council
Lead Trustee Agency:	ADF&G
Cooperating Agencies:	NONE
Alaska SeaLife Center:	NO
Duration:	3rd year, 6-year project
Cost FY 99:	$20.8
Cost FY 00:	$21.1
Cost FY 01:	$21.4
Cost FY 02:	$29.5
Geographic Area:	Perryville/ Kametolook River/ Alaska Peninsula
Injured Resources/ Service	Subsistence

ABSTRACT

Subsistence users from the remote South Alaska Peninsula Native Village of Perryville have noted declines in the coho salmon (*Oncorhynchus kisutch*) run in the nearby Kametolook River since the *Exxon Valdez* oil spill (EVOS). The Trustee Council began funding this project in Federal Fiscal Year 1997 with the intent of restoring the coho salmon run to historic levels. This project is a continuation of an evaluative phase of the project funded through the EVOS criminal settlement (Grant Agreement Number 2168588). Although limnological, juvenile and adult fisheries data were not available or severely limited before the salmon decline, it was determined through the evaluation phase that instream incubation boxes in conjunction with self imposed harvest limits by subsistence users were the preferred alternatives for restoration this salmon run. In 1997, the Alaska Department of Fish and Game, Habitat and Restoration Division, aided the project by providing an Environmental Assessment. In 1997, a Finding of No Significant Impact was signed for NEPA compliance.

Community involvement by the villagers of Perryville is an integral part of restoring the Kametolook River coho as a subsistence resource. Presently, no regulations prohibit fishing in the Kametolook River; however, starting in 1997 the Perryville Village Council voluntarily closed the upper half of the Kametolook River to subsistence salmon fishing in order to not interfere with spawning. In addition, as part of the community involvement portion of the project the Perryville Village Council has hired local assistants who received training to assist ADF&G with fieldwork including: genetic and pathological sampling, incubation box installation, egg takes and incubation techniques, and year around monitoring of the boxes and environment. Also, an aquarium has been set up in the village school where students actively participate in incubating coho salmon from egg to fry stage and releasing the fry into the Kametolook River. In May 1997, about 125 fry from the school aquarium project were released. This project was repeated in the winter of 1997-1998.

In 1997, two production type instream incubation boxes were installed in the upper reach of the Kametolook River. These boxes replaced and were in addition to a small test incubation box that has successfully incubated eggs. In 1997, the Kametolook River coho escapement was an estimated 724 salmon, nearly four times the estimated escapement during 1996. The increased escapement is attributed to the self imposed closure of the upper river by the villagers and a commercial fishing closure in marine waters during nearly the entire coho salmon run. In 1997, several attempts to capture ripe coho salmon have generally been unsuccessful; eggs from only seven females have been deployed in the incubation boxes. To increase the egg take, next year's project will include the use of salmon holding pens to make the recovery of ripe salmon easier.

INTRODUCTION

This subsistence project is designed to restore coho salmon subsistence opportunities in the Alaska Peninsula village of Perryville. The project was initiated during community workshops held by the Subsistence Restoration Planning Team. Workshops in Perryville took place in September 1994 and May 1995. The project was subsequently endorsed by the Perryville Village Council. The project was also discussed and endorsed by the Chignik Regional Planning Team in the spring of 1995 and again in December 1996. Alaska Department of Fish and Game, Division of Commercial Fisheries, westward region staff assigned to the Chignik and Alaska Peninsula regions and the Division of Subsistence, have been involved in the planning and development of the project. In addition, an ADF&G biologist in the Norton Sound Region has provided technical expertise regarding the use of both instream incubator boxes and recirculating water incubators, which have been successful in the Norton Sound Region. Alaska Department of Fish and Game, Division of Habitat and Restoration staff have also been involved with the project, especially with the development of an Environmental Assessment

In 1996, funding for the evaluation phase of the project was provided through a grant to the Native Village of Perryville by the Alaska Department of Community and Regional Affairs, using EVOS criminal settlement funds. During consultation about this grant, the State members of the Trustee Council requested that a proposal to the full Trustee Council be prepared to support the implementation of the project in subsequent years. This was accomplished and the Trustee Council began funding this project in Federal Fiscal Year 1997. The Environmental Assessment was approved and the resulting FONSI for this project was received by the Trustee Council in May, 1997.

It has been determined by the assessment team (PI's, Habitat and Restoration, and Perryville Village Council) that local salmon stock instream incubator boxes are the best method to help restore Kametolook River coho salmon runs. Applications for ADF&G fish transport permits are reviewed annually and a general habitat waterway/waterbody application has been granted for this project. In 1997, an environmental assessment was completed with a Finding of No Significant Impact signed for NEPA compliance. Samples of adult coho salmon will continue to be collected for genetic and pathology data until sufficient numbers are obtained. The assessment team will work with the Principal Geneticist, Principal Pathologist and Area Management Biologist to have the most safe and satisfactory project possible to help restore coho salmon in the Kametolook River to historic levels.

NEED FOR THE PROJECT

A. Statement of Problem

Since Perryville was founded in 1912, the Kametolook River has provided the community with much of its supply of subsistence coho salmon. Since the *Exxon Valdez* oil spill,

Perryville residents have noted that there are fewer and fewer coho salmon in the river. It has become such a problem that many families must travel further away from Perryville to find sufficient amounts of salmon. Their use of these other areas has put additional pressure on fish stocks used for subsistence by the neighboring villages of Ivanof Bay, and the three Chignik villages.

Salmon are very important for Native people of Perryville, and are relied on greatly for their subsistence as well as economic livelihoods. Commercial fishing is the mainstay of Perryville's cash economy, where many residents travel to fish camps in Chignik Lagoon and Chignik Bay in the summer months to commercial fish, as well as to put up fresh sockeye salmon for smoking, canning or freezing. Those people who spend summer months in Chignik return to Perryville in the fall to put up coho salmon that are also smoked, as well as dried. Many other Perryville residents, however, do not commercial fish and stay in Perryville year around. Gradually throughout the summer, they travel to the Kametolook River to catch their year's supply of subsistence salmon which are primarily coho, pink, and chum salmon. (Sockeye, estimated at fewer than 100 adults annually, also spawn in the Kametolook River.)

Division of Subsistence personnel first did research in Perryville in 1984. Starting in 1990, the division has documented concerns by local residents that coho salmon availability in the Kametolook River is far below historical levels. Fish and Game biologists working in the Chignik region believe coho salmon stocks in the Kametolook River might be depressed, but have little data regarding historic or present escapement levels for this small, remote river.

B. Rationale/Link to Restoration

Salmon runs to the Kametolook River have been declining in recent years. Members of the village of Perryville requested the EVOS Trustee Council to fund a restoration project and they asked ADF&G to assist with this project. The cause of the decline in salmon numbers is unknown. A restoration project cannot be successful unless the cause of the decline is understood and the project is "fixing" the "right problem". An appropriate salmon restoration project will hopefully increase Kametolook River coho salmon relied on for subsistence by Perryville people back to historic levels. If more fish are available for subsistence, it will not only provide people with more coho salmon, but it will also take pressure off of other subsistence resources that were hurt by the spill, such as other salmon species, clams, seals and sea lions, as well as recent declines of local caribou.

C. Location

The remote Native village of Perryville is located approximately 500 air miles southwest of Anchorage on the Pacific side of the Alaska Peninsula. Veniaminof Volcano overlooks the village that is situated directly along the Pacific Ocean coastline with beaches of volcanic black sand. The Kametolook River is located four miles northeast of Perryville, and is easily accessible from the community via ATV, foot, or boat.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

The Trustee Council's goal of achieving additional local public involvement in the restoration process is addressed in that Perryville will be a partner with ADF&G personnel in this project. This project has been discussed and endorsed by the Chignik Regional Planing Team and the Perryville Village Council. Through project funds, the Perryville Village Council is responsible for hiring local assistants, and providing necessary logistical support for the operation of this project. The community has also contributed much in terms of local knowledge of the environment, including: historic to contemporary salmon run timing and numbers, subsistence harvest levels over time, identifying physical changes to the Kametolook River over time, helping ADF&G identify spawning and rearing areas, and identify potential characteristics of the river, such as where winter freeze over or spring and fall flooding might occur.

Several residents of Perryville have worked with ADF&G during assessment and implementation phases of the project. In addition, local assistants will monitor the project throughout the year, when ADF&G personnel will not be present. Local assistants through hands-on involvement have been trained by ADF&G personnel to monitor temperature and water level stations, to monitor the egg incubation boxes, participate in egg takes for seeding the incubation boxes, transporting eggs to the classroom incubator, and will transport fry to nearby lakes or adjacent rivers (depending on what the current review of the Fish Transport Permits allows).

Perryville residents have been kept informed about the progress of the project through the Village Council and village meetings. During these meetings residents have been informed about salmon run strengths, harvest levels, and rearing and habitat issues. The community has been encouraged to come up with ways that they can contribute toward restoring the coho run. Presently, no regulations prohibit fishing in the Kametolook River; however, starting in 1997 the Perryville Village Council voluntarily closed the upper half of the Kametolook River to subsistence salmon fishing in order to not interfere with spawning.

School children have had opportunities to learn, understand and appreciate the complexities of the growth cycle of salmon through the use of a classroom aquarium that is raising coho salmon from egg to fry stages. If the fish resource permits allow, these fry will be released into one of the two landlocked lakes or into the Kametolook River. In addition, when allowed by the teachers and parents, older school children have accompanied ADF&G personnel to the Kametolook River and nearby lakes to assist with minnow trapping and biological and habitat sampling. This portion of the project has been in operation for two winters now, and expected to continue through 2002 and possibly beyond if the school continues to support the program.

PROJECT DESIGN

The primary goals of the project are to increase the coho salmon runs to the Kametolook River and to include the people of Perryville through involvement in the project and education. The method(s) used to accomplish this have been determined in 1996 and 1997 by a team of ADF&G specialists, and local Perryville residents. Funding for the first portion of the project was provided through a grant to the Native Village of Perryville from the criminal settlement funds. Beginning in Federal Fiscal Year 1997 funding has been provided by the Trustee Council. Personnel involved with the project have determined that the most appropriate rehabilitation method is through the use of instream incubation boxes. The team has acquired all the necessary permits (with the exception of the Fish Transport Permits which are submitted to ADF&G for review annually). The Environmental Assessment and a Finding of No Significant Impact by the US Fish and Wildlife Service was approved in May of 1997. This project has the potential to make restoration of coho salmon in the Kametolook River possible. Similar projects in other regions of Alaska have proven to be successful.

In addition to school and village meetings where salmon life cycle processes were described instream incubation boxes have been determined to be the preferred restoration method. A test incubation box was positioned in a head water tributary of the Kametolook River to use the natural flow of water from the stream to incubate coho salmon eggs. This portion of the project has been successful; swimup fry were produced during April, 1997. In the production phase of this project, genetic integrity of the Kametolook River coho salmon will be assured under the guidance of the department's Principal Geneticist. The potential incubation site has water temperatures consistent with natural spawning sites to insure that fry development and emergence occur at the same time as naturally occurring fry. The small scope of this project is not expected to noticeably add any coho salmon to other common property harvest groups (i.e. commercial fisheries).

From similar projects in Norton Sound, it has been found that improved returns were noticeable in about five years. If the number of coho salmon spawners is sufficient to allow an egg take, instream incubators will be employed. (Fish Transport Permits will require a minimum of 60 naturally spawning pairs before an egg take can occur and then 50% of the escapement above the 60 spawning pairs will be available for an egg take.) In 1998 and beyond, the use of salmon holding pens will be used to make the recovery of ripe salmon easier. The incubators are expected to operate annually from 1997 through 2002. Since a major expense is in the boxes (materials and installation), and establishing an incubation site, the annual cost of operation and maintenance is not significant.

Other restoration methods evaluated included a recirculating water incubation facility in the village, potential habitat manipulation to create or provide access to better spawning and rearing habitats, and a remote incubation facility. All of these alternative methods were rejected in favor of the instream incubators.

A. Objectives

There are two main project objectives: the first is community involvement described above, and the second is to restore the coho salmon returns to the Kametolook River and provide local subsistence salmon opportunities. The species of interest for this project is coho salmon. Phase 1 of the project included a complete assessment of the creek and river habitat in proximity to Perryville and interviews to determine salmon run strength, run timing and physical changes to local drainages. Phase 2 (1996) included installation and testing of a streamside incubation box, continuation of the classroom aquarium and education programs for adults and high school students. Phase 3 so far has included installation (August/September 1997) of large capacity streamside incubation boxes, installation and use of the school aquarium, education programs, and biological sampling for pathological and genetic testing. Phase 3 will continue through the end of the project with biological testing (until required amount necessary are obtained for genetic and pathology tests), annual egg takes for the incubation boxes and the school aquarium, continued education and habitat and harvest monitoring.

B. Methods/ May 1996-September 1998

May 1996 through September 1996/ This phase of the project was funded through the Criminal Settlement/ Project Perryville 96-1.

May 1996: Three ADF&G assessment team members traveled to Perryville and joined with local assistants to assess the Kametolook River in order to make recommendations for the best restoration efforts. A small instream test incubator box (2 foot square plywood box) was installed at the headwaters of the river. The incubator box was also equipped with a thermograph to aid in determining the potential of the incubation site. Thermographs were also installed at three other habitat monitoring locations along the Kametolook River. Perryville guides showed the ADF&g team the different stream reaches; at this time, there was no evidence of blockages to adult or smolt migration. Blockage and breaching events apparently occur on a scale of about 2-10 years. ADF&G personnel were given the impression that the river has relatively unstable spawning areas with current upstream spawning sites improved from prior years. Young-of-the-year and fingerling coho were observed in several slough habitats and small ponds. Several ponds, deep main-stem pools, side-channel sloughs and spring areas apparently do not freeze solid and would provide over winter rearing habitat. During this trip preliminary investigations were also undertaken for possible stocking of rainbow trout or coho salmon into two landlocked lakes (Sandy and Sicken Lakes) in proximity to Perryville. At the high school ADF&G personnel discussed potential education projects such as a classroom salmon aquarium and recirculating egg incubators. (A detailed field trip report is available.)

Project 97247 (October 96-September 97)

October 1996: Three ADF&G assessment team members traveled to Perryville and joined with local assistants to expand the habitat surveys of drainages adjacent to Perryville, to place fertilized eggs in the experimental stream side incubation box and to initiate a cooperative educational program in the Perryville school. Local guides showed us much of the historic and potentially productive reaches of the Kametolook, Three Star and Long Beach Rivers. Long Beach River, although historically productive, presently had no quality spawning or rearing habitat. Three Star River, smallest of the three drainages, had some stable reaches but about half of the discharge had changed course and currently flows into Long Beach River. Some potential rearing habitat is present while spawning habitat appeared to be limited. Kametolook River currently showed the most salmon spawning and rearing potential. However, this system is dynamic and habitat quantity and quality may change annually.

Minnow trapping was conducted in all three drainages. Rearing and spawning habitat in Long Beach River appeared to be negligible. Three Star River had limited high quality slough habitat and supported juvenile coho salmon and Dolly Varden; spawning habitat appeared to be limited to several short stream reaches. Rearing habitat for juvenile coho salmon in the Kametolook River appeared to be quite abundant while upper stream reaches seemed able to support relatively good numbers of spawning salmon. Several high school students assisted with coho fingerling data collection efforts.

Trap catches and age-classes of juvenile coho salmon are summarized below:

			Total	Catch per Trap-Hour	
Location	Site	No. Traps	Trap Hr.	Coho	Dolly Varden
Kametolook	Candlefish Slough	4	2.50	36.1	150.5
Kametolook	Fingerling Slough	5	5.40	44.6	10.5
Kametolook	Cross Creek	4	2.16	19.9	34.0
Kametolook	Average			33.4	58.9
Three Star	"Lake"	2	9.09	5.2	16.1
Long Beach	pond	1	0.50	8.0	

Fingerling coho salmon age classes from the Kametolook River-combined:

	Number	Percent
Age 1.0:	45	45.0
Age 2.0:	55	55.0
Total Samples:	100	100.0

A total of 32 adult coho salmon were collected from the Kametolook River during this trip. Few other adult salmon were seen. Genetic and kidney samples, otoliths and scales

were taken from each salmon. All observed coho salmon appeared to be recent arrivals to the river and were not ripe; seeding fertilized coho eggs into the incubation box was not possible.

Age class distribution of adult coho salmon from the Kametolook River is as follows:

	Number	Percent
Age 1.1:	9	28.1
Age 2.1:	18	56.3
Age 3.1:	2	6.3
Unknown:	3	9.4
Total Samples:	32	100.0

Adult coho samples from the Kametolook River, sexed from internal observation:

	Male	Female	Unknown	Total
Number	15	16	1	32
Percent	46.9	50.0	3.1	100.0

High school students, in addition to assisting with fingerling sampling, also explained the field trip experience to their fellow students. Each presented some aspect of the field studies and the ADF&G team participated by asking questions and explaining details. ADF&G personnel also demonstrated scale reading techniques and presented representative samples of all species collected from the minnow traps. Plans were developed with the science teacher to install and permit a classroom aquarium incubator for coho salmon eggs. (A detailed field trip report is available.)

November 1996: Two ADF&G assessment team members traveled to Perryville and joined with local assistants to capture and spawn one pair of coho salmon for the incubation box in the Kametolook River. Gillnetting captured about 20 salmon including 4 sockeye, 13 male coho and 3 female coho salmon. Following standard delayed fertilization techniques, the eggs were fertilized and seeded into the incubation box. A thermograph was deployed in the substrate near the largest group of spawning salmon. Although only a one time event, a survey to enumerate spawning coho was conducted. About 75% of all observed coho were located within 1 mile downstream of the incubation box; the remaining 25% were scattered in small groups throughout the remainder of the drainage. The total observed coho escapement was about 100 salmon with no ocean bright salmon observed. The subsistence harvest continued, and the observed escapement might have been higher than the actual spawning escapement. (A detailed field trip report is available.)

At the high school the ADF&G team assembled the aquarium incubator. When the eggs reach the eyed stage, about 250 eggs from the stream side incubator were transferred to the classroom incubator (January ADF&G field trip). (A detailed field trip report is available.)

January 1997: Two ADF&G team members traveled to Perryville. While waiting in King Salmon for the flight to Perryville they met with the Alaska Peninsula/Becharoff National Wildlife Refuge staff to discuss the Kametolook project and review the draft Environmental Assessment. In Perryville, they joined local assistants and checked the thermograph and staff gauge sites, shocked the incubating eggs, discarding dead eggs, and sorted out about 250 eggs which were transported to the school aquarium. An approved Fish Transport Permit allowed 250 eggs to be raised in the school aquarium and their release back into the Kametolook River. With the assistance of five high school students the team measured physical characteristics of two landlocked lakes as potential coho fry or rainbow trout release sites and collected gravel for alevin habitat in the aquarium. A slide show of the restoration project and discussion of the life cycle of salmon was presented to all Perryville students. ADF&g personnel also attended a meeting sponsored by the Village Council where they presented a similar slide show. At the village meeting the restoration project and the school aquarium were discussed as well as the life cycle of coho salmon, the 1996 coho salmon escapement, and potential production from the escapement. (A detailed field trip report is available.)

March-May 1997: ADF&G personnel drafted an Environmental Assessment of the Kametolook River Coho Salmon Restoration Project. A FONSI was developed and in May was signed for NEPA compliance. A Habitat Permit was reviewed and accepted which allows the instream incubation boxes to be deployed. Fish Transport Permits were drafted for review to insure that management, genetic, and pathology concerns are addressed. Approximately 125 coho salmon fry were released into the river of origin (Kametolook) from the school aquarium project (Fish Resource Permit P-97-021).

June-July, 1997: Received appropriate fish transport permits from ADF&G for harvesting salmon eggs and releasing fry from incubation box and school aquarium for the 1997/98 season. Purchased materials for two incubation boxes and constructed them for later use. Met with the Chignik Regional Planning Team, Chignik Regional Aquaculture Association and public to development a Western and Perryville Districts coho salmon management plan.

August 1997: Transported incubation boxes to Chignik Bay (ADF&G M/V Resolution) and local Perryville resident transported them to Perryville via fishing boat.

September 1997: Two Perryville personnel were trained (2 weeks) at Pillar Creek Hatchery (Kodiak) in spawning and incubator maintenance techniques. Two ADF&G staff attempted to travel to Perryville to install the two incubation boxes in Kametolook River, sample salmon and trout for age, length and abundance data, however weather prevented them from traveling beyond Chignik Lake. In late September, two Perryville assistants transported two egg boxes and other necessary equipment up Kametolook River to the installation site.

Project 98247 (October 97-September 98)

October-November 1997: The Perryville Village Council voluntarily closed the spawning areas of the Kametolook River to fishing (October 3). One ADF&G personnel traveled to Perryville October 31 through Nov. 6. On this trip ADF&G personnel 1) set up the school aquarium for incubation of coho salmon from egg to fry stages, met with the teachers and this year's upper class members and instructed them on classroom salmon incubation techniques; 2) discussed with the local assistants the placement of thermographs for the fall/winter/spring period of 1997-1998; 3) estimated the total coho salmon escapement to the Kametolook and Three Star Rivers; 4) with help of three local assistants, installed two production type salmon incubation boxes in the Kametolook River; 4) attempted a coho salmon eggtake for the incubator boxes and the school aquarium 5) took samples of adult coho salmon for genetic and pathology data. Only two ripe and no spawned out fish were caught and added to one of the egg incubation boxes. Because of the lack of success finding ripe and spawned out salmon, it was decided that four local Perryville assistants would attempt additional egg takes through November.

Local Perryville assistants took 10 additional trips at different stream locations and several sets per day to capture ripe coho for the incubation boxes without much success totaling 7 females, which were added to the incubation boxes. The problem was not in catching fish, but in catching ripe ones. Samples were taken for pathology and genetic testing from males and females harvested for sampling. They reinstalled and deployed thermographs at designated sites.

December 1997: The assessment team decided to install fish holding pens in 1998 to aid in capturing ripe salmon for egg incubation boxes. Perryville assistants traveled to egg incubation boxes and removed approximately 300 eyed eggs which were put inside the school aquarium.

January-March 1998: Perryville assistants took monthly monitoring trips to Kametolook River to check thermograph sites and egg boxes. Approval to release fry in Kametolook was denied by ADF&G Pathologist due to low number of females harvested; however, approved was granted to release them in local landlocked Sicken and Sandy Lakes in late April or May. The Perryville teacher communicated with ADF&G regarding status of eggs in aquarium. Survival fry from school incubation box will be transported and released in the Kametolook River in late April or May. Two net holding pens were acquired, and prepared for transport to Perryville in May. Present staff attended the State Board of Fisheries meeting and gave staff report regarding the project. They also attended Chignik RPT meeting and provided a project status report. The RPT continued to support project. A fish transport permit request was submitted to ADF&G for review.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

Perryville

The Native Village of Perryville has hired a local project administrator to track the project, arrange for logistical support, and assist ADF&G with field work and long term monitoring of the project. Three additional Perryville residents have been hired (by the

Village) to work annually, as needed, to assist ADF&G and the project administrator with building and hauling materials, maintenance of installed egg boxes, site selection and installation of fish holding nets. Local assistants will also help with capturing adult salmon, taking genetic and pathology samples, removing, fertilizing, and seeding eggs into incubation boxes, and releasing fry in spring. Village assistants will also need to continue providing a skiff and 4-wheelers as needed. The project administrator is responsible for checking the boxes and habitat monitoring sites throughout the winter to insure they are operating efficiently, and safe from natural or human harm. Wages for the four village assistants have been included in the cost of the grant.

Alaska Department of Fish and Game

Several ADF&G personnel have provided technical assistance for the project. Personnel responsible for the project include: Jim McCullough, Fish Biologist III for Commercial Fisheries, Kodiak, and Lisa Scarbrough, Subsistence Resource Specialist II for Subsistence, Anchorage. Personnel assisting the project include: Bill Hauser, Fish Biologist IV for Habitat and Restoration, Anchorage; Joe Sullivan, Fish Biologist III for Habitat and Restoration, Anchorage, Dave Owen, Fish Biologist III, Chignik/Kodiak; Wayne Dolezal, Habitat Biologist III for Habitat and Restoration, Anchorage and Pete Velsco, Fish Culturist II for Commercial Fisheries, Nome (earlier in project/now retired).

Jim McCullough with ADF&G has several years of varied experience with fisheries enhancement and research projects as well as salmon management in the Alaska Peninsula. Lisa Scarbrough, has been doing subsistence research in the Alaska Peninsula (including Perryville) communities since 1989. Bill Hauser and Joe Sullivan have extensive experience in fisheries restoration and enhancement with the department. Dave Owen is Chignik's Area Management Biologist with several years of experience with fisheries in the Chignik/ Perryville region. Wayne Dolezal is one of the State's leading experts on habitat restoration. Pete has several years of varied experience with instream and recirculating incubation box projects, particularly in Norton Sound. Labor (with the exception of .5 months/year for Lisa) will be provided by ADF&G as part of their normal salary, however, transportation costs and per diem will be covered through the grant.

SCHEDULE

A.1. Measurable Project Tasks remaining for FY 98 (April- September 1998)

April/May 1998:
- -Review meeting with assessment team to evaluate the project.
- -Write DPD proposal for FY99 and FY 97 annual report.
- -One ADF&G personnel travels to Perryville to assist Perryville assistants with fry release from egg boxes. Students release aquarium fry. Meet with community to review status of project and discuss community involvement activities.
- -Ship net holding pens and attachments to Perryville.
- -Perryville assistants monitor monthly thermograph and incubation boxes.

June-Sept. 1998: -Perryville assistants monitor monthly thermograph and incubation boxes, and conduct stream surveys.

A.2. Measurable Project Tasks for FY99 (October 1998 - September 1999)

October 1998:
-One ADF&G personnel travel to Perryville to install salmon net holding pens and seine coho salmon (assisted by 2 or 3 Perryville assistants) to keep in pens until salmon are ripe for spawning.
-ADF&G conducts stream surveys of Kametolook River.

Nov./Dec. 1998:
-Two ADF&G personnel travel to Perryville:
- meet with Perryville personnel and conduct escapement surveys.
-Perform a coho salmon egg take.
-Sample salmon for genetic and pathology tests.
-Consult with teachers and set up school aquarium and obtain FTP.

Jan.-Feb. 1999:
-Perryville personnel will transport eyed eggs to the school aquarium.
-ADF&G analyze subsistence and commercial harvest data.
-Attend Chignik State Board of Fish meeting.
-Attend Chignik RPT meeting and provide project status report.
-Submit Fish Transport Permit request to ADF&G for review.

April/May 1999:
-Review meeting with assessment team to evaluate the project.
-Write DPD proposal for FY00 and FY 98 annual report.
-One ADF&G personnel travels to Perryville to assist Perryville assistants with fry release from egg boxes. Students release aquarium fry. Meet with community to review status of project and discuss community involvement activities.
-Purchase and ship to Perryville any necessary equipment needed for project maintenance.
-Perryville assistants monitor monthly thermograph and incubation boxes.

June-Sept. 1999:
-Perryville assistants monitor monthly thermograph and incubation boxes, and conduct stream surveys.

B. Project Milestones and Endpoints

Annually through the duration of the project: One day every month, one or two trained Perryville researchers will return to the thermometer sites and note the condition of the thermographs and photograph the area. They will also be responsible for reporting their findings to the ADF&G team. ADF&G will continue to supervise the project and continue to take trips to assist with the project; however, as the project continues (up

through 2003) Now that Perryville assistants have been trained by ADF&G, they will take on more responsibility for the project, including but not limited to: conducting escapement surveys, netting salmon for holding in pens, harvesting and fertilizing eggs and transporting to egg boxes, taking samples of harvested salmon for genetic and pathology tests, assisting school children with obtaining eyed eggs for school aquarium project, and releasing fry in spring. (This is necessary because of budget constraints preventing ADF&G from being present at all critical times of the project.)

Annually, ADF&G staff will evaluate the Kametolook coho runs through subsistence harvest reports, evaluate incubator performance and stocking levels, perform egg takes, stocking, update project plan, review FTPs and FRPs, provide annual peer review and write annual reports. ADF&G biologists will determine any significant changes to the coho salmon spawning and rearing habitat of the rivers to determine appropriate stocking levels. ADF&G will also evaluate the use of Kametolook River coho salmon as brood stock and the release of fry back into the Kametolook, Three Star, and Long Beach Rivers and other potential stocking sites include Sandy and Sicken Lakes.

In order to rehabilitate the coho salmon run in the Perryville area, education of villagers through a better understanding of the life cycles and conservation of salmon is essential. The ADF&G team will assist with an educational process that focuses on teaching the community through the both the school children and adults. They plan to continue working with the community and teachers and help with this process. Results from all samples will continue to be shared with the school and community.

In conjunction with all other aspects of this project, the ADF&G team will continue to work with the Village Council to assess the project and look at ways the community can facilitate the success of the project and help increase the number of spawning coho salmon. As mentioned earlier, as of October, 1997, Perryville Village council voluntarily closed the upper half of the Kametolook River to salmon fishing as a way to do their part at helping solve the salmon shortage problem. This action as well as other options will be evaluated and discussed with the community annually on a regular basis.

The ADF&G team expects the stream side incubation boxes, in conjunction with some fishing restraints, will provide sufficient coho salmon to rehabilitate the run within two to three life cycles. In addition to the Kametolook River, coho fry from the incubation boxes and school aquarium could also be stocked in both landlocked lakes (Sandy and Sicken), as well as nearby Three Star and Long Beach Rivers (approved by ADF&G FTP reviewers).

C. Completion Date

The project is anticipated to be completed by September 30, 2002.

PUBLICATIONS AND REPORTS

An annual report of activities will be submitted to the Restoration Office before 15 April of each year, commencing in 1998. Similar reports will also be presented to the Chignik Salmon Advisory Committee and the Alaska Board of Fish.

PROFESSIONAL CONFERENCES

None planned at this time.

NORMAL AGENCY MANAGEMENT

This proposed rehabilitation effort is not part of ADF&G's normal management responsibilities in the Chignik area.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This project is a continuation of Perryville 96-01, funded by DCRA funds from the EVOS Criminal Settlement in FY 96 and Trustee Council Civil projects 97247 and 98247 funded in Federal Fiscal Years 1997 and 1998.

PRINCIPAL INVESTIGATORS

Jim McCullough, Fish Biologist III
Alaska Department of Fish and Game
Division of Commercial Fisheries and Management
211 Mission Road
Kodiak, Alaska 99615-6399
Phone: (907) 486-1813
Fax: 486-1841
E-mail: JimMc@fishgame.state.ak.us

1 Nov 1995 - Present: FB III Regional Resource and Development Biologist. Co-author of the Pillar Creek and Kitoi Bay basic and annual hatchery plans. Voting member of the Kodiak, Chignik and Alaska Peninsula/Aleutian Islands Regional Planning Teams. Author/Review regional Fish Transport and Fish Resource Permits. Regional Habitat Biologist. ADF&G representative to the Kodiak Sensitive Areas Workgroup. Coleader of an EVOS project to restore a coho stock for subsistence purposes in the Chignik Area.

30 June 1990 - 1 Nov 1995: FB III Alaska Peninsula Herring and Southeastern District Salmon Management Biologist. Compiled salmon and herring catch data and herring

biomass and salmon escapement data which I analyzed to determine opening and closure of the various commercial fisheries as delegated by the Commissioner of ADF&G.

16 July 1985 - 31 May 1990: FB II Alaska Peninsula and Aleutian Islands Areas Finfish Research Biologist involved the design, organization, and completion of the annual catch and escapement program.

Lisa Scarbrough, Subsistence Resource Specialist II
Alaska Department of Fish and Game
Division of Subsistence
333 Raspberry Road
Anchorage, Alaska 99518-1599
Phone: (907) 267-2396
Fax: 267-2450
E-mail: LisaS@fishgame.state.ak.us

Lisa Scarbrough has been a subsistence resource specialist with the Division of Subsistence of the Alaska Department of Fish and Game since 1989. She has extensive subsistence research experience in the Chignik area, including the village of Perryville. This has included research on the effects of the oil spill on local subsistence patterns. Her work has also involved training residents of the Chignik area communities as research assistants. Since 1993, Lisa has been responsible for assessing Chignik Subsistence salmon permit data.

OTHER KEY PERSONNEL

Perryville Traditional Village Council
Gerald Kosbruk, President
Celia Yagie, Village Administrator
P.O. Box 101
Perryville, Alaska 99648
Phone: (907) 853-2203
Fax: 853-2230
Chief Community Coordinator- *Jerry Yagie* - Phone: (907) 853-2261

Bill Hauser, Fish Biologist IV
Alaska Department of Fish and Game
Division of Habitat and Restoration
333 Raspberry Road
Anchorage, Alaska 99518-1599
Phone: (907) 267-2172
Fax: 267-2285

Joe Sullivan, Fish Biologist III
Alaska Department of Fish and Game
Division of Habitat and Restoration
333 Raspberry Road
Anchorage, Alaska 99518-1599
Phone: (907) 267-2213
Fax: 267-2285

Wayne Dolezal, Habitat Biologist III
Alaska Department of Fish and Game
Division of Habitat and Restoration
333 Raspberry Road
Anchorage, Alaska 99518-1599
Phone: (907) 267-2333
Fax: 267-2285

David Owen, Fish Biologist III
Alaska Department of Fish and Game
Division of Commercial Fisheries and Management
211 Mission Road
Kodiak, Alaska 99615-6399
Phone: (907) 486-1806
Fax: 486-1841

Chignik Regional Planning Team and Chignik Regional Aquaculture Association
Chuck McCallum, Chairman
614 Irving Street
Bellingham, Washington 98225
Phone: (360) 647-5540
Fax: 733-4744

Approved R 0-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$2.6	$2.6
Travel	$6.4	$6.8
Contractual	$4.7	$10.0
Commodities	$0.0	$0.3
Equipment	$0.5	$0.0
Subtotal	$14.2	$19.7
General Administration	$0.7	$1.1
Project Total	$14.9	$20.8
Full-time Equivalents (FTE)	0.5	0.5
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$21.1	$21.4	$29.5

Dollar amounts are shown in thousands of dollars.

Comments:

Comments: An Environmental Assessment was approved in 1997. The final evaluation of the project is projected to be FY 2002.

This project was originally funded by Criminal Settlement funds in 1996. The budget estimate for 1999 through 2002 differs slightly than the projected amount stated on the 1998 DPD . This is because contractual costs with Perryville are higher than originally estimated, due to the nature of the salmon run and FTP requirements. Additional field days are required than estimated in 1989 in order to obtain sufficient eggs for the egg boxes. It is more cost effective to have local Perryville assistants conduct this extra work than to have ADF&G make several additional trips to Perryville to accomplish these tasks. (Two Perryville assistants were trained in Sept., 1997 as part of this project at the Kodiak Pillar Creek Hatchery as well as on the job training with ADF&G in Perryville on this project.) Insurance costs were added to the contractual portion of project to cover Perryville's cost for general liability and workman's compensation insurance that are required by the State of Alaska for this project. In addition, staff time (.5 months in 1999,2000,2001 and 2.0 months in 2002) will continue to be requested annually in order to develop and monitor the subcontract with Perryville and provide other staff support for the project, and write the final report in 02.

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Agency: ADFG

FORM 3A
TRUSTEE
AGENCY
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
Lisa Scarbrough	Subsistence Resource Spec. II	16F	0.5	5.1	0.0	2.6
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		0.5	5.1	0.0	
					Personnel Total	$2.6

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
Kodiak/ Anchorage	0.4	3	6	0.1	1.8
Anchorage/Perryville	0.8	4	18	0.1	5.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$6.8

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Agency: ADFG

FORM 3B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:		Proposed
Description		FY 1999
4A Linkage	Contract with the Native Village of Perryville (Perryville wages/gasoline/ATV or boat use/ insurance/ Village Admin fee (10%))	9.8
	shipping costs of misc. maintenance supplies to Perryville via Peninsula airmail	0.2
When a non-trustee organization is used, the form 4A is required.	Contractual Total	$10.0

Commodities Costs:		Proposed
Description		FY 1999
	General maintenance supplies for incubation boxes/ egg take equipment/ fish holding pens/ temperature instruments/school aquarium etc.	0.3
	Commodities Total	$0.3

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Agency: ADFG

FORM 3B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY 99

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Agency: ADFG

FORM 3B
Equipment
DETAIL

Prepared: 4/1/98
Revised: 4/9/98, JRS

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$4.3	$5.4
Travel		$0.0
Contractual		$2.3
Commodities		$0.0
Equipment		$0.0
Subtotal	$4.3	$7.7
Indirect	$0.4	$2.1
Project Total	$4.7	$9.8
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$10.1	$10.4	$10.7

Dollar amounts are shown in thousands of dollars.

Comments:

Perryville overhead rates are typically 10%; however ADF&G requires workman's compensation and general liability insurance for contractors. Thus indirect equals insurance ($1.3K) plus normal overhead ($0.8K).

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Name: The Native Village of Perryville

FORM 4A
Non-Trustee
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Personnel Costs:			Months	Monthly		Proposed
Name	Position Description		Budgeted	Costs	Overtime	FY 1999
To be determined	Project Facillitator and assistants					5.4
						0.0
Note: approx. 54 days of work @ about $100/day labor						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
		Subtotal	0.0	0.0	0.0	
					Personnel Total	$5.4

Travel Costs:		Ticket	Round	Total	Daily	Proposed
Description		Price	Trips	Days	Per Diem	FY 1999
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
					Travel Total	$0.0

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Name: The Native Village of Perryville

FORM 4B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Note: appx. 45 days of ATV use @ about $50/day	2.3
Contractual Total	$2.3

Commodities Costs:	Proposed
Description	FY 1999
Commodities Total	$0.0

FY 99

Prepared: 4/1/98
Revised: 4/9/98, JRS

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Name: The Native Village of Perryville

FORM 4B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	

FY 99

Project Number: 99247
Project Title: Kametolook River Coho Salmon Subsistence
Name: The Native Village of Perryville

FORM 4B
Equipment
DETAIL

Prepared: 4/1/98
Revised: 4/9/98, JRS

99250

Approved TC 1-22-99
99250(am)

Exxon Valdez Oil Spill Trustee Council

645 G Street, Suite 401, Anchorage, AK 99501-3451 907/278-8012 fax:907/276-7178

MEMORANDUM

TO: Trustee Council Members

FROM: Molly McCammon
Executive Director

DATE: January 22, 1999

RE: Amendment to project 99250 Project Management

The Alaska Department of Environmental Conservation (DEC) has requested funding to cover unbudgeted project management costs primarily associated with implementation of the Kodiak Island Borough Master Waste Management Plan (99304). The project was approved by the Trustee Council to address marine pollution derived from land-based sources and waste management practices of the remote communities on Kodiak Island. The project was funded for a total amount of $1,857,000, and is considered to be a capital project.

The DEC Project Manager will be responsible for developing a Memorandum of Understanding with the Kodiak Island Borough, reviewing progress reports and participating in project status meetings.

It is my recommendation that for FY99, the Council provide funding to support two months of project management. DEC estimates this cost to be $5,500 a month for a total increase of $12,700 (including GA). In addition, I recommend that any future project management costs associated with FY 00 and FY 01 be considered as part of the 00250 and 01250 project management budgets.

Revision 8-3-98
Approved TC 8-13-98

Project Management

Project number:	99250
Restoration Category:	Research, Monitoring and General Restoration
Proposer:	All
Cost FY 97:	$641.6
Cost FY 98:	$560.1
Cost FY 99:	$454.2
Cost FY 00:	TBD
Cost FY 01:	TBD
Cost FY 02:	TBD

ABSTRACT

Project management is an important element of the Trustee Council's restoration activities. Project Managers perform tasks which include coordinating the activities between the principal Investigators and the Restoration Office, reviewing project expenditure activity, assisting in the development of project budgets, tracking of project reporting, and ensuring that each project is implemented consistent with applicable legal and regulatory requirements and the Trustee Council's operating procedures.

INTRODUCTION

The FY 99 proposal for project management reflects Trustee Council guidance to continue reductions in overall programmatic and administrative costs consistent with the reduced restoration program. In FY 98, the Trustee Council authorized a Work Plan budget of approximately $14 million inclusive of project management costs of $560;100. In FY 99, it is anticipated that the Trustee Council will approve a work plan budget of approximately $10-12 million inclusive of project management costs of $454,200. Future funding for Project Management will be assessed in light of Annual Work Plan needs but it is anticipated to decline consistent with the reduction of overall Work Plan funding.

NEED FOR THE PROJECT

The Project Manager provides an essential link between the Restoration Office and the Principal Investigators. Project managers:

coordinate and track the progress of restoration projects;
ensure that projects meet their stated goals, objectives and schedules;
monitor project expenditures to ensure that funds are expended consistent with project authorization;
obtain information from and/or facilitate the exchange of information between the Restoration Office, the public, cooperating agencies, and project investigators;
attend meetings relating to planning and progress reviews;
ensure that all reports, documents and contract deliverables are acceptable;
facilitate the printing/distribution of project reports to the Alaska Resources Library and Information Service (ARLIS);
help track the inventory of equipment purchased with settlement funds;
assist in the preparation and review of project proposals and budgets; and
ensure National Environmental Policy Act (NEPA) compliance.

COMMUNITY INVOLVEMENT

Project Managers for each project are available to the public to answer questions and provide information on the restoration projects that they manage. Project Managers also work with the Community Involvement Coordinator and Community Facilitators as appropriate to ensure that community involvement objectives are met.

PROJECT DESIGN

A. Objectives

Project Managers ensure that studies funded by the Trustee Council are accomplished on time and consistent with the legal and regulatory requirements governing each project as well as Trustee Council procedures including any applicable conditions or requirements at the time of authorization.

B. Methods

Project Managers track project expenditures and status information and provide progress updates to the Restoration Office.

C. Cooperating Agencies, Contracts and other Agency Assistance

Organizational and administrative structures vary by agency. Certain projects have multiple agencies involved; others do not. Some projects involve contracts; others do not. In some cases, an agency's project management functions are accomplished in whole or part by the Agency Liaison funded through the Project 99100 - Restoration Work Force budget. In other cases, project management funds are provided in addition to liaison funding to support the management of numerous or complex projects.

SCHEDULE

A. Measurable Project Tasks for FY 99 (October 1, 1998 - September 30, 1999)

October 31:	Submit prior year fourth quarter expenditure and project status information to the Restoration Office.
December 31:	Submit updated inventory of equipment purchased with Joint Settlement funds to the Restoration Office.
March 23-27:	Attend 10th Anniversary Symposium
April 15:	Submit Detailed Project Descriptions and detailed budgets for FY 2000 proposals to the Restoration Office.
April 30:	Submit second quarter expenditure and project status information to the Restoration Office.
July 31:	Submit third quarter expenditure and project status information to the Restoration Office.

B. Project Milestones and Endpoints

Funding for Project Management will be necessary each year in which restoration projects are funded.

C. Completion Date

Funding for Project Management will be necessary each year in which restoration projects are funded.

PUBLICATIONS AND REPORTS

The Project Managers ensure timely completion of annual and/or final reports and do not prepare reports themselves.

PROFESSIONAL CONFERENCES

All Project Managers are required to attend the 10th Anniversary Symposium.

NORMAL AGENCY MANAGEMENT

The Project Managers perform tasks specific to the *Exxon Valdez* oil spill restoration program that are not part of normal agency management.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Project Managers facilitate communications between projects as well as between researchers and the Restoration Office.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

Not applicable to this project.

PROPOSED PRINCIPAL INVESTIGATOR, IF KNOWN

Not applicable to this project.

Revision 1/3/98
approved TC 8-13-98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999	PROPOSED FY 1999 TRUSTEE AGENCIES TOTALS					
				ADEC	ADF&G	ADNR	USFS	DOI	NOAA
				$0.0	$239.0	$25.5	$22.4	$72.5	$94.8
Personnel	$487.0	$438.0	$394.9						
Travel	$0.0	$0.0	$0.0						
Contractual	$0.0	$0.0	$0.0						
Commodities	$0.0	$0.0	$0.0						
Equipment	$0.0	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$487.0	$438.0	$394.9		Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
General Administration	$73.1	$65.8	$59.3						
Project Total	$560.1	$503.8	$454.2		TBD	TBD	TBD		
Full-time Equivalents (FTE)	6.1	5.8	5.3						

Comments:

1999

Project Number: 99250
Project Title: Project Management
Lead Agency:

FORM 2A
MULTI-TRUSTEE
AGENCY
SUMMARY

8/3/98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$0.0	$0.0	$0.0
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$0.0	$0.0	$0.0
General Administration	$0.0	$0.0	$0.0
Project Total	$0.0	$0.0	$0.0
Full-time Equivalents (FTE)	0.0	0.0	0.0

LONG RANGE FUNDING REQUIREMENTS			
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
	TBD	TBD	TBD

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
No funding requested.		0.0	0.0		0.0			0.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
	Subtotal	0.0	0.0		0.0	0	0.0	$0.0

1999

Project Number: 99250
Project Title: Project Management
Agency: Alaska Department of Environmental Conservation

FORM 3A
PROJECT
MANAGEMENT

8/3/98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$245.8	$213.6	$207.8
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$245.8	$213.6	$207.8
General Administration	$36.9	$32.0	$31.2
Project Total	$282.7	$245.6	$239.0
Full-time Equivalents (FTE)	3.1	2.7	2.6

LONG RANGE FUNDING REQUIREMENTS					
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
	TBD	TBD	TBD		

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
								0.0
W. Hauser	Project Manager	12.0	12.0	20M	12.0	7,550		90.6
D. Moore	Project Manager	9.0						
J. Sullivan	Project Manager	9.0	12.0	18K	12.0	6,350		76.2
C. Rozen	Librarian	7.0	8.0	17J	7.0	5,850		41.0
								0.0
								0.0
								0.0
								0.0
								0.0
	Subtotal	37.0	32.0		31.0	19,750	0.0	$207.8

1999

Project Number: 99250
Project Title: Project Management
Agency: Alaska Department of Fish and Game

FORM 3A
PROJECT
MANAGEMENT

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$21.6	$37.2	$22.2
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$21.6	$37.2	$22.2
General Administration	$3.2	$5.6	$3.3
Project Total	$24.8	$42.8	$25.5
Full-time Equivalents (FTE)	0.3	0.4	0.3

LONG RANGE FUNDING REQUIREMENTS			
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
	TBD	TBD	TBD

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
								0.0
TBD	Natural Res. Manager II	3.0	4.0	20	3.0	7,400		22.2
Judy Bittner	Chief, History/Archaeology	0.0	1.0	21	0.0	7,600		0.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
	Subtotal	3.0	5.0		3.0	15,000	0.0	$22.2

1999

Project Number: 99250
Project Title: Project Management
Agency: Alaska Department of Natural Resources

FORM 3A
PROJECT
MANAGEMENT

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$29.0	$39.0	$19.5
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$29.0	$39.0	$19.5
General Administration	$4.4	$5.9	$2.9
Project Total	$33.4	$44.9	$22.4
Full-time Equivalents (FTE)	0.4	0.5	0.3

LONG RANGE FUNDING REQUIREMENTS			
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
	TBD	TBD	TBD

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
								0.0
K. Holbrook	Program Manager	5.0						
Vacant	Program Manager		6.0	GS-13	3.0	6,500		19.5
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
	Subtotal	5.0	6.0		3.0	6,500	0.0	$19.5

1999

Prepared: 7/15/98

Project Number: 99250
Project Title: Project Management
Agency: United States Forest Service

FORM 3A
PROJECT
MANAGEMENT

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$66.2	$63.0	$63.0
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$66.2	$63.0	$63.0
General Administration	$9.9	$9.5	$9.5
Project Total	$76.1	$72.5	$72.5
Full-time Equivalents (FTE)	1.0	0.9	0.9

LONG RANGE FUNDING REQUIREMENTS			
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
	TBD	TBD	TBD

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
								0.0
D. Irons	Project Manager - FWS	5.0	4.0	GS-12	4.0	7,000		28.0
L. Thomas	Project Manager - USGS	7.0	7.0	GS-11	7.0	5,000		35.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
								0.0
	Subtotal	12.0	11.0		11.0	12,000	0.0	$63.0

1999

Project Number: 99250
Project Title: Project Management
Agency: United States Department of the Interior

FORM 3A
PROJECT
MANAGEMENT

8/3/98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Agency Proposed	Proposed FY 1999
Personnel	$124.4	$85.2	$82.4
Travel			
Contractual			
Commodities			
Equipment			
Subtotal	$124.4	$85.2	$82.4
General Administration	$18.7	$12.8	$12.4
Project Total	$143.1	$98.0	$94.8
Full-time Equivalents (FTE)	1.3	1.3	1.2

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
TBD	TBD	TBD

Personnel Costs:		FY 1998 Months	FY 1999 Agency	Proposed FY 1999 GS/Range/	Months	Monthly		Proposed
Name	Position Description	Budgeted	Request	Step	Budgeted	Costs	Overtime	FY 1999
								0.0
B. Morris	Project Manager	4.0						
B. Wright	Project Manager	12.0	6.0	GS-13	6.0	8,400		50.4
M. Lindeberg	Fisheries Biologist		4.0	GS- 9	0.0	4,200		0.0
J. Lum	Fisheries Biologist		3.0	GS- 9	0.0	4,000		0.0
L. Hulbert	Fisheries Biologist		2.0	GS- 7	0.0	3,000		0.0
TBD	Fisheries Biologist		0.0	GS- 9	8.0	4,000		32.0
								0.0
								0.0
								0.0
	Subtotal	16.0	15.0		14.0	23,600	0.0	$82.4

1999

Project Number: 99250
Project Title: Project Management
Agency: National Oceanic and Atmospheric Administration

FORM 3A
PROJECT
MANAGEMENT

In lieu of DPD
– FINAL –

MEMORANDUM

State of Alaska
DEPARTMENT OF FISH AND GAME

99252

TO: Molly McCammon
Executive Director
Exxon Valdez Oil Spill Trustee Council

DATE: March 8, 1999

FAX NO: 267-2442

TELEPHONE NO: 267-2249

FROM: Lisa Seeb
Principal Geneticist
Division of Commercial Fisheries

SUBJECT: Closeout on Project 252

This memo is intended to serve as an addendum to the detailed project description for Project 99252 Investigations of Genetically Important Conservation Units of Species Inhabiting the EVOS Area. We will review the status and work completed on each of the project's components and propose an orderly closeout. Our objective in the closeout is to complete meaningful research units that are important to the Department and that were approved in Project 98252 while curtailing longer-term and all new research objectives in Project 99252 in line with Dr. Spies' recommendations. Components dropped or reduced include all work on dusky and yelloweye rockfishes, investigation of inheritance and origin of null alleles in walleye pollock, and State of Alaska general funds support for experimental matings at ASLC.

We will also try to provide a smooth transition for components linked to Project 99190. Due to the ongoing nature of the project and our commitment to ASLC, ADF&G has already expended considerable funds to maintain the project and all experimental pink salmon crosses from Oct 1, 1998 to date, so the closeout will, by necessity, reflect that commitment.

Walleye Pollock

Sampling for walleye pollock was completed in FY98, and approximately 600 samples were collected in 1997 and 1998. All laboratory analyses (allozymes, mtDNA, and microsatellite loci) of 1997 collections have been completed; laboratory analyses for 1998 samples are underway and are approximately 30% complete. Work on inheritance and origin of null alleles has been curtailed.

Results from the 1997 collections were to be reported in the annual report for FY98 due April 15, 1999. We propose now to complete a comprehensive analysis of both years and report them in a draft final report at the end of FY99. A manuscript will be submitted for publication in Transactions of the American Fisheries Society.

Black Rockfish

Sampling for black rockfish was initiated in FY98 with the planned completion in FY99. We propose to complete the collection of the remaining samples scheduled for spring, 1999. This will provide a critical sample from Prince William Sound as well as outgroups from Southeast Alaska and British Columbia.

For black rockfish, we proposed both mtDNA and microsatellite analyses; no allozyme work was proposed. The mtDNA work is nearing completion for the 1997 and 1998 samples. We have also screened those samples for the *Sma* microsatellite (cloned from *Sebastes maliger*, quilback rockfish) primers as outlined in the DPD. We propose to complete these screens on all remaining and 1999 samples.

In addition, Project 98252 funded development of primer sequences for approximately 20 tetra-nucleotide microsatellites from black rockfish (*Sme 1-20).* To date, we have tested approximately 12 primer sets for PCR amplification success with very promising results. Loci amplified well with little stuttering and appeared to include both highly variable and low variation loci. We are initially screening each primer pair in four black rockfish individuals and several individuals from other *Sebastes* species as well as from the several related genera. Promising loci will then be screened in 25-50 black rockfish to assess degree of polymorphism and allele size range. Finally, segregation analysis will be conducted to test for Mendelian inheritance from larvae removed from gravid females. These results will be submitted in a short publication to *Molecular Ecology* (primer note) in late spring or early summer 1999. Informative microsatellite loci will then be incorporated into the population screen for all samples.

We anticipate completion of the laboratory work for all samples in late FY99 with data analyses and manuscript preparation to follow. We request a no-cost extension to complete the black rockfish project in early to mid FY00. We propose to report these results separately and at a later date than the walleye pollock results. Should the Trustees require full completion and reporting in FY99, population screening of the *Sme* primers will be dropped.

Dusky and Yelloweye Rockfish

Several collections of yelloweye (*S. ruberrimus*) and dusky (*S. ciliatus*) rockfishes were secured in FY98 in anticipation of enlarging the number of rockfish species investigated under Project 252. Since these analyses were not specifically proposed and approved in the DPD for Project 98252, these samples will not be analyzed using *EVOS* Trustee Council funds.

Experimental salmon populations

Pink salmon from Likes Creek (Resurrection Bay,Thumb Cove) were collected in August 1998, and full sib families were made at the ASLC in collaboration with Project 9x190. We have cared for and monitored the developing embryos on a daily basis since that time and actively participated in study design of research and facilities at the ASLC. Planning is now underway for the transition of this work to Project 9x190 and the ASLC. The transition will begin in March, 1999, and be fully completed by the end of FY99. ASLC will provide a budget for fish care to support 9x190 and will assume responsibility for routine fish care, spring fin clipping, and fall egg takes in 1999. We will plan to vacate our ADF&G laboratory and office space and relocate ADF&G staff to Anchorage by August, 1999. We will leave all ADF&G fish rearing equipment (incubators, circulars, etc.) at the ASLC, but may request them sometime in the future if the need arises.

I hope this meets the intent of the Chief Scientist in closing out the project. By curtailing and dropping research activities we have reduced the budget by approximately $70K which will provide adequate funds for the ASLC to support fish culture activities for Project 9x190. A revised detailed budget is attached. We regret that ADF&G will be unable to participate in experimental runs of salmonids at the ASLC but appreciate the support the Trustee Council has given us in past years.

Table 1. Sampling design for genetic analysis of walleye pollock and rockfishes of the genus *Sebastes*.

Species	Sampling Locations	Sample Size (N)		
		1997	1998	1999*
Walleye Pollock	Prince William Sound (Inner Gulf)	100	100	
	Shelikof Strait (Outer Gulf)	80	100	
	Middleton Island (Northern Gulf)	120	100	
Black rockfish	Washington/British Columbia			100
	SE Alaska			100
	Prince William Sound			100
	Resurrection Bay	82	18	
	Kachemak Bay		100	
	Kodiak Island-East	100	100	
	Kodiak Island-West		100	
	Sand Point, Alaska Peninsula		40	
Dusky rockfish (light)	NE Gulf		100	
	Prince William Sound			
	Kodiak	50	50	
Dusky rockfish (dark)	NE Gulf		100	
	Prince William Sound			
	Kodiak	50	50	
Yelloweye rockfish	Central Gulf of Alaska		100	
	Prince William Sound		100	

* Collections underway, spring 1999.

SCHEDULE

A. Measurable Project Tasks for FY98-99

February -May 1998:	Collect pollock tissue samples (NMFS assessment survey crews, area ADF&G staff, commercial fishing vessels)
May - August 1998:	Collect rockfish tissue samples (area ADF&G staff)
April 1998:	Recruit and hire ASLC staff
Oct. 1997-Sept. 1999:	Begin protocol development, lab analysis of pollock and rockfish samples
March - April 1998:	Prepare 99252 proposal
May 1998 – May 1999:	Rockfish tissue collections
Aug. – Sept. 1998:	Pink salmon spawning
Sept. 1998 – May 1999:	Maintain pink salmon in hatchery (sort dead eggs, care for alevins, feed, move fry)
Oct 1998-July 1999:	Analyze laboratory data
June 1999:	Submission of primer note for black rockfish
September 1999:	Final report on pollock work
January 2000:	Final report on black rockfish work

B. Project Milestones and Endpoints

February, 1998	Experimental pollock matings (3 successfully conducted to date)
April 15, 1998:	Proposal for Project 99252
May, 1998	Obtain gravid rockfish for inheritance study at ASLC
Sept. 30, 1998:	First pink salmon egg take for ASLC salmon run
Jan. 1999:	Development of *Sebastes* microsatellite loci complete
Mar.-May, 1999:	Plan and assist with the release of pink salmon fry
Mar.–Aug. 1999	Transition pink salmon work to Project 99190
Sept 30, 1999:	Final Report 98252, recommendations for pollock management
January 2000	Final report on black rockfish study, recommendations for black rockfish management

Cc: Commissioner Rue, Claudia Slater

Revision 1-99
(FINAL)

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$104.3	$82.9
Travel	$10.3	$6.6
Contractual	$38.8	$37.3
Commodities	$30.3	$21.7
Equipment	$7.0	$0.0
Subtotal	$190.7	$148.5
General Administration	$18.4	$15.0
Project Total	$209.1	$163.5
Full-time Equivalents (FTE)		1.8
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$0.0	$0.0	$0.0

Dollar amounts are shown in thousands of dollars.

Comments:

The FY99 project cost do not include SeaLife Center bench fees.

Personnel Assignments:
Debevec: mtDNA analyses conducted at ASLC (Seward); care of experimental crosses (10/98-3/99)
Kerkvliet: Microsatellite analyses (Anchorage); data analyses
Jeff Olsen: Project supervision (Anchorage and Seward), data analysis, report preparation

Total Project Cost: $ 163.5
+ 108.3 ASLC Bench Fees
271.8

FY 99

Prepared:

Project Number: 99252 Closeout
Project Title: Investigations of Genetically Important Conservation Units of Species Inhabiting the EVOS Area
Agency: AK Dept. of Fish & Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
Debevec	FWTIII	11C	6.0	3391		20.3
Kerkvliet	FBI(PCN 7043)	14D	4.0	4150		16.6
Jeff Olsen	FBIII	18A	6.0	4866		29.2
Vacant	FWTIII (PCN 7607)	11A	5.0	3360		16.8
	Subtotal		21.0	15767	0.0	
					Personnel Total	$82.9

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
					0.0
					0.0
Seward to Anchorage, per diem			10	115	1.2
Anchorage to Seward , per diem			30	115	3.5
Anchorage to Lower 48, Professional Meeting					0.0
Personal Vehicle mileage to Seward	80	24			1.9
				Travel Total	$6.6

FY 99

Prepared:

Project Number: 99252 Closeout
Project Title: Investigations of Genetically Important Conservation Units of Species Inhabiting the EVOS Area
Agency: AK Dept. of Fish & Game

FORM 3B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Freight	1.0
Photography	0.5
Office Expenses	0.5
Telephone/fax- long distance	1.0
Equipment maintenance	2.0
Contract to ASLC for fish care, fin clipping, egg takes and boat rental for Project 99190	32.3
	0.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$37.3

Commodities Costs:	Proposed
Description	FY 1999
DNA chemicals - (pollock)	8.0
DNA chemicals (black rockfish)	8.0
Allozyme chemicals	1.0
Plastics (cryovials, disposable pipettes, etc.)	2.2
Misc. supplies	2.0
Sampling supplies; containers, liquid nit., etc.	0.5
Commodities Total	$21.7

FY 99

Prepared:

Project Number:99252 Closeout
Project Title: Investigations of Genetically Important Conservation Units of Species Inhabiting the EVOS Area
Agency: AK Dept. of Fish & Game

FORM 3B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 1999
Description			
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number of Units	Inventory Agency
Description		

FY 99

Project Number: 99252 Closeout
Project Title: Investigations of Genetically Important Conservation Units of Species Inhabiting the EVOS Area
Agency: AK Dept. of Fish & Game

FORM 3B
Equipment
DETAIL

Prepared:

Received from Susan Inglis, ASLC
3-12-99

EVOS Project-Genetically Important Conservation Units

EVOS # 98252

Service Fees Estimate

Facility User	Quantity Required	Cost	Duration	Cost Estimate
ASLC Research Technician	1	$3,350/month	7 months	$23,450.00
TASKS				
1.Pooling of 50 Families-March				
Temporary ASLC Staff	2	$18.00/hr	3hrs	$108.00
2.Fin Clipping-April				
Temporary ASLC Staff	4	$18.00/hr	5 days (40 hrs)	$2,880.00
3. Egg Take-Sept				
Temporary ASLC Staff	4	$18.00/hr	4 days (32 hrs)	$2,304.00
Boat Rental	1	$400.00/day	4 days (32 hrs)	$1,600.00
Miscellaneous Supplies (Med.,ect.)	n/a	n/a	7 months	$700.00
Freezer Space (storing samples)				
Ultra Cold Shelves	5	$23.00/month	7 months	$805.00
Freezer	20cu.ft.	$60.00/month	7 months	$420.00
				$32,267.00

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$0.0
Travel		$0.0
Contractual		$101.2
Commodities		$0.0
Equipment		$0.0
Subtotal	$0.0	$101.2
General Administration		$7.1
Project Total	$0.0	$108.3
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

	Estimated FY 1999	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002	

Dollar amounts are shown in thousands of dollars.

Comments:

FY 99

1 of 1

Project Number: 99252
Project Title: Bench Fees: Investigations of Genetically Important Conservation Units of Rockfish and Walleye Pollock
Agency: ADFG

FORM 3A
TRUSTEE
AGENCY
SUMMARY

4/1/99

Approved TC 8-13-98

Sockeye Salmon Stocking at Solf Lake

Project Number:	99256B
Restoration Category:	General Restoration
Proposer:	D. Gillikin/USFS, P. Shields/ADFG
Lead Trustee Agency:	USFS
Cooperating Agencies:	ADFG
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	4th yr. 7 yr. project
Cost FY 99:	$68.3
Cost FY 2000:	
Cost FY 01:	
Cost FY 02:	
Geographic Area:	Prince William Sound
Injured Resource/Service:	Sockeye salmon, subsistence

ABSTRACT

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

INTRODUCTION

The purpose of this project is to establish a sustainable sockeye fishery available to subsistence users in Prince William Sound. This proposal is a continuation of the Sockeye Salmon Stocking project 98256B at Solf Lake. The project was initially funded by the Trustees in 1996 (96256B) as a feasibility study. Additional work was conducted in 1997 (97256B) with installation of a lake outlet flow control structure and design engineering of one of the key weirs. The productivity of Solf Lake has been evaluated by the Alaska Department of Fish and Game (ADF&G) and the lake was determined to be able to support a sustainable run of 10,000 sockeye salmon. In 1998, (98256B) the weir structures will be constructed and the in-stream passage structures will be designed. The Forest Service has coordinated with the ADF&G, the Prince William Aquaculture Corporation (PWSAC), and the Regional Planning Team (RPT) to rear and release 100,000 sockeye fry into the lake beginning in 1998. The fry are being reared at the Main Bay Hatchery.

The purpose of this proposal is to secure the funding necessary to continue the multi-year project. The work proposed in 1999 includes: 1) a detailed engineering design for the final phase of outlet channel structure work (the 1998 construction will alter the flows into the primary outlet channel, and hence, final design changes must be completed to account for the different conditions which are unknown at this time), 2) collect eggs, rear and release sockeye fry, and 3) monitor out-migration and the limnological characteristics of the lake.

NEED FOR THE PROJECT

A. Statement of Problem

Subsistence is identified as a lost or reduced service by the Oil spill Trustee Council. This project was designed to mitigate these losses by re-establishing a historic run of sockeye salmon in Solf Lake to provide these opportunities for users of PWS. Historically, Solf Lake supported a run of sockeye salmon. However, an earthquake in the 1930's created a barrier to fish passage causing the population to go extinct. Work completed thus far indicates the lake is capable of producing a self sustaining and harvestable run of sockeye and represents an excellent opportunity to provide a subsistence opportunity in PWS.

B. Rationale/Link to Restoration

The *Exxon Valdez* Restoration Office's Invitation to submit proposals for FY99 stated that subsistence users have reported that they are traveling greater distances and must invest more time in subsistence harvesting than they did prior to the spill. Unlike many other oil spill communities, Chenega Bay still shows reduced subsistence harvest levels and a greater reliance on subsistence harvest of salmon (Seitz and Fall, 1995; Seitz and Miraglia, 1995). Solf Lake is located approximately 40 miles from Chenega Bay and provides an opportunity to establish a

replacement fishery that is accessible to subsistence users. Establishing this fishery would directly benefit subsistence users in Western Prince William Sound.

C. Location

Solf Lake is located off of Herring Bay on Knight Island. The lake is approximately 40 miles by boat from Chenega Bay and 46 miles from Whittier. The lake is unnamed on USGS maps; however, Nickerson (1978), PWSRPT (1983 and 1986) and Barto and Nelson (1982) all refer to the lake as Solf Lake (ADF&G Stream 690). The lake is described in the Anadromous Waters Catalog as number 226-10-16900-0010 (ADF&G, 1992).

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

This project is designed specifically to benefit subsistence users of PWS; therefore, community involvement is an important component for the success of the project. Contacts with the Chenega Bay community liaison will be maintained throughout all phases of this project. Opportunities will be identified to include residents of Chenega Bay in habitat improvement work or in the post-stocking monitoring program.

PROJECT DESIGN

A. Objectives

Feasibility/Planning Phase

1. Determine if a self-sustaining population of sockeye salmon could be established in Solf Lake (completed).
2. Determine appropriate salmon stocking levels (completed).
3. Determine an appropriate brood stock and the necessary logistics to begin a stocking program (completed and ongoing).
4. Evaluate and determine fish passage needs to ensure adequate conditions for adult migration (to be completed in FY99).

Implementation Phase

1. Design and construct necessary improvements to the outlet channel and dam to ensure adequate passage for adult salmon migration (initiated in FY97 and ongoing through FY00).
2. Stock Solf Lake with sockeye salmon to produce a self-sustaining population that can provide an adequate subsistence harvest (stocking begins in 1998 and ends in 2002).

3. Monitor zooplankton and smolt out-migration to ensure appropriate stocking levels (monitoring begins in 1998 and continues through 2003).

B. Methods

Methods have been previously described within the 1996, 1997, and 1998 proposals. Most of the feasibility/planning objectives have been met. The methods remain similar to those of the prior years. Adjustments have been made to focus on the 1999 proposal.

Stocking Program (1998 to 2002): Appropriate stocking levels and strategies have been determined in coordination with ADF&G and PWSAC using all available data. Fry are currently being short-term reared at the Main Bay Hatchery and will be transported to the lake in 1998 for release. The Eyak and Coghill stocks are identified in the PWS/CR Phase 3 Comprehensive Salmon Plan (PWS/CR RPT, 1994) as potential stocks for Solf Lake. At least four years of fry transplants would be required to establish a sockeye salmon run.

On the recommendation of the RPT, Eyak fish were initially selected as the brood stock for the Solf Lake project. At that time, there was concern that the incubation temperatures were too high in Solf Lake early run Eyak fish. However, an early run stock was chosen to minimize management conflicts. Since that time, PWSAC has updated their Area Management Plan which includes discontinuing the rearing of all sockeye stocks except Coghill fish at the Main Bay facility. On February 18, 1998 a letter was sent to the RPT indicating that the Forest Service had no objection to switching the stock to Coghill fish, since these fish are also identified in the PWS/CR Phase 3 Comprehensive Salmon Plan as a suitable stock for Solf Lake. The mid-run timing of the Coghill fish may additionally provide a more favorable incubation period than the Eyak stock, increasing probabilities of success.

Channel Modifications : It was determined in 1996 that channel modifications were necessary to establish a sustainable run of sockeye salmon. Forest Service engineers and biologists evaluated the two outlet channels in 1997. The initial flow control structure was installed in 1997 and a detailed design of the diversion weir was completed. The diversion weir is scheduled to be installed in 1998. Once installed, the lake's outflow can be effectively channeled into the stream targeted for fish passage. When this flow is established and the stream hydraulics evaluated, the Forest Service intends to survey and design the final set of weirs/fish pass to complete the channel modifications. Survey and design would occur under this 1999 proposal. The weir/fish pass would be constructed in 2000.

Monitoring: Beyond the 1996 feasibility data, limnological data will be collected annually beginning in 1998 to evaluate the affect of the stocking program on the lake's plankton population. This monitoring will include a summer and fall sampling period for water chemistry analysis and monthly zooplankton sampling from May through September. These procedures are described in detail in Koenings et. al. (1987). . This monitoring would continue through the stocking period (1998 to 2002) unless it was determined unnecessary.

The success of the stocking program would also be monitored through the smolt out migration and adult escapement. Smolt will be collected by fyke net or weir to estimate the total out migration. Fish will be sampled to determine age, length and weight characteristics which can be used to evaluate the health of the population. Coded wire tags or thermal marking would be used to monitor the adult population. Returning adults will be enumerated at a weir on the outlet stream and if possible with aerial surveys. Scales will also be collected and the age structure of the returning fish will be analyzed. The first adults are anticipated to return in 2002.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

The ADF&G will be responsible for limnological data collection and analysis. The USFS will conduct the evaluations, engineering, and construction of fish pass structures. Fish culture work and transfer of fry to the lake will be completed by PWSAC. We will also coordinate with PWSAC to make any necessary adjustments at the Main Bay Hatchery for accommodating additional incubation and short-term rearing. Additionally, the PWS/CR RPT will be involved in assessing opportunities and for developing strategies for the stocking program.

SCHEDULE

A. Measurable Project Tasks for FY99

Oct 98 - June 99:	PWSAC rears sockeye to fry at Main Bay.
Oct 98 – Dec 99:	USFS completes survey and final design of fish way.
Jan 99:	Attend Annual Restoration Workshop.
Jan 99 - April 99:	USFS prepares for field season award contracts for logistics.
Jan 99 – April 99:	USFS prepares and submits Annual Report and updated DPD.
June 99:	PWSAC releases second year of sockeye fry at Solf Lake.
May 99 – Sept 99:	ADF&G conducts limnological sampling and prepares report.
Aug 99:	PWSAC conducts egg take for FY00 stocking at Solf Lake.

B. Project Milestones and Endpoints

Feasibility/Planning Phase

Objective 1 was completed in FY96.

Objective 2 was completed in FY97.

Objective 3 was completed in FY97 then changed in FY98.

Objective 4 is partially complete. The FY97 work is complete and the FY98 work is on schedule.

Completion of the fish pass needs (survey and design) is scheduled in FY99 under this proposal. Once complete, all Feasibility/Planning objectives would be met.

Implementation Phase

Objective 1 requires 4 years to complete. Initial construction and design occurred in FY97. Further construction is scheduled in FY98. Final survey and design would occur under this proposal in FY99. The final construction phase would occur in FY00.

Objective 2 has been partially met. Eggs have been collected and are being reared at the Main Bay Hatchery, with fry to be released in FY98. This is the first year of stocking and should end in FY02.

Objective 3 will begin in FY98 and continue through FY03.

C. Completion Date

The project completion date will be at the end of FY03.

PUBLICATIONS AND REPORTS

Annual reports and an updated DPD will be submitted during each year of the project.

PROFESSIONAL CONFERENCES

At this time there are no plans to present this project at professional conferences. However, a poster board display is planned for presentation at the District Office and at science conferences.

NORMAL AGENCY MANAGEMENT

Given current budgets and agency priorities the opportunity to conduct this project under normal agency management either now or in the near future is unlikely. However, some aspects of the long term maintenance and monitoring of the project, may fall under the normal agency management of other similar structures in PWS. Shared cost proposals for each of the phases of construction and monitoring of this project will be presented in the future project work plans for the Forest Service but given budget fluctuations, secure funding is not a certainty.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Initial coordination with ADF&G biologists in Cordova, with the Regional Planning Team, and

with PWSAC will continue throughout FY99 to address the mixed-stock fisheries and genetic risk issues that will influence the feasibility of this project.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

In the FY98 proposal we anticipated the final construction of the fish way to be complete in FY99. However, during the FY97 construction and survey season, a close inspection of the channel revealed highly fractured bedrock and deposition of rubble in the stream channel. With the channel de-watered, it became evident that a great deal of loose rock needed to be removed prior to any reasonable assessment for a feasible fish way design. Therefore, we are proposing to change the construction timing for the fish way to the year 2000. In FY99, hand crews will be required to clear this loose rock out of the channel allowing for a detailed survey and evaluation of the channel.

The amount requested in FY99 is $14.4 thousand less than in the FY98 proposal because there will be no construction that year. As a result of the difficult existing site conditions observed in FY97, it was necessary to increase our engineering costs, primarily due to additional salary needs. Additionally, the estimated cost for construction of the fish way in the year 2000 has increased over the 1998 proposal by $24.5 thousand due to the expected increase in rock work required during installation. The estimated cost for the fish way is highly uncertain at this point, and until a completed survey and design are finalized, cost associated with the construction estimates may change.

PROPOSED PRINCIPAL INVESTIGATOR

The principal investigator of this project is Daniel Gillikin (Fisheries Biological Technician; Glacier Ranger District). Dan will also provide technical support and field coordination of the seasonal employees assisting in data collection and construction for the project.

ADF&G is the cooperating agency on the project. Pat Shields, Fishery Biologist I, will be the principal investigator for the limnological and bathymetry work. Marsha Spafard, Fish and Game Technician III and Denise Cialek, Fish and Game Technician III, will assist in the data collection and laboratory analysis of the limnological data.

Dan Gillikin
Chugach National Forest
P.O. Box 129
Girdwood, AK. 99587
271-2348
271-3992 (FAX)

Patrick Shields
Limnology Laboratory (ADF&G)
3428 Kalifornsky Beach Rd. #8
Soldotna, AK 99669
262-9368
262-4709 (FAX)

Approved TC 8-13-98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999	PROPOSED FY 1999 TRUSTEE AGENCIES TOTALS					
			ADEC	ADF&G	ADNR	USFS	DOI	NOAA
				$39.1		$29.1		
Personnel	$42.3	$44.4						
Travel	$0.0	$0.8						
Contractual	$18.0	$9.7						
Commodities	$16.6	$6.1						
Equipment	$1.2	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$78.1	$61.0		Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
General Administration	$7.7	$7.3						
Project Total	$85.8	$68.3		$105.0	$72.5	$53.1		
Full-time Equivalents (FTE)	1.2	1.1						
	Dollar amounts are shown in thousands of dollars.							
Other Resources	$0.0	$0.0		$0.0	$0.0	$0.0		

Comments: This is a continuation of project 98256B between the US. Forest Service and the Alaska Department of Fish and Game.

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Lead Agency: USFS

FORM 2A
MULTI-TRUSTEE
AGENCY
SUMMARY

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$42.3	$18.7
Travel	$0.0	$0.4
Contractual	$18.0	$6.3
Commodities	$16.6	$0.6
Equipment	$1.2	$0.0
Subtotal	$78.1	$26.0
General Administration	$7.7	$3.2
Project Total	$85.8	$29.2
Full-time Equivalents (FTE)	1.2	0.5
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$68.0	$33.5	$13.1

Dollar amounts are shown in thousands of dollars.

Comments:

The the 1999 proposed budget provides for; Detailed survey of the eastern outlet and fishway design. Additional labor is required to "muck out" the stream channel to allow for a close inspection of the channel substrate. Inspection of the channel in 1997 reveled the need for a more detailed survey and design.

Cost estimates for the year 2000 include installation of the fishway and are only estimated.

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: USFS

FORM 3A
TRUSTEE
AGENCY
SUMMARY

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
Rob Spangler	Fish Biologist	GS-9	1.0	4.2		4.2
Dan Gillikin	Fish Technician	GS-9	1.5	3.5		5.3
Unknown	Engineer	GS-11	1.0	4.4		4.4
Seasonal	Technician	GS-7	1.0	3.0		3.0
Seasonal	Technician	GS-5	1.0	1.8		1.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		5.5	16.9	0.0	
					Personnel Total	$18.7

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
					0.0
Train Tickets Passenger	0.02	12			0.24
Train Ticket Truck	0.05	3			0.15
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.4

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: USFS

FORM 3B
Personnel
& Travel
DETAIL

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Egg Take, Incubation , Marking and Release PWSAC Contract at Main Bay Facility	3.9
Charter flights (4 RT at $600/flight)	2.4
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$6.3

Commodities Costs:	Proposed
Description	FY 1999
Field per diem (4 crew for 8 days at $18/day)	0.6
Commodities Total	$0.6

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: USFS

FORM 3B
Contractual & Commodities DETAIL

1999 EXXON VALDEZ TRUS[illegible] COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
None			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency
Forest Service Landing Craft or other Vessels (not purchased through EVOS) will be contributed to the project. Daily use rates for the landing craft averages $200/day.		

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: USFS

FORM 3B
Equipment
DETAIL

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$25.7
Travel		$0.4
Contractual		$3.4
Commodities		$5.5
Equipment		$0.0
Subtotal	$0.0	$35.0
General Administration		$4.1
Project Total	$0.0	$39.1
Full-time Equivalents (FTE)		0.6
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$37.0	$39.0	$40.0

Dollar amounts are shown in thousands of dollars.

Comments:
This provides for the collection and analysis of 10 zooplankton samples at Solf Lake over the 5 trips during the 1999 field season.
This also includes monitoring smolt out migration at Solf Lakes eastern outlet.

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: ADFG

FORM 3A
TRUSTEE
AGENCY
SUMMARY

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
Pat Shields	FB2	16D	1.7	4.9		8.3
Lab Tec			1.3	3.0		3.9
Field Tech #1			2.5	3.0		7.5
Field Tech #2			2.0	3.0		6.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		7.5	13.9	0.0	
					Personnel Total	$25.7

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
Train Tickets Passenger	0.02	12			0.2
Train Ticket Truck	0.05	3			0.2
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.4

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: ADFG

FORM 3B
Personnel
& Travel
DETAIL

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Air Charter ($340/hr for 10 hrs.)	3.4
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$3.4

Commodities Costs:	Proposed
Description	FY 1999
Camp Supplies	1.8
Per Diem (2 crew for 40 days @ $18/day)	1.4
Wier equipment	2.0
Misc. Lab supplies	0.3
Commodities Total	$5.5

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: ADFG

FORM 3B
Contractual & Commodities DETAIL

Prepared: 4/15/98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency
USFS Landing Craft will provide some logistic support as part of the USFS contributions to the project.		

1999

Project Number: 99256B
Project Title: Sockeye Salmon Stocking; Solf Lake
Agency: ADFG

FORM 3B
Equipment
DETAIL

Revision 7-16-98
Approved TC 12-15-98
with addendum

Project Title: Assessment, Protection and Enhancement of Wildstock Salmon Streams in the Lower Cook Inlet.

Project Number:	99263
Restoration Category:	General Restoration.
Proposer:	Port Graham Corporation
Lead Trustee Agency:	ADF&G
Cooperating Agencies:	None
Alaska SeaLife Center:	No
Duration:	FY99 to FY00
Cost FY 99	$42.0.
Cost FY 00	$23.5.
Geographic Area:	Port Graham Corporation lands on the eastern and southern coasts of the Kenai Peninsula—specifically Windy Creek Left and Port Graham River.
Injured Resource/Service:	Replacement of Lost Subsistence Services.

ABSTRACT

This project will replace lost subsistence services resulting from the *Exxon Valdez* oil spill by constructing enhancement projects on two of the major salmon streams in the Lower Cook Inlet (LCI) oil spill area. During Year Two of this project two projects were implemented. One was the construction of the Port Graham Fish Pass by removing a natural barrier to spawning on the Port Graham river. The second project was to construct a wall-based rearing pond for coho salmon on Windy Creek Left. Year Three will consist of monitoring for the success of these two projects by surveying the use by anadromous fish. In addition, the planting of vegetation in and around the rearing ponds on Windy Creek Left will be accomplished. PGC management, with advice from an ADF&G fisheries specialist, will supervise the project and coordinate with a professional fisheries scientist and resource consultants. Local subsistence users will be employed as technical assistants during the field survey and during construction of the habitat improvement on the rearing ponds.

INTRODUCTION

Subsistence users in the southern Kenai peninsula and specifically the residents of Port Graham are heavily dependent on these two major salmon streams and the salmon they produce for subsistence needs. These major salmon streams and their tributaries were inventoried and evaluated in FY97.

Year One of this project for FY97 consisted of habitat surveys. Standardized fisheries habitat survey techniques developed by ADF&G and the USDA Forest Service were used. From these surveys, appropriate prescriptions for structural improvement were then proposed based upon the species and the objectives desired for that stream. We proposed six individual projects on three streams. Of these, two were approved for funding by the EVOS Trustee Council in two phases. Phase One consists of permitting, environmental assessment and preliminary engineering. Phase Two consists of final engineering, construction and monitoring in FY98.

In FY98 site specific protection and restoration projects are being implemented from the field inventories completed in FY97. A fish pass on Port Graham River and rearing ponds on Windy Creek Left were approved for funding in FY98. These projects are primarily targeting coho, pink,and chum salmon and possibly sockeye salmon for habitat enhancement.

Planting vegetation around the rearing ponds on Windy Creek Left for additional cover coho salmon fry and smolts is proposed for FY99. In addition, Year Three will consist of monitoring the success of the Year Two construction projects for success. We propose to conduct salmon run surveys on the Port Graham River, above and below the falls on weekly basis during the salmon spawning season. In addition, we will conduct fry and smolt surveys of the Windy Creek Left rearing ponds using the appropriate techniques. Hand tools and manual labor will be utilized extensively by the local subsistence users for much of the work proposed in FY99.

The emphasis on employing local subsistence users for this project will provide for the high quality protection and enhancement of these valuable resources by the owners and stewards of the land and the users of the subsistence resource.

NEED FOR THE PROJECT

A. Statement of Problem

The loss of traditional subsistence resources and services has been extensively documented in this area. Some subsistence resources may never recover to their pre-oil spill levels. There is a need to substitute and increase the subsistence resources for the residents of LCI using the existing wildstocks of pink, coho and chum salmon. Subsistence harvests remain depressed compared to pre-spill levels. Other species damaged or impacted by the oil spill which would benefit from this project include the marbeled murrelet, the black oyster catcher, the river otter and the harlequin duck. Subsistence will be deemed to be recovered when the local residents have restored confidence of the abundance and safety of this important resource. This project seeks to replace lost or damaged resources by replacing or enhancing the habitat of wildstocks of salmon important to the people who live in Lower Cook Inlet.

B. Rationale/Link to Restoration

The inventory and assessment of these major salmon producing streams and lakes done in FY97 provided the information necessary for the construction of habitat protection and enhancement projects on these streams in FY98. This in turn will increase the salmon runs and therefore increase the available subsistence resources. This project will compensate and substitute for the damaged and lost resources available to subsistence users in the LCI. The protection and enhancement of these streams will not only aid the subsistence users but also the impacted commercial and sport users. The monitoring and additional enhancement projects will ensure the success of these projects.

The policy of the Trustee Council, as stated in the Restoration Plan, is that projects designed to restore or enhance an injured resource: 1) must have a sufficient relationship to the injured resource 2) must benefit the same user group that was injured 3) should be compatible with the character and public uses of the area. This project meets all three portions of the Trustee Council's policy toward restoring or enhancing an injured resource.

C. Location: Lower Cook Inlet

These streams are located in Port Graham and Windy Bay drainages on the Kenai peninsula. These projects will benefit the entire lower Kenai peninsula.

COMMUNITY INVOLVEMENT

This project will have upwards of 60 percent direct involvement of Port Graham residents and other local subsistence users. This project will be the direct responsibility of PGC. Through the training of PGC people for the field and office work, the depth of understanding of the streams and the fisheries resource will be enhanced. This will develop an awareness of the needs for protection and enhancement of these valuable resources.

Port Graham, Nanwalek and Seldovia residents will be consulted as to their local knowledge of these streams and their historic levels of spawning return. Local hire for field work will be used extensively. Study area is remote, extensive use of locals boats and housing will be required. Subsistence use will be inventoried and assessed for pre and post spill utilization.

PROJECT DESIGN

A. Objectives

1. Monitor the use and success of the in-stream spawning and rearing habitat improvement projects constructed in FY98 for coho, pink and chum salmon.

2. Continue to enhance existing wildstocks of salmon to serve as substitution and compensation for the lost and damaged subsistence resources important to the subsistence users of the southern Kenai peninsula.

3. Educate and involve the subsistence users in the concepts of fisheries management and wise land stewardship.

4. Update existing information on wildstock salmon habitat from weekly salmon stream surveys. Enter relevant data into a data base for future management decisions.

5. Evaluate escapement levels of salmon returns to Port Graham River and Windy Creek Left. Goal is to build salmon runs to near biological capacity with enhanced habitat.

6. Improve quality and quantity of wildstock salmon as a subsistence resource in the LCI. Gauge success by comparing returns in next ten years with historic averages.

7. Discuss and coordinate with Federal, State and local agencies. Ensure NEPA compliance. Obtain permits for any additional enhancement projects.

B. Methods

Field: In FY98 site specific protection and restoration projects are being implemented from the field inventories completed in FY97. A fish pass on Port Graham River and rearing ponds on Windy Creek Left were approved for funding in FY98. These projects are primarily targeting coho, pink,and chum salmon and possibly sockeye salmon for habitat enhancement.

Monitoring, maintenance and refinement of these enhancement projects are proposed for FY99 and FY00 for Years Three and Four of 97263. The Port Graham River fish pass will be monitored during high water and the necessary maintenance done during low water, Planting vegetation around the rearing ponds on Windy Creek Left for additional cover for coho salmon fry and smolts and adding additional large woody debris is proposed for FY99. In addition,Year Three will consist of monitoring the success of the Year Two construction projects for success. We propose to conduct salmon run surveys on the Port Graham River, above and below the falls on weekly basis during the salmon spawning season. In addition, we will conduct fry and smolt surveys of the Windy Creek Left rearing ponds using the appropriate techniques. Hand tools and manual labor will be utilized extensively by the local subsistence users for much of the work proposed in FY99.

The emphasis on employing local subsistence users for this project will provide for the high quality protection and enhancement of these valuable resources by the owners and stewards of the land and the users of the subsistence resource.

Future monitoring will be critical to assess the rate of success and to determine which objectives have been met or exceeded. Monitoring will continue for ten years conducted by PGC. Final reports and data will be compiled in FY00.

C. Cooperating Agencies, Contracts and Other Agency Assistance

ADF&G will be the lead trustee agency. ADF&G will then contract through KPB-EDD who will then contract with the Port Graham Corp. for the entire project. Technical assistance from ADF&G will be required and sought for all phases of this project. Salmon run surveys will be coordinated with ADF&G and COMFISH utilizing their existing surveys for pink and chum salmon.

SCHEDULE

A. Measurable Project Tasks for FY 1999

October 1—Dec. 31:	Monitor Windy Creek Left Rearing Ponds.and Port Graham River Fish Pass and conduct maintenance as needed. Develop preliminary plans for Year Three. Review and coordinate project with ADF&G.
January—May 15:	Develop final enhancement plans. Field review projects. Plan maintenance projects as needed.
May 15—July 15:	Maintain Port Graham River Fish Pass, repair or improve if needed. Plant willow & alders around Windy Creek Left Rearing Ponds and add woody debris. Monitor use of rearing ponds by coho fry and smolt.
July 15 — October 15:	Conduct salmon run surveys on Port Graham River. Coordinate with COMFISH. Monitor Port Graham River Fish Pass and conduct maintenance as needed. Monitor use of rearing ponds by coho fry and smolt.
October 15:	Annual report prepared. Prepare plans for FY00 for refinement of these enhancement projects.

B. Project Milestones and Endpoints

May 1999:	Inspect enhancement projects and evaluate and finalize plans .
October 1999:	Complete salmon run surveys for 1999.
April-August 2000:	Evaluate success of Enhancement Projects and summarize and report salmon counts to ADF&G and COMFISH.

C. Completion Date

September 2000:	Complete final report and submit for peer review.

Proposed Enhancement Projects:

Rearing Ponds Enhancement: To provide cover for coho fry and smolt, plant willows and alders on the banks of the rearing ponds on Windy Creek Left. Additional woody debris will be added as needed. These ponds were constructed in FY98.

PUBLICATIONS AND REPORTS

Annual Reports: Annual Reports will be prepared for each FY. The survey reports, database and accompanying maps will be delivered to ADF&G upon their completion. The final report will be prepared in FY00 and will emphasize the subsistence resource enhancement success of this project.

PROFESSIONAL CONFERENCES

The project results will be presented at the appropriate EVOS conferences and technical sessions and other conferences.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This project will be coordinated with all previous and ongoing ADF&G and PGC/EVOS Projects. Coordination between the Port Graham Corporation, the Port Graham Village Council, ADF&G and the KPB-EDD will be critical for the success of this project.

PROPOSED PRINCIPAL INVESTIGATOR

Walter Meganack, Jr. will be the principal investigator under the direction of the management of the Port Graham Corporation.

This project will be organized and managed by the following agencies and entities:

Trustee Agency:	Alaska Dept. of Fish & Game
ARDOR:	Kenai Peninsula Borough Economic Development District Will be the state contracting agency
Contractor:	Port Graham Corporation Patrick Norman-President Walter Meganack, Jr.-Project Manager P.O. Box 5569 Port Graham, Alaska 99603-5569

PERSONNEL

Overall project management will be under the direction of Walter Meganack, Jr. and Pat Norman of the Port Graham Corp.

John L. Hall & Arvid J. Hall of Taiga Resource Consultants will work under PGC as assistant managers and provide technical advice.

Dr. Douglas Martin, Fisheries Biologist will provide technical expertise.

THE PORT GRAHAM CORPORATION
• P.O. Box 5569 •
Port Graham, Alaska 99603-5569
Phone (907) 284-2212 FAX (907) 284-2219

Revision 11/13/98
Addendum to OPD

FY99

Revised Monitoring Plan:EVOS Project #99263

Location: Port Graham Lands—Port Graham River & Windy Creek Left

Introduction: The Port Graham River Fish Pass and the Windy Creek Left Rearing Ponds were completed during the fall of 1998. Monitoring on the fish pass to date has consisted of field observations of Dolly Varden and coho salmon ascending the fishpass within one hour of its initial opening. The rearing ponds will not have full access to Windy Creek Left until May/June 1999 due to stipulations in the ADF&G Title 16 permit.

Monitoring of these two structures during the next three years to gauge their success is a part of this project. We propose the following monitoring plan for 1999-2001.During the years 2000 and 2001 PGC will be cooperating with ADF&G Comm Fish and Habitat to institute a long-term permanent monitoring and management program for the fisheries resources on PGC lands.

1999-2001 Revised Monitoring Plan and Procedures:

Port Graham River Fishpass FY99 Monitoring:

1. For FY99 monitoring designate stream reaches and prime spawning and rearing areas for cohoes on the ground, aerial photos and maps from stream reaches from FY97 stream inventory by Dr. Doug Martin and Arvid Hall.

2. Obtain historic fisheries information on Port Graham River and Bay from ADF&G COMFISH in Homer and the Port Graham Hatchery.

3. 1999 Inventory Procedure: Mark stream reaches for monitoring purposes and prime spawning and rearing habitat for cohoes on the ground. Develop forms for monitoring by foot surveys which will include the following information:

   - Location by reach and river mile
   - All Anadromous Fish Species (coho targeted species)
   - Number of fish and condition, number of redds (including carcasses in later surveys)

3. Method: The following is the proposed methodology.

   Begin surveys in early July from 9.5 mile bridge to fishpass.
   From fishpass to 6.5 mile bridge and from 6.5 to river mouth.
   Proposed interval: 4 times during the coho run: early, mid, late and end.
   Conduct spot counts at fishpass during or after the above surveys .These will also be done with local knowledge at the time when the fish move upstream. Counts will be for hourly periods late in the day or at the appropriate river stage.

4. Coordination: Supply all data and information collected to COMFISH and Port Graham Hatchery.

THE PORT GRAHAM CORPORATION
• P.O. Box 5569 •
Port Graham, Alaska 99603-5569
Phone (907) 284-2212 FAX (907) 284-2219

5. 2000 Monitoring and Inventory: Refine the 99 program and do the same monitoring for the year 2000.

6. 2001 and Future. Refine the above monitoring and inventory and cooperate with ADF&G and Port Graham Hatchery.develop long term management goals.

Windy Creek Left Rearing Ponds FY99 Monitoring:

1. Establish staff gauges in each pond to evaluate water height stability.

2. Measure dissolved oxygen, water height and water temperature on a seasonal basis, once each during spring, summer, fall and winter (under ice if desirable).

3. Conduct fry surveys in May and October using baited minnow traps to determine species composition, length and relative abundance. Five traps will be placed in each pond: three in the main channel one at the outlet one at midway and one at the upper reach and then two will be placed midway in the side channels: one in the first channel and the other in the last channel. The soak time will be 24 hours.The fry surveys will be conducted in October of 99 and 2000 and in May of 2000 and 2001.

4. The data for the above surveys will be analyzed and a report will be prepared and provided to ADF&G COMFISH in Homer and Habitat in Anchorage as well as the EVOS office

5. Please note that the rearing ponds will not have full access to Windy Creek Left until May/June 1999 due to stipulations in the ADF&G Title 16 permit.

Revision 7-16-98
Approved TC 12-15-98

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category	Authorized FY 98	Proposed FY 99
Personnel	$.0.	$0.00.
Travel	$.0.	$0.00.
Contractual	$100.0.	$39.25.
Commodities	$.0.	$0.00.
Equipment	$.0.	$0.00.
Subtotal	$100.0.	$39.25.
ADF&G (7%)	$7.0.	$2.75.
Subtotal	$107.0.	$42.00.
Total	$107.0.	$42.00.
Full-time (FTE)		$0.00.
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FFY 2000	Estimated FFY 2001	Estimated FFY 2002	Estimated FFY 2003
$23.5	$.0	$.0	$.0

Dollar amounts are shown in thousands

Comments:

- Administrative cost for the contractor, Kenai Peninsula Borough Economic Development District is 10% of the project costs.

r

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Trustee: ADF&G

FORM 3A
TRUSTEE
AGENCY
SUMMARY

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs			Months Budgeted	Monthly Costs	Overtime	Proposed FY 1999
Name	**Position Decription**					
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
			0	0	0	$0.0.
	Subtotal		0	0	0	
					Personnel Total	$0.0.

Travel Costs	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 1999
Description					
					$0.0.
					$0.0.
					$0.0.
					$0.0.
					$0.0.
					$0.0.
Subtotal					
				Travel Total	$0.0.

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Name: Port Graham Corporation

FORM 3B
Personnel
& Travel
Detail

Prepared 7/13/98 3:37 PM

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Unit Price	Proposed FFY 1999
Description:		
	$0.0.	$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
		$0.0.
Those purchases associated with replacement equipment should be indicated by the placement of an R.		$0.0.

Existing Equipment Usage:	Number of Units	Proposed FFY 1999
Description		
	0	
		0

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Trustee: ADF&G

Form 3B
Equipment
DETAIL

Prepared 7/13/98 3:37 PM

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed FFY 1999
Description:	
Contract with Kenai Peninsula Borough Economic Development District	$39.25.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
Contractual Total	$39.3.

Commodities Cost	Proposed FFY 1999
Description	
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
Commodities Total	$0.0.

1999	Project Number: 99263 Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement Trustee: ADF&G	Form 3B Contractual &Commodities DETAIL

1999 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category	Authorized FY 98	Proposed FY 99
Personnel	$.0.	$4.5.
Travel	$.0.	$1.2.
Contractual	$90.9.	$27.0.
Commodities	$.0.	$2.5.
Equipment	$.0.	$.5.
Subtotal	$90.9.	$35.7.
Indirect	$9.1.	$3.6.
Subtotal	$100.0.	$39.2.
Total	$100.0.	$39.2.
Full-time (FTE)		$.0.
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FFY 2000	Estimated FFY 2001	Estimated FFY 2002	Estimated FFY 2003	
$23.5	$.0	$.0	$.0	$.0

Dollar amounts are shown in thousands

Comments:

- KPB-EDD will receive%10 for indirect

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Name: Port Graham Corporation

FORM 4A
NON-TRUSTEE
SUMMARY

EVOSBDGT #2 SS-99 P&T PGC Rev.

Personnel Costs			Months Budgeted	Monthly Costs	Overtime	Proposed FY 1999
Name	**Position Decription**					
Walter Meganack, Jr.	Project Management		0.5	7.5	0	$3.75.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
			0	0	0	$0.00.
TBN	Admininstrative Support		0.6	1.25	0	$0.75.
	Subtotal		0.6	1.25	0	
					Personnel Total	$4.50.

Travel Costs	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FY 1999
Description					
RT PG-Homer	$60	3	6	$45	$0.45.
RT PG-Anchorage	$175	2	4	$95	$0.73.
	$0	0	0	$0	$0.00.
			0	$0	$0.00.
					$0.00.
					$0.00.
Subtotal		5	10	140	
				Travel Total	$1.18.

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Name: Port Graham Corporation

FORM 4B
Personnel
& Travel
Detail

EVOS BDGT #4 SS-99 C&C PGC Rev

Contractual Costs:	Proposed FY 1999
Description:	
Contract with TRC for Port Graham Fish Pass Monitoring and Repair	$10.0.
Contract with TRC for Windy Creek Left Rearing Ponds Monitoring	$4.5.
Contract with TRC for Revegation Plan and Planting of Rearing Ponds	$10.0.
Contract with TRC for Preparation of Annual Report	$2.5.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
Contractual Total	$0.0.
	$27.0.

Commodities Cost	Proposed FY 1999
Description	
Office supplies & postage	$0.0.
Plants & materials	$2.5.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
	$0.0.
Commodities Total	$2.5.

1999	Project Number: 99263 Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement Name: Port Graham Corporation	Form 4B Contractual &Commodities DETAIL

EVOS BDGT #3 SS-99 Equip PGC R

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 1999
Description:			
Field Equipment	1	$0.5.	$0.5.
			$0.0.
			$0.0.
			$0.0.
			$0.0.
			$0.0.
			$0.0.
			$0.0.
			$0.0.
			$0.0.

Those purchases associated with replacement equipment should be indicated by the placement of an R.

New Equipment Total: $0.5.

Existing Equipment Usage:		Number of Units	Proposed FY 1999
Description			
None			
	0	0	
			0

1999

Project Number: 99263
Project Title: PGC Wildstock Salmon Stream Assessment & Enhancement
Name: Port Graham Corporation

FORM 4B
Equipment
DETAIL

Revision 7-1-98
Approved TC 8-13-98

Surf Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource

Project Number:	99273
Restoration Category:	Research
Proposer:	D. Rosenberg/ADFG
Lead Trustee Agency:	ADFG
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	2nd yr. 3 yr. project
Cost FY 99:	$206.2
Cost FY 2000:	
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	Prince William Sound, Lower Cook Inlet
Injured Resource/Service:	Subsistence, intertidal community

ABSTRACT

This project will study the life history and ecology of surf scoters that over-winter in or migrate through Prince William Sound and lower Cook Inlet. This information will be integrated with traditional ecological knowledge. Scoter populations in Alaska are declining. Communities in Prince William Sound and lower Cook Inlet harvest scoters for subsistence purposes. Scoters are among the least studied of North American waterfowl and little is known of their life history, ecology, and distribution. Scoters will be marked with surgically implanted satellite transmitters to define the breeding areas, molting areas, and wintering areas. Local participation will be solicited and information will be conveyed to local residents through the Chugach School District and Youth Area Watch project (\210).

INTRODUCTION

This project will study the life history and ecology of surf scoters (*Melanitta perspicillata*) that winter or migrate through Prince William Sound (PWS) and lower Cook Inlet (LCI) and integrate this information with traditional ecological knowledge collected from community members within the study area. In the first year (FY98) we initiated (April 1998) a pilot project to test the feasibility of catching scoters in PWS and marking ten birds with surgically implanted satellite transmitters. Satellite telemetry will allow us to define the breeding areas, molting areas, and wintering areas of this subsistence resource. In FY99 we propose to mark fifteen surf scoters and with satellite transmitters. Information will be conveyed to residents of Tatitlek, Chenega, Port Graham, and Nanwalek. In Tatitlek and Chenega we will work with the Chugach School District and Youth Area Watch programs. The participation of community members, primarily students, in the capture and monitoring of these seaducks will be solicited. We also propose to collect ecological information on breeding and molting sites, monitor birds for contaminants, and collect more information on wintering sites and migration routes.

Residents of the communities affected by the *Exxon Valdez* Oil Spill remain concerned about the abundance and safety of their traditional food resources (*Exxon Valdez* Oil Spill Trustee Council, 1996). In 1993, 55% of the households in Tatitlek reported using scoters harvested for subsistence purposes, as did 40% of the households in Nanwalek and almost 12% of Port Graham households (Scott et al. 1996). Since 1977, scoters in Alaska have been estimated to decline by as much as 40% (Hodges et al. 1996), although since the *Exxon Valdez* oil spill, the number of scoters is increasing in PWS in March (Agler and Kendall 1977). USFWS breeding pair survey methods (Hodges et al. 1996), may not accurately monitor scoter populations. Individual species are not recorded in either survey. Declines in breeding pair surveys may be a function of survey timing and regional trends (USFWS 1998).

Scoters are among the least studied of North American waterfowl (Godfrey 1989, Savard and Lamothe 1991, Henny et al. 1995). Little is known of their life history, ecology, and breeding, wintering, and molting distributions (Bellrose 1976; Herter et al. 1989; Goudie et al. 1994). Surf scoters, black scoters (*M. nigra*), and white-winged scoters (*M. fusca*) all occur in PWS and lower Cook Inlet. Among these, the surf scoter is the most abundant (Isleib and Kessel 1973). It occurs as both a year-round resident and migrant. Surf scoters are most numerous in spring due to the influx of migrants probably in response to spawning Pacific herring (*Clupea pallasi*) (Isleib and Kessel, 1973; Bishop et al. 1995). Nonbreeders remain in PWS in summer.

Most scoters depart PWS in spring to unknown nesting areas, perhaps in interior Alaska and the Yukon (Gabrielson and Lincoln 1959), and as far north as the Mackenzie Delta and the Brooks Range (Johnson and Richardson 1982). Male seaducks abandon incubating females in early summer and congregate at communal molting sites (Salomonsen 1968). Often these areas are distinct from nesting or wintering areas. As with other waterfowl, wing feathers are lost simultaneously, rendering birds flightless for about one month until new feathers emerge.

In winter, scoters feed in intertidal and subtidal zones, areas susceptible to contaminants (Vermeer and Peakall 1979). They feed primarily on bivalves, especially mussels, but in spring they may

switch to a diet composed primarily of herring roe (Vermeer 1981; Goudie et al. 1994; Bishop et al. 1995). White-winged scoter die-offs occurred in the Cape Yakataga area in southeast Alaska during 1990-1992 (Henny et al. 1995). Although no definitive cause could be identified, elevated levels of cadmium were detected in the birds, but no source of contamination could be identified. The difficulty of detecting a source of contamination was confounded by lack of specific information on breeding, molting, or wintering areas.

Sea ducks are among the species most vulnerable to mortality from oil spills (Piatt et al. 1990). Further compounding any direct mortality from the spill, is contamination or reduction of their principal food resources. Mussels and intertidal sediments in PWS showed increases in petroleum hydrocarbon concentrations directly attributable to *Exxon Valdez* oil (Short and Babcock 1996), and oil in mussel beds in PWS and the Kenai Peninsula persisted for several years after the spill (Babcock et al. 1996). Further, the PWS herring stocks suffered a dramatic decline in 1993 and stocks have remained depressed (Morstad et al. 1997). Quite likely, any decline results from a combination of factors such as habitat loss, contaminants, or climate change. Several studies have shown scoters and other sea ducks to bioaccumulate trace metals and organochlorines from their environment (Vermeer and Peakall 1979; Henny et al. 1991; Olendorf et al. 1991; Henny et al. 1995).

Human activities, such as hydroelectric development (Savard and Lamothe 1991), estuarine pollution (Ohlendorf et al. 1991), or introductions of exotic species (Bordage and Savard 1995) on the breeding, wintering, or molting areas potentially have profound affects on abundance or distribution of a population. The lack of information on distribution and migration patterns can prevent the identification of potential harmful environmental exposures or alterations and make it extremely difficult to determine possible causes of population declines. Location of breeding grounds, migration routes, and timing of migration are important factors used to evaluate contaminant uptake or loss in a migratory species as well as changes to food resources and other environmental changes (Henny et al. 1991). Nesting is considered one of the weakest links in the life cycle, especially with regard to contaminant effects (Henny et al. 1995).

Scoters are an important subsistence resource to the people living in the communities of PWS and LCI. These species of seaducks comprise the large majority of the sea duck harvest in the communities of Tatitlek, Chenega Bay, Port Graham, and Nanwalek (Scott et al. 1996). Population trends in scoters are uncertain, but appear to be declining in some regions, while remaining stable, or increasing in others. Affiliations between breeding and wintering areas are unknown, compounding meaningful integration of survey data. The susceptibility of seaducks to contaminants is a concern to resource managers and subsistence consumers. We propose a program that will integrate traditional knowledge, scientific methods, and modern technology to perpetuate the subsistence patterns of these communities. This will be accomplished through greater understanding of scoter life history and ecology, sharing knowledge with local community members, involving the youth of the communities in the restoration process, and improving conservation strategies for this species.

Little is known about the ecology, breeding areas, molting areas, and migration routes of these two species. Basic reproductive ecology information is lacking for sea duck populations wintering

in PWS. Determination of breeding distribution is the first step in assessing breeding ecology. Potential breeding sites range throughout Alaska and the Yukon Territory. Once satellite telemetry has defined breeding and molting areas, we propose to define habitat associations, measure productivity, and census birds at molting sites. If we can obtain adequate sample sizes and scoters exhibit philopatry to winter and molting areas, mark and recapture data will be analyzed to estimate annual survival rates by age and sex (Lebreton et al. 1992).

White-winged scoters, black scoters and Barrow's goldeneyes (*Bucephala islandica*) are also an important subsistence resource to communities in PWS and LCI (Scott et al. 1996). In subsequent years, we believe it is important to incorporate these species into our study. However, due to the large numbers of surf scoters wintering and migrating through PWS we have chosen to study these species at the present time.

This project is integrated with project \052B Traditional Ecological Knowledge, project \210 Youth Area Watch, project \025 Nearshore Vertebrate Predator Project, \320 Predation on Herring Spawn, project \427 Harlequin Duck Recovery Monitoring, project \159 Prince William Sound Marine Bird Surveys, and proposed project 99423-Patterns and Processes of Population Change in Selected Nearshore Vertebrate Predators.

NEED FOR THE PROJECT

A. Statement of Problem

Native inhabitants of PWS have used scoters (locally known as black ducks) as a subsistence resource for centuries. Surf scoters, black scoters, and white-winged scoters, are the most abundant avian species found at archeological sites in PWS (Linda Yarborough, USFS, pers. comm). Among the three species of scoters in PWS, surf scoters are the most abundant in winter (Dan Esler, USGS-BRD, pers. comm.). However, little is known about the distribution or movements of these birds within or outside of PWS. Although scoters are known to breed throughout much of Alaska and Canada (Gabrielson and Lincoln 1959; Godfrey 1986) nothing is known about specific populations and the link between winter, breeding, and molting areas. The few studies that have identified molting sites have not made the link between these and winter and breeding areas (Johnson and Richardson 1982; Dau 1987).

In marine environments, scoters feed on bivalves, especially blue mussels (*Mytilius edulis*), species known to concentrate contaminants. Herring roe, another important food source has become less abundant, as herring stocks have recently declined in PWS. As mentioned, scoters are known to bioaccumulate contaminants and die-offs have occurred, including several among white-winged scoters at Cape Yakataga, in southeast Alaska (Henny et al. 1995). The cause of this die-off was undetermined. In addition, scoters are susceptible to environmental changes and habitat alterations over their entire range. As scoters have different winter, breeding, and molting areas they are susceptible to changes over a wide geographic area.

B. Rationale/Link to Restoration

The location of breeding grounds, migration routes, winter areas, and the timing of migration are all critical factors used to evaluate contaminant uptake or loss in a migratory species as well as evaluating the consequences of other environmental disturbances or changes (Henny et al. 1991). Scoter populations are susceptible to natural and man-made disturbances over a wide and inaccessible geographic area.

To conserve these subsistence resources and restore the traditional activities associated with these two species, we have proposed to identify their movements, distribution, and ecological relationships using satellite telemetry. This information is necessary to identify problems and develop and implement management strategies to promote the species long-term conservation. We hope this information and the activities associated with collecting this data will 1) allow resource managers to reverse population declines; 2) renew local confidence in the health of this food supply; 3) help maintain traditional lifestyles; 4) provide opportunities to the youth of local communities to promote their historical connection with this subsistence resource; 5) merge traditional knowledge with modern science to develop a more complete understanding of scoter and goldeneye life history and ecology; and 6) help students develop skills to promote the long-tern conservation of this species and others important to their economy and lifestyle.

Restoration requires assessment of population health and definition of impediments to recovery. The tasks presented in this proposal will begin the process of understanding the factors that affect population dynamics in surf scoters and develop management strategies to ensure the long-term health and welfare of the population. Without an understanding of the underlying events that influence population change, we can not prescribe specific activities to conserve or enhance the population.

C. Location

In FY 99 capture work will be conducted in Prince William Sound and Lower Cook Inlet. Capture sites will occur in northern PWS between Valdez and Cordova and on northern Montague Island. Capture sites in Lower Cook Inlet will be located near the communities of Nanwalek and Port Graham. Work at breeding or molting sites will be dictated by information on breeding and molting distribution collected in FY98 and FY99.

In FY99, community involvement (Chugach School District, Youth Area Watch, and traditional knowledge) will be focused in the villages of Tatitlek, Chenega Bay, Nanwalek, and Port Graham. Nanwalek and Port Graham are not within the Chugach School District and are not part of the Youth Area Watch Program.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

This program will continue to incorporate residents of the communities of Prince William Sound and lower Cook Inlet in the collection and monitoring of data. In FY98 project personnel attended

workshops in Tatitlek and Port Graham, participated in planning for the youth-elders subsistence conference, and gave a traditional ecological knowledge (TEK) presentation at the EVOS annual workshop. Project personnel will adhere to the protocols for including indigenous knowledge in the restoration process presented in Appendix C of the Invitation to Submit Restoration Proposals for Federal FY 1998. The project will continue to inform and coordinate our community involvement activities, including the collection of indigenous knowledge with Dr. Henry Huntington, TEK specialist Chugach Regional Resources Commission; Hugh Short, Community Coordinator, EVOS Restoration Office; Roger Sampson and Rick DeLorenzo, Chugach School District; and the Subsistence Division of the Alaska Department of Fish and Game.

We will continue to solicit advice from the above parties and gather information on TEK through synthesis workshops, local community facilitators, and residents. We will involve local youth in bird capture and monitoring and TEK data collection through the Youth Area Watch program or local school district program coordinators.

Efforts have and will continue to be made throughout the restoration process to participate in and provide public involvement in the design and implementation of this project. Information gathered from this project will be shared with local communities. Project staff has and will continue to present information to local communities or prepare articles or photographs for Trustee Council publications. Boat and air charter contracts, and other services will be contracted from local sources when possible.

PROJECT DESIGN

A. Objectives

FY 99:

1) Capture 15 surf scoters in spring on saltwater in PWS and LCI;

2) Mark 8 adult male and 7 adult female surf scoters with surgically implanted satellite telemetry transmitters;

3) Capture and band as many additional seaducks as time and budget allows;

4) Determine migration routes, breeding areas, and molting and wintering sites;

5) Characterize the life history and ecology of breeding and molting areas; collect samples for contaminant studies;

6) Document traditional ecological knowledge about seaducks from residents of PWS and LCI communities (and perhaps communities in the breeding and molting areas, and migration paths); and

7) Incorporate local residents through the Chugach School District and Youth Area Watch program in the collection and monitoring of data, including traditional knowledge.

B. Methods

Capture and Marking

ADF&G will capture, mark, and monitor scoters with professional staff, veterinarians, and local assistance. We will capture adult birds between late March and early May during the herring spawn, when large flocks of sea ducks aggregate to feed on herring roe. The commercial herring gillnet fishery, which precedes major spawning events by a few days, ranges from April 9-28 for the period from 1972-1993 (Donaldson et al. 1995). Capture sites will be determined by monitoring known areas of herring spawn deposition (Morstad et al. 1996), scoter concentrations, ADF&G Commercial Fisheries Division aerial spawn and survey maps, and local knowledge. Scoters will be captured at a minimum of two sites, one located in northern PWS and one in LCI.

Scoters will be captured with either floating or land-anchored mist nets suspended among decoys. Trap locations will be mapped using Global Positioning Systems and nautical charts (NOAA).

All captured seaducks, in addition to those marked with telemetry, will be banded with USFWS aluminum leg bands. Sex will be identified based on plumage characteristics and age will be determined by bursal probing. Adults do not have a bursa; if possible, second-year birds will be distinguished from third year subadults by bursa depth. Prior to release, birds will be weighed, measured (culmen, tarsus, and wing length) and blood and feather samples will be collected and archived for future contaminant, genetics, and stable isotope studies.

Once transported to the work vessel, a certified veterinarian, trained in avian implant surgeries, will place transmitters in the peritoneal cavity with the antenna exiting caudally, following procedures described by Petersen et al. (1995). Satellite transmitters will measure 10 mm deep, 55 mm long, 35 mm wide and weigh approximately 30 g (<3% body weight) (Telemetry 2000, Columbia, Maryland). Battery life can be expected to last from 6 - 12 months depending on advances in technology at time of purchase. Efforts will be made to maximize battery life. Each transmitter will be hermetically sealed with a Teflon-coated multi-strand stainless-steel antenna. Transmitters will be programmed and calibrated to record and transmit body temperature to confirm that signals are being emitted from live birds. After surgery, birds will be held in an appropriate container and provided water. Ducks will be released when the veterinarian determines they have recovered from the effects of surgery. All ducks will be released at the point of capture.

Satellite signals will be analyzed using Service Argos Data Collection and Location System (Landover, Maryland). Argos Standard and Animal-Tracking data processing services will provide near real-time information on the precision of each location through on-line interrogation. Movements will be monitored throughout the life of the transmitter. Locations will be mapped using a Geographic Information System (GIS). Movements and locations of scoters will be

forwarded to the Chugach School District and affected communities so students can monitor the progress and movements of birds between breeding, molting, and wintering areas.

Nesting and molting studies.

In early June we will conduct aerial surveys to count scoters on lakes and ponds within a five-mile radius of each satellite location. Birds will be counted and classified as breeding pairs, adult males, adult females, and subadults. Lakes and ponds with the highest concentration of breeding pairs will be visited in June and revisited in July and August. Lake perimeters and islands will be searched for nests. Nest site characteristics will be recorded and incubation stage determined. Following hatching, nest success will be calculated and brood density and survival will be estimated. Scoters will be captured with nest traps and mist nets and banded with standard USFWS metal leg bands. Birds will be weighed, measured, and blood and feather samples will be collected.

In August, aerial surveys will be conducted at coastal and inland molting sites where we have obtained satellite coordinates. Aerial surveys will be conducted to count scoters. Depending upon the location and logistics, birds will be captured in drive traps, banded, weighed, measured, sexed and aged. Blood and feather samples will be collected.

The Chugach School District, through Youth Area Watch, will provide interested students and teachers to participate in capture and monitoring. The school district will provide classroom aides (computer and software, maps etc.) to be used in local schools for monitoring bird movements throughout the year. ADF&G will relay satellite-monitoring information to local communities. Students will assist in collecting information from local residents on TEK, current sea duck distribution and abundance, and band returns from marked birds shot by local hunters.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

Dan Mulcahy, a licensed veterinarian with USGS-BRD, will assist in satellite telemetry implants.

All data collection and analysis will be supervised by ADF&G. Private sector contracts for fuel purchase, equipment, vessel support and air charter will be solicited, usually from the local Prince William Sound or lower Cook Inlet region. Contracts for satellite transmitters and data downloading will be solicited from the private sector.

Cooperation for community involvement will be sought through the EVOS Restoration Office, Chugach School District, the villages of Tatitlek, Port Graham, and Nanwalek, and the Alaska Department of Fish and Game Subsistence Division (see above).

SCHEDULE

A. Measurable Project Tasks for FY 99

November-February:	Coordinate and plan community involvement, Youth Area Watch and TEK. Attend Synthesis Workshops in local communities. Meet with local subsistence harvesters. Attend Restoration Workshop. Order satellite transmitters and field gear. Contract for vessel support, veterinary services. Organize field gear, test equipment.
March-April:	Reconnaissance surveys for scoter and goldeneye concentrations. Capture birds for radio implants. Maintain and store field equipment.
May-September:	Monitor satellite transmitters. Coordinate community involvement, Youth Area Watch and TEK. Plan field logistics and organize equipment and personnel. Conduct surveys and field work at nesting and molting areas.

B. Project Milestones and Endpoints

FY99

October-March:	Monitor satellite transmitter birds. Coordinate and plan community involvement.
March-April:	Capture birds for transmitter implants.
April:	Submit annual report.
May-September:	Monitor birds for defining migration routes, breeding areas, and molting areas. Coordinate with local communities.
July-August:	Breeding and molting site surveys, habitat assessment, productivity studies.

FY00

October-March:	Monitor satellite transmitter birds. Coordinate and plan community involvement, Youth Area Watch and TEK.
March-April:	Capture birds for transmitter implants.
April:	Submit annual report.
May-September:	Monitor birds for defining migration routes, breeding areas, and molting areas. Coordinate with local communities.

July-August: Breeding and molting site surveys, habitat assessment, and productivity studies.

C. Completion Date

All project objectives, except final reports and publications, will be met following FY00.

PUBLICATIONS AND REPORTS

An annual report of FY99 activities will be submitted to the Restoration Office before 15 April 2000. Because FY99 is the second year of this proposed three-year project, journal publications will not be generated until completion of all field work and community involvement.

PROFESSIONAL CONFERENCES

March 1999. The non-breeding biology of diving ducks. An International Conference. Parksville, B.C. Dr. R.C. Ydenberg, Dept. of Biological Sciences. Simon Fraser University. Present papers on Project /427 Harlequin Duck Recovery Monitoring and Project\273 (this proposal).

March 1999. Legacy of an Oil Spill: Ten years after *Exxon Valdez.*

NORMAL AGENCY MANAGEMENT

The work proposed here is not part of normal agency management and is related specifically to research addressing oil spill restoration concerns. No similar work has been conducted, is currently being conducted, or is planned using agency funds.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

As described in the Introduction, this research relies on incorporation of methods and data from other EVOS Trustee sponsored research, including projects /427 and /025. Equipment purchased by those projects will be used to conduct this research. Location of research sites, and data collection and analysis will follow previously established standards. All efforts will be made to share vessel support, telemetry monitoring, study sites, and equipment with other EVOS projects.

This project is integrated with project \052B Traditional Ecological Knowledge; project \210 Youth Area Watch; project \025 Nearshore Vertebrate Predator Project; project \320 Predation on Herring Spawn; project \427 Harlequin Duck Recovery Monitoring; and project \159 Prince William Sound Marine Bird Surveys.

See Community Involvement and Traditional Ecological section above for more details on coordination of TEK and Youth Area Watch activities.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

Changes to this project proposal from the FY98 DPD are the addition of five satellite transmitters and survey work at nesting and molting sites. Additional satellite transmitters are needed to increase sample size. Transmitter associated mortality and transmitter failure has reduced FY98 sample size.

PROPOSED PRINCIPAL INVESTIGATORS

Dan Rosenberg
Alaska Dept. of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518
(907) 267-2453
FAX: (907) 267-2433
danr@fishgame.state.ak.us

Revision 10/98
approved TC 8-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$66.4	$90.2
Travel	$7.6	$11.7
Contractual	$42.3	$38.3
Commodities	$38.4	$49.8
Equipment	$2.8	$0.0
Subtotal	$157.5	$190.0
General Administration	$12.9	$16.2
Project Total	$170.4	$206.2
Full-time Equivalents (FTE)	1.1	1.4
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
$240.0				

Dollar amounts are shown in thousands of dollars.

Comments:
The greatest expense for this project is the cost of satellite transmitters and related data downloading expenses from Service Argos Inc., a satellite based location and data collection system. Both are sole source at this time.

No money is allocated for NEPA compliance. Only salary money is allocated for attendance at Anchorage workshops. Travel to villages for TEK "Synthesis Workshops" is included. Travel for students to participate in field work as part of Youth Area Watch and school district programs is not included in this budget.

FY 99

Project Number: 99273
Project Title: Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource.
Agency: ADFG

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Prepared: 4/9/98
Revised: 4/10/98JRS, 6/10/98DHR,7/10/98DHR

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
D. Rosenberg	WBIII, Principle Investigator	18J	7.0	6.5		45.5
Mike Petrula	WBI, Data analysis, report prep., graphics	14C	6.5	4.2	2.0	29.3
1 F&G Tech.	F&G Tech. IV, Field Technician	13D	1.5	4.0	1.0	7.0
1 F&G Tech.	F&G Tech. III, Field Technician	11F	1.0	3.7	0.5	4.2
2 Local Tech.	Field Assistants	11F	1.0	3.7	0.5	4.2
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		17.0	22.1	4.0	
					Personnel Total	$90.2

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
Portage-Whittier Alaska Railroad vehicle,boat, and 1 psng.	0.4	2			0.8
Portage-Whittier Alaska Railroad vehicle and psng.	0.2	4			0.8
Portage-Whittier Alaska Railroad Psg. fare	0.1	1			0.1
Anchorage-Tatitlek by air	0.3	3	3	0.1	1.2
Anchorage -Valdez by air	0.2	2	4	0.1	0.8
Anchorage-Chenega by air	0.2	2	2	0.1	0.6
Anchorage -Port Graham by air	0.3	3	4	0.1	1.3
Airport parking, taxi fare, excess baggage	0.2				0.2
Per diem, Homer, Whittier			10	0.1	1.0
Travel to sea duck symposium, Parksville, B.C.	0.8	1	5	0.1	1.3
Travel to molt and nest sites, commercial airlines to charter location	0.5	6	6	0.1	3.6
				Travel Total	$11.7

FY 99

Prepared: 4/9/98

Revised: 4/10/98,IRS 6/10/98D

Project Number: 99273
Project Title: Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource.
Agency: ADFG

FORM 3B
Personnel & Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Contractual Costs:		Proposed
Description		FY 1999
Warehouse for equipment storage and maintenance - 12 months @ $400/mo		0.0
Air charter for field support 11 hrs @ $250/hr		2.8
Boat and outboard motor repair		1.0
Trailer and boat moorage Whittier		0.1
Photo processing		0.2
Vessel support for bird capture and marking 12 days @1400/day		16.0
Satellite telemetry data downloading		13.0
Air freight - equipment shipment		0.5
Veterinarian	Surgical Implants	3.0
Anesthetist	Administer anesthetics	1.7
When a non-trustee organization is used, the form 4A is required.	**Contractual Total**	$38.3

Commodities Costs:	Proposed
Description	FY 1999
Boat fuel 175 galllons @ $1.50/gal	0.3
Boat supplies- replacement parts, props, fuel lines, fuel filters, water filters, battery, absorbent rags, oil, emergency provisions	0.8
Field survey supplies- rite-in-rain notebooks/paper, nautical charts, batteries,	0.3
Computer software for analysis, graphing, mapping, web page development	0.8
Camp materials and supplies	0.7
Camp Food, 4 people x10 days @ $18/day/person	1.8
Mist nets and trapping equipment	1.6
Satellite radio transmitters - 15 @ $2,800 each	42.0
Veterinarian surgical supplies	1.5
Commodities Total	$49.8

FY 99

Prepared: 4/9/98

Revised: 4/10/98JRS, 6/10/98DHR, 7/10/98DHR

Project Number: 99273
Project Title: Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource.
Agency: ADFG

FORM 3B
Contractual & Commodities DETAIL

99273rev.xls

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 1999
NONE			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number	Inventory
Description	of Units	Agency
20 ft. Caribe rigid hull inflatable	1	
17 ft. Boston Whaler	1	
10x40 binoculars	4	
Spotting Scopes	2	
Achilles 8 ft inflatable dinghy	2	
Remington Shotguns	2	
Honda generators	3	
Survival Suits	2	
Outboard Motors/various hp	6	
Magellan GPS	3	
Marine VHF radios	4	

FY 99

Prepared: 4/9/98

Project Number: 99273
Project Title: Scoter Life History and Ecology: Linking Satellite Technology with Traditional Knowledge to Conserve the Resource.
Agency: ADFG

FORM 3B
Equipment
DETAIL

Revision 7-8-98
Approved TC 8-13-98

PROJECT TITLE: Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet

Project Number:	99278
Restoration Category:	Ecosystem Synthesis, General Restoration (suggested)
Proposer:	ADFG
Lead Trustee	ADFG
Duration:	1st year of 2-year project
Cost FY 99:	$70,000
Cost FY 00:	$35,000
Geographic Area:	Kachemak Bay, Southern Kenai Peninsula, and Lower Cook Inlet
Injured Resource/Service:	Kachemak Bay includes all injured resources (except cutthroat trout, Dolly Varden, and AB Killer Whale pod) and all the lost or reduced services, each of which will be addressed in the development of this ecological characterization and site profile of the Kachemak Bay Watershed/Lower Cook Inlet area.

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 (hypertext markup language with selective use of compact computer disk – CD – and Internet media) and summarized on paper. Three main project components of the overall project include: 1) the ecosystem narrative description; 2) a spatial data component using a Geographic Information System (GIS); and 3) the annotated bibliography and research summary/tracking system. EVOS funds will focus on the spatial data component and annotated bibliography. The products will be presented in an interactive, easy-to-use information source to: 1) identify future restoration opportunities, 2) assist in the use and protection of land (including parcels purchased by the EVOS Trustees), 3) plan for a possible long-term ecological monitoring and research program in the Northern Gulf of Alaska, and 4) assist in agency management and planning for the Lower Cook Inlet area.

INTRODUCTION

The proposal to develop an ecological characterization and site profile (hereafter referred to as the "characterization") of Kachemak Bay will represent a new project for funding by the *Exxon Valdez* Oil Spill (EVOS) Trustee Council. While ADFG did submit a proposal under the same project number in FY98 (entitled "Development of an Ecological Characterization and Long-Term Environmental Monitoring Program for Kachemak Bay"), it was not funded by the Trustee Council.

The current proposal has been substantially restructured and focused to address questions and concerns by peer reviewers, the Chief Scientist, and Trustee Council staff, as well as several Trustee Agency liaisons. Enclosure 1 includes a description of these questions and concerns, and how they were addressed in the revised proposal. The most notable change is that the department has eliminated the environmental monitoring component of the FY98 proposal. This aspect of the FY98 proposal was premature, recognizing that the Council is in the process of formulating direction on long-term ecological modeling and monitoring.

Six months of planning resulted in a clearer project focus and emphasis. It now focuses exclusively on developing a characterization to provide ecological information from EVOS and other sources to the stakeholders, and to develop a research, management, and planning tool for the EVOS restoration effort and other agency functions. ADFG has completed an initial user need survey (Enclosure 2), and have designed this project with the users in mind to create the most useful project. The overall project will gather, synthesize, analyze, and distribute ecological information about the Lower Cook Inlet area, with an emphasis on the Kachemak Bay Watershed. This information base will cover all elements of the ecosystem, including the biological, physical, and human or socioeconomic elements. The project delivers this information through these tools: 1) the interactive and detailed ecosystem description; 2) the Geographic Information System (GIS); and 3) the annotated bibliography and research synthesis and tracking system. Information will be presented electronically in hypertext markup language (HTML) on a CD-ROM and the Internet, and summarized on paper as funding in FY00 permits. Data and information will be gathered from existing literature and the scientific community. The resulting interactive digital characterization will include detailed, site-specific information that both the novice and technically sophisticated users can access and understand.

To begin this rigorous project, the department has secured additional funding and partners, hired staff, and established additional cooperative agreements. The principal contributing partner in this project is the National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center (CSC). While a major player, the CSC is not requesting funding from the Trustee Council. The Center has done a similar ecological characterization for Otter Island and is completing a second one in the Ashepoo-Cambahee-Edisto (ACE) Basin in South Carolina (SCDNR, NOAA/CSC, NGDC, 1996). The Kachemak Bay project is in its third partnership with a state agency to develop a characterization. The CSC not only brings a great deal of experience and expertise, but also brings substantial cost sharing opportunities to the EVOS restoration effort. The Center has also funded a two-year "Coastal Management Fellowship," partnered with ADFG to collect existing spatial data (Enclosure 3), and entered into cooperative agreement with ADFG for the

overall project (Enclosure 4).

Creating and integrating the extensive ecosystem description, GIS atlas and models, searchable bibliography, and research synthesis in an electronic format represents a large and complex undertaking. With sufficient resources to complete all aspects of the project, this project will result in a comprehensive, easy-to-use product of great value to many users. ADFG does not yet have the full complement of staff necessary to complete all aspects. The Trustee Council can play a critical role in the success of this project. Trustee participation will not only help ensure the needs of the restoration effort are factored into this characterization, but will help create a valued information source and management tool for researchers, managers, educators, and the general public.

It is noteworthy that Kachemak Bay has been proposed for inclusion in the National Estuarine Research Reserve (NERR) System, and is likely to be designated by October 1998 (ADFG and NOAA, 1998).[1] The NERR System is a non-regulatory program of twenty-two protected estuaries that focuses on long-term research, monitoring, and education. The proposed KBNERR will play a lead role in maintaining the ecological characterization and the associated GIS. The goals and objectives of the proposed reserve are compatible with the goals of the Trustees Council as presented in the EVOS Restoration Plan (EVOS Trustee Council, 1994). Reserve designation presents numerous cost-sharing opportunities, and can bring additional NOAA expertise and public participation into the EVOS restoration effort. Moreover, the NERR System as whole, and in particular the proposed Kachemak Bay NERR, places an emphasis on getting scientific information to managers, resource users, and the general public. Through this project and future efforts, we can assist the Trustees in getting the information to the stakeholders.

NEED FOR THE PROJECT

A. Statement of Problem

EVOS restoration efforts to date have focused largely on restoration projects, research, and monitoring. The Invitation to Submit Restoration Proposals for FY99 indicated a shift from research to synthesizing and integrating information (see pp. 31 and 32, Ecosystem Synthesis section). Closing comments from most of the EVOS peer reviewers at the 1998 EVOS Restoration Workshop emphasized the need to bring information to managers, researchers, and communities in a usable and interesting manner. Increased emphasis was also placed on community involvement, and demonstrating the value of restoration efforts, research, and monitoring to the public and agencies. The need for such an effort was further illustrated recently in community meetings in Homer area for EVOS restoration reserve, where the public failed to see the value of EVOS restoration and monitoring efforts. This project is designed in part to meet this need, to summarize existing information, involve stakeholders in its development, and develop and easy-to-use product of value to many stakeholders.

[1] Copies of the plan are available from ADFG. The plan is also available on the World Wide Web at the following address: http://www.state.ak.us/local/akpages/FISH.GAME/habitat/geninfo/nerr/index.html

The Trustee Council is also in the process of outlining the use of the EVOS Restoration Reserve, putting considerable effort towards developing a long-term monitoring plan. Comments from both the EVOS Chief Scientist and visiting scientists at the 1998 EVOS Restoration Workshop pointed to the need to compile comprehensive baseline data on the ecosystem's physical, chemical, biological, and human elements. This project will summarize available information for all these elements and provide baseline data for future monitoring efforts.

ADFG has conducted an extensive survey of potential ecological characterization users to determine their information needs and the most appropriate delivery and presentation format (Callahan *et al*, 1998). The survey summary is provided in Enclosure 2. Some of the highlights include:

Assessment Participants: Over forty managers, researchers, and educators from 28 organizations active in the Kachemak Bay/Lower Cook Inlet area were interviewed. These include researchers involved in the EVOS restoration studies.

Management Issues: This section lists some of the primary management issues identified in the survey. Respondents noted the importance of distinguishing between human-induced and natural changes. In addition to meeting the needs of EVOS, compiling this information in a single source can significantly help managers and resource users of the region.

Primary Information Needs for Managers and Researchers: Managers and researchers need to better understand the whole ecosystem and how its components interact. In addition, they agreed that the current information is too general. This project proposes to update existing information and develop more site-specific information.

Geospatial Information Needs, Capabilities, and Uses: To better understand the audience, this section of the survey identified spatial data needs, agency capabilities, and existing and potential uses of GIS. This project will help meet these needs by providing training and GIS demonstrations designed to address Kachemak Bay problems.

Product Format and Access Recommendations: Respondents identified the primary problem as inability to access information. They prefer to have ecosystem information readily available using a combination of CD, Internet, and paper media.

Summary: Respondents voiced a need to develop a socioeconomic and ecological database for research, management, and planning. At the present, the managers and researchers seek information from a wide array of sources, leading to time-consuming and often fruitless searches for site-specific details. Data and qualitative information are separately archived in management agencies throughout the state. The daunting task of searching for information and the lack of access drives repeated requests for a centralized source of site-specific details on the Kachemak Bay watershed. For community members, obtaining information is frequently even more frustrating and unsuccessful. This project will help bring needed information into their hands.

All of the interview participants valued the proposed characterization and associated GIS products as a tool for management, research, and general information management. A site-specific knowledge base that identifies and summarizes what is known and not known about the bay's ecosystem would be very useful for daily and long-term activities. Applications include planning and developing recommendations for use of the bay's resources, restoration, research, and ecological monitoring. The ongoing survey will be expanded to further address the needs of the EVOS restoration effort, including ongoing projects (e.g., APEX) and long-term monitoring needs. Community involvement and participation is also built into project and has been part of our outreach efforts to date.

B. Rationale/Link to Restoration

The proposed project is closely linked to the mission, policies, and objectives of the Trustee Council. With respect to goals and objectives of the Trustee Council, the ecological characterization will:

1. Summarize the state of knowledge of injured species, resources, and services;
2. identify gaps in ecological knowledge of Kachemak Bay;
3. facilitate identification of restoration and enhancement opportunities for these resources and services;
4. assist in collection of information for other EVOS efforts related to restoration, research, and long-term monitoring; and
5. provide an information base and data management system for future EVOS and agency restoration efforts (both research and long-term monitoring), management, and resource planning.

The ways in which this project addresses the Trustee Council policies are summarized below. Policy numbers refer to those listed in Chapter 2 of the 1994 EVOS Restoration Plan (pages 12 to 17).

- *Ecosystem Approach, Policies 1 and 2* – A primary focus of this project is to promote an ecosystem approach towards restoration, management, and use of Kachemak Bay. The study area includes the Kachemak Bay Watershed, encompassing those lands purchased by the Council on the south side of the bay and the proposed purchases on the north side. This project will clearly benefit multiple species and services.
- *Injuries Addressed by Restoration, Policies 3, 4, and 6* – Tasks 1 to 5 above relate to the restoration of injured species and resources. Many of the injured species and services have substantial economic, cultural, and subsistence value to the state, regional, and local economies.
- *Location of Restoration Actions, Policy 8* – Kachemak Bay is in the spill area. Council policy allows study of other areas of the ecosystem that may affect marine resources.
- *Restoring a Service, Policy 9* – Most of the injured services occur within the Kachemak Bay area. Through an analysis of present and historical information, this project will identify services that can be protected, restored, or enhanced.

- *Efficiency, Policies 11 and 14* – This project maximizes cost sharing. The EVOS restoration effort can gain significant benefits from this product with relatively little expense. Proposed EVOS funding represents a relatively small but critical component of total costs for creating the information synthesis.
- *Partnerships, Policy 15* – This project emphasizes establishing partnerships with governmental and non-governmental agencies to define user needs, develop the product, and maintain it.
- *Clear, Measurable, and Achievable Endpoint* – The ecological characterization will be completed in mid FY00. The products will be available to managers, researchers, local governments, and the public. ADFG is requesting assistance primarily for FY99, during the intensive data collection and synthesis phases. FY00 requests staff needed during the final production and evaluation phases of the project.
- *Synthesis of Findings/Project Integration/Remaining Issues and Information Gaps, Policy 18* – The project summarizes and synthesizes available information (EVOS and non-EVOS), and identifies information gaps. Moreover, the project will mesh with other EVOS studies. For example, the work will be closely coordinated with the EVOS-funded APEX studies in Kachemak Bay, led by John Piatt. This project and future monitoring efforts could also be designed to address management issues for the lands and resources purchased by the Council. Monitoring restoration projects in the Kachemak Bay area (e.g., project 98314, the proposed Mariner Park Restoration Project) represents another possibility for project integration. In addition, small parcels in the Homer area (Beluga Slough and Homer Spit) and large parcels of Seldovia Native Association land purchased by the Council are included in the study area. This project can help support protection of those lands and the injured species and services they support.
- *Public Participation, Policy 19* – ADFG has sought comments from several non-governmental entities in project design, and has completed an extensive need assessment (Enclosure 4). Continued involvement of agencies and the public will foster ownership and product use.
- *Access to Information and Data, Policy 20* – A major focus of this effort is making both EVOS-funded and other information readily available to the public and agencies in a user-friendly form. Involving representative users in the project will make sure it is useful and understood. This project will complement other efforts of the Trustee Council's staff to disseminate information.
- *Normal Agency Activities* – The preparation of an ecological characterization is not a normal agency activity and has not been conducted by the department in any other area.

C. Location

The project study area is mapped in Figure 1 (next page). Figure 1-A represents the "focus area," or the area of intensive data collection and synthesis. This includes Kachemak Bay and its watershed. Data collection and synthesis in the focus area will include updating existing data and incorporating additional scientific and local knowledge. To illustrate how Kachemak Bay is influenced by and influences the larger ecosystem, the overall extent of spatial data collection will be extended to all of Cook Inlet and parts of the outer Kenai Peninsula as delineated on Figure 1-B. Outside the focus area, spatial data capture will be limited to priority existing data sets. The primary affected communities include Homer, Anchor Point, Kachemak City, Kachemak Selo, Halibut Cove, Seldovia, Port Graham, Nanwalek, and adjacent areas.

Figure 1-A: Kachemak Bay Focus Area

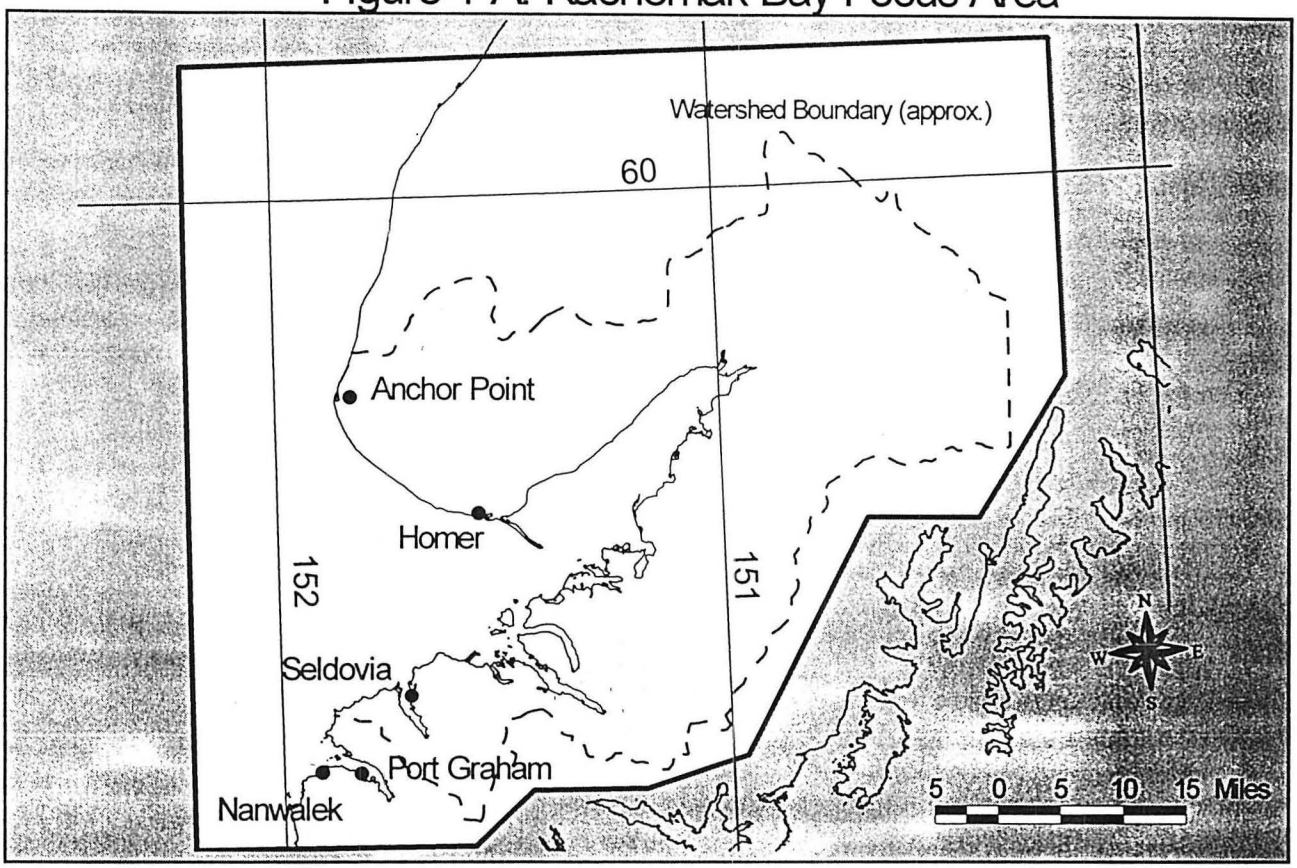
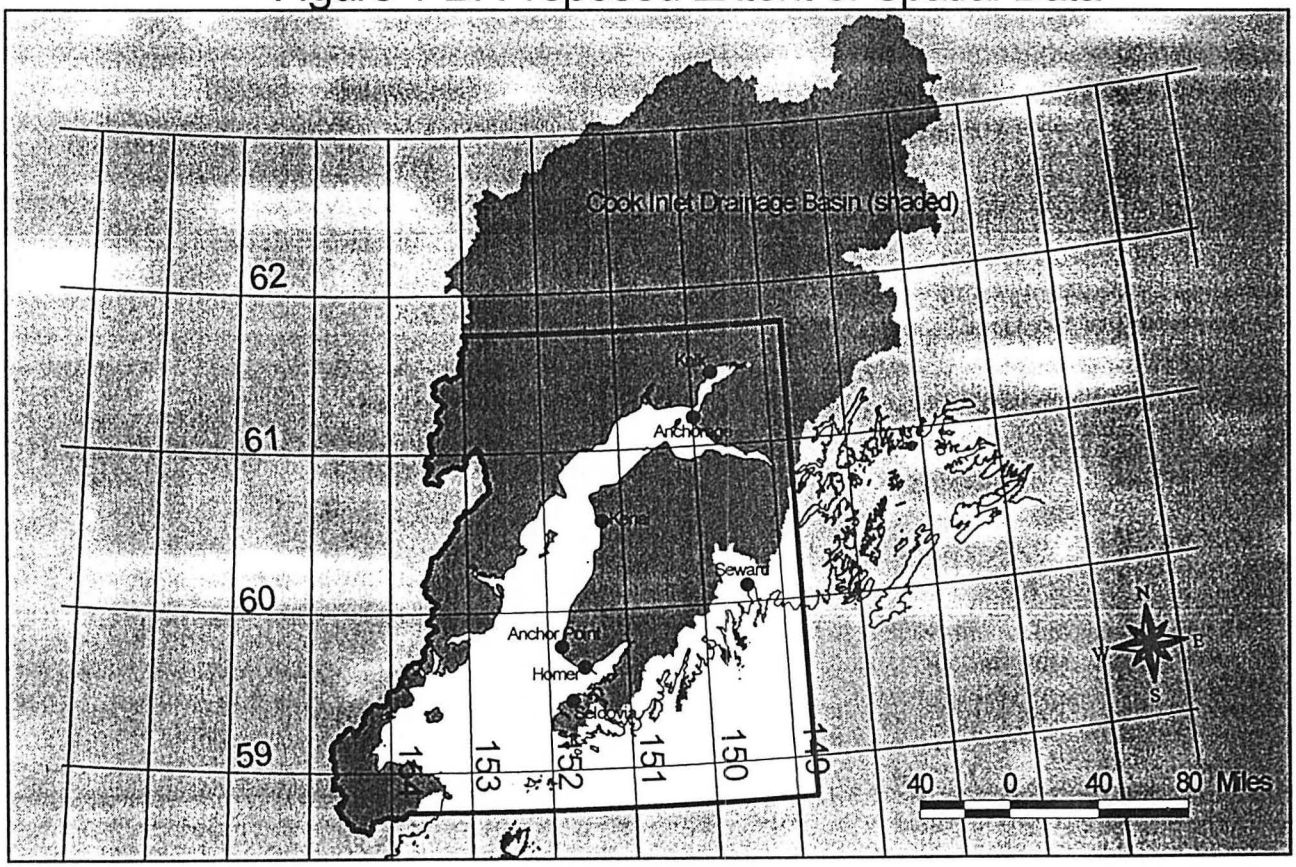


Figure 1-B: Proposed Extent of Spatial Data



COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

The original proposal included a fairly aggressive outreach to inform the communities of this project and provide opportunities for public input. A high level of community involvement would both improve the information base presented in the product and enhance stakeholder ownership and use of the product. Due to the reduction in funding and Trustee Council staff recommendation to focus GIS and annotated bibliography aspect of the proposal, this element of the project will need to be greatly scaled back. We will not be holding informational workshops in Seldovia, Port Graham, and Nanwalek, nor will we be requesting the assistance of staff working on project \052B for a traditional ecological knowledge element of the project. Information collection will be limited largely to more traditional scientific, professional sources of information.

PROJECT DESIGN

As noted previously, the proposed project is part of larger cooperative effort with NOAA/CSC to develop a characterization for Lower Cook Inlet and the Kachemak Bay Watershed. ADFG and CSC have made substantial progress, including compiling the background information and planning for this proposed project. The overall project's scope is outlined in the proposal to enter into a cooperative agreement with CSC (Enclosure 5). The following narrative summarizes key aspects of the project related to the collection of GIS spatial data and the annotated bibliography that would be funded through EVOS Restoration funds.

The proposal to the CSC was prepared with an understanding that we would seek additional resources and partners to create the most comprehensive and useful product. The ecological characterization represents a major effort that will have extensive utility for many audiences. However, the primary "target audience" (the primary audience that will guide the development of the project) is researchers and managers, with full consideration of EVOS information and information management needs with Trustee funding. The Trustee Council is a logical partner to help achieve its goals and objectives in common with those of the NERR and the project. The Council's involvement would also gain efficiencies in cost by jointly addressing specific EVOS restoration, research, and monitoring needs. Council participation will, in part, result in (1) a more comprehensive product; (2) an update of existing information; and (3) collection and synthesis of more detailed and site-specific spatial information on the human, biological, and physical elements of the ecosystem.

A. Objectives

The objectives of the overall project are as follows (Trustee Council contribution limited to those objectives highlighted in **bold** print):

1. Identify EVOS restoration, research, and long-term monitoring information needs, and tailor the characterization to meet those needs.
2. Identify resource management issues and the information needed to address them in the Kachemak Bay ecosystem.

3. Summarize and document available information on all components of the Kachemak Bay ecosystem.
4. **Collect existing GIS data and develop a personal computer-based GIS for the Kachemak Bay/Lower Cook Inlet ecosystem for use in the characterization and as tool for research, monitoring, and resource management and planning.**
5. **Develop GIS applications to demonstrate how it can be used for management, research, monitoring, education, and restoration.**
6. Summarize past and ongoing research efforts and develop a system to track future research and monitoring projects.
7. **Develop an annotated bibliography of available information and summarize research for the Kachemak Bay/Lower Cook Inlet ecosystem.**
8. **Publish the ecosystem information, information needs, and the GIS data and applications as an ecological characterization on a compact computer disk (CD) and, as appropriate, on the Internet.**
9. Actively involve researchers, managers, and public users in the planning, development, use, and maintenance of the ecological characterization.

The significance of the project goals and objectives is in "*B. Background/Introduction*" of the CSC proposal in Enclosure 4. EVOS funded staff will focus on the collection of existing and development of new GIS data (Objectives 4 and 5), development of an annotated bibliography (Objectives 7), and publishing this information (Objective 8, second year).

B. Methods

The methodology is discussed in the CSC proposal in "*D. Project Description/Methodology*" and in the general summary in Enclosure 4. A working outline for the CD/Internet Product is in Enclosure 5.[2] A summary of the product and method of data collection and synthesis is provided below.

Project Framework: The ecological characterization will present information through three components: (1) the ecosystem description; (2) the GIS/spatial data; and (3) annotated bibliography/research synthesis. EVOS project staff will focus on the 2nd and 3rd components, as described below.

- *GIS/Spatial Data Component*: The GIS database and its demonstration component will contain digitized spatial data and associated metadata (i.e., a description of the data). GIS layers of habitat, natural resources, physical processes, human use, roads, land use, management status, and other features will allow managers and researchers to better analyze problems from an ecosystem perspective. The GIS demonstrations will show how to use this tool to investigate questions specific to Kachemak Bay, and will generate a GIS analysis of subjects such as land use planning and fisheries management for this area. In addition to the research, management, and modeling applications, the educational benefits of visualizing the

[2] This should be considered a **general draft** outline. It will continue to evolve as the project progresses, and will be further refined to more fully meet the needs of EVOS restoration effort with the Trustee Council's participation. Sections addressing the injured resources and services are noted in a table at the beginning of the outline.

data will help involve and educate the community. With the Trustee Council's support, the community will also participate by bringing their knowledge of the region into the GIS.

ADFG has completed an initial inventory of available spatial data which includes the Kachemak Bay/Lower Cook Inlet Area (Enclosure 5, Section B). The available information does not have the high resolution that the local residents can provide, and that researchers and managers need. The focus of data collection will be the Kachemak Bay Watershed, but we will also collect data to analyze ecological relationships between the bay, Cook Inlet, and the Northern Gulf of Alaska (see Figure 2B). Participation of the Council will allow us to collect more detailed, site-specific data and incorporate local knowledge, and ensure that the information needs of the EVOS restoration effort are met (e.g., include data that will help support long-term monitoring).

- *Annotated Bibliography and Research Synthesis*: This component will include a searchable, annotated bibliography of EVOS research and other information about the ecosystem. In addition to studies involving Kachemak Bay and Lower Cook Inlet, it will also include auxiliary literature about the resident species. This section will also summarize past and ongoing research, and link to a mechanism for tracking research activities. The bibliography of EVOS and other literature on the Kachemak Bay ecosystem will greatly increase access to and use of this information. While a bibliography for Cook Inlet currently exists, the Kachemak Bay and Lower Cook Inlet entries will be expanded to include current research efforts and a broader range of topics (Dames and Moore, 1996). The bibliography will encompass journal articles, unpublished reports, EVOS projects, gray literature, and major public documents on the watershed and resource that inhabit the area. All of the documents will be searchable by subject, key words, author, and title. The research synthesis will summarize past and current research, thus displaying the value of this research to the ecosystem and communities. This synthesis will also facilitate better coordination among organizations working in the Bay, and assist others in accessing the latest research. Links from the project web page will channel updates on new research directly to the characterization system that ADFG will maintain.

Method of Data Collection and Synthesis (Year 1/FY99):

1. *Database Design:* ADFG and the CSC have begun designing the database to enable easy information access, analysis, and update. This database will also work with the search software of the bibliography and research synthesis component and the GIS/spatial data component. The database design must also accommodate the Internet and CD interfaces.

2. *Literature Search/Review*: ADFG will undertake an extensive search to expand on existing literature reviews and address the goals and objectives of this project. Project staff will use this information, combined with the sources below, to develop the ecosystem description, GIS, bibliography, and research synthesis.

3. *Interviews*: This EVOS project will involve networking and outreach with the scientific and management communities to collect the most recent, accurate, and site specific information available. Information from the literature will be supplemented with interviews of researchers

and managers. This will include university, agency, and other EVOS researchers who have conducted studies in the Kachemak Bay area. ADFG project staff will collect most of this information [note: the contractor under (b) below will assist in collecting historical information].

Outyear Task (Year 2/FY00):

This project is proposed as a discrete, 1.5 to 2 year project. The information synthesis will be completed by the end of FY99. The final six months of the project will focus on development of the CD and Internet interface and products. It is essential that at least one project staff person continue working with the CSC to review products, conduct the project evaluation, and complete the other tasks below.

Descriptions of likely FY00 tasks are provided below. The estimated $35.0K is in FY00 to assist in the completion of the below tasks.

1. *Development of CD/Internet Products*: The information collection and synthesis phases will be completed at the end of FY99. This also marks the end of the two-year Coastal Management Fellowship project. As part of the cooperative agreement, the CSC is responsible for incorporating the information compiled by ADFG into the CD/Internet products. The anticipated completion date is April 2000.

2. *Reproduction and Distribution of CDs*: As part of the cooperative agreement, CSC will produce a limited number of copies of the CD. Depending on the number desired by the Trustee Council staff, additional funding may be necessary to reproduce additional CDs.

3. *Production of the Paper Copy*: In the needs assessment, several respondents recommended that a paper copy of the ecological characterization be produced. It may be appropriate to develop, at a minimum, a hard copy summary of the ecological characterization for individuals who do not have access to a CD drive or the Internet, or who otherwise need a hard copy.

4. *Product Evaluation*: ADFG and CSC intend to conduct an evaluation of the product before it is distributed. Modifications to the product will be made before the product is released.

5. *Maintenance Plan*: ADFG intends to develop a product that can be maintained. The CD and associated GIS will be maintained through the Kachemak Bay NERR. ADFG will develop the plan to update and maintain the CD, Internet, and GIS products of the ecological characterization. This will include identification of potential uses, product evaluation, and recommendations for further work.

6. *Coordinate With Other EVOS Projects*: ADFG will coordinate with other EVOS projects to collect and synthesize information and make it available to the stakeholders in EVOS restoration process. The level of effort required in this task will be dependent on what projects are supported by the Trustees.

C. Cooperating Agencies, Contracts, and other Agency Assistance

Agency Requesting Funding:

ADFG is the only Trustee Council agency requesting funding. NOAA/NOS/CSC is a cooperating agency, but is not requesting funding as part of this project.

Contractors:

The Coastal Management Fellowship is being administered through the Alaska Sea Grant Office through the University of Alaska/Fairbanks. A total of $12K will be provided to the Alaska Sea Grant Office through a Reimbursable Services Agreement to cover three months of the Fellow's time toward project coordination and the GIS/spatial data and annotated bibliography components of the project.

SCHEDULE

A. Measurable Project Tasks for FY98

1st Quarter:
- Hire habitat biologist.
- Review available sources of EVOS and other data.
- Develop questionnaire to use in interviews.
- Begin interviewing and collecting scientific from managers and researchers.
- Anchorage GIS staff continue capturing GIS data and start digitizing new spatial data.

2nd Quarter:
- Continue interviewing sources in Anchorage and Kachemak Bay area.
- Draft sections in project outline.
- Distribute sections for review.
- Continue collecting and preparing spatial data.
- Start to provide draft materials to CSC for review and comment.

3rd Quarter:
- Complete interviews/start integrating additional information with scientific information.
- Continue to provide drafts to CSC for review and formatting.
- Complete the capture, digitization, and manipulation of most GIS data.
- Attend 10th Annual Workshop and associated meetings.

4th Quarter:
- Complete CSC review of products.
- Finalize all spatial and narrative products.

B. Project Milestones and Endpoints

1st Quarter:
- Literature and information source review completed.
- Complete interview framework
- 66% of existing GIS spatial data captured.
- 33% of additional GIS spatial data digitized.

2nd Quarter:
- Distribute sections for review.
- 100% of existing GIS spatial data captured.
- 66% of additional GIS spatial data digitized.

3rd Quarter:
- Interviews completed.
- 100% of additional GIS spatial data digitized.
- Peer review of draft narrative and spatial data completed.
- Participate in 10th Annual Workshop.

4th Quarter:
- GIS spatial data section complete and provided to CSC.
- Bibliography and research synthesis and tracking mechanism complete and provided to CSC.

C. Completion Date

Estimated completion date of *April 30, 2000*

PUBLICATIONS AND REPORTS

The ecological characterization will be published in electronic media using CD and Internet. ADFG would like to consider developing a manuscript with the CSC upon the completion of this project. This will be addressed in our FY00 proposal.

PROFESSIONAL CONFERENCES

NOAA provides funding for the Coastal Management Fellow to participate in at least one conference per year. This summer, the Fellow and a CSC team member will present a poster and paper on the project at the Coastal Society conference (Callahan *et al* 1998, Olmi *et al* 1998). In FY99, a paper will be presented at the conference "Coastal Zone 99."

NORMAL AGENCY MANAGEMENT

Neither ADFG nor NOAA requires development of a characterization. All aspects of this project – the Coastal Management Fellowship project, the NSDI project (Enclosure 2) and the cooperative agreement with NOAA (Enclosure 5) – were funded through a competitive process. Through this proposal, we are seeking to fund staff to complete the characterization and address the EVOS restoration effort's needs.

COORDINATION AND INTEGRATION WITH THE RESTORATION EFFORT

Coordination with the EVOS Restoration Effort: ADFG has begun coordination with restoration projects on several fronts:

- We have spoken to Trustee Council staff to determine if summary work has been done for Kachemak Bay. Apparently little work has been done to summarize and compile existing information, and nothing in the form proposed herein.
- We have initiated coordination with the APEX project (\163), which has a significant study effort in Kachemak Bay/Lower Cook Inlet. We will work with project staff to help define data needs (e.g., spatial data and other information we can collect to assist the modeling or other aspects of their project) and will incorporate their findings in the characterization.
- We will coordinate with the staff of other EVOS projects to include the most up-to-date information in the characterization. Three EVOS-funded staff, including the principal investigator and Homer staff will participate in the 1999 annual EVOS workshop in Anchorage. We have also budgeted for Homer project staff to attend the Technical Review Sessions associated with the 10th Annual Workshop.
- We will coordinate with other related EVOS projects that are related to this project.

Other Funds/Major Contributors: ADFG has secured substantial financial resources and established cooperative agreements in this project. These are detailed below.

A. Currently Funded

1. **NOAA/CSC Coastal Management Fellowship:** The CSC is providing funds to support a Fellowship position in ADFG's Habitat and Restoration Division. The Fellowship will last two-years, starting October 1997. It was anticipated that most of the Fellow's effort would go toward project coordination and design and production of the CD. Bridget Callahan was selected as the Fellow to work on this project. The approximate NOAA contribution (21 months)[3] is **$64,000**.

[3] Does not include the 12K match which is required as part of this project. If funded, the match would be met through this project..

2. **NOAA/CSC - ADFG National Spatial Data Infrastructure (NSDI) Project**: CSC and ADFG have a cooperative agreement with the NSDI to inventory available spatial data, capture priority data sets, and create a shared data resource on the Internet (see Enclosure 2). Including NOAA's and ADFG's matches, the total cost of this project is **$67,000**.

3. **NOAA/CSC – ADFG Cooperative Agreement**: As of April 1, 1998, the CSC and ADFG began a two-year cooperative agreement to "Develop an Ecological and Socioeconomic Characterization of Kachemak Bay, Alaska." This involves $140,000 for each of two years, or **$280,000** to ADFG. As part of this agreement, ADFG is responsible for data collection, synthesis, and analysis. We are presently in the first year of the agreement (April 98 to March 99), which includes funds for a Habitat Biologist I, a Fish and Game Technician, an Analyst Programmer (2 months), and cartographer and intern time for the GIS work. This does not include the CSC's contribution.

   The CSC will be responsible for producing the CD and Internet products. The Center has budgeted approximately 1 full-time-equivalent (FTE) in year one and 2 FTE's in year two. The CSC will also reproduce and distribute the CDs. The CSC will also reproduce and distribute several hundred copies of the CD. No precise estimate for the CSC contribution has been established, but will likely exceed **$150,000** before project completion.

4. **Project Management**: Approximately 1.5 months of staff time during the first six months of this project (October 97 to September 98) will have been devoted to project management. This amounts to approximately **$10,000**.

5. **Kachemak Bay NERR**: This project will be closely integrated with the KBNERR. The Final Management Plan/Environmental Impact Statement (FEIS/FMP) is likely to be completed by July 1998, after which ADFG will proceed with hiring NERR staff. Formal designation is likely to occur around October 1998. The Kachemak Bay NERR Manager and Research Coordinator will assist with this project in a review and advisory capacity and eventually assume the responsibility for project management. The Research Coordinator, once hired, with lead the effort to define and prioritize information needs. This will be integrated with researchers and general public through a "Research and Monitoring Advisory Group" that will be set up by the developing NERR. We estimate that this will take approximately two months of staff time, or about **$12,000** of personal services time.

PROPOSED PRINCIPAL INVESTIGATOR

Glenn A. Seaman
ADFG, Habitat and Restoration Division
333 Raspberry Road
Anchorage, Alaska 99518-1599

Phone: 267-2331
Fax: 267-2464
E-mail: glenns@fishgame.state.ak.us

Revis. 7-8-98
Approved TC 8-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999						
Personnel		$42.4						
Travel		$4.0						
Contractual		$16.1						
Commodities		$0.0						
Equipment		$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$0.0	$62.5		Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
General Administration		$7.5						
Project Total	$0.0	$70.0		$35.0				
Full-time Equivalents (FTE)		0.9						
	Dollar amounts are shown in thousands of dollars.							
Other Resources	$251.0	$293.0		$110.0				

Comments: Summary of other sources and EVOS contribution is provided below.

FY98: *NOAA/CSC Fellowship, $43.0* -- Needs analysis, project design and planning, establish agreements, identify partners, staff selection
NOAA/NSDI Project, $67.0 -- metadata training, spatial data inventory, prioritize data layers, start capturing/formating priority spatial data
CSC/ADFG Coop. Agreement, $70.0 -- begin data collection, establish data management structure, continue capture of spatial data
NERRS Designation, $10.0 -- project management, administrative tasks, project design, leadership in establishing partnerships

FY99: *NOAA/CSC Fellowship, $31.0* -- project coordination, work with public and advisory group, interface with CSC, overall coordination of project
CSC/ADFG Coop. Agreement, $175.0 -- GIS support and partial staff necessary for the intensive data collection effort, socio-economic study
CSC Participation, $75.0 (est.) -- assistance in project design and development, begin prepatory work necessary to produce CD
NERRS Operation., $12.0 -- Research Coordinator assistance in establishing information needs and research priorities
EVOS/Project Mgmt., $6.4 -- covers half of PI's time on the project for project oversight, management, interact Trustee staff, EVOS meetings
EVOS/Fellowship Match (3 mo.) and HBI (10 mo.), $48.0 -- meets FY99 fellowship match require (see tasks above), provide critical staff support needed to integrate with EVOS restoration effort, update existing and collect additional specific ecological information/local knowledge
EVOS/Other Support and Administration, $15.6 -- phone, contractual, computer, other support, administrative overhead

FY00: *CSC/ADFG Coop. Agreement, $35.0; CSC Participation, $75.0*; EVOS Participation, est. $35.0 -- estimated costs for partners for completing the evaluation, development of maintenance plan, reproduction and distribution, coordinating with other EVOS projects

FY 99

Project Number: 99278
Project Title: Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet
Agency: ADF&G

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revised: July 8, 1998

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
(Vacant -- will be filled 5/98)	Habitat Biologist I (Long-Term/Non-perm)	14A	10.0	3.6		36.0
Glenn Seaman	Project Manager/Habitat Biologist III	18L	1.0	6.4		6.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		11.0	10.0	0.0	
					Personnel Total	$42.4

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
10th Annual Restoration Workshop (x2, Homer to Anch, Fellow & HBI)	0.2	2	10	0.1	1.4
Technical Review Sessions (w/workshop, 3 days each x 2)		2	6	0.1	0.6
Homer to Anch, Information Gathering Trips (1 person, 4 trips)	0.2	4	12	0.1	2.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$4.0

FY 99

Project Number: 99278
Project Title: Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet
Agency: ADF&G

FORM 3B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Telephone	3.0
Photocopying (publications, reports)	1.1
Bridget Callahan (Coordinator/Coastal Management Fellow, approximately 3 months), RSA to UAF Sea Grant Program*	12.0
* The NOAA Coastal Management Fellowship is being administered by Alaska Sea Grant Program based at UAF.	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$16.1

Commodities Costs:	Proposed
Description	FY 1999
Commodities Total	$0.0

FY 99

Project Number: 99278
Project Title: Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet
Agency: ADF&G

FORM 3B
Contractual & Commodities DETAIL

Revised: July 8, 1998

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number	Inventory
Description	of Units	Agency
Camera Equipment (Visual and Digital)	3	ADFG
Sun Workstation and other GIS equipment in Annchorage Office	extensive	ADFG
Personal Computers (dedicated to other Ecological Characterization Project staff)	3	ADFG
Color Printer	2	ADFG
CSC GIS and other Equipment for Production of CD/Internet Products	extensive	CSC
Scanners (Anchorage and Homer)	2	ADFG

FY 99

Project Number: 99278
Project Title: Development of an Ecological Characterization and Site Profile for Kachemak Bay/Lower Cook Inlet
Agency: ADF&G

FORM 3B
Equipment
DETAIL

Revise July 8, 1998

Revision 12-11-98
approved TC 12-15-98

Status of Black Oystercatchers in Prince William Sound

Project Number:	99289-BAA
Restoration Category:	Research
Proposer:	S. Murphy/ABR, Inc.
Lead Trustee Agency:	NOAA
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	2nd yr. 2 yr. project
Cost FY 99:	$8.6
Cost FY 2000:	$0.0
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	Prince William Sound
Injured Resource/Service:	Black oystercatcher

ABSTRACT

This project will close out the FY 98 assessment of the status of the breeding population of black oystercatchers in Prince William Sound nine years after the oil spill. Closeout will include final analyses of 1998 data, including reconciling discrepancies in oiling classifications used during various studies of black oystercatchers in Prince William Sound, preparation of a final report and manuscript, and preparation of a poster for presentation at the 10 Years After symposium.

Revision 1 11-98
Approved TC 12-15-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999	LONG RANGE FUNDING REQUIREMENTS					
Personnel		$0.0						
Travel		$0.0						
Contractual		$8.0						
Commodities		$0.0						
Equipment		$0.0						
Subtotal	$0.0	$8.0			Estimated FY 2000	Estimated FY 2001	Estimated FY 2002	
General Administration		$0.6						
Project Total	$0.0	$8.6			$0.0	$0.0		
Full-time Equivalents (FTE)		0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

FY 99

Project Number: 99289-BAA
Project Title: Status of Black Oystercatchers in PWS after EVOS
Agency: NOAA

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revision 12-11-98
Approved TC 12-15-98

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

May 1, 1997 - April 30, 1998

Budget Category:	Authorized FFY 1998	Proposed FFY 1999
Personnel	$59.5	$6.8
Travel	$3.5	$0.8
Contractual	$10.8	$0.0
Commodities	$0.9	$0.4
Equipment	$0.0	$0.0
Subtotal	$75.0	$8.0
Indirect	N/A	$0.0
Project Total	$75.0	$8.0
Total Personnel Hours *	$1,016	102
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FFY 1999	Estimated FFY 2000	Estimated FFY2001	Estimated FFY 2002	Estimated FFY 2003	Estimated FFY 2004
$8.0	N/A	N/A	N/A	N/A	N/A

Dollar amounts are shown in thousands of dollars.

Comments:

ABR,Inc. has used **Hourly Rates** instead of **Monthly Costs.** The hourly rate shown is an all inclusive rate. ABR, Inc. requested permission from EVOS Trustee Council and received verbal permission from **Sandra Schubert** on April 4, 1997 to substitute fully burdened hourly rates for monthly costs and indirect costs.

Full-Time Equivalents (FTE's) have been changed to fully burdened Total Personnel Hours.

Break Down of Project Costs for FY99

Report Writing	$3,800
Publications	$2,000
Professional Conferences	$1,000
Workshop Attendance	$0
NEPA Compliance	$0
Community Involvement	$0

1999

Project Number: **99289-BAA**
Project Title: **Status of Black Oystercatchers in Prince William Sound after the *Exxon Valdez* oil spill**
Name: **ABR, Inc.**

FORM 4A
Non-Trustee
DETAIL

Prepared: 12/11/98

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

May 1, 1997 - April 30, 1998

Personnel Costs:				* Hours	* Hourly		Proposed
	Name		Position Description	Budgeted	Costs	Overtime	FFY 1998
	Murphy	S	Research Coordinator	45.0	$89.00	$0	4.0
	Mabee	T	Research Biologist II	40.0	$49.00	$0	2.0
	Smith	M	GIS Specialist	5.0	$55.00	$0	0.3
	Zusi-Cobb	A	Graphics Technician/GIS	8.0	$48.00	$0	0.4
	Harshburger	D	Word Processor/Administrative Assistant	4.0	$37.00	$0	0.1
			Subtotal	102.0	N/A	0	
						Personnel Total	$6.8

Travel Costs:		Ticket	Round	Total	Daily	Proposed
	Description	Price	Trips	Days	Per Diem	FFY 1998
	EVOS Meetings in Anchorage	350	1	3	150	0.8
					Travel Total	$0.8

1999

Prepared: 12/11/98

Project Number: **99289-BAA**

Project Title: **Status of Black Oystercatchers in Prince William Sound after the Exxon Valdez oil spill**

Name: **ABR, Inc.**

FORM 4B
Personnel
& Travel
DETAIL

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

May 1, 1997 - April 30, 1998

Contractual Costs:	Proposed FFY 1999
Description	
1	
2	
3	
4	
5	
Contractual Total	$0.0

Commodities Costs:	Proposed FFY 1999
Description	
1 Misc. Gear and Supplies	0.05
2 Slides/Phocopying/Printng	0.3
3 Phone/Fax	0.05
4	
Commodities Total	$0.4

1999

Prepared: 12/11/98

Project Number: **99289-BAA**
Project Title: **Status of Black Oystercatchers in Prince William Sound after the Exxon Valdez oil spill**
Name: **ABR, Inc.**

FORM 4B
Contractual & Commodities DETAIL

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

May 1, 1997 - April 30, 1998

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 1999
Description			
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number of Units	Proposed FFY 1999
Description		
1 Library reference books		
2 Computer Resources		
3 GIS/Digitizing Station (s)	2	
4 Office Space		
5 Equipment Storage		
6 Binoculars	2	
7 Cameras	2	

1999

Project Number: **99289-BAA**
Project Title: **Status of Black Oystercatchers in Prince William Sound after the Exxon Valdez oil spill**
Name: **ABR, Inc**

FORM 4B
Equipment
DETAIL

Prepared: 12/11/98

Approved TC 8-13-98

Project Title: Hydrocarbon Data Analysis, Interpretation, and Database Maintenance for Restoration and NRDA Environmental Samples Associated with the *Exxon Valdez* Oil Spill

RECEIVED
APR 14 1998
EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

Project Number:	99290
Restoration Category:	
Proposer:	Bonita D. Nelson and Jeffrey W. Short NMFS, Auke Bay Laboratory ABL Program Manager: Dr. Stan Rice NOAA Program Manager: Bruce Wright
Lead Trustee Agency:	NOAA
Cooperating Agencies:	None
Alaska SeaLife Center:	No
Duration:	Service Ongoing
Cost FY 99:	58.9
Cost FY 00:	58.9
Cost FY 01:	35.0
Cost FY 02:	35.0
Cost FY 03:	35.0
Geographic Area:	Not Applicable
Injured Resource/Service:	Maintenance of the Trustee hydrocarbon database, archival of environmental samples, interpretative services

ABSTRACT

This project is a continuation of the NRDA and Restoration database management, sample storage, and interpretive service. New data will continue to be incorporated into the Trustee hydrocarbon database. Updated summary report for investigators and managers will be produced along with an electronic copy of the data for all data queries. A database for pristane sample collection and analysis information will be maintained and a database will be initialed for fatty acid/lipid class composition sample collection and analysis for ABL Trustee funded projects.

INTRODUCTION

The Auke Bay Laboratory provides data and sample archiving services for all samples collected for hydrocarbon analysis in support of *Exxon Valdez* Trustee Council projects. These data represent samples collected since the oil spill in 1989 to the present and include environmental and laboratory Response and Restoration data as well as Subsistence data. Additionally, we provide interpretive services for the hydrocarbon analyses. Currently, the database contains results of the hydrocarbon analysis of more than 13,000 samples and collection information from more than 47,000 sediments, tissues, water, or oil samples. The primary purpose of this project is to maintain the integrity of the database, incorporate new data and continue hydrocarbon data interpretive services. This year we are proposing to include the task of maintaining a Pristane database and generate a fatty acid/lipid class database for Trustee funded projects at the Auke Bay Laboratory. The second purpose is to make the results of the hydrocarbon analyses available to principal investigators, resources managers and to the public. This service is expected to have activity through synthesis period of the next two years. The third purpose of this project is to maintain the integrity of archived samples in freezers many of which have not yet been analyzed for hydrocarbons.

The Trustee hydrocarbon database not only contains sample collection and hydrocarbon analyses information, but also has data concerning sample shipping and location information as well as lists of other database identifiers (such as species and location codes). A public version of this database containing the sample collection and environmental hydrocarbon sample analyses was released in 1996 (*Exxon Valdez* Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989-1995 -EVTHD) . Updating the database is an on-going program, samples from Chenega cleanup (98291) and Subsistence database were added in 1998, stream sediment data (97194) and pink salmon data (97076) were added in 1997 and additional Chenega samples as well as samples collected from mussel beds are projected to be added in 1999.

The hydrocarbon interpretive service is designed specifically for investigators and managers. This includes: (1) identification of the probable sources of the hydrocarbons observed in the samples, (2) evaluation of new hydrocarbon data for evidence of systematic bias, (3) hydrocarbon data editing according to consistent criteria. Recently interpretation has grown to include identification of potential hydrocarbon sources (e.g. coal) for the background hydrocarbon signal in PWS. This is a continuation of project 98290 and previously funded under TS#1, 93090, 94290, 95290, 96290 and 97290.

NEED FOR THE PROJECT

A. Statement of Problem

The Trustee hydrocarbon database is a dynamic structure which requires updating and maintenance. Currently, the database contains an inventory of the Trustee hydrocarbon sample

collection and provides for retrieval of hydrocarbon analyses by principal investigators and managers. This project is designed to provide easy access to the Trustee hydrocarbon database and ensure the accuracy of the data. The volume of data contained in the database suggests that other users will benefit from access, particularly as more data is added (Chenega project; oiled mussel bed project) and as more synthesis products are produced (salmon and herring).

B. Rationale/Link to Restoration

Archiving of the Trustee hydrocarbon sample data will ensure that these data are available to principal investigators, government agencies, and the interested public on a timely basis. The database allows direct comparison of restoration and NRDA data, and contains an inventory of hydrocarbon samples and information about their collection, storage and analysis. The continued use of the methods for hydrocarbon data evaluation and interpretation developed for the *Exxon Valdez* NRDA samples will insure direct comparability of future with previous samples. This will substantially increase the probability that temporal trends in these data will be detected when actually present. Principal investigators will be able to get assistance with chemical interpretation of hydrocarbon results from their project or other projects that relate to their project when needed. Since most investigators are not chemists, this type of assistance is usually required for proper interpretation of hydrocarbon results. Application of the petroleum weathering model developed under this project (Short and Heintz, 1997) has been used to compare coal samples and Katalla seep with Prince William Sound background samples, and has identified coal as the "biologically non-available source, in contrast to researchers sponsored by EXXON, who have identified the source as Katalla seep oil.

C. Location

While this project resides at the Auke Bay Laboratory, Juneau , Alaska, the service provided serves the entire spill area.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Community involvement includes and extends beyond the spill area. Science centers, public schools, native corporations, universities, environmental organizations and other concerned groups will have access to the database with guidelines on how the data can be used.

PROJECT DESIGN

A. Objectives

1. Continue maintenance of the Trustee hydrocarbon database by updating the database with new information and continue the sample archiving procedures developed under NRDA.

2. Continue interpretation of hydrocarbon data, including new data produced for principal investigators and resources managers and for syntheses products as needed.

3. Maintain Pristane database for Trustee funded projects as well as initiate Fatty Acid/Lipid Class Composition Database for Trustee funded projects located at Auke Bay Laboratory.

4. Provide a new software product for the publicly accessible database which includes hydrocarbon samples analyzed through 1998.

5. Extend the use of the petroleum weathering model by using it as a tool for identifying potential sources of petroleum that contribute to the background signal identified in Constantine Harbor.

B. Methods

Data associated with hydrocarbon samples are added to the existing Trustee hydrocarbon database. The samples and data currently reside at the Auke Bay Laboratory of NMFS. Incoming samples are inventoried and stored in laboratory freezers, and sample collection information is entered into the database. Samples are released for hydrocarbon analysis after ABL receives a written request from the responsible project leader. Hydrocarbon data, reported by the analytical laboratory, are matched to the sample collection information and all the data are checked for errors and electronic copies are sent to principal investigators or other requesters. An updated version of the public release of the database will be developed in Visual Basic software using *Exxon Valdez* Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989-1995 (EVTHD) as a template and will include data collected from Trustee funded projects including sampling and analytical quality control procedures .

The petroleum weathering model developed under this project has been used to reject the hypothesis that the hydrocarbons comprising the background PAH source are derived from the Katalla oil seep. Analysis of sediment and mussel samples collected from locations near the Katalla oil seep as well as coal deposits east of PWS supports the conclusion that PAH derived from coal characterize the background hydrocarbon signal. We will continue developing this argument in FY99 by demonstrating the generality of the weathering model with other oil sources and the absence of a similar weathering process in coal.

The Auke Bay Laboratory will continue to keep all environmental samples collected for hydrocarbon analysis under all phases of the oil spill process frozen in locked storage.

The pristane database will be maintained in ACCESS software. Information from samples collected under Trustee project 195 will be combined with data from the Trustee hydrocarbon database where applicable to provide a complete data set of pristane related information.

The fatty acid/lipid class database will be generated in current database software.

C. Contracts and Other Agency Assistance

No contracts are anticipated

SCHEDULE

A. Measurable Project Tasks for FY99

Samples will be stored and data analyzed throughout fiscal year. Release of the updated public version of the database software: Exxon Valdez Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989-1995.

B. Project Milestones and Endpoints

April 15: Annual report in the form of updated release of hydrocarbon data software.

The primary objective of this project is to provide an ongoing service, consequently there are few set milestone dates or endpoints.

C. Completion Date

This is an ongoing service project to be completed when samples are no longer collected for hydrocarbon analysis and the Trustee Council terminates this service.

PUBLICATIONS AND REPORTS

The public release of the hydrocarbon database for projects funded in FY98 will be available 15 April, 1999 in the form of the annual report.

PROFESSIONAL CONFERENCES

One meeting is required, an annual Quality Assurance Control meeting attended by ABL's Senior Analytical Chemist. The results of an international calibration exercise by participant is reviewed for the integrity and credibility of chemical analyses. This meeting usually occurs in the Washington D.C. area, and is sponsored by National Institute of Standards and Technology (NIST).

NORMAL AGENCY MANAGEMENT

NOAA/NMFS has statutory stewardship for most living marine resources; however, if the oil spill had not occurred, NOAA would not be conducting this project. NOAA/NMFS proposes to make a significant contribution (as stated in the proposed budget) to the operation of this project, making it truly cooperative.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This project is a continuation of NRDA database and chemical interpretation work.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

This ongoing service project has no significant project design or schedule differences from the project funded in FY98, it is a continuation of the same service. The project has been downsized, as the input volume has decreased somewhat, although interpretation services will probably increase.

PROPOSED PRINCIPAL INVESTIGATOR

Bonita D. Nelson
NMFS Auke Bay Laboratory
11305 Glacier Highway
Juneau, Alaska 99801
907-789-6071
907-789-6094
bonita.nelson@noaa.gov

PRINCIPAL INVESTIGATOR

Bonita D. Nelson

Education:
BS 1979, University of Illinois, Urbana (Ecology, Ethology , Evolution)
MS 1986, University of Alaska-Juneau (Fisheries)

Other Revelant Experience:
Database manager of the Trustee hydrocarbon data for 4 years. Responsibilities include: supervision of data entry of sample and analytical data; processing and dissemination of data after interpretation by chemist; database management including data retrieval for production of the public versions of the database. Nelson has designed and managed databases as well as analyzed data for the radio telemetry program at the Auke Bay Laboratory for 10 years.

OTHER KEY PERSONNEL

Jeffrey W. Short

Education:
BS, 1972 University of California, Riverside (Biochemisty & Philosophy)
MS, 1982, University of California, Santa Cruz (Physical Chemistry)

Other Experience:
1989 - Present: Established and managed the hydrocarbon analysis facility at ABL to analyze hydrocarbon samples generated by the *Exxon Valdez* NRDA effort (about 20% of these samples were analyzed at ABL).
1989 - 1992 : Principal Investigator, Exxon Valdez project Air/Water #3; Determination of petroleum hydrocarbons in seawater by direct chemical analysis and through the use of caged

mussels deployed along the path of the oil spill.
1991 - 1992 : Principal Investigator, Exxon Valdez project Subtitle #8 ; Development of computer-based statistical methods for global examination of sediment and mussel hydrocarbon data produced for the Exxon Valdez NRDA effort for systematic bias, and for identification of probable sources of hydrocarbons. Ind addition, this project produced both hard-copy and computer display maps of all the sediment and mussel hydrocarbon data.

LITERATURE CITED

Short, J. W., and R. A. Heintz. 1997. Identification of *Exxon Valdez* oil in sediments and tissues from Prince William Sound and the Northwestern Gulf of Alaska based on a PAH weathering model. Environ. Sci. Technol. 31:2375-2384.

approved TC 13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel	$58.0	$44.4
Travel	$4.7	$4.2
Contractual	$3.0	$1.5
Commodities	$3.0	$2.0
Equipment		$0.0
Subtotal	$68.7	$52.1
General Administration	$8.0	$6.8
Project Total	$76.7	$58.9
Full-time Equivalents (FTE)	2.2	0.6
Other Resources	$38.2	$15.9

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002
$59.0	$35.0	$35.0

Dollar amounts are shown in thousands of dollars.

Comments:

This project is ongoing to support the maintenance of samples collected for petroleum hydrocarbon analyses; storing and archiving of sample samples; interpretation of chemical data; and release of data to principal investigators and to the public.

NOAA Contribution:

Habitat Senior Research Chemist, J Short, 1 mo @ 8.4K, Fishery Biologist J. Maselko 1mo @ 4.4K, Senior Analytical Chemist, M. Larsen .5 mo @ 3.1 for a total of 15.9K

FY 99

Project Number: 99290
Project Title: The Hydrocarbon Database and Interpretation
Agency: National Oceanic and Atmospheric Administration

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Prepared :4/10/98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
Bonita Nelson	Fisheries Biologist/Database Manager	11/2	6.0	5.5		33.0
Marie Larsen	Senior Analytical Chemist	11/6	0.5	6.0		3.0
Jeff Short	Senior Research Chemist	13/4	1.0	8.4		8.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		7.5	19.9	0.0	
					Personnel Total	$44.4

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
Anchorage, Workshop	0.4	2	4	0.2	1.6
Miscellaneous (Car rental, telephone, POV mileage etc.)					0.0
					0.0
Quality Assurance/Quality Control Annual Meeting, 1 Senior Chemist	1.8	1	4	0.2	2.6
National Institute for Standards & Technology					0.0
Washington, DC Annual meeting for analytical performance review					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$4.2

FY 99

Project Number: 99290
Project Title: The Hydrocarbon Database and Interpretation
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Personnel
& Travel
DETAIL

Prepared :4/10/98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed FY 1999
Description	
Disposal of Archived Samples (classified as hazardous materials)	1.5
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$1.5

Commodities Costs:	Proposed FY 1999
Description	
Computer software and hardware upgrades	1.0
Production of updated public information of chemical data	1.0
Commodities Total	$2.0

FY 99

Project Number: 99290
Project Title: The Hydrocarbon Database and Interpretation
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Contractual & Commodities DETAIL

Prepared :4/ /98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency
Freezer	2	NOAA
Computer - Micron	1	NOAA
Power Supply	1	NOAA

FY 99

Project Number: 99290
Project Title: The Hydrocarbon Database and Interpretation
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Equipment
DETAIL

Prepared :4/10/98

Approved TC 9/29/98

Chenega Shoreline Residual Oiling Reduction: Final Report Writing

Project Number:	99291-CLO
Restoration Category:	General Restoration
Proposer:	A. Viteri/ADEC
Lead Trustee Agency:	ADEC
Cooperating Agencies:	NOAA
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	4th yr. 4 yr. project
Cost FY 99:	$9.2
Cost FY 2000:	$0.0
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	Prince William Sound
Injured Resource/Service:	All

ABSTRACT

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

Approved TC 9-29-98

To: Ms. Sandra Schubert, EVOS Project Coordinator

September 20, 1998

Attachment:

Salary 3 weeks integrating report 1 week Chenega Bay presentation	$3,500
Travel 1 ticket: Anchorage to Chenega Bay 2 tickets: Juneau to Chenega Bay	$2,000
Contractual Average cost $40.00 per copy. Provides: 32 reports, 3 photo ready copies, & 8 sets of field data to ARLIS. 10 reports to ADEC, 10 to NOAA, and 18 for Chenega Bay presentation.	$3,000
Commodities	$0
General Administrative	$735
Sub-total	$9,235

Table 1.
Requested Amendment to Chenega Beach Restoration Project No. 96291

Approved TC 8-13-9

Synthesis of the Scientific Findings from the *Exxon Valdez* Oil Spill Restoration Program

Project Number:	99300
Restoration Category:	Research
Proposer:	R. Spies/Applied Marine Sciences
Lead Trustee Agency:	ADNR
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	3rd yr. 3 yr. project
Cost FY 99:	$80.3
Cost FY 2000:	$0.0
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	All
Injured Resource/Service:	All

ABSTRACT

Research sponsored by the Trustee Council has provided an astonishing amount of information on the ecology of the spill area and represents the largest single infusion of data on natural resources in the northern Gulf of Alaska. There is an urgent need to synthesize the information across projects to realize its maximum benefit to the public and management agencies, and to provide a cogent demonstration of the overall value of the restoration program. It is the goal of this project to have made substantial progress on such a synthesis in time for the 10 Years After symposium, and to use this synthesis to build the foundation for long-term monitoring in the spill area. The specific objectives involve coordinating work on synthesis products, facilitating the efforts to develop and apply food-web models of the spill area ecosystem, and developing a long-term plan for research and monitoring in the spill area.

INTRODUCTION

The 1989 *Exxon Valdez* oil spill was the largest oil spill in US history and occurred in an environment renowned for its fisheries and wildlife. Documenting damage and recovery of natural resources from the spill required an unprecedented scientific effort that has continued through the present Restoration Program. This effort has included numerous studies of fish, birds, intertidal and subtidal communities, and marine mammals. The 1993 Trustee Council-sponsored Symposium addressed the damage from the oil spill as it was understood at the time. As the Trustee Council approaches the end of the 10-year Restoration Program it is time to consider how all of these scientific studies have: (1) further documented injury and recovery of natural resources, especially for those resources that have been slow to recover, (2) provided insight into the ecology of the marine and coastal ecosystems of the spill area, (3) provided data and information useful for management of natural resources in northern Gulf of Alaska, and (4) provided a predictive understanding of how the ecosystem responds to natural and anthropogenic perturbations. This represents a major synthetic effort that will involve principal investigators, peer reviewers, ecosystem modelers, and management agency personnel. Careful planning, coordination, and facilitation is required to assure the success of such a program.

NEED FOR THE PROJECT

A. Statement of Problem

The Restoration Program produces annual reports, individual technical reports, proposals and workplan documents that are available through the Alaska Resources Library and Information Service (ARLIS). The sheer volume of these documents makes it difficult for those unfamiliar with the program to easily obtain study results. Even those familiar with the program find it challenging to understand the larger picture emerging from the various scientific projects sponsored by the Trustee Council..

There is thus clearly a need for a basic scientific synthesis that (1) integrates findings from different projects to summarize the injury and recovery of resources for the scientific community, (2) documents the expanding understanding of the spill area ecosystem being established by the

large interdisciplinary research projects, (3) uses that understanding to guide the development of mathematical models that will refine our knowledge and establish predictive capability, and (4) contributes to identifying the important features of an ongoing research and monitoring program, including describing a system for managing and archiving environmental data.

B. Rationale/Link to Restoration

Synthesis of the research and monitoring conducted by the Trustee Council will be an important aspect of completing the restoration program. Due to the magnitude of the effort undertaken, integration and synthesis of scientific findings will be essential to provide the public and management agencies with an accessible source of information regarding restoration and recovery of the damages from the oil spill. Synthesis products will also be valuable summaries of the Restoration Program to scientists and members of the public in the future. Finally, these products (and a data management strategy) will be essential as the scientific foundation for any utilization of the restoration reserve for research and monitoring.

Developing more effective linkages between Trustee Council-sponsored science and management efforts is important in order to achieve the Council's goals of enhancing injured resources and services through developing more sophisticated and effective management programs.

C. Location

This work will be conducted by principal investigators in Alaska, by the Chief Scientist in Alaska and California, by a data management consultant to be identified, and by scientific reviewers throughout North America.

Community Involvement and Traditional Ecological Knowledge

Traditional Ecological Knowledge will be appear in the synthesis products to the extent that this knowledge is an essential part of the findings of research and monitoring programs. Although little community involvement is foreseen in the development of synthesis products, the Restoration Notebook Series will likely be of great interest to members of local communities in the oil spill area, as will overall predictions of resource variation (if available) from modeling studies.

PROJECT DESIGN

A. Objectives:

1. Coordinate and facilitate the construction of food web models (Project 99330).

Based upon the results of the modeling workshop conducted as part of project 98300 in Anchorage in January, 1998, it is likely that the Chief Scientist will recommend the continuation of the food web modeling project in FY99 (see project 99330). This project will utilize the results of many different investigators to produce a set of relatively simple models that integrate much of the data developed to date regarding biological populations in Prince William Sound and lower Cook Inlet. These models can then be used to highlight important parameters for which we need more information, and can be used to provide tests of large-scale perturbations in the system (for example, increased recreational fishing pressure on large pelagic species due to the presence of a road to Whittier).

The work conducted to date as part of Project 98330 and 98300 has made it clear that the interactions of the food web modeling group with EVOS PIs must be carefully coordinated. There is a significant sensitivity among principal investigators regarding use of preliminary data by others, and about the effectiveness of simple modeling approaches. In addition, guidance must be provided to the modeling team regarding the scenarios to test with the model. Consistent planning and attention by the Chief Scientist and Science Coordinator are therefore required to successfully construct useful models.

In addition, depending upon the success at validating the predictive capability of the food web models, these models may be valuable new tools for application by management agencies. An active role by the science program will be required to identify the management agencies and personnel that could make use of the models.

2. Oversee the production of integrative scientific papers than synthesize the results of damage assessment and restoration projects.

3. Develop a plan for a long-term research and monitoring program, including an element addressing the management and archiving of data.

The Trustee Council has clearly indicated that one of the purposes of the science program is to enhance injured resources by providing information for improved management. There appears to be a growing consensus for using at least a portion of the restoration reserve account for a long-term research and monitoring program, although the Trustee Council will not make a decision in this regarding until the early fall of 1998.

A preliminary program was described by the Chief Scientist at the Restoration Workshop in January of 1998, and comments were obtained on

this plan from workshop participants. The objective of this task will be to develop from this preliminary plan a complete draft of a long-term research and monitoring program. The maintenance of a data system that provides access to current and archived data will be included as part of the plan.

B. Methods

This project will be coordinated through the Chief Scientist's office using established administrative procedures. Different approaches will be taken to pursue each of the objectives.

1. Coordination and Facilitation of Food Web Modeling

The methods used in facilitating and coordinating the development of these models are very straightforward, and essentially involve establishing and maintaining adequate communication among all parties. The modelers and their technical staff members must be made aware of which research groups have data of interest, what publications already exist, how to effectively contact these organizations, and the identity of the key contacts. Existing principal investigators must be acquainted with the goals of the modeling program, the extent and magnitude of their participation and cooperation that is expected, the commitment of the restoration program to the fair and professional use of unpublished or preliminary data.

The first major watershed of the modeling program in FY99 will be a workshop to be held in October of 1998 at which the preliminary results of the food web models constructed during FY98 will be presented and discussed. Based upon the review of this product, it is anticipated that the process used in FY98 to model PWS will be applied to the lower Cook Inlet region. The Chief Scientist will coordinate the interactions between the modeling team and managers in PWS as the model developed in FY98 is refined and applied to management questions in the PWS region.

2. Production of scientific synthesis papers

There are more potential synthesis papers to produce than the restoration program has the time and resources to support. In FY98, three major synthesis papers were started: (1) a description of the damage assessment and restoration process that reviews the evolution and rationale of the restoration program and derives general themes and ideas to be applied in other restoration programs, (2) a synthesis of the results of damage assessment and restoration studies of fishery resources, or (3) a synthesis of the results of damage assessment and restoration of intertidal resources and the species trophically dependent on the intertidal. It is anticipated that these papers will be submitted for publication in FY98, and in FY99 the final editing

and publication will occur. The Chief Scientist will endeavor to obtain reprints or preprints to be made available at the 10-year anniversary, although the long lead time for review publications may make that difficult to accomplish.

There also may be a need to respond to scientific critiques of the restoration program in the literature. These responses have been mostly completed, although there may be more to develop in the future.

The Chief Scientist will also work closely with any principal investigators being funded independently to produce synthesis papers. Proposal were funded in this regard by the Trustee Council in FY98 for salmon (98329) and coastal habitat (98325) and similar proposals for other resources are likely to be submitted for FY99.

3. Developing a long-term research and monitoring program

The starting point for this plan will be the preliminary proposal presented by the Chief Scientist at the Annual Workshop in January 1998, which was prepared at the invitation of the Executive Director. The first step of further development of the plan, which will occur in FY98, is to modify it based upon the comments provided in the break-out sessions conducted during the meeting. The next step is to prepare a complete draft of the proposal, which will identify (1) a set of parameters for long-term ecosystem monitoring as defined by the needs of managers, the discoveries of the researchers, (2) the spatial and temporal frequency of sampling, as dictated by our understanding of ecosystem variability and the economics of long-term funding, and (3) a description of how existing or planned monitoring programs might be able to gather the necessary data.

In addition, this task should develop a set of objectives for a data system to support this program. This will be accomplished by:

a) developing an inventory of data sets and data collection and storage systems currently in use by Trustee Council-sponsored projects. The inventory prepared by project 96089 will be the starting point for this effort.

b) prepare a brief synopsis of the type of data systems currently in use by large-scale monitoring programs around the nation that might serve as models for such a program in the northern Gulf of Alaska.

c) prepare a summary of existing data systems covering natural resources in the spill area, with specific focus upon avoiding duplication of effort on behalf of any Trustee Council-sponsored program.

d) review the experience of the Restoration Program with maintaining the hydrocarbon database (an ongoing project managed by NOAA's Auke Bay Laboratory).

Based upon the results of (a)-(d) and other steps identified above, a draft long-term research and monitoring plan will be delivered to the Executive Director from the Chief Scientist for review by the Public Advisory Group, the Restoration Work Force, and other stakeholders.

C. Cooperating agencies, contracts and other agency assistance.

The cooperation of the following agencies are clearly key to the success of this effort: Alaska Department of Fish and Game, National Oceanographic and Atmospheric Administration/National Marine Fisheries Service, Department of the Interior (Biological Resources Division of the U.S. Geological Survey and the U.S. Fish and Wildlife Service). Principal investigators of many past and ongoing research and monitoring programs, and modeling project personnel, will also be key cooperators in this project. Contracts and consulting agreements will be renewed or established for scientific reviewers involved in the project.

SCHEDULE

A. Measurable Project Tasks for FY99

1. Successful planning, preparation, and implementation of the workshops to (1) review preliminary results of the food web models developed by project 98300 for Prince William Sound, and (2) specify model parameters for the food web model of lower Cook Inlet to be prepared by project 99330.

2. Completion of three synthesis manuscripts for publication in scientific journals.

3. Develop a draft plan for long-term research and monitoring to be delivered to the Executive Director from the Chief Scientist for public review

B. Project Milestones and Endpoints

1. Finalize list of invitees to the Cook Inlet food-web modeling workshop sponsored by Project 98330 (December 1998)

2. Finalize agenda for Cook Inlet food web modeling workshop (February 1999)

3. Conduct Cook Inlet food web modeling workshop (March 1999)

4. Submit synthesis papers to scientific journals (October 1998)

5. Prepare a brief synopsis of the type of data systems currently in use by large-scale monitoring programs around the nation that might serve as models for such a program in the northern Gulf of Alaska (January 1999).

6. Draft report describing a long-term research and monitoring program for integrating science and management submitted to Executive Director (August 1999)

C. Completion Date

This project is scheduled for completion in FY99, although might be continued depending upon the needs of the Trustee Council and the Executive Director.

PUBLICATIONS AND REPORTS

At least three scientific synthesis papers are expected, with the drafts of these documents submitted to journals early in FY99. A draft report describing a long-term research and monitoring program will be completed for public review.

NORMAL AGENCY MANAGEMENT

This exercise is dealing with some of the end products of the oil spill scientific research program is clearly outside the scope of normal agency management.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This purpose of this project is to coordinate and integrate many of the activities of the Restoration Program.

Principal Investigators

Robert B. Spies, Ph.D.
Andrew J. Gunther, Ph.D.

approved 8-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$0.0
Travel		$0.0
Contractual		$75.0
Commodities		$0.0
Equipment		$0.0
Subtotal		$75.0
General Administration		$5.3
Project Total		$80.3
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS					
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		

Dollar amounts are shown in thousands of dollars.

FY 99

Project Number: 99300
Project Title: Synthesis of Scientific Findings
Agency: ADNR

FORM 3A
TRUSTEE
AGENCY
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET 4/15 f6

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$24
Travel		$9
Contractual		$12
Commodities		$9
Equipment		$0
Subtotal	$0.0	$54
Indirect		$21
Project Total	$0.0	$75
Full-time Equivalents (FTE)		0.3
Other Resources		

LONG RANGE FUNDING REQUIREMENTS					
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		

Dollar amounts are shown in thousands of dollars.

Comments:

FY 99

Prepared:

Project Number: 99300
Project Title: Synthesis of Scientific Findings from the Exxon Valdez Oil Spill
Name: Applied Marine Sciences

FORM 4A
Non-Trustee
SUMMARY

October 1, 1998 - September 30, 1999

Personnel Costs:			Months	Monthly		Proposed
Name	Position Description		Budgeted	Costs	Overtime	FY 1999
						0.0
A. Gunther	Assistant Chief Scientist		4.0	6094.7	NA	24,378.8
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		4.0	6094.7	0.0	
					Personnel Total	$24,378.8

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
PWS workshop					0.0
Gunther (Oakland/Anchorage RT)	600.0	1	4	125.0	1,100.0
Peterson (Moorehead City/Anchorage RT)	1000.0	1	4	125.0	1,100.0
Mundy (Portland/Anchorage RT)	600.0	1	4	125.0	1,500.0
					0.0
Cook Inlet Model Development Workshop (Gunther)	600.0	1	5	125.0	1,225.0
					0.0
Data System Assessment					0.0
Gunther (Oakland/Anchorage/Cordova RT)	750.0	1	5	155.0	1,525.0
Data management consultant (??/Anchorage/Cordova RT)	1200.0	1	10	155.0	2,750.0
					0.0
					0.0
				Travel Total	$9,200.0

FY 99

Project Number: 99300
Project Title: Synthesis of Scientific Findings from the Exxon Valdez Oil Spill
Name: Applied Marine Sciences

FORM 4B
Personnel
& Travel
DETAIL

Prepared:

[redacted]

October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed FY 1999
Description	
Subcontract for assistance with data system assessment	12,000.0
Contractual Total	$12,000.0

Commodities Costs:	Proposed FY 1999
Description	
shipping & communications ($75/month for 12 months)	900.0
journal reprints of three papers (@$1000 for 300)	3,000.0
page charges (for long synthesis papers)	5,000.0
miscellaneous	250.0
Commodities Total	$9,150.0

FY 99

Project Number: 99300
Project Title: Synthesis of Scientific Findings from the Exxon Valdez Oil Spill
Name: Applied Marine Sciences

FORM 4B
Contractual & Commodities DETAIL

Prepared:

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 1999
Description			
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number of Units	
Description		

FY 99

Prepared:

Project Number: 99300
Project Title: Synthesis of Scientific Findings from the Exxon Valdez Oil Spill
Name: Applied Marine Sciences

FORM 4B
Equipment
DETAIL

Approved TC 8-13-98

Kodiak Island Borough Master Waste Management Plan

Project Number:	99304
Restoration Category:	General Restoration
Proposer:	J. Selby/Kodiak Island Borough
Lead Trustee Agency:	ADEC
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	2nd yr. 2 yr. project
Cost FY 99:	$1,857.1
Cost FY 2000:	$0.0
Cost FY 01:	$0.0
Cost FY 02:	
Geographic Area:	Kodiak Island
Injured Resource/Service:	All

ABSTRACT

This project will address marine pollution derived from land-based sources and waste management practices of the remote communities of Kodiak Island. A master waste management plan developed in Phase I (Project 97304) addressed community-based sources of marine pollution and resulted in four recommended initiatives. Phase II EVOS funding will provide a portion of the funding needed to implement the recommendation selected by the communities as the highest priority -- Systems Development: Fixing What is There. This comprehensive initiative of systems development will provide capital improvements to existing waste management systems and will promote local responsibility.

INTRODUCTION

This project is designed to address marine pollution derived from land based sources and waste management practices of the remote communities of Kodiak Island. This project recognizes that participation by local communities in the decision making process is fundamental to the long-term success of the project. Therefore, Phase II continues the proactive community involvement generated during Phase I (EVOS TC Project 97304). This is a unified regional effort among the six remote coastal villages of Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, Port Lions, and the community of Chiniak; the Kodiak Area Native Association (KANA); and the Kodiak Island Borough (KIB) to produce and implement a waste management plan that identifies solutions to the most pressing pollution problems for the coastal villages.

Communities on Kodiak Island generate a large number of waste streams that may be entering, degrading, and preventing the recovery of the *Exxon Valdez* spill area. Examples of these waste streams include used oil from vessels and other sources, sewage discharges, household hazardous wastes, and windblown garbage, contaminated runoff and/or leachate from community landfills. Many of the communities currently lack the resources – for planning, equipment, training, and development of infrastructure – to manage their wastes in an environmentally sound manner. As a result, wastes generated within the communities represent a chronic source of pollution that not only hinders full recovery of the marine environment but also has a negative impact on the general "quality of life".

This project is designed to mitigate marine pollution and thereby restore vital injured resources in the coastal villages of the Kodiak Island Borough. This will lead to significant reduction in marine pollution in the areas surrounding the villages and contribute to the increased recovery of injured resources as well as lost or reduced services including subsistence activities, commercial fishing, and recreation and tourism opportunities. Addressing the waste management issues identified in the Kodiak Island Borough coastal villages will support the mission of EVOS Trustees to protect our marine environment, restore injured resources, and mitigate damage from the *Exxon Valdez* Oil Spill.

The recently completed sensitive areas identification project for the Kodiak Island Borough Coastal Management Program identified significant near shore marine life, as well as eagles and bears, in close proximity to the seven communities. The area around Akhiok has waterfowl, whales, harbor seals, sea otters, sea lions, clams, crab, salmon, and herring spawning. The area inside and outside the Karluk Lagoon has waterfowl, salmon, steelhead, sea otters, clams, and sea lions. Larsen Bay has herring spawning, seabirds, urchins, and salmon. Old Harbor has waterfowl, harbor seals, sea otters, sea lions, salmon, herring spawning sites, and clams. The Ouzinkie area has waterfowl, harbor seals, sea lions, whales and sea otters. Waterfowl, sea lions, whales, sea otters, clams, herring spawning are at Port Lions. Chiniak has waterfowl, clams, sea otters, sea lions, salmon, halibut and whales. All of the communities have bears and eagles living along the shoreline.

The Kodiak Island Borough project is modeled after the Sound Waste Management Plan project that was made possible through funding from the *Exxon Valdez* Oil Spill Trustee Council (EVOS). This project, however, with its focus only on small communities (<300 population), the involvement of the Borough, and its somewhat different set of environmental problems makes it a unique effort.

During Phase I of this project, members of the Island-Wide Waste Management Plan Committee met five times between November 1996 and December 1997. This Committee consisted of 12 individuals (and 5 substitutes) from the seven communities of Akhiok, Chiniak, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions, and all decisions made were made by these village representatives. Representatives from Montgomery Watson, the U.S. Coast Guard, the Alaska Department of Environmental Conservation, Kodiak Area Native Association, and the Kodiak Island Borough also sat on this Committee, serving advisory roles.

The Committee met to identify and prioritize problems, develop solutions, and to identify and pursue funding for the solutions from a variety of sources including federal, state, and local governmental agencies, non-profit organizations, and private businesses. Two documents were produced as the project developed – *Inventory of Pollution Sources and Problems* and *Alternatives Analysis and Potential Funding Sources*. The focus of the project evolved during the course of the Phase I effort and resulted in the completion of a *Kodiak Island Borough Master Waste Management Plan* that summarizes Phase I findings and recommendations. All decisions were made by the village representatives. Details regarding the information provided in this proposal can be found in these final reports for Project 97304.

The Master Waste Management Plan includes recommendations for the implementation of four waste management initiatives:

1) A Borough-Wide Utility Council: *Establishing a Resource for Collaborative Problem-Solving*,
2) Systems Development: *Fixing What is There*,
3) Community and Environment Curriculum Development: *Building an Environmental Consciousness*, and
4) Local Waste Management Implementation: *Community-Level Planning and Organization*.

Based on the priorities established by village representatives in Phase I, Phase II EVOS funding will be used to begin implementation of the second initiative, **Systems Development: Fixing What is There**. This initiative will provide not only capital improvements to existing waste management systems, but will further promote local responsibility. This will be accomplished through in-depth, hands-on training of a group of village residents with interests and aptitudes for operations and maintenance of wastewater, solid waste, and used oil/household hazardous waste systems. This project initiative will begin in FY99 and will be completed by FY01.

At the same time, the first, third and fourth initiatives, A Borough-Wide Utility Council: *Establishing a Resource for Collaborative Problem-Solving*; Community and Environment Curriculum Development: *Building an Environmental Consciousness*; and Local Waste Management Implementation: *Community-Level Planning and Organization,* will begin with funding from a variety of other sources. These initiatives are critical in the development of the project to introduce and emphasize an ethic of environmental stewardship in the community and establish and implement the procedures for ongoing community-based waste management systems within each village. Additionally, the Borough-Wide Utility Council will promote sharing of resources and collaboration among villages to maximize the ability of remote communities to be self-reliant.

This project will be complete in FY01, with the implementation of all four initiatives. However, this is of course a perpetual project – a project that will be continued by the communities' involvement in on-going planning and improvement of waste management processes to enhance village sanitation and in turn increase the recovery and maintenance of healthy marine environments.

NEED FOR THE PROJECT

A. Statement of Problem

This project is designed to address the problem of marine pollution generally, and with special emphasis on restoring injured resources, protecting the marine environment, and mitigating damage from the *Exxon Valdez* Oil Spill. Communities on Kodiak Island generate a large number of waste streams that may be entering, degrading, and preventing the recovery of the *Exxon Valdez* spill area. Examples of these waste streams include used oil from vessels and other sources, sewage discharges, household hazardous wastes, and windblown garbage and/or leachate from community landfills. Many of the communities currently lack the resource – for planning, equipment, training, and development of infrastructure – to manage their wastes in an environmentally sound manner. As a result, wastes generated within the communities represent a chronic source of pollution that not only hinders full recovery of the marine environment but also has a negative impact on the general "quality of life".

In Phase I of the project each of the villages were visited and contacts made to ascertain existing waste management problems and uncover pollution issues potentially affecting marine resources. Because of the willing participation of many village residents, especially the participants in the Kodiak Island Village Environmental Council as well as City and Tribal Council staff, it was possible to identify the following findings:

1. Raw sewage is being discharged onto the land and into surface waters in several communities.
2. Used oil from boats, diesel generators, and vehicles is accumulating in the villages with a high potential for improper disposal, including discharge to the marine environment.
3. Improved waste management practices are needed for economic development.
4. Oil fuel tanks, both residential heating oil tanks and bulk fuel tanks, present a potential hazard.
5. Septage facilities and methods have an impact on health and marine resources.
6. Scrap metal removal is recommended to prevent release of associated contaminants and build an environmental ethic.
7. Household hazardous wastes should be kept out of village landfills to reduce contamination from the landfill leachate.
8. Watershed protection is important.
9. Operations and Maintenance training is needed for local village technical staffs.
10. Landfill operations planning can improve the function, longevity, and visual quality of disposal sites.
11. Drainage control at landfills is needed to prevent leachate production.
12. The solution to bear encounters includes, but is not limited to, improved landfill operations.
13. Waste management activities need a sustainable source of funding.
14. Local responsibility is needed for successful waste management.

15. Raising pollution prevention awareness is key to promoting local responsibility.
16. Recycling of consumer packaging materials to off-island sources is not likely to be financially self-supporting.

This project is designed to mitigate marine pollution and thereby restore vital injured resources. Addressing these issues will have an enormous impact on the marine pollution derived from land-based sources and waste management practices of the remote communities of Kodiak Island. This will lead to significant reduction in marine pollution in the areas surrounding the villages and contribute to the increased recovery of injured resources as well as lost or reduced services including subsistence activities, commercial fishing, and recreation and tourism opportunities.

B. Rationale/Link to Restoration

- **Why Should This Work Be Done?**

This project will enhance the protection of the recovering marine environment while also improving human and environmental health in the KIB coastal villages. Addressing the waste management issues identified in the Kodiak Island Borough coastal villages will support the mission of EVOS Trustees to protect our marine environment, restore injured resources, and mitigate damage from the *Exxon Valdez* Oil Spill. The seven participating communities have limited resources to collect and properly dispose of village wastes, which adversely affect the quality of nearby marine waters through contaminated runoff, leachate, and in some cases, wastes that are discharged directly into marine waters. Chronic marine pollution places added stress on fish and wildlife resources and thereby may delay the recovery of resources injured by the oil spill.

Today the remote coastal villages of Kodiak Island Borough depend on (a) subsistence resources, (b) commercial fishing, and increasingly, (c) tourism for their livelihood. Each community has unique resources whose protection is key to the health and livelihood of the residents. These resources include community drinking water sources, subsistence food sources, commercial resources such as fishing, local recreational areas, and state and federal parks, forests, and refuges. These resources, the village residents, and marine life are all harmed by inadequate waste management practices.

(a) Subsistence: Kodiak Borough residents rely on traditional subsistence food sources including deer, ducks, shell fish (e.g., clams, chitin), octopus, salmon, halibut, berries, and sometimes, marine mammals for a significant portion of their diet. In some cases, these subsistence resources are adjacent to waste management facilities or potential pollution sources such as sewage outfalls, landfills or fuel tank farms. Petroleum from fuel spills, bilge water discharged at sea, or cleaning solvents discharged through the sewer outfall can impair reproduction or otherwise decrease the population of fish or animals used for food. Contaminants discharged to soil or water adjacent to the food resources can cause decreases in the quantity of the resource. Protection and enhanced recovery of these resources is vital to the livelihood of the coastal village residents.

(b) Commercial Fishing: Commercial fishing is a major factor in the economic health of Kodiak Borough communities, because fishing is the primary source of income for many residents. However, the quantity of fish can be decreased by pollution. Although laws and regulations

prohibit ocean discharge of pollutants, the lack of alternative disposal facilities and cost of those that do exist results in discharges of bilge water, used oil, and trash at sea.

(c) Tourism and Recreation: Protection of land or waters used for recreational uses is essential because appeal is decreased by trash, stained soils, distressed vegetation and/or the absence of wildlife. The economic benefits of tourism will flow to those communities that have visual appeal. These resources include local recreational areas in the village as well as state and federal parks, forests and refuges. Several of the villages are developing the charter boat industry in the villages.

- **Addressing Recovery Through Waste Management**

The communities decided to undertake four basic approaches to waste management as a means to reduce the chronic sources of pollution to the marine environments. These initiatives were developed as the successful result of community participation at the grass roots level. These initiatives range in scope from fixing existing systems to setting up the utility framework and educational programs to provide for long-term understanding and control of wastes in the village environment. Funding is being requested in this proposal for only a portion of one of the initiatives.

Overall objectives for the implementation of the Kodiak Island Borough Waste Management project include the following four initiatives:

A Borough-Wide Utility Council: *Establishing a Resource for Collaborative Problem-Solving*

This objective is designed to develop a permanent administrative entity for coordination of waste management system improvements in the coastal communities. This entity has been identified as a Borough-wide Utility Council, which would promote sharing of resources and collaboration between villages to maximize the ability of remote communities to be self reliant. With a full time director and legal structure, the council will be positioned to empower the communities, support community projects, and provide ongoing project administration.

Funding for this objective has been requested by KANA from ANA and from the State and Tribal Environmental Justice Program.

Systems Development: *Fixing What's There (Wastewater Treatment, Solid Waste, Used Oil and Household Hazardous Waste)*

Kodiak Island village residents selected this objective, Systems Development: *Fixing What is There,* as their highest priority. A comprehensive initiative of system development should be undertaken to provide not only capital improvements to existing waste management systems, but to further promote local responsibility. This would be accomplished through in-depth hands-on training of a group of village residents with interests and aptitudes for operations and maintenance of wastewater, solid waste, and used oil/hazardous waste systems, fixing up the systems that are in the villages, and providing additional facilities needed for proper waste management practices.

Funding for a major portion of this initiative is requested from the Exxon Valdez Oil Spill Trustee Council through this proposal. The remaining funding will come from the villages and from other sources being explored.

Community and Environment Curriculum Development: *Building an Environmental Consciousness*

A curriculum development initiative is proposed to promote development of an ethic of environmental stewardship. This special curriculum will be taught in the schools and will focus on environmental issues germane to local village life.

Funding for this objective is being obtained from KANA in EPA and IHS funds. Funds have also been requested from ANA.

Local Waste Management Implementation: *Community-Level Planning and Organization*

This objective provides for a process of community consensus building to ensure that improved waste management systems can be accepted and implemented under local control without resources or interference from outside entities.

Funding for this initiative has been requested by KANA from ANA

C. Location

This project will be undertaken on a regional scale primarily as a unified regional effort among the following remote coastal villages of Kodiak Island:

- Akhiok
- Chiniak
- Karluk
- Larsen Bay
- Old Harbor
- Ouzinkie
- Port Lions

All project efforts will be undertaken in these remote coastal villages, and all benefits will be realized by these seven communities. In addition, the collaborative efforts of these villages will be enhanced and supported by other area organizations with concern for healthy village and marine environments including the Kodiak Island Borough, Kodiak Area Native Association, private organizations and local, state and federal governmental agencies, non-profit organizations, and private businesses.

In addition to activities within each village, the Borough-Wide Utility Council will be headquartered in one of the coastal villages.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

- **General**

Throughout this project, community involvement and traditional ecological knowledge has been essential to the development of the Waste Management Master Plan, and will be key in the implementation of the plan in Phase II. All findings and recommendations incorporated in the Plan have evolved with input from each of the villages. Phase I of the project began with trips to each village to develop an understanding of existing and potential pollution problems from first-hand observation and discussions with local residents. Over the course of 13 months, at least five community meetings were held to ensure that all those with interest in the project could speak with members of the project team, voice their concerns and provide their input and observations. Representatives from all of the villages participated in these meetings as well as members of the project team. It has been the approach of these project decision-makers that the most effective way to strengthen waste management systems is to stimulate local responsibility and institute local control to the greatest extent possible.

- **Keeping Communities Involved and Informed with Non-Technical Communications**

The villages involved in the project will be informed of project activities and given the opportunity to provide input through the formation of a Borough-Wide Utility Council. This Council will be a resource for collaborative problem-solving, information exchange, and development of regional solutions. It will effectively be the liaison between the technical team and community members, and will assure that communities fully understand the systems being developed in their communities. Utility system improvements will be coordinated through the Council on an area-wide basis.

This Council will be a combination of two existing informal groups – the Kodiak Island Village Environmental Council (KIVEC) and the Kodiak Island Village Utility Council (KIVUC). Although these two local groups have successfully brought communities together to discuss local planning issues in a non-technical manner, their limited funding, staff and administrative strength have made it difficult for them to deal as effectively with waste management issues as they would like. The new Borough-Wide Utility Council will encompass and expand the focus of KIVEC and KIVUC to provide more time and resources for information sharing and exchange. It will also provide a recognized administrative structure, with formal membership and support from both tribal and city governments. The successful development of this borough-wide resource for collaboration will be the key to the implementation of other project initiatives.

- **Traditional and Local Knowledge**

Project information also will be communicated to the villages through community environmental education and planning initiatives by the Council. These initiatives will take place through broad-based, widespread resident participation in environmental education and planning processes. The curriculum will be developed in conjunction with the Council, the school district, and village tribal council leaders, and will focus on village environmental issues and village resident roles in the waste management process. Special effort will be made to obtain the input of Elders and community residents in the areas of curriculum development and planning.

- **Local Hire**

Local hire and resources will be used to the greatest extent possible for the acquisition of technical knowledge, equipment, and other project resources. The "biggest bang for the buck" to implement the Waste Management Plan can be achieved by developing a network of support and

resources for waste management operations in all of the villages. A key component of the systems development is to establish a network of local operations and maintenance specialists within each village with the knowledge, tools, equipment, budget and motivation for the village waste management systems to perform well and reliably. The long-term objective includes creating a program to retain the necessary skills and experience in the villages and continually improve them to ensure continued protection of local marine environments. In addition, local resources for the project will be pooled by sharing equipment and expertise among neighboring villages, and/or collaborating with other villages for mutual problem solving. This process has already started through initiatives such as the Kodiak Island Village Environmental Council and the Kodiak Island Village Utilities Council.

PROJECT DESIGN

A. Objectives

- **Priority of Objectives**

At the conclusion of the 13 months during which the Committee met and studied the waste management situation in their area, the Committee selected the basic initiative of **Systems Development:** ***Fixing What's There*** *(Wastewater Treatment, Solid Waste, Used Oil and Household Hazardous Waste)* as its priority for requesting funding from the EVOS Trustee Council. Because of the magnitude of this initiative, the Committed further prioritized the components of this initiative.

The following five main components to the **Systems Development** were defined:

(A) **Waste Water** - the primary purpose is remedial maintenance and training associated with existing community waste water systems. ($57,816 – to be funded by other sources)

(B) **Solid Waste I** - the primary purpose is to upgrade and improve land fills and disposal sites and solid waste management and to provide training for these systems. ($1,038,144 – funding being requested from EVOS for most of this)

(C) **Used Oil and Household Hazardous Waste** - the primary purpose is to construct and install storage/disposal facilities and equipment and to provide training for these systems. ($498,651 – funding being requested from EVOS in this proposal)

(D) **Solid Waste II** - the primary purpose is the collection of household solid waste. ($312,042 – to be funded by other sources)

(E) **General** - the primary purpose is general community spill response, systems maintenance and repairs and training activities common to solid waste, used oil and household hazardous waste systems. ($290,432 – funding being requested from EVOS in this proposal)

At their September 29, 1997 and December17, 1997 meetings, the Committee then evaluated the priority of these five main components with special emphasis on what the community

representatives identified as the most important needs of their communities. Their priorities are as follows:

Community Priorities of Systems Development Components

Priority #1	**Solid Waste I**
Priority #2	**Used Oil and Household Hazardous Waste**
Priority #3	**General**
Priority #4	Waste Water (to be funded by other sources)
Priority #5	Solid Waste II (to be funded by other sources)

Based on this significant input from the communities themselves, the priorities for the requested EVOS funding are **Solid Waste I, Used Oil and Household Hazardous Waste, and General.**

- **Description of Priority Objectives**

Remote villages generate wastes, but do not have adequate means to prevent those wastes from entering and becoming chronic sources of pollution to the marine environment. These wastes will continue to limit the restoration of these coastal areas until adequate systems are established to address the proper disposal of these wastes. There are limited resources in the villages to deal with waste issues.

The objectives of the **Systems Development** initiative are to promote restoration by repair of existing waste management facilities, providing new facilities for waste management systems that do not exist, and training operations and maintenance specialists within each KIB village. These trainees will be provided with the knowledge, tools, equipment, budget, and motivation to make the waste management systems perform reliably and well. The long-term objective includes creating a program to retain the necessary skills and experience in the villages and continually improve them. The participation of the KIB communities in developing and carrying out these objectives was recognized by the community-planning group as particularly important to the success of the entire project.

In the development of the waste management plan (Project 97304), various types of wastes from the villages were identified as having or potentially having an impact on the marine environment and on the hindrance its restoration. Some of the identified wastes include used oil, paints, landfill leachate, sewage, lead-acid batteries, litter, antifreeze, bilge water, contaminated fuel oils, engine-cleaning solvents and degreasers, refrigerants, household cleaners, pesticides/herbicides, etc. The Phase II EVOS funding is being requested to address the remedies to marine pollution from these kinds of sources.

The project objectives for FY99 EVOS funding focus on establishing a resource for collaborative problem-solving and pooling of resources, and fixing the current waste management systems in the villages. The effect of accomplishing these goals will be to shift control and responsibility for community-based waste management systems from outside agencies to the communities.

B. Methods

Solutions are proposed to address the various pollution sources. This proposal addresses solutions specific to reducing the pollution of the marine environment around these communities from disposal of used oil, household hazardous wastes, and solid wastes. These were the marine pollution sources of most concern to the villages.

- **Systems Approach**

Waste management involves the implementation of a system – a complex arrangement of activities and materials, and works when it provides for the needs of the community effectively. In order to be effective, all the system components and relationships between components provide a useful role in the operations. System components can be mechanisms of transport, storage or processing facilities, money, and the people who are the generators of waste and operators of the system. All components are necessary to provide for a successful system, and all activities must be coordinated. By focusing on resources to bolster the weaknesses of the present system, the reliability of the system as a whole can be improved. Successful implementation of the systems proposed here will assure greater success in restoring injured resources, protecting the marine environment and mitigating damage from the oil spill.

- **Pursuing Systems Development:** ***Fixing What is There***

The general components for which funding is being requested follow:

Solid Waste I

1. Consolidate materials at landfill, make structural improvements to improve drainage and operations (e.g., trench for depositing solid waste, install a burn box)
2. Identify source of cover material
3. Improve road access and fence landfill
4. Obtain and post signage directing residents in the proper procedures at the landfill (e.g., where to deposit solid waste, areas for household hazardous waste, scrap metal, etc.)
5. Develop an operations plan for the landfill
6. Perform all tasks associated with the plan (e.g., collection, temporary storage, put solid waste into cell, bum, compact and cover)
7. Community education starting with scrap metal marshaling and recycling to create an environmental awareness and immediate, noticeable improvement in the community.

Used Oil and Household Hazardous Waste

1. Build or set up a household hazardous waste and used oil collection facility
2. Develop a streamlined operations plan, including safety and regulatory issues
3. Develop a preventative maintenance checklist to routinely change oil and filters, etc.
4. Practice all items on the operations and preventative maintenance plan
5. Purchase and install additional used oil burners and smart ash burners
6. Install any new, uninstalled oil burner systems
7. Identify appropriate disposal for oily rags, filters, oily water, etc.
8. Identify transportation and disposal facilities for collected materials
9. Formalize used oil storage area and transfer procedures
10. Rig piping and pumps to streamline used oil transfers at existing systems
11. Remove hazardous materials from the scrap metal and transfer to the household hazardous waste facility for transportation and disposal or recycling
12. Set up a hazardous materials waste posting and exchange, and information area for alternative products
13. Develop standard operating procedures that minimize spillage at the bulk fuel tanks and at the home tanks or systems
14. Oversee bulk fuel loading and unloading operations

15. Interface with DCRA and ADEC to prioritize the Kodiak Island bulk fuel storage systems for upgrade
16. Develop a monthly fuel inventory program to demonstrate that fuel tanks are not leaking
17. Complete HAZWOPER training
18. Train in responding to spills of used oil and household hazardous wastes

General

1. Purchase spill response equipment for used oil and household hazardous wastes and spare parts to keep facilities from having significant down-time.
2. Develop spill response plan for used oil and household hazardous wastes
3. Determine what is required for a community tool kit
4. Learn how to maintain tools and parts
5. Set up routine systems inspections
6. Develop budgeting and prioritizing for waste management programs

- **Training Program**

The program consists of a comprehensive operations and maintenance training program for maintenance workers selected from each village, plus the equipment, spare parts and tools necessary for the work. The program focuses on development of handbooks for training and will involve the training group fixing the malfunctioning waste management systems in each village.

As envisioned, each village will hold a competitive selection for several community residents to be trained as operations and maintenance workers. Waste management systems operations are carried out differently in each community and flexibility is required to tailor the structure of the training to the needs of the community.

The formalized, hands-on training program will consist of the training group under the guidance of an experienced specialist to troubleshoot and fix existing problems in the KIB communities.

The curriculum will consist of, at a minimum, achieving a thorough grasp of the following aspects of waste management operations and maintenance:

1. Read and understand existing drawings
2. Troubleshoot problems in facilities and equipment
3. Identify and order spare parts
4. Compile and be responsible for complete tool kit
5. Clean and maintain tools and parts
6. Have, read and understand maintenance manuals or checklists
7. Have, read and understand operations manuals or checklists
8. Develop a preventative maintenance program
9. Identify and plan for routine maintenance requirements
10. Inventory planning and control
11. Budgeting and prioritization
12. Keep maintenance logs and budgets
13. Routine systems inspections
14. Identify suppliers and vendors for unmet needs for parts and services
15. Develop a work ethic that is responsive to the needs of the community
16. Work alongside peers from other KIB villages

17. Meet and talk with system designers, experts and other resources from outside Kodiak
18. Identify, evaluate and contract outside experts, when needed
19. Provide feedback to the community on waste management issues
20. Develop standard safety and environmental practices

Based on community priorities, the requested EVOS funding will be used to pursue components for Solid Waste I, Household Waste, and General. Trainees will actual install many of the new facilities as part or the training program. A preliminary list of activities for each of the waste management systems is shown below to provide an overview of the training program and show the value that will be provided by the program to each community and their surrounding marine environments.

As evident from the list of subjects, many of the most urgent waste management problems will be fixed by the trainees during the training program. This approach fixes frustrating, reoccurring waste management problems in each village using local labor. It builds a network of trained experts in each village and encourages ongoing collaboration between KIB villages, so that when a system breaks, the local experts can bring in additional assistance from other villages.

- **Project Component Details**

Details of the components in each of the above priority items, including estimated costs and schedules, are presented in Table 1, Project Components. Additional details about the components and their importance in the restoration effort are described in the final report and appendices for the Phase 1 Project.

SCHEDULE

A. Measurable Projects Tasks for FY 99 (October 1, 1998 – September 30, 1999)

The schedule for the various tasks envisioned for this project are presented in Table 1, Project Components.

B. Project Milestones and Endpoints

Project milestones and endpoints for each of the project components for which Phase II EVOS funding is requested can be found in Table 1.

C. Completion Date

While this project will be completed by December 2000, this is a perpetual project -- a project that will be continued by the communities' involvement in on-going planning and improvement of waste management processes to enhance village sanitation and in turn increase the recovery of and maintain healthy marine environments.

Table 1
Project Components
Implementation of the Master Plan for Waste Management
Kodiak Island Borough

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year FY 99	Second year FY 2000	Third Year FY 01
Solid Waste I												
Construction												
Landfill fencing	$ 20,000	$ -	$ 20,000	$ 30,000	$ -	$ 20,000	$ 40,000	$ -	$ 130,000		$ 70,000	$ 60,000
Chain link or electric bear fence at $25/LF; 800LF each for Akhiok, Karluk, and Ouzinkie, 1200LF for Larsen Bay and 1600LF for Port Lions												
Schedule: Advertise/bid - Jan thru Mar 2000; install May thru Nov. 2000.												
Landfill drainage	706	-	792	2,531	3,058	1,030	3,137	-	11,254		$ 11,254	
Grading 3.75 acres at $3000/ac; Akhiok @ 10,250SF, Karluk @ 11,500SF, Larsen Bay @ 36,750SF, Old Harbor @ 44,400, Ouzinkie @ 14,950SF, and Port Lions @ 45,500SF												
Schedule: Design May - Sept 1999; Advertise/bid - Jan - Mar 2000; Construct May - Dec 2000												
Blasting/Excavating	$ 50,303	$ -	$ 48,105	$ 105,435	$ 21,483	$ 41,975	$ 158,672	$ -	$ 425,973		$ 340,100	$ 85,873
For landfill cells, access roads, closure, and cover material, wastewater lagoons; Akhiok @ 4,573CY, Karluk @ 4,373CY, Larsen Bay @ 9,585CY, Old Harbor @ 1,953, Ouzinkie @ 3,816CY, Port Lions @ 14,425CY												
Schedule: Design May - Sept 1999; Advertise/bid - Jan - Mar 2000: Construct May - Dec 2000												
Consolidate Scrap	7,100	7,100	7,100	14,200	7,100	7,100	21,300	-	71,000	$ 71,000		
Moving scrap to one location, draining fluids & removing batteries from junked vehicles, removing refrigerant from junked refrigerators/freezers, cutting large vehicles to size, etc. 2-person crew plus backhoe, truck, cutting torch and spill kit. Ten days in Larsen Bay, 15 days in Port Lions, 5 days in other villages.												
Schedule: Obtain supplies Jan - Apr 1999; Work May thru Oct 1999												
Construction Subtotal	$ 78,109	$ 7,100	$ 75,997	$ 152,166	$ 31,641	$ 70,105	$ 223,109	$ -	$ 638,227	$ 71,000	$ 421,354	$ 145,873
New Equipment/Spare Parts												
Burn Box	$ 5,000	$ -	$ 5,000	$ -	$ -	$ 5,000	$ 5,000	$ -	$ 20,000		$ 20,000	
Provide burn boxes at landfills in 4 villages; installation will be done as part of training. ADEC encourages burning of trash in remote villages.												
Schedule: Design Nov 1998 - Jan 1999; Advertise/bid Feb 99 - Apr 99; Receive August 1999												
Upgrade Incinerator	-	-	-	3,000	3,000	-	-	-	6,000	$ 6,000		
Two villages not receiving burn boxes have existing trash incinerators requiring repair& upgrading for more efficient loading and ash removal.												
Schedule: Adverise/bid Nov 98 - Jan 99; Receive Jun 99.												
Signage	500	500	500	500	500	500	500	-	3,500		$ 3,500	
Provide signs at village landfills and used oil/HHW bldgs. Directing residents on where to place different wastes, open hours, warnings, etc.												
Schedule: Approx. 1/2 purchased in summer 1999; other half in summer 2000												
Equipment Subtotal	$ 5,500	$ 500	$ 5,500	$ 3,500	$ 3,500	$ 5,500	$ 5,500	$ -	$ 29,500	$ 6,000	$ 23,500	$ -

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
Outside Services												
Scrap Pickup, trans, recycle	$ 20,000	$ 20,000	$ 20,000	$ 40,000	$ 40,000	$ 20,000	$ 40,000	$ -	$ 200,000		$ 200,000	
Junked vehicles, appliances and other scrap to be transported out of villages by barge for recycle.												
Schedule: Determine quantities Fall 1999; Advertise/bid Jan - Mar 2000; pick up Jun - Nov 2000												
Permitting	5,000	5,000	5,000	5,000	5,000	5,000	5,000	-	35,000	$ 35,000		
Consultant to assist trainees in developing applications for landfill permits for villages. Several of the training programs are aimed at providing information for the permit applications (O&M plans, closure plans, etc).												
Schedule: Develop submittal Jan - Sept 99; Submit to DEC Oct 99												
Outside Services Subtotal	$ 25,000	$ 25,000	$ 25,000	$ 45,000	$ 45,000	$ 25,000	$ 45,000	$ -	$ 235,000	$ 35,000	$ 200,000	$ -
Training -- hands-on training provided to 2 or 3 individuals in each community. See Note 2.												
O&M of the Burn Box	5,312	-	5,312	5,312	5,312	5,312	5,312	-	31,872		$ 28,686	$ 3,186
Trainees will learn how to operate and maintain the burn boxes												
Schedule: Aug 99 - Nov 99												
Landfill O&M	5,312	-	5,312	5,312	5,312	5,312	5,312	-	31,872	$ 28,686	$ 3,186	
Trainees will learn how to build cells, provide daily cover, control leachate, control unwanted materials from entering landfill, etc.												
Schedule: Apr 99 - Nov 99, continue Jun 2000 - Sept 2000												
Consolidate existing materials	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Organize/modify existing landfill area												
Schedule: Apr - Sept 99												
Cover existing materials	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Bring landfill operations up to standards by learning daily cover technques, cell placement,etc.												
Schedule: Apr - Sept 99												
Install fence	664	-	664	664	664	664	664	-	3,984		$ 2,656	$ 1,328
Install fence to control bears, litter, and access to landfill												
Schedule: May - Nov 2000												
Install signage	332	-	332	332	332	332	332	-	1,992		$ 1,992	
Signs are needed to direct residents on how to use various areas of the landfill												
Install summer 99												
Install Burn Boxes	830	-	830	-	-	830	830	-	3,320		$ 3,320	
Trainees will learn about the burn boxes as they install them. This will facilitate maintenance & repair abilities.												
Schedule: Install Aug 99 - Nov 99												
Incinerator load/unload upgrades	-	-	-	830	830	-	-	-	1,660	$ 1,660		
Trainees in villages with incinerators will learn improved incinerator operational techniques by installing upgrades to units.												
Schedule: Jun - Sep 99												
Read incinerator/burn box drawings	249	-	249	249	249	249	249	-	1,494		$ 1,494	
Learning to read drawings and schematics is an important aspect of training program and necessary for proper maintenance, ordering parts, etc.												
Schedule: Apr - Nov 99												

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
Prepare O & M manuals												
Landfill	996	-	996	996	996	996	996	-	5,976	$ 5,976		
Burn box/incinerator	664	-	664	664	664	664	664	-	3,984		$ 3,984	
Trainees will prepare O&M plans, needed for proper landfill operation and for landfill permit applications												
Schedule: Preliminary manuals Apr 99-Nov 99; Update summer 2000												
Meet w/ ADEC (Solid Waste)	166	-	166	166	166	166	166	-	996	$ 996		
Trainees will meet with ADEC representative to learn more about the regulatory aspects of solid waste disposal.												
Schedule: Summer 1999												
ID vendors, RFP, award contracts												
Burn Box	-	-	-	-	83	-	-	-	83		$ 83	
Fence	-	-	-	42	-	-	-	-	42		$ 42	
Shot rock	-	-	-	-	-	-	83	-	83		$ 83	
Scrap pickup, trans, recycle	83	-	-	-	-	-	-	-	83		$ 83	
Trainees will learn how to pick out equipment and supplies, how to get competative quotes, and how to order parts and equipment needed.												
Schedule:												
Coordinate scrap marshalling	498	-	498	498	498	498	498	-	2,988	$ 2,988		
Trainees will learn how to process junked vehicles-removing fluids(antifreeze, used oil, gasoline, etc. Learn about need for refrigerant removal.												
Schedule: Apr - Jun 99												
Prepare landfill closure plan	830	-	830	830	830	830	830	-	4,980	$ 4,980		
Proper closure of landfills is planned when landfill is started and the landfill operations performed to allow for proper closure to minimize pollution from runoff and drainage.												
Schedule: Apr - Nov 99												
Training Subtotal	$ 17,264	$ -	$ 17,181	$ 17,223	$ 17,264	$ 17,181	$ 17,264	$ -	$ 103,377	$ 53,254	$ 45,609	$ 4,514
Total Solid Waste I	$ 125,873	$ 32,600	$ 123,678	$ 217,889	$ 97,405	$ 117,786	$ 290,873	$ -	$ 1,006,104	$ 165,254	$ 690,463	$ 150,387

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
Used Oil and HHW												
Construction												
Construct Used Oil & HHW Shed	$ 37,500	$ 30,000	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ 37,500	$ -	$ 255,000	$ 255,000		
An unheated 375SF shed constructed at $100/SF will cover used oil, lead-acid batteries, antifreeze and similar stored items.												
Utility upgrades	10,000	10,000	10,000	10,000	10,000	10,000	10,000	-	70,000	$ 70,000		
Electric provided for lighting and running Smart Ash Incinerator												
Schedule for Sheds: Design Nov 98 - Jan 99; Advertise/bid Feb - Apr 99; Completion: Summer and Fall 99												
Construction Subtotal	$ 47,500	$ 40,000	$ 47,500	$ 47,500	$ 47,500	$ 47,500	$ 47,500	$ -	$ 325,000	$ 325,000	$ -	$ -
New Equipment/Spare Parts												
Upgrade Used Oil Burner Feed	$ -	$ -	$ -	$ 2,000	$ -	$ -	$ 2,000	$ -	$ 4,000	$ 4,000		
Bring existing used oil burners up to standards in 2 villages with existing heat recovery burners.												
Schedule: Order parts: Apr 99												
Antifreeze Collection Drums	200	200	200	200	200	200	200	-	1,400	$ 1,400		
To store used antifreeze												
Schedule: Order Apr 99												
Fish Totes	1,000	1,000	1,000	1,000	1,000	1,000	1,000	-	7,000	$ 7,000		
Totes are used to store batteries and HHW												
Schedule: Order Apr 99												
Used Oil Heat-Recovery Burner	-	-	-	-	-	8,500	8,500	-	17,000	$ 17,000		
Four villages generate sufficient used oil to use heat recovery burners. 2 villages already have used oil heat recovery burners,												
Schedule: Advertise/bid: Feb - Mar 99												
Smart Ash Incinerator	3,500	-	3,500	3,500	3,500	3,500	3,500	-	21,000	$ 21,000		
All villages will use these to burn oil absorbent pads & oily sludges; Akhiok and Karluk will use them to burn small quantities of used oil. See Note 1												
Schedule: Advertise/Bid Feb - Mar 99												
Safety and Spill Equipment	1,500	1,500	1,500	1,500	1,500	1,500	1,500	-	10,500	$ 10,500		
For used oil and HHW; includes absorbant materials, personal protective equipment, spill kits, spill containment for drums, drum overpacks, etc.												
Schedule: Obtain quotes Feb - Mar 99; Order Apr 99												
Equipment Subtotal	$ 6,200	$ 2,700	$ 6,200	$ 8,200	$ 6,200	$ 14,700	$ 16,700	$ -	$ 60,900	$ 60,900	$ -	$ -
Outside Services												
Operations Plan/Regulatory Documents	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ -	$ 10,500	$ 10,500		
A consultant will assist trainees in developing an operations plan and regulatory documents for collecting, storing, &processing used oil and HHW.												
Schedule: Complete by May 99												
Outside Services Subtotal	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ -	$ 10,500	$ 10,500	$ -	$ -

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
Training – aimed at the operations and maintenance of the used oil and HHW facilities. See Note 2.												
Processing oily rags, sludge, pads	$ 664	$ -	$ 664	$ 664	$ 664	$ 664	$ 664	$ -	$ 3,984	$ 3,984		
Training in proper handling of oily rags, absorbent pads and oily sludges and in operation of Smart Ash Incinerator for burning these.												
Processing used oil	2,656	-	2,656	2,656	2,656	2,656	2,656	-	15,936	$ 15,936		
Training in storing, handling, filtering, record keeping and disposal of used oil in burners												
Install new used oil burners	-	-	1,660	-	1,660	1,660	1,660	-	6,640	$ 6,640		
Trainees will learn about the used oil burners by installing the units as part of the training activities.												
Install new smart ash burners	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Trainees will learn about the Smart Ash Incinerators during their assembly and start-up.												
Maintaining used oil burner	83	-	83	83	83	83	83	-	498	$ 498		
Trainees will be trained in the proper routine maintenance of used oil burners, including changing of filters, elimination of water, cleaning, etc.												
Used oil storage procedures	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Trainees will develop procedures for residents to place used oil in the sheds, make residents aware of spill effects, and how to prevent spills.												
Check residential tanks	1,038	-	1,038	2,075	3,735	3,113	3,320	-	14,319	$ 14,319		
Trainees will set up a procedure for routine inspection of residential home fuel oil tanks. (fix leaks, control spills). Will fix leaking units.												
Read & Understanding Drawings												
Bulk Fuel Systems	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Trainees will become knowledgable in village's bulk fuel tanks in order to be able to detect a problem and to assist in the event of a spill situation.												
Prepare O & M Manuals												
Used Oil Burner	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Smart Ash Burner	664	-	664	664	664	664	664	-	3,984	$ 3,984		
HHW and Used Oil	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Trainees will develop procedures for the operation and maintenance of equipment and the handling of used oil and HHW.												
Meet & talk w DCRA	166	-	166	166	166	166	166	-	996	$ 996		
Trainees to learn about State services, tanks, fuel systems, etc.												
ID vendors, RFP, award contracts												
Used Oil Burner	-	-	-	-	-	-	83	-	83	$ 83		
Smart Ash Burner	-	-	-	-	-	83	83	-	166	$ 166		
Used Oil Tanks	-	-	83	-	-	-	-	-	83	$ 83		
Safety Equipment	-	-	-	166	-	-	-	-	166	$ 166		
Lead acid battery transport	-	-	-	-	-	42	-	-	42	$ 42		
Lead acid battery recycling	-	-	-	-	-	42	-	-	42	$ 42		
Antifreeze, solvent transport	42	-	-	-	-	-	-	-	42	$ 42		
Antifreeze, solvent disposal	42	-	-	-	-	-	-	-	42	$ 42		
Streamline feed system	996	-	996	996	996	996	996	-	5,976	$ 5,976		
Trainees will learn and work with more efficient means of handing the flow of used oil and HHW.												
Schedule: All of the above Training will occur between Apr and Oct 1999. A small amount of the expenses may fall in the second FY.												
Training Subtotal	$ 9,671	$ -	$ 11,330	$ 10,790	$ 13,944	$ 13,489	$ 13,695	$ -	$ 72,919	$ 72,919	$ -	$ -
Total Used Oil and HHW	**$ 64,871**	**$ 44,200**	**$ 66,530**	**$ 67,990**	**$ 69,144**	**$ 77,189**	**$ 79,395**	**$ -**	**$ 469,319**	**$ 469,319**	**$ -**	**$ -**

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
General - Used Oil, HHW, Solid Wastes, Wastewater												
New Equipment/Spare Parts												
Spill Response Equipment	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ -	$ 14,000	$ 14,000		
Trainees will select equipment for reacting to minor spills of used oil and HHW in the community before they can enter the marine environment.												
Schedule: Select equipment:Apr 99; Receive quotes and order: May 99												
Repair Parts	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ 5,000	$ -	$ 35,000	$ 25,000	$ 10,000	
Trainees will determine repair parts needed and purchase these for fixing systems in the community												
Schedule: This activity will be ongoing Apr - Sep 99												
Tool Kits	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ -	$ 17,500	$ 17,500		
Trainees will select tools necessary for operations and maintenance of wastewater and solid waste systems and learn accountability for the tools.												
Schedule: Purchase in Apr - Sep 99												
Equipment Subtotal	$ 9,500	$ 9,500	$ 9,500	$ 9,500	$ 9,500	$ 9,500	$ 9,500	$ -	$ 66,500	$ 56,500	$ 10,000	
Outside Servcies												
Used Oil/HHW Spill Response Plan	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ 2,500	$ -	$ 17,500	$ 17,500		
A consultant will assist the trainees in developing a written spill response plan for handling minor spills of used oil and HHW in the villages.												
Schedule: Apr - Jun 99												
Specialized Technical Services	6,000	1,500	6,000	6,000	6,000	6,000	6,000	-	37,500	$ 30,000	$ 7,500	
Engineering/design services for HHW/Used Oil Sheds, landfills, etc.												
Schedule: Nov 98 - Apr 99												
Other Services Subtotal	$ 8,500	$ 4,000	$ 8,500	$ 8,500	$ 8,500	$ 8,500	$ 8,500	$ -	$ 55,000	$ 47,500	$ 7,500	
Training - See Note 2.												
ID and order repair parts (7 systems)	$ 1,660	$ -	$ 1,660	$ 1,660	$ 1,660	$ 1,660	$ 1,660	$ -	$ 9,960	$ 9,960		
Trainees will become knowledgeable in reading maintenance instructions and determining repair & spare parts needed.												
Compile Tool Kit	332	-	332	332	332	332	332	-	1,992	$ 1,992		
Trainees will select tools necessary for operations and maintenance of wastewater and solid waste systems and learn accountability for the tools.												
Maintaining tools and parts	332	-	332	332	332	332	332	-	1,992	$ 1,992		
Trainees will learn to take care of tools (storage, sharpening, etc.) and in proper storage and inventorying of spare parts.												
Prepare & keep logs (8 systems)	2,656	-	2,656	2,656	2,656	2,656	2,656	-	15,936	$ 15,936		
Record-keeping will be taught for all aspects of the operation and maintenance of the facilities, including regulatory record-keeping, maintenance logs, daily work records, etc.												
Set Up Routine System Inspections	2,656	-	2,656	2,656	2,656	2,656	2,656	-	15,936	$ 15,936		
Trainees will learn to make routine inspection of systems to look for leaks, repair needs, do routine maintenance, etc.												
ID vendors, RFP, and award contracts												
Tool Kit	332	-	332	332	332	332	332	-	1,992	$ 1,992		
Trainees will learn how to select tools and supplies, how to get competative quotes, and how to order.												
Budgeting & Priorization	664	-	664	664	664	664	664	-	3,984	$ 3,984		
Trainees will be educated on budgeting, projecting operation and maintenance costs, explaining budget needs, etc.												
Schedule: The above 7 training activities will take place Apr - Oct 99												

	Akhiok	Chiniak	Karluk	Larsen Bay	Old Harbor	Ouzinkie	Port Lions	Admin.	Total	First Year	Second year	Third Year
Trainee Orientation/Coordination	960	-	960	960	960	960	960	-	5,760	$ 4,300	$ 1,460	
Time required to orient trainees toward a utility O&M career and to coordinate traing efforts.												
Airfare	-	-	-	-	-	-	-	12,000	12,000	$ 9,000	$ 3,000	
Travel between remote villages is only practical by airplane. Trips for trainer and trainees.												
Per Diem	-	-	-	-	-	-	-	80,000	80,000	$ 60,000	$ 20,000	
Expenses for trainer and trainees when away from home												
Planning/Coordination	4,480	-	4,480	4,480	4,480	4,480	4,480	-	26,880	$ 20,000	$ 6,880	$ -
Trainer's time to plan training activities, develop schedules, administrative responsibilities.												
Schedule: The above 4 activities will occur Nov 98 - Nov 2000												
Labor/Training Subtotal	$ 14,072	$ -	$ 14,072	$ 14,072	$ 14,072	$ 14,072	$ 14,072	$ 92,000	$ 176,432	$ 145,092	$ 31,340	$ -
Total General	$ 32,072	$ 13,500	$ 32,072	$ 32,072	$ 32,072	$ 32,072	$ 32,072	$ 92,000	$ 297,932	$ 249,092	$ 48,840	$ -
KIB Administration	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 25,000	$ 25,000	$ 18,800	$ 3,100	$ 3,100
TOTAL	***$ 222,816***	***$ 90,300***	***$ 222,280***	***$ 317,951***	***$ 198,621***	***$ 227,047***	***$ 402,340***	***$ 117,000***	***$ 1,798,355***	***$ 902,465***	***$ 742,403***	***$ 153,487***
Component Totals												
EVOS REQUEST												
Solid Waste I Total	$ 125,873	$ 32,600	$ 123,678	$ 217,889	$ 97,405	$ 117,786	$ 290,873	$ -	$ 1,006,104	$ 165,254	$ 690,463	$ 150,387
Used Oil and HHW Total	64,871	44,200	66,530	67,990	69,144	77,189	79,395	-	469,319	$ 469,319	$ -	$ -
General Total	32,072	13,500	32,072	32,072	32,072	32,072	32,072	92,000	297,932	$ 249,092	$ 48,840	$ -
KIB Administration	-	-	-	-	-	-	-	25,000	25,000	$ 18,800	$ 3,100	$ 3,100
Total EVOS Request	$ 222,816	$ 90,300	$ 222,280	$ 317,951	$ 198,621	$ 227,047	$ 402,340	$ 117,000	$ 1,798,355	$ 902,465	$ 742,403	$ 153,487

NOTES

Note 1: Smart Ash Incinerator is a forced air device that fits over a 55-gallon drum. It allows burning of oil-contaiminated materials and trash at temperatures of about 2000 degrees. A unit was purchased as a pilot project under EVOS Project 97304 to test its usefulness in the villages. Simple to use. Can even burn small amounts of used oil.
Villages have no means to properly incinerate oily absorbants, oily sludges and similar materials.

Note 2: Training costs are base upon:
3 trainees in each village each receiving a stipend of $8.00/hr during training activities. Communities are responsible for any supplemental salaries for trainees, fringes, all pay for other than approved training time, pay for routine community services. Trainees will undergo 32 weeks of supervised activity in each village (trainer will be in residence50% of time).
Trainers, estimated at $35.00/hr, will spend 16 weeks in each village. Estimated for 3 trainers to handle two villages each (32 week schedule each).
Group training costs are estimated at $42.50/hr plus airfare ($12,000) & per diem ($80,000).

Prepared 7/1/98

PUBLICATIONS, REPORTS AND PROFESSIONAL CONFERENCES

It is anticipated that the processes used in this project by the villages will be well documented so that the knowledge gained may be used for continuous improvement of waste management practices. In addition, an annual project report and a final report upon completion will be presented to the communities and all parties involved, as well as submitted to the funding entities.

Project findings and results will be presented to interested parties in the Kodiak area through the Kodiak Area Native Association and Kodiak Island Borough.

NORMAL AGENCY MANAGEMENT

The State of Alaska Department of Environmental Conservation is the Lead Trustee for this project and is charged with overseeing the overall project progress.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

- **Shared Resources – *Collaboration Among All Communities***

By working together in a collaborative fashion, implementing waste management solutions will be easier and less costly. These villages have small populations, no more than a few hundred people in any case, and in this remote environment, there are generally few hands available to do the work of operating local governments, and little money to accommodate the needs of the communities. Prioritization of the use of community time, money and energy sometimes means that important and useful tasks get deferred in spite of the best intentions of the community.

One means of overcoming the constraint of having limited resources is to pool the available resources to provide a larger base to draw upon. This can be done in the villages by sharing equipment and expertise among neighboring villages, or collaborating with other villages for mutual problem solving. This process has already started through initiatives such as the Kodiak Island Village Environmental Council and the Kodiak Island Village Utilities Council and will be expanded through the Borough-Wide Utility Council.

- **Atmosphere of Self-Reliance and Self-Determination**

In rural Alaska villages many decisions involving the lives of local residents are made by outsiders, often government agencies. Many decisions regarding the development of the Kodiak Island Borough coastal villages are being made by KANA, KIB, or the School District in Kodiak; or by State and Federal agencies in Anchorage, Juneau, or in Washington, D.C. As a result, local people have learned to depend on the activities and decisions of outsiders. Only by re-establishing control of community systems locally can those systems be effective. The best approach to complete and strengthen waste management systems in these villages is to stimulate local responsibility and institute local control to the greatest extent possible. Thereby, communities can build an atmosphere of self-reliance that will extend beyond the grants that are currently sponsoring many community efforts, including the development of waste management

plans and systems. Phase I of this project provided a good model for local decision-making and planning standards for Phase II.

The objectives of this project were developed to enhance protection of the marine environment while improving human and environmental health in KIB communities. Because the two are interdependent, addressing weaknesses in the present systems and building functional systems for waste management in these coastal villages will in turn increase recovery and enhance protection of the marine environment. The development and enhancement of these systems will be supported and sustained by the education, training and planning of the communities emphasizing an ethic of environmental stewardship. Enhancing village-based technical capabilities and community self-determination and involvement will help to ensure sustaining waste management systems for clean and healthy village and marine environments.

The commitment of the villages to solving the pollution issues and to continue providing waste management systems into the future is shown by the attached letters of commitment.

- **Other Restoration Efforts**

This project is an effort that does not affect and benefit only one specific community, but is a unified regional effort among the remote coastal villages of Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions, the Community of Chiniak; the Kodiak Area Native Association (KANA); and the Kodiak Island Borough (KIB) to produce and implement a waste management plan that identifies solutions to the most pressing pollution problems for the coastal villages. The restoration efforts of these seven communities and other concerned entities are a coordinated and integrated effort to increase the effectiveness of village waste management practices and the recovery of their surrounding environments.

In addition, this project is modeled after the Sound Waste Management Plan project that was made possible through funding from the Exxon Valdez Oil Spill Trustee Council (EVOS). All efforts have been made to use existing knowledge gained from that project. However, the Kodiak Island Borough project's focus on the villages, the involvement of the Borough, and the somewhat different set of environmental problems, make it a unique effort.

- **Other Funding Efforts**

In Phase I of the project, a number of prospective funding sources were identified for the implementation of the waste management planning, education, training and operational projects. The highest potential grant sources for implementation of the project (other than EVOS), included the Administration for Native Americans (ANA), the U.S. Environmental Protection Agency, U.S. Department of Housing and Urban Development, State of Alaska Department of Natural Resources, and State of Alaska Department of Environmental Conservation. These potential funding sources, and others, are being pursued to create a diverse pool of funding with which to implement all four initiatives of the project.

Project in-kind support will be provided by the seven communities of Kodiak Island including:

<u>Personnel</u>

- Community planning and organizational meetings
- Borough-Wide Council Meetings
- Supplemental Wages
- Volunteer Labor

Facilities
- Land for siting facilities
- Use of heavy equipment
- Space for community planning and organizational meetings

Administration
- Workspace, communications, support services
- Ongoing operation and maintenance of existing and new facilities

The Kodiak Area Native Association will provide funding from existing EPA and Indian Health Service grants for the environmental curriculum development objective to support teacher and travel costs. Additionally, KANA has submitted a grant proposal to the US Department of Health and Human Services, Administration of Native Americans (ANA) to support formation and implementation of the Borough-wide Utility Council, development of environmental curriculum materials and to implement Local Waste Management planning. KANA has also submitted a proposal for funding of the Borough-wide Utility Council from State and Tribal Environmental Justice Program. A summary of the funding being pursued for implementation of the overall waste management plan is presented on Table 2, Summary of Project Initiatives Funding.

- **Compliance with NEPA**

The proposal includes buildings and other activities that will probably require environmental analyses to demonstrate National Environmental Policy Act (NEPA) compliance. The Borough will prepare the documentation for any environmental analyses required complying with NEPA. The Borough will contact the regulatory agencies involved, complete the necessary forms, advertise, and complete all other work necessary for the analyses. The labor cost for this activity will be in-kind costs for the Borough and direct expenses, such as travel expenses, will be taken from the proposed administration budget.

- **Borough Funding Issues**

Settlement funds will not be used for activities for which the Kodiak Island Borough has a legal responsibility to carry out. Alaska Statutes allows the Borough to undertake solid waste responsibilities (AS 29.35.050 and 29.35.210), but such responsibilities are not mandatory for the Borough. The Borough has undertaken, by ordinances, some solid waste responsibilities, but such Borough services (collection and disposal) are limited to certain portions of the road system. None of the cities (remote villages) is on the road system and, therefore, none is served by the Borough's solid waste program. For Chiniak (the only community on the road system involved in this proposal), the Borough's program does not collect used oil, household hazardous wastes, large discarded items, or junked vehicles. The Borough's landfill, used to service Chiniak, will not receive any capital facilities as a part of this proposal.

In fact, one of the purposes of the proposal is to provide the direction, education, training, technical skills, and systems necessary to make the villages responsible and capable for exercising solid waste responsibilities.

Table 2

SUMMARY OF PROJECT INITIATIVES FUNDING

PHASE I RECOMMENDATIONS	PURPOSE	START DATE	COST	FUNDING
1) A Borough-Wide Utility Council: *Establishing A Resource for Collaborative Problem-solving*	To establish a permanent administrative entity to coordinate shared resources and management of system improvements in the coastal villages	August 1998	$269,000	• Funding will be received from the communities • Funding has been requested by KANA from the Administration for Native Americans (ANA) and from the State and Tribal Environmental Justice Program
2) Systems Development: *Fixing What is There*	To provide capital improvements and training to existing waste management systems and promote local responsibility.	September 1998	$2,222,000	• $1.8 million has been allocated from Exxon Valdez Oil Spill Trustees • Balance to be determined
3) Community and Environment Curriculum Development: *Building an Environmental Consciousness*	To introduce and emphasize an ethic of environmental stewardship in the community	January 1998	$180,000	• $145,000 will be received from the Kodiak Area Native Association (KANA) in EPA and IHS funds • $35,000 has been requested by KANA from ANA
4) Local Waste Management Implementation: *Community-Level Planning and Organization*	To establish and implement procedures for ongoing community-based waste management systems within each village	August 1998	$168,000	• Funding will be received from the communities • Funding has been requested by KANA from ANA

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

There have been no changes in the project plan for the Kodiak Island Borough Waste Management project. Phase I of this project was completed in FY98 with the development of the final Kodiak Island Borough Waste Management Plan and Phase II of the project entails the implementation of that plan.

PROPOSED PRINCIPAL INVESTIGATOR

Jerome M. Selby, Mayor
Kodiak Island Borough
710 Mill Bay Road
Kodiak, Alaska 99615
Tel: (907) 486-5736
Fax: (907) 486-9376

LITERATURE CITED

Montgomery Watson, *Kodiak Island Borough, Inventory of Pollution Sources and Problems*, April 7, 1997

Montgomery Watson, *Kodiak Island Borough Alternatives Analysis and Potential Funding Sources*, August 7, 1997

Montgomery Watson, *Kodiak Island Borough Master Plan for Waste Management Final Report*, March 2, 1998

Dames & Moore, *Sensitive Areas Identification Project Report*, Kodiak Island Borough Coastal Management Program, June 30, 1997

ATTACHMENTS: Letters of Commitment from the Villages

TO: Brenda S. KANA
FAX #: 6-9893

FROM: David Eluska City of Akhiok
FAX #: 836-2009 PHONE #: 836-2029
DATE: 6/26/98
PAGES INCLUDING THIS PAGE: 1

Molly McCammon, Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street, suite 401
Anchorage, Alaska 99501-3451

Dear Molly,

As a result of the 1989 oil spill, many natural resources were damaged. The City of Akhiok reconizes the need for improved waste management practices that will assist in the restoration of those injured resources. Currently, Akhiok lacks proper disposal methods for used oil, household hazardous waste products, and is in dire need of improvements to the landfill. Of course, there are other areas of need we recognize such as public education and community planning. Those areas are also being looked at through other means.

Recognizing these needs, the City of Akhiok has been participating in the Kodiak Island Village Environmental Council (KIVEC). The KIVEC has met over the last two years with KANA and the Kodiak Island Borough to develop methods of proper waste disposal. Through collaboration and cost-sharing between EVOS, the Kodiak Island Borough and KANA a comprehensive Solid Waste Management Plan was developed.

The City of Akhiok supports the proposal that the KIB recently submitted to the Trustee Council. The proposal is based on the Solid Waste Management Plan and includes system repairs and facility development. Contingent upon funding, the systems that will be repaired and developed will be the responsibility of the City of Akhiok. The City will then be responsible for continued long-term operation and maintenance through support from the community. We appreciate consideration of project #99304 and urge the Trustee Council to fund it fully.

Sincerely,

David Eluska Mayor
City of Akhiok

cc: Akhiok Tribal Council

Karluk IRA Traditional Council
P.O. Box 22
Karluk, AK 99608
(907) 241-2218
fax (907) 241-2208

June 26, 1998

Molly McCammon, Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, AK 99501-3451

Dear Molly,

As a result of the 1989 oil spill, many natural resources were damaged. The Karluk Tribal Council recognizes the need for improved waste management practices that will assist in the restoration of those injured resources. Currently, Karluk lacks proper disposal methods for used oil, household hazardous waste products, and is in dire need of improvements to the landfill. Of course, there are other areas of need we recognize such as public education and community planning. Those areas are also being looked at through other means.

Recognizing these needs, the Karluk Tribal Council has been participating in the Kodiak Island Village Environmental Council (KIVEC). The KIVEC has met over the last two years with KANA and the Kodiak Island Borough to develop methods of proper waste disposal. Through collaboration and cost-sharing between EVOS, the Kodiak Island Borough and KANA, a comprehensive Solid Waste Management Plan was developed.

The Karluk Tribal Council supports the proposal that the KIB recently submitted to the Trustee Council. The proposal is based on the Solid Waste Management Plan and includes system repairs and facility development. Contingent upon funding, the systems that will be repaired and developed will be the responsibility of the Karluk Tribal Council. The Council will then be responsible for continued long-term operation and maintenance through support from the community. We appreciate consideration of project #99304 and urge the Trustee Council to fund it fully.

Sincerely,

Alicia Reft, President

City of Larsen Bay

Telephone 907-847-2211
Fax 907 847 2239

P.O. Box 8
Larsen Bay, Alaska 99624

June 26, 1998

Molly McCammon, Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, Alaska 99501-3451

Dear Molly,

As a result of the 1989 oil spill many natural resources were damaged. The City of Larsen Bay recognizes the need for improved waste management practices that will assist in the restoration of those injured resources. Currently, Larsen Bay lacks proper disposal methods for used oil household hazardous waste products, and is in dire need of improvements to the landfill. Of course, there are other areas of need we recognize such as public education and community planning. These areas are also being looked at through other means.

Recognizing these needs, the City of Larsen Bay has been participating in the Kodiak Island Village Environmental Council (KIVEC). The KIVEC has met over the last two years with KANA and the Kodiak Island Borough to develop methods of proper waste disposal. Through collaboration and cost-sharing between EVOS, the Kodiak Island Borough and KANA, a comprehensive Solid Waste Management Plan was developed. The City of Larsen Bay supports the proposal that the KIB recently submitted to the Trustee Council. The proposal is based on the Solid Waste Management Plan and includes system repairs and facility development. Contingent upon funding, the systems that will be repaired and developed will be the responsibility of the City of Larsen Bay. The City will then be responsible for continued long-term operation and maintenance through support from the community. We appreciate consideration of project#99304 and urge the Trustee Council to fund it fully.

Sincerely,

Michael Carlson, Member
Larsen Bay City Council

cc: Larsen Bay Tribal Council

City of Ouzinkie

P.O. Box 109
3rd & C Street
Ouzinkie, Alaska 99644

Phone (907) 680-2209
Fax (907) 680-2223

June 26, 1998

Molly McCammon, Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, Alaska 99501-3451

Dear Molly,

As a result of the 1989 oil spill, many natural resources were damaged. The City of Ouzinkie would like to pursue improved waste management practices that assist with restoration of that damage and prevent future impacts to the marine environment. We need proper collection of waste oil, household hazardous waste, other waste products, and subsequent improvements to the landfill that will ensure proper handling of these items in a well managed location.

Due to our concerns and our feelings that the methods of collection and subsequent management of these item may have effects on the marine and land environment the City of Ouzinkie has had participation with the Kodiak Village Environmental Council and the development of the Kodiak Island Borough Solid Waste Management Plan.

The City of Ouzinkie supports the proposal submitted to the Trustee Council. Contingent upon funding, the systems that will be repaired and developed will be the responsibility of the City of Ouzinkie. The city will be responsible for long-term management, operation, and maintenance through support form the community. We appreciate consideration of project # 99304 and urge the Trustee Council to provide full funding for implementing this project as soon as possible.

Sincerely,
City of Ouzinkie

Zack Chichenoff

Zack Chichenoff, Mayor

June 25, 1998

Molly McCammon, Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, Alaska 99501-3451

Dear Molly,

As a result of the 1989 oil spill, many natural resources were damaged. The City of Port Lions recognizes the need for improved waste management practices that will assist in the restoration of those injured resources. Currently, Port Lions lacks proper disposal methods for used oil, household hazardous waste products, and is in dire need of improvements to the landfill. Of course, there are other areas of need we recognize such as public education and community planning. Those areas are also being looked at through other means.

Recognizing these needs, the City of Port Lions has been participating in the Kodiak Island Village Environmental Council (KIVEC). The KIVEC has met over the last two years with KANA and the Kodiak Island Borough to develop methods of proper waste disposal. Through collaboration and cost-sharing between EVOS, the Kodiak Island Borough and KANA, a comprehensive Solid Waste Management Plan was developed.

The City of Port Lions supports the proposal that the KIB recently submitted to the Trustee Council. The proposal is based on the Solid Waste Management Plan and includes system repairs and facility development. Contingent upon funding, the systems that will be repaired and developed will be the responsibility of the City of Port Lions. The City will then be responsible for continued long-term operation and maintenance through support from the community. We appreciate consideration of project #99304 and urge the Trustee Council to fund it fully.

Sincerely,

Robert C Wagner

Robert Wagner, Mayor
City of Port Lions

cc: Port Lions Tribal Council

Revision 8-[illegible]-98
approved TC 8-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$0.0
Travel		$0.0
Contractual		$1,808.4
Commodities		$0.0
Equipment		$0.0
Subtotal		$1,808.4
General Administration		$48.7
Project Total		$1,857.1
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		

Dollar amounts are shown in thousands of dollars.

FY 99

Project Number: 99304
Project Title: Kodiak Waste Management Plan
Agency: ADEC

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revision 8/5/98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$269,728.0
Travel		$92,000.0
Contractual		$1,420,627.0
Commodities		$0.0
Equipment		$0.0
Subtotal	$0.0	$1,782,355.0
Indirect		$26,000.0
Project Total	$0.0	$1,808,355.0
Full-time Equivalents (FTE)		18.0
Other Resources		$617,000.0

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		

Dollar amounts are shown in thousands of dollars.

Comments: The Kodiak Area Native Association will contribute $145,000 for Community and Environment Curriculum Development from existing EPA and Indian Health Service grants. Kodiak Island Borough communities will contribute wages and administrative costs for community leaders participation in Curriculum Development, community level planning and organization and the Borough-Wide Utility Council. Additionally, the Kodiak Island Borough has requested only $25,000 in indirect administrative costs plus $1,000 for printing the final report, less than 2% of the total requested funds, and well below its approved indirect rate. The Kodiak Area Native Association will apply to the Administration for Native Americans for $472,000 in funding for the Borough-Wide Utility Council, community and environmental curriculum development, and community level planning and organization.

FY 99

Revised 8/5/98

Project Number: 99304
Project Title:Kodiak Island Borough Waste Management Project II
Name: Kodiak Island Borough

FORM 4A
Non-Trustee
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:			Months	Monthly		Proposed
Name	Position Description		Budgeted		Overtime	FY 1999
Vacant	Village Maintenance Workers		23.0	5215.0		119,945.0
Vacant	Waste Management Coordinator		23.0	6121.0		140,783.0
Vacant	KIB Environmental Engineer		3.0	3000.0		9,000.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		18.0	14336.0	0.0	
					Personnel Total	$269,728.0

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
Village Maintenance Workers - 6 Villages to Kodiak for 3 Meetings	300.0	21	108	120.0	19,260.0
Waste Management Coordinator	251.0	72	556	98.0	72,560.0
Village Representative - Chiniak to Kodiak for 3 Meetings	0.0	0	6	30.0	180.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$92,000.0

FY 99

Revised 8/5/98

Project Number: 99304
Project Title: Kodiak Island Borough Waste Management Project II
Name: Kodiak Island Borough

FORM 4B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Upgrade Landfill inc. excavating, material consolidation & removal, permitting, incinerators, signage, fencing, burn boxes, etc	902,727.0
Construct HHW Sheds	332,500.0
Purchase Used Oil and HHW Equipment	60,900.0
Develop HHW Ops Plan/Regulatory Document	10,500.0
Purchase Spill Response Equipment	14,000.0
Develop Spill Response Plan	17,500.0
Purchase Tools and Parts	52,500.0
Specialized Technical Services	30,000.0
Contractual Total	$1,420,627.0

Commodities Costs:	Proposed
Description	FY 1999
There are no commodities costs for this project.	
Commodities Total	$0.0

FY 99

Revised 8/5/98

Project Number: 99304
Project Title: Kodiak Island Borough Waste Management Project II
Name: Kodiak Island Borough

FORM 4B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 1999
There are no new equipment purchases for this project.			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number
Description	of Units

FY 99

Revised 8/5/98

Project Number: 99304
Project Title: Kodiak Island Borough Waste Management Project II
Name: Kodiak Island Borough

FORM 4B
Equipment
DETAIL

Approved TC 8-13-98

Ecology and Demographics of Pacific Sand Lance, *Ammodytes hexapterus* Pallas, in Lower Cook Inlet, Alaska

Project Number:	99306
Restoration Category:	Research
Proposer:	USGS Biological Resources Division
Lead Trustee Agency:	DOI
Cooperative Agencies:	N/A
Alaska SeaLife Center:	no
Duration:	3rd year, 4-year project
Cost FY 99:	$30,000
Cost FY 00:	$20,000
Geographic Area:	Kenai Peninsula, Lower Cook Inlet
Injured Resource:	Multiple (forage fish and upper trophic level predators)

ABSTRACT

The purpose of this study is to characterize the basic ecology, distribution, and demographics of sand lance (*Ammodytes hexapterus*) in lower Cook Inlet. Recent declines of upper trophic level species in the Northern Gulf of Alaska have been linked to decreasing availability of forage fishes. Sand lance is the most important forage fish in most nearshore areas of the northern Gulf. Despite its importance to commercial fish, seabirds, and marine mammals, little is known or published on the basic biology of this key prey species.

INTRODUCTION

An estimated 250,000 seabirds were killed by *Exxon Valdez* oil pollution. Based on comparisons of pre-spill (1970s) and post-spill (1989-1995) data, long-term effects on seabirds attributed to oil pollution included: i) population declines, ii) reduced breeding success, and, iii) delayed breeding phenology. However, some purported effects of the spill may have been due in large part to natural changes in the Gulf of Alaska marine ecosystem-- in particular, declines in forage fish abundance (Piatt and Anderson 1996). The rate at which seabird populations will recover from effects of oil mortality are unknown, but is probably linked to population dynamics of forage fish species, of which sand lance is the most important.

Sand lance (genus *Ammodytes*) are zooplanktivorous, semi-demersal, schooling perciforms. They are ubiquitous to the boreo-arctic regions of the North Atlantic and North Pacific and are particularly abundant in coastal regions. There are three genera of sand lance (*Hyperoplus, Gymnammodytes, and Ammodytes*) distributed in the Northeast Atlantic from Novaya Zemblya to Spain. *Ammodytes* is also distributed in the Northwestern Atlantic from West Greenland to Cape Hatteras, North Carolina (Leim and Scott 1966, Winters and Dalley 1988) and in the North Pacific from the Bering Sea to southern California (Wilimovsky et al. 1988). Although several species of *Ammodytes* have been described for the North Atlantic and at least two in the North Pacific, *Ammodytes hexapterus* is the only species currently described in the Gulf of Alaska.

Sand lance serve as an important trophic link between zooplankton and marine vertebrate piscivores (Winters 1983) particularly on continental shelf ecosystems (Springer *et al.* 1996). In the North Pacific, sandlance are forage for fish, seabirds, and marine mammals. Seabirds consuming sand lance include red-faced cormorant (Hunt et al. 1981), black-legged kittiwake, common murre, thick-billed murre, pigeon guillemot, horned puffin, tufted puffin, brachyramphus murrelets, and rhinoceros auklet (Wilimovsky *et al.* 1988, Springer 1991, Piatt and Anderson 1996). Marine mammals consuming sand lance include Stellar sea lion, minke, sei, and humpback whales (Wilimovsky et al. 1988). Commercially important fish preying on sand lance include Pacific cod, halibut, lingcod, rockfish, and salmon (Wilimovsky et al. 1988).

Due to commercial fisheries for sand lance in the North Sea and around Japan, much is known about sand lance in these regions. In the North Pacific, however, sand lance are of little commercial importance. Despite their role as a forage species, there is a paucity of published information on their biology and population dynamics in this area.

NEED FOR THE PROJECT

A. Statement of Problem

Lack of recovery of species injured in the *Exxon Valdez* oil spill is currently thought to be linked to changes in forage fish abundance or composition. Changes in species composition or abundance of forage fish will have marked effects on predators, in terms of the time needed to find and consume fish, as well as in the relative energy value of that fish once consumed. Therefore, an understanding of the factors affecting forage fish distribution, abundance, and quality is vital to an understanding of predator distribution, abundance and recovery.

B. Rationale/Link to Restoration

It is important to study the ecology and demographics of sand lance because: i) sand lance are one of the most important prey species consumed by seabirds, marine mammals, and commercial fish in Alaska; ii) changes in sand lance abundance and distribution therefore have direct effects on predators; and, iii) natural environmental changes may have reduced sand lance populations in recent years. These population changes may limit the ability of higher predators to recover from oil spill impacts.

Sand lance availability to higher predators is probably governed by behavioral and biological responses of sand lance to their environment. Predation on sand lance by various seabirds and fish is being studied with funding from Restoration Project 98163M. This project will focus on sand lance in Kachemak Bay, lower Cook Inlet, and assess how seasonal and diel movements of sand lance impact their availability as a food source for marine piscivores. We will also measure demographic and physical parameters, measure caloric content of sand lance throughout the year, and measure temporal changes in abundance and productivity of sand lance in Cook Inlet.

C. Location

The project is a portion of an ecosystem study of lower Cook Inlet (EVOS APEX Project 98163M). Sand lance research will be focused on Kachemak Bay because they are common there, and the area is logistically easy to work in. Comparative collections of sand lance will be made at Chisik Island and the Barren Islands. Sand lance will also be collected from sites in the center of the Cook Inlet. These collections will be from the stomachs of halibut and from incidental catches in ADF&G or UAF shrimp, herring, and flatfish trawls. Opportunistic samples of sand lance will also be obtained from other areas of Alaska by cooperators (NMFS, APEX, USFWS, ADFG).

COMMUNITY INVOLVEMENT

Local knowledge of sand lance spawning sites and of areas where they could be found buried at low tide have proven invaluable to this project. Communications with local residents during the summers of 1995 and 1996 have provided information on at least two sites where sand lance spawn. The first documented spawning observations for this genus were made by this project at one of these sites in the fall of 1996 and 1997. Further research was conducted at this site during 1998, and will continue in 1999.

PROJECT DESIGN

Although the project is based in Lower Cook Inlet, we expect through collaboration with other researchers (particularly in Prince William Sound) to integrate other populations of sand lance into our research. This will provide perspective to the Cook Inlet samples as well as to increase the range of knowledge on this key species.

A. Objectives

1. To establish how seasonal fluctuations in abundance of sand lance impact their availability as a food source for marine piscivores.

2. Measure demographic parameters of sand lance including age composition, growth rate, patterns of growth, and sex ratios and compare between regions.

3. Depending on collaborative efforts, genetic characteristics will be used to establish if distinct populations of sand lance occur within Cook Inlet and throughout the northern Gulf of Alaska.

4. Critical feeding and spawning habitat of sand lance will be described in relation to physical parameters (e.g., temperature, substrate type, salinity, and turbidity). Physiological adaptations will also be explored in relation to their habitat.

5. Estimates will be made of relative sand lance abundance and distribution within the Cook Inlet in relation to burrowing substrate.

6. The caloric content of sand lance will be investigated throughout the year to evaluate their value as forage for marine piscivores.

7. Sand lance early life history will be investigated using a 20-year historical database provided by Paul Anderson (NMFS, Kodiak).

B. Methods

FIELD COLLECTIONS:

Sand lance will be caught using a variety of nets to sample habitats near beaches, in nearshore areas, and offshore waters:

Beach Seines:
A beach seine (37m long, 28.6mm stretch mesh tapered wings, 6mm stretch mesh cod end in middle) will be used for all beach seining. Seines will be made in sets of two at each location at least every two weeks during the summer (May to October), and opportunistically during the winter (November to April), conditions and light permitting. Seines will be made at high and low tide until a comprehensive dataset is established to evaluate differences in sand lance catch between the tidal states.

Permanent sample locations within Kachemak Bay will be at Halibut Cove, Peterson Bay, China Poot Spit (summer and winter samples), and Eldred Passage, Yukon Island, and Seldovia Bay (summer

samples). These sites provide a wide range of physical conditions (exposure, water regimes, substrates etc.) with which to evaluate physical conditions preferred by sand lance. Comparative collections of sand lance will also be made in the Barren Islands (East Amatuli Cove) and Chisik Island (Snug Harbor). Sand lance will be obtained from APEX colleagues working in Prince William Sound, and opportunistically from other locations in Alaska.

Fish Stomachs:
Halibut stomach contents will be used to establish presence of sand lance in deeper offshore waters. This method uses stomachs from halibut caught by charter boats during the summer. Results from 1996 and 1997 indicate many large sand lance occur offshore. Halibut stomachs provide valuable information on the summer movements and distribution of sand lance as well as to population age structure. Halibut stomachs are obtained through cooperation with the Alaska Maritime National Wildlife Service, with funding from EVOS APEX Restoration Project 98163K.

Trawls:
Bottom trawls (Apex Project 98163M) as well as Alaska Department of Fish and Game shrimp and herring trawls (Paul Desjardin, R/V Pandalus) are made routinely in Kachemak Bay. The location and depth of any sand lance caught in these trawls is routinely collected, and these data will be made available to us. Sand lance caught will be frozen and provided to us for later analysis.

Historical data from NOAA plankton trawls currently being compiled by Paul Anderson (NMFS) will be made available to us (APEX Project 98163L). This data will provide valuable information on the early distribution and abundance of sand lance larvae.

Digging:
Sand lance bury themselves in sandy substrates although the timing and reasons for such behavior and not fully understood. We will dig for sand lance on "clamming" tides in Halibut Cove, Peterson Bay, and in China Poot Bay as well as at other sites discovered through interaction with local clam diggers. This method of collection is important in winter months when sand lance are not found in beach seine samples. Critical substrate parameters (grain size, substrate composition etc.) will be measured at the same time as collections are made. Further analysis of substrates will be made using hydroacoustics (see below).

Hydroacoustics:
Hydroacoustic data will collected near beaches with high sandlance abundance and analyzed for bottom type using new Biosonics analysis software. This will allow us to assess substrate preferences for sand lance. Previous work by this project has produced an extensive data-set on the physical properties of beach substrates preferred by sand lance. We expect that further work using hydroacoustics may allow us to assess potential sand lance habitat by this method alone. This method may be valuable for future surveys of new areas and for impact assessments.

Other methods:
Underwater video was used in Prince William Sound for the assessment of forage fish schools during 1996 and 1997. Depending on the availability of this equipment and water visibility we will use this method to study sand lance schooling behavior, movements, and distribution in 1999.

LABORATORY ANALYSIS:
Lengths and weights of sand lance will be noted for 100 individuals (minimum if possible) collected at each site. These results will be used to establish length-weight relationships as well as growth over time.

Age determinations will be based on otolith interpretations according to the methodology of Macer (1966) and Scott (1968, 1973). Otoliths with poorly defined annuli will be omitted from the age determinations. Otolith area and ring areas will be measured using a video imaging system (Optimas) connected to a Nikon Optiphot-2 stereo microscope using 40x magnification.

Gonad development and stage of maturity will be classified according to the following stages; 0, immature; 1, maturing (developing); 2, ripe; 3, running; 4, spent; and 5, recovering. Specimens will be assigned these categories according to gonad condition described by Macer (1966).

To investigate population variablity we have archived specimens from all our study areas. Other specimens have been received and archived from other researchers in Seattle and the Aleutians. However, a thorough investigation of the literature pertaining to meristics of Atlantic sand lance has not revealed conclusive evidence of its value. We therefore do not intend to investigate meristic variability in *A. hexapterus*. However, continued research is still taking place on genetic approaches that are cost-effective and have the potential to provide conclusive results. We feel this area of study is important to fully understanding the species. Distinct morphological differences between sand lance in Prince William Sound and Cook Inlet further highlight the value of ascertaining the range of stocks and sub-populations. Genetic comparisons between different populations have not been budgeted for, and so we are currently searching for potential collaborators who may be interested in pursuing genetic work to complement their own interests.

Seasonal and annual variation in caloric content of sand lance will be established in collaboration with Dan Roby at Oregon State University. This work will be used to assess the relative value of sand lance to marine predators over a season as well in comparison to other forage species.

C. Contracts and Other Agency Assistance

A Cooperative Agreement has been established with Memorial University of Newfoundland to provide funding for a graduate student to conduct this work under the supervision of Dr. George Rose, Senior Chair in Fisheries Conservation, Fisheries and Marine Institute, St. John's, Newfoundland.

SCHEDULE

A. Measurable Project Tasks for FY 99 (October 1, 1998 – September 30, 1999)

Oct. 31	Masters Thesis will be completed and submitted to Memorial University
Dec. 30	Manuscripts on sand lance maturity, spawning, and growth will be published.
Dec. 30	Report on sand lance energetics will be submitted for publication.
Jan. 1	Analysis of historical trawl database for larval sandlance begins

April 15 Annual Report submitted

May 1 Final field season begins

Sep 30 End of field season

B. Project Milestones and Endpoints

Establishing how seasonal fluctuations in abundance of sand lance impact their availability as a food source for marine piscivores will continue with collections (trawl, seines, etc.) until the end of field work in FY99. Results and conclusions will be written up in the final report and publications in FY00.

Analyses of demographic parameters of sand lance in lower Cook Inlet, including age composition, growth rate, patterns of growth, and sex ratios will be completed in early FY99 and included in a Masters Thesis, and published papers.

Critical feeding and spawning habitat of sand lance will be described in relation to physical parameters (e.g., temperature, substrate type, salinity, and turbidity) in the completed Masters Thesis (early FY99), and subsequent publications (FY00).

Estimates of relative sand lance abundance and distribution within the Cook Inlet in relation to burrowing substrate will be completed for the final report in FY00.

Measures of temporal variation in caloric content of sand lance have largely been completed, but we are trying to fill some gaps (2 months in late winter). Results of this work are already in manuscript form for submission, but final results will also appear in the final report.

Sand lance early life history will be investigated using a 20-year historical database provided by Paul Anderson (NMFS, Kodiak), and results of this analysis will appear in the final report in FY00.

C. Completion Date

Field work for this project will be completed in the winter of FY 99/FY 00. Compilation and analysis of all data and production of a final report, and papers for publication, will be finalized in FY00.

PUBLICATIONS AND REPORTS

The first reports will be produced in 1998 in the form of peer-reviewed manuscripts in scientific journals. Other publications will include a Masters Thesis submitted to Memorial University of Newfoundland, and papers submitted to journals.

Completed manuscripts and products include:

Robards, M., N. Tileston, and J.F. Piatt. 1998. Electronic bibliography of Sand Lance (*Ammodytes* spp.): biology, fisheries, and general ecology. Exxon Valdez Oil Spill Trustee Council Restoration Project No. 98306. Interim Report. (926 references) 262 pp.

Robards, M.D., J.F. Piatt, and G.A. Rose. 1998. Maturation, fecundity and intertidal spawning of Pacific Sand Lance (*Ammodytes hexapterus*) in the northern Gulf of Alaska. Mss. submitted to **Marine Biology**.

Robards, M.D., G.A. Rose, and J.F. Piatt. 1998. Spatial Variation in Abundance and Growth of Pacific Sand Lance (*Ammodytes hexapterus)* in the Gulf of Alaska. Mss. under review.

Litzow, M.A., J.F. Piatt, A.A. Abookire, M. Robards and A.K. Prichard. 1998. Variability in Pigeon Guillemot Diet and Nearshore Fish Communities at Kachemak Bay, Alaska. Mss. submitted to **Canadian Journal of Zoology**.

Abookire, A.A., J.F. Piatt and M. Robards. 1998. The influence of meso-scale thermohaline differences on near shore fish distributions in Kachemak Bay, Alaska. Mss. under revision for submission to **Canadian Journal of Fisheries and Aquatic Sciences.**

Robards, M., J.F. Piatt, and A. Abookire. 1998. Temporal and geographic variation in fish populations in nearshore and shelf areas of lower Cook Inlet, Alaska. Mss. submitted to **Fishery Bulletin.**

PROFESSIONAL CONFERENCES

Money has been budgeted for the graduate student to attend the EVOS Annual Restoration Workshop and the APEX Annual Peer Review Meeting. Because of possible restriction of academic requirements, these meetings will only be attended if time allows.

NORMAL AGENCY MANAGEMENT

None of the proposed research described here would normally be conducted by the USGS, or any other government agency.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Close coordination has developed between us and ADF&G, UAF, NMFS, and USFWS for collections of sand lance offshore and in other areas of Alaska. Work on sand lance will also continue to be coordinated with other APEX investigators working in Prince William Sound , including Dan Roby, Bill Ostrand, Lew Haldorson,, and David Irons.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

This study plan is modified only slightly from past proposals. In particular, we had hoped to be able to use meristic characteristics to assess geographic variability in sand lance populations. However, careful literature review and examination of specimens obtained in previous field work suggests this approach will not work here. So, we are now emphasizing the possibilities for genetic work, although we do not anticipate doing this ourselves (nor have we budgeted for it)—rather, we are seeking assistance from potential collaborators for genetic analyses of sand lance.

PRINCIPAL INVESTIGATORS

Dr. John F. Piatt (Research Biologist GS13, Alaska Biological Sciences Center, USGS, Anchorage, AK) obtained a Ph.D. in Marine Biology from Memorial University of Newfoundland in 1987. His dissertation involved seabird-forage fish interactions. Since 1987, he has studied seabirds both at colonies and at sea in the Gulf of Alaska, Aleutian Islands, and Bering and Chukchi seas. His is an author on over 60 peer-reviewed scientific publications about seabirds, fish, marine mammals, and effects of oil pollution on marine birds. Dr. Piatt is responsible for overall coordination of the sand lance research project.

Martin Robards, M.Sc. Graduate Student, Memorial University of Newfoundland. Project Manager responsible for coordinating fishing effort, analysis of fish, data analysis, and report preparation.

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1997 - September 30, 1998

Approved TC 8-13-98

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$0.0
Travel		$0.0
Contractual		$28.0
Commodities		$0.0
Equipment		$0.0
Subtotal	$29.4	$28.0
General Administration	$3.5	$2.0
Project Total	$32.9	$30.0
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2000	Estimated FY 2001	Estimated FY 2001
$20.0	$0.0	$0.0

Dollar amounts are shown in thousands of dollars.

Comments: Contract to support Cooperative Agreement with Memorial University of Newfoundland

1999

Project Number: 99306
Project Title: Ecology and demographics of Pacific Sand Lance, Ammodytes hexapterus, Pallas, in lower Cook Inlet,. Alaska
Agency: USGS (BRD)

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Prepared: 4/14/98

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1997 - September 30, 1998

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 1999
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		0.0	0.0	0.0	
					Personnel Total	$0.0

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.0

1999

Prepared:

Project Number: 99306
Project Title: Ecology and demographics of Pacific Sand Lance, Ammodytes hexapterus, Pallas, in lower Cook Inlet,. Alaska
Agency: USGS (BRD)

FORM 3B
Personnel
& Travel
DETAIL

4/14/98

1998 EXXON VALDEZ TRUST ,OUNCIL PROJECT BUDGET
October 1, 1997 - September 30, 1998

Contractual Costs:	Proposed FY 1999
Description	
Cooperative Agreements with Memorial University of Newfoundland (entire amount is transferred to facilitate support of graduate student, and to make it easier for travel arrangements to be made from Newfoundland. The breakdown for use of these funds is as follows: Student support (stipend, benefits, tuition, other fees) - 26.6 K Travel (Nfld to AK for APEX meetings) - 1.4 K	28.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$28.0

Commodities Costs:	Proposed FY 1998
Description	
Commodities Total	$0.0

1999

Prepared:

Project Number: 99306
Project Title: Ecology and demographics of Pacific Sand Lance, Ammodytes hexapterus, Pallas, in lower Cook Inlet,. Alaska
Agency: USGS (BRD)

FORM 3B
Contractual & Commodities DETAIL

4/14/98

1998 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1997 - September 30, 1998

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 1999
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

1999

Project Number: 99306
Project Title: Ecology and demographics of Pacific Sand Lance, Ammodytes hexapterus, Pallas, in lower Cook Inlet,. Alaska
Agency: USGS (BRD)

FORM 3B
Equipment
DETAIL

Prepared: 4/14/98

Approved TC 8-13-98

Ecology and Demographics of Pacific Sand Lance, *Ammodytes hexapterus* Pallas, in Lower Cook Inlet, Alaska

Project Number:	99306
Restoration Category:	Research
Proposer:	USGS Biological Resources Division
Lead Trustee Agency:	DOI
Cooperative Agencies:	N/A
Alaska SeaLife Center:	no
Duration:	3rd year, 4-year project
Cost FY 99:	$30,000
Cost FY 00:	$20,000
Geographic Area:	Kenai Peninsula, Lower Cook Inlet
Injured Resource:	Multiple (forage fish and upper trophic level predators)

ABSTRACT

The purpose of this study is to characterize the basic ecology, distribution, and demographics of sand lance (*Ammodytes hexapterus*) in lower Cook Inlet. Recent declines of upper trophic level species in the Northern Gulf of Alaska have been linked to decreasing availability of forage fishes. Sand lance is the most important forage fish in most nearshore areas of the northern Gulf. Despite its importance to commercial fish, seabirds, and marine mammals, little is known or published on the basic biology of this key prey species.

INTRODUCTION

Stable isotope ratios of carbon and nitrogen have been shown to serve as effective tracers of energy supply in the Prince William Sound study area (Kline 1997a, 1997b, 1998a, 1998b) This is due to (1) the conservative transfer of carbon isotope ratios between the lower tropic levels (phytoplankton to zooplankton to forage fishes, etc.) of Prince William Sound (PWS) and adjacent Gulf of Alaska (GOA) waters up to the top consumers and (2) the naturally occurring gradient in $^{13}C/^{12}C$ productivity generated in the Gulf compared with the Sound. Herring acquire these isotope ratios in response to the importance of the food in bulk body tissues. Isotope ratio analysis of tissues thus provide insight into both habitat usage and assist in quantifying amounts derived from various areas. Nitrogen isotope ratios, in turn, provide excellent definition of relative trophic level. The heavy isotope of nitrogen is enriched by about 0.3 % with each trophic level and thus can accurately indicate the relative trophic status of species within an ecosystem (Minagawa and Wada 1984, Fry 1988) and is useful for food web model validation (Kline and Pauly 1998, Kline 1998b).)

RESULTS FROM PRIOR WORK and ANTICIPATED RESULTS

Juvenile herring and pollock are the dominant pelagic fishes in PWS and both consume zooplankton. Samples of opportunity from 1994, and samples collected during broadscale surveys in Fall 1995 and Spring, 1996 have been analyzed (Fig. 1). Commencing in May, 1996, herring analysis focused on a four-bay time series (Fig. 2) established by Norcross et al. Accordingly, isotopic analysis of the four bays in a time series is a collaborative study.

Samples of juvenile herring and pollock collected between 1994 and 1996 shifted in $^{13}C/^{12}C$ content from which a change in carbon source dependency was inferred (Fig. 1). Although both species shifted in concert to greater GOA dependency in 1995 than 1994, pollock were consistently less dependent on GOA carbon. Juvenile pollock and herring occupy different levels in the water column, have different schooling behavior, and recruit from the larval stage at different times, effecting access to a different forage-base as confirmed by the data. This difference may not be reflected in the species composition of diet but instead the where and when of the production cycle is integrated into the isotopic signature which reflects the assimilated carbon pool in the fish. Pollock may be at an advantage since they metamorphose earlier and thus have first access to prey. The greater reliance on GOA-derived carbon in herring may reflect their dependence on carbon generated later in the season during the time when advection of GOA production was nearly the sole carbon source in 1995 as suggested by the data (Fig. 1). The concordant shift to greater GOA dependency by both species in 1995 implies system-wide bottom-up effects permeating the whole ecosystem due oceanographic processes.

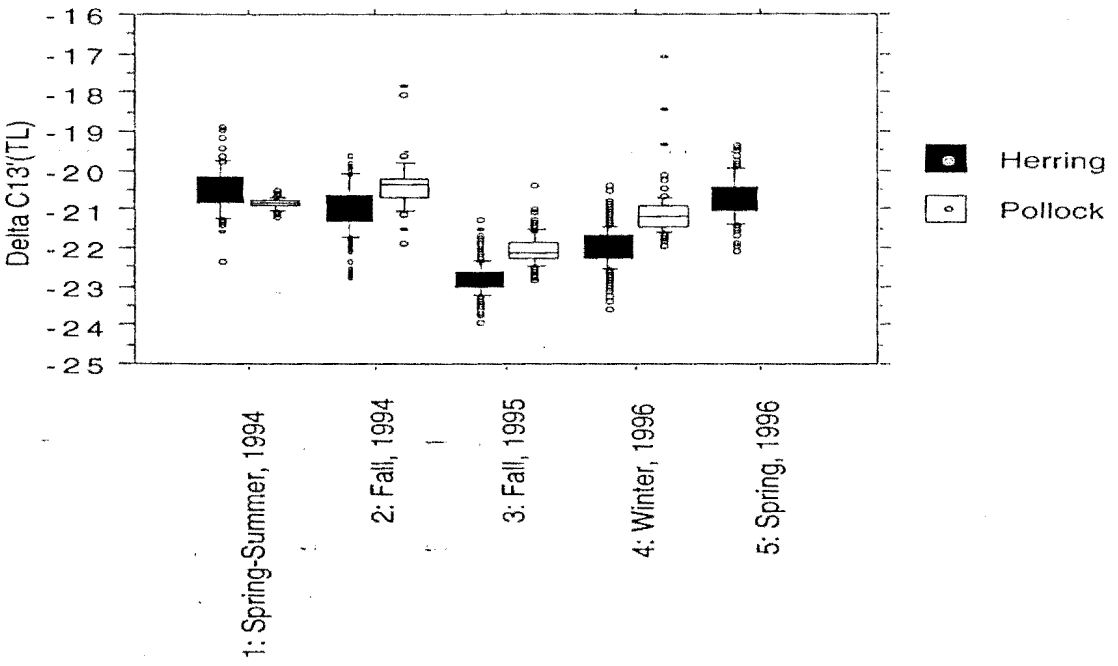


Figure 1. Shift in $\delta^{13}C$'TL and inferred change in Gulf of Alaska (GOA) vs. Prince William Sound (PWS) carbon dependency (see Kline 1998b, for explanation of delta notation and method of data interpretation) of juvenile herring (above) and pollock (below) in 1994 - 6 (from Kline 1998a). The distribution of values are shown as box and whisker plots that denote the 10th, 25th, 50th, 75th, and 90th percentiles; outliers are shown as symbols. There was a large shift to greater GOA carbon dependency in 1995 for both species as indicated by their very low $^{13}C/^{12}C$ values.

Project 311 is expanding the herring isotopic time series through to March 1998. Analysis is focused on four bays (Fig. 2) in order to provide greater temporal resolution than previously (Fig. 1). Samples that were archived at the PWSSC at the start of 311 were prepared for mass spectrometric analysis and sent to the University of Alaska Fairbanks Stable Isotope Facility (UAFSIF) in Jan 1998. These data correspond to the July to Dec 96 period. The results from these analyses are expected at about the start of FY99. A.J. Paul sent samples collected from Feb to Aug 97 to us in Jan 98. These samples are presently being sent to UAFSIF. Results from these are expected in early calendar year 1999 (Jan to Feb). A.J. Paul is presently completing analytical work on Fall 97 samples and will be sending those samples by FY99 as well as samples collected in March 98. We have also obtained extra samples from other projects from the Spring of 1995. This time corresponded to the period of biggest isotopic change observed thus far (Fig. 1). We will be analyzing ~ 150 of these fish to fill in the data gap presently existing between 1994 and 1995 (Fig. 1). From these data we will determine whether the shift occurred during the Summer of 1995, as conjectured by Kline (1998b), or earlier. Herring samples from two of the four bays were also provided to Jeff Short, Auke Bay Lab for pristane analysis.

Following our independent analyses we expect to integrate our findings into a collaborative paper.

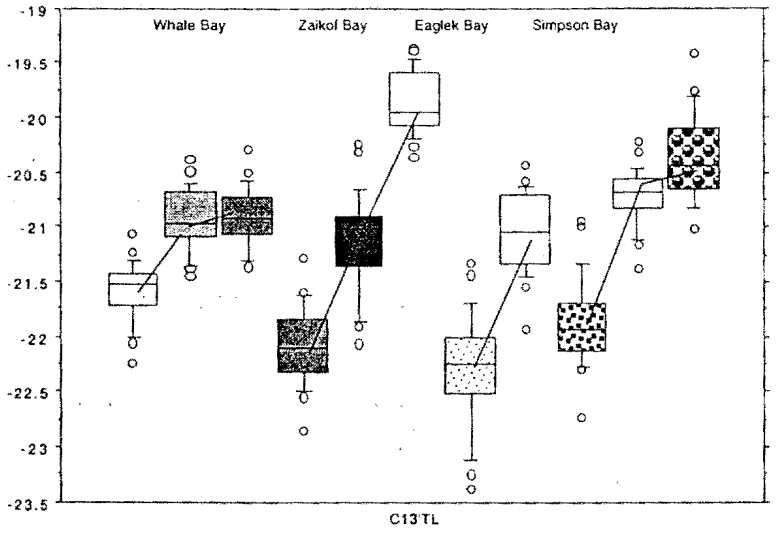


Figure 2. Preliminary results of four-bay time series showing box and whisker plots (as Fig. 1) of $^{13}C/^{12}C$ data of juvenile herring from March, May, and June 1996 (except Eaglek - May data not available). The greater shift in Zaikof probably reflects the proximity of this site to the GOA. The mean values for March (these bays plus others from the broad-scale survey) and for May-June are also shown in Fig. 1.

NEED FOR THE PROJECT

A. Statement of Problem

The Problem: Declining Production of Herring in PWS.

The availability of macrozooplankton forage for herring varies in space and time because of changes in physical processes in PWS. Results from the SEA project suggest that interannual differences can be quite large. These differences, in the SEA context, are due to postulated Lake/River processes. The data suggest that 1995 was more of a "river" year than 1994. In 1994, when Gulf of Alaska carbon was apparently not transported into PWS to the same extent, there was more spatial variability than 1995. Herring were energetically in better condition in 1994 (A.J. Paul, pers. comm.). The relative poor condition of herring when Gulf carbon dominates parallels the existing downturn in kittiwake productivity in the Gulf area (APEX project results) that may be related to a regime shift phenomenon. Accordingly, when production in the Gulf improves, herring production when principally dependent on Gulf carbon may also improve.

B. Rationale/Link to Restoration

This proposal was submitted under the New Projects: Distribution and Turnover in Juvenile Pacific Herring Populations initiative described on page ten of the Invitation to Submit Restoration Proposals for Federal Fiscal Year 1998 (*Exxon Valdez* Trustee Council 1997). A better understanding, particularly a quantitative understanding, is a prerequisite to determining protocols for restoration and recovery of these species. The shifts in carbon flow occurring as a result in variations in the physical environment represent fundamental changes in the way the PWS ecosystem supports commercially important species. Because a quantitative understanding of these phenomena is a prerequisite to determining protocols for restoration and recovery of these species, these results will have direct application to all future rehabilitation and restoration efforts. The stable isotope approach is unique in its ability to integrate time and spatial scales at mesoscale levels. No other technique currently available can generate such results. The natural tracer aspects of the approach emulates artificial tracer experiments without the burden of needing to generate signals or experimental artifacts. Tracking the effect of Gulf carbon inflow on herring production that appears to vary between years will be used to resolve the question of how oceanographic process affect herring recruitment. The results obtained thus far indicate important temporal shifts in carbon source dependency in herring and their probable principal competitor, juvenile pollock. The level of sampling will be improved to resolve finer temporal shifts than shown in Fig. 1. Fewer sites with more frequent sampling will resolve when shifts occur particularly in the late Summer to Fall period. Energetic data form A.J. Paul (pers. comm.) suggest the continuation of material uptake until at least December which may explain the large isotopic shift that occurred between November 1995 and March 1996 (Fig. 1).

C. Location

Prince William Sound

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Community involvement and traditional ecological knowledge was incorporated into the sampling regime developed by collaborator E. Brown used for acquisition of samples being analyzed in this work.

PROJECT DESIGN

Natural stable isotope abundances reflect (1) trophic level and (2) source of assimilated matter and are thus a proxy for the change in diet specified in the Lake/River and Predator/Prey Relationships hypotheses. Stable isotope ratios will thus be used as a biomonitor of herring production and shifts in predation as tests of the SEA hypotheses. Hypothesis tests using stable isotope data were presented in the SEA DPD and Kline (1998b). The proposed study will build upon our existing data base and add new data to construct and test conceptual food webs supporting herring (and other species dependent upon herring) in Prince William Sound. The goal is to determine the trophic positions and to define the natural history parameters accessible from isotope ratio data in light of the observed declines in their populations. These include changes in trophic level over the lives of herring, habitat dependencies, seasonal energetics and trophic dynamics relative to other community organisms. As part of this goal, we will integrate our analytical work with the field and laboratory studies of other investigators looking at food web structure, productivity of lower trophic levels, and provide validation data for assessment of conceptual and quantitative models.

A. Objectives

Original objectives from FY98 proposal:
1. Analysis of archived samples
2. Analysis of new as they become available following SEC determination by AJ Paul (nearly complete)
3. Data synthesis (also in FY99)
4. Disseminate results (also in FY99)

Additional objectives for this proposal:
1. Complete the analysis of herring sampled in four-bay time series (implied in original proposal).
2. Address "data gap" by analyzing samples collected in Spring 1995.

Objective details:
1. To determine the $^{15}N/^{14}N$ and $^{13}C/^{12}C$ of juvenile herring collected from the Prince William Sound, juvenile herring and pollock (when obtainable) will be matched with regional isotope abundances in zooplankton to allocate food sources and to assess trophic transfer efficiencies in specific areas of the sound.

A. Completion of analyses started in FY98: Those remaining consist of herring from the four-bay time series collected in Oct. 1997 and March 1998, for which energetic and AWL data are or will be available (AJ Paul, pers. comm.).

B. Analysis of herring from the Spring of 1995 to alleviate the large data gap described above.

Time series data obtained from these samples will be compared with our existing database which starts in 1994 and includes samples of opportunity collected in April, June, and October and as part of the Herring Group sampling in October-November 1995, March 1996 (shown in Fig. 1).

2. Synthesize the data obtained in context with conceptual food webs to validate feeding models and expand the natural history information.

3. Contribute stable isotope results to formal tests of the Lake/River-driven prey switching hypothesis developed by SEA to explain herring production trends, and the hypothesis given above through collaboration with A.J. Paul of the Herring Group.

B. Methods

Hypothesis:

Herring do better (i.e., have a higher somatic energy content and will more likely recruit to the fishery) when carbon source is ~50% from GOA and PWS (this is the case based upon data from 1994-5, discussed above).

New hypothesis regarding data gap:

A change occurred in 1994-1995 due to the influx of GOA zooplankton during the Summer of 1995, therefore the spring data will more closely resemble those from the Fall of 1994 (Fig. 1).

Isotopic methods and models are described in detail in Kline (1998b).

C. Cooperating Agencies, Contracts, and Other Agency Assistance

SCHEDULE

A. MEASURABLE PROJECT TASKS for FY 98 (October 1, 1997 - September 30, 1998)

Apr-Sept 1998:	Preparation of new samples for mass spectrometry as they become available following energetic determination by A.J. Paul
Oct-Dec 1998:	Data, receipt (from mass spect lab), integration and synthesis
Jan-Mar 1999:	Preparation for and dissemination of results at 10th Anniversary Symposium
Jan-Sept 1999:	Data synthesis and assessment, final report preparation

B. Project Milestones and Endpoints

April 1999:	Submit draft final report (in journal format)
April-Sept. 1999:	Revise final report, incorporate late data input
Sept. 1999	Final Report

C. Completion Date

September 1999

PUBLICATIONS AND REPORTS

The following manuscripts dealing with Pacific herring in Prince William Sound are planned in preparation:

Fall isotopic and somatic energy signatures of young of the year Pacific herring in Prince William Sound Alaska: Implications for trophic studies.
T. C. Kline and A. J. Paul
A revision of this MS is due in FY99

Interannual variability of the dependence of juvenile Pacific herring in Prince William Sound, Alaska on Gulf of Alaska shelf-derived secondary productivity
Kline, Planned publication in FY00 for International Herring Symposium

Relationship between feeding regime, inferred from natural stable isotope abundance, and whole body energetics of Pacific herring in PWS.
Kline & Paul
Outline conceptualized by authors FY00

PROFESSIONAL CONFERENCES

Travel is requested for the P.I. to present results at a national (or when appropriate, international) meeting such as AFS, ASLO or AGU and to attend workshops with collaborators. Travel to present project results at national meetings and to participate in collaborative workshops are essential to the project's success.

NORMAL AGENCY MANAGEMENT

N/A

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Herring Group workshops and meetings with other EVOS P.I.s will be conducted to facilitate collaboration and to direct analysis efforts. Results of analyses will be exchanged at workshops and by telecommunications. Preliminary analysis from the integrated effort will be used to direct retrospective analysis of archived samples.

Collaboration with A.J. Paul will continue and facilitate relating carbon-source dependency with somatic energy content. Herring samples consisting of a time-series from two of the four bays (same fish that were analyzed for stable isotopes) were also provided to Jeff Short, Auke Bay Lab for pristane analysis - we expect to eventually integrate our results.

PROPOSED PRINCIPAL INVESTIGATOR

Thomas C. Kline Jr., Ph.D.
Prince William Sound Science Center
P. O. Box 705
Cordova, AK 99574
907-424-5800 (t)
907-424-5820 (f)
tkline@grizzly.pwssc.gen.ak.us

Revisi 7-1-98
Approved TC 8-13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$0.0
Travel		$0.0
Contractual		$84.1
Commodities		$0.0
Equipment		$0.0
Subtotal	$0.0	$84.1
General Administration		$5.9
Project Total	$0.0	$90.0
Full-time Equivalents (FTE)		8.9
Other Resources		

LONG RANGE FUNDING REQUIREMENTS					
	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
	$0.0	$0.0			

Dollar amounts are shown in thousands of dollars.

Comments:

FY 99

Prepared:

Project Number:99311
Project Title: Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined With Natural Stable Isotope Tracers
Name: Prince William Sound Science Center
Agency: ADFG

FORM 3A
TRUSTEE
AGENCY
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999						
Personnel		$55.7						
Travel		$4.7						
Contractual		$8.2						
Commodities		$1.5						
Equipment		$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$0.0	$70.1		Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
Indirect		$14.0						
Project Total	$0.0	$84.1		$0.0	$0.0			
Full-time Equivalents (FTE)		8.9						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

FY 99

Prepared:

Project Number:99311
Project Title: Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined With Natural Stable Isotope Tracers
Name: Prince William Sound Science Center
Agency: ADFG

FORM 4A
Non-Trustee
SUMMARY

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:			Months	Monthly		Proposed
Name	Position Description		Budgeted	Costs	Overtime	FY 1999
T. Kline	P.I.		5.5	7.4		40.7
J. Williams	Biologist		3.4	4.4		15.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		8.9	11.8	0.0	
					Personnel Total	$55.7

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 1999
1 national meeting	0.8	1	7	0.1	1.5
3 workshops (EVOSTC (1), Herring group (2))	0.2	3	9	0.1	1.5
meeting registraion	0.3	1			0.3
car rentals (total all travel)	0.1	14			1.4
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$4.7

FY 99

Prepared:

Project Number:99311
Project Title: Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined With Natural Stable Isotope Tracers
Name: Prince William Sound Science Center
Agency: ADFG

FORM 4B
Personnel
& Travel
DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Stable isotope analyses (200)	5.0
Laboratory equipment use fee (200)	0.6
Photocopying	0.2
Shipping	0.2
Communications	0.5
PWSSC network charge	1.0
Publications	0.5
Poster	0.2
Contractual Total	$8.2

Commodities Costs:	Proposed
Description	FY 1999
Lab supplies and miscl	0.3
Vials, chemicals, grinder blades, scalpels	0.2
Office supplies miscl.	0.4
Computer supplies and upgrades	0.4
Dyesub material	0.2
Commodities Total	$1.5

FY 99

Prepared:

Project Number:99311
Project Title: Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined With Natural Stable Isotope Tracers
Name: Prince William Sound Science Center
Agency: ADFG

FORM 4B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 1999
Description			
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$0.0

Existing Equipment Usage:	Number of Units	
Description		

FY 99

Prepared:

Project Number:99311
Project Title: Pacific Herring Productivity Dependencies in the Prince William Sound Ecosystem Determined With Natural Stable Isotope Tracers
Name: Prince William Sound Science Center
Agency: ADFG

FORM 4B
Equipment
DETAIL

Approved TC 8-13-98

Homer Mariner Park Habitat Assessment and Restoration Design

Project Number:	99314
Restoration Category:	General Restoration
Proposer:	J. Cushing/City of Homer
Lead Trustee Agency:	ADNR
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	New
Duration:	1st yr. 1 yr. project
Cost FY 99:	$99.5
Cost FY 2000:	$0.0
Cost FY 01:	$0.0
Cost FY 02:	$0.0
Geographic Area:	Homer
Injured Resource/Service:	Intertidal organisms, recreation, and tourism

ABSTRACT

In its present state, Mariner Park is a highly stressed marine habitat in decline. The area is experiencing a dramatic reduction in marine biota and shorebird populations while incompatible and environmentally destructive human uses flourish. From the results of a comprehensive feasibility study that includes botanical, biological, and hydrological field studies coupled to community information it is possible to develop a comprehensive habitat restoration and enhancement plan. This plan will establish the optimal hands-on restoration program to increase and diversify the intertidal fauna, which, in turn, will benefit migrating shorebirds and promote recreationally compatible use of the area by residents and tourists.

INTRODUCTION

Kachemak Bay is the premier marine ecosystem in Cook Inlet. It is important for its fertile intertidal, nearshore, and subtidal waters. These estuarine areas support a richly diverse biosystem. In particular, the Bay nurtures a thriving marine bird habitat by providing important feeding, nesting, rearing, and migratory staging throughout the year. Central to this critical habitat, as an ecosystem and a destination for resident and non-resident recreational visitors, is Homer Spit.

Located at the base of the Spit and east of the Sterling Highway (Spit Road), is Mud Bay. This bountiful habitat is one of the most biologically diverse and active areas in the spectrum of northeast Pacific shallow-water estuaries, [Shimek 1979]. From a biological perspective, Mud Bay is a classical thriving northern mud flat site. It is home to a collection of worms, bivalves, crustaceans, and other intertidal life. These organisms are food for birds, crabs, and fish. Once an integral part of Mud Bay with all of the important habitat characteristics of its host ecosystem, the area west of the road, referred to in this proposal as Mariner Park redefined itself.

Mariner Park a 109 acre parcel of which 71 acres are owned by the Alaska Department of Natural Resources, 32 acres by the City of Homer, and 6 acres in private hands, faces west toward Cook Inlet. Approximately fifty years ago, prior to the construction of the Homer Spit Road and Airport, Mariner Park was contiguous with the habitat rich, Mud Bay. Today, Mud Bay, (a.k.a. Coal Bay), continues as a productive estuary, a fate not shared by its estranged neighbor, Mariner Park.

Once a mudflat, Mariner Park emerged as a sand beach ecosystem with a complex intertidal habitat. It consists of a high tide line saltwater wetlands, inshore tidal lagoon, and protective sand berm. Outer Kachemak Bay water enters the lagoon through a breach in the protective sand berm via a tidal stream. Since most of the lagoon area is relatively high, actual flooding occurs for short periods only during high tides; consequently, water exchanges are infrequent and the area is submerged only briefly. As a consequence Mariner Park has lost most of its diversity and density of infaunal organisms. It has become far less attractive for migratory shorebirds and folks who frequent the Spit to enjoy recreational opportunities. This decline in the vitality of the habitat was exasperated by protective actions taken in response to the *Exxon Balder* Oil Spill *(EVOS)* incident.

During the *Exxon Valdez* incident the tidal stream inlet to Mariner Park was raised to lessen the potential for oil to enter the habitat. The tidal stream, which supplied critical nutrients to the intertidal lagoon and marsh was, per governmental directive, dammed to protect the intertidal wetlands from oil. During the closure the wetlands dried and biota rich portions of the habitat were greatly reduced. With the inability of the intertidal community to sustain itself the area was unable to effectively support migrating shorebirds. Correlationally, the dry area attracted inappropriate use by residents and visitors. This human disturbance, which included trampling of vegetation by off-road vehicles, removing drift wood from the storm berm, and deforming the protective sand barrier, translated into a loss of nesting area for Common Eiders, harassment of shorebirds during migration, disturbance to shorebirds and sparrows nesting in the dunes area,

and the over-all degradation of the habitat. The effort encumbered in this proposal is to perform a feasibility study for a project to restore the intertidal community injured by *EVOS*. The study, in the form of a National Environmental Policy Act (NEPA)-Environmental Assessment (EA), will delineate the feasibility of a follow-on construction project to restore and enhance the intertidal wetland community in Mariner Park. With botanical, biological, and hydrological studies, coupled to community and historical information, providing the foundation of the EA, predictions are that a comprehensive restoration construction program will return the area to the rich wetland status it once was. The eventual enhancement potential is to provide, preserve, and protect intertidal feeding habitat for migrating shorebirds, which in turn will help restore recreation and tourism services injured by *EVOS*.

NEED FOR THE PROJECT

A. Statement of Problem

Historically, as the head of Mud Bay, Mariner Park was a classical northern mud flat. The contiguous area supported a diverse biomass with dominant organisms to include polychaete worms and small bivalves. The small organisms were food for larger, transient organisms: shorebirds, crabs, and fish. The density of infaunal organisms at this site was high; consequently, even a small portion of habitat was a productive location supporting a relatively large number of important organisms.

While Mud Bay continues to prosper in intertidal and avian diversity, Mariner Park has not Paired as well. With excavation of the area for fill used to construct the airport and the road segregating the area from its naturally connected ecosystem, Mariner Park's habitat has morphased into an intertidal area with complex sedimentary and biological relationships.

Mariner Park's sedimentary characteristics now resemble a sand beach versus mud flat ecosystem. Sediment carried via long-shore transport was deposited in the intermittently flooded lagoon area. Generally, the soil profile is sand, to a depth as shallow as four feet, over silty clay. Higher elevations have coarser sediment than lower areas. The subtidal cobble area is partially covered by moving patches of sand. The tidal stream habitat is composed of sandy gravel with cobbles and the saltwater marsh area, being farthest from the current flow, contains finer sediments. [USF&W, 1991 and Land Design North, 1980]

The site consists of a high tide line saltwater wetlands and lower inshore area which behaves as a tidal lagoon. The lagoon is separated from the outer Kachemak Bay by a storm berm. Historically, a tidal stream breaches the storm berm. Since most of the lagoon area is relatively high, it fills only at high tides, during which actual flooding occurs for short periods. Frequently, water becomes trapped in the lagoon area for long periods because the tidal stream channel is not sufficiently deep and the inshore lagoon too high to permit frequent exchange of water. The only remaining vegetation is located at the base of the bluff, which is primarily private property.

The areas above mean high tide line on both sides of the Spit Road are covered with grasses. These areas are interlaced with tidal channels and occasional tidal basins which are classified as

saltwater wetlands, [Kenai Peninsula Borough Coastal Management Program, 1990]. Vegetation of the small saltwater marshes at the base of the Spit are mainly Lyngbye sedge and arrow grass, with alkali grass at the lower tidal levels. These marshes are prime feeding habitats for the less common shorebirds as well as secondary feeding and loafing areas for the principal shorebird migrants. [ADF&G, 1992 and West, 1990]

Not only has natural sediment transport processes affected Mariner Park but consequences due to human use have depleted the habitat. As Homer grew the Spit became a very desirable recreation and tourist area. To address the demands for Spit development, in the late 1970's through the early 1990's, various proposals to address the ever growing need for campground and recreational areas on the Spit were written. It was the belief of various proposers, as a consequence of their site investigations, that the area at the base of the Spit and west of the road be partially filled and made into a park. The proposals suggested allowances be made to protect the saltwater lagoon and tidal stream. [Land Design North 1980, Dames & Moore 1981, and City of Homer 1984, 1990] ~

Responding to various ideas expressed in the proposals, in 1985, a phased development of a portion of the site was begun. Specifically, to support open space/recreational use, approximately. 20,000 cubic yards of fill material was placed in a 2.6 acre area south of the tidal stream by 1989. The area, Phase I of a three phase park concept, was partially filled, graded, and safety/sanitation upgrades made. It was during this period that Mariner Park got its name.

Concurrent with the Park's development, a chorus of concerned Homer residents voiced their opposition while extolling the virtues of habitat protection. In 1985 a petition against filling the area gathered 400 signatures. After the *Exxon Valdez* incident which caused the closure of the tidal lagoon, in 1990 the residents of property adjoining Mariner Park signed a joint letter to the US Army Corps of Engineers (COE) expressing their continued opposition to the development of Mariner Park and encouraging its prompt return to a natural habitat.

In response to the degraded habitat in Mariner Park, the City of Homer's Spit Campground Task Force, in 1990, revised the partially implemented 1984 park development plan. The Task Force proposed a scaled-down development plan that incorporated a lagoon flushing and enhancement program for the area. Further development of the area, to include the filling of an additional 2.0 acres adjacent to Phase I was withdrawn by the City of Homer. Subsequently, as a consequence of the *EVOS* incident, community sentiment, and concerns voiced by recreational users of the area to preserve and enhance the habitat, the COE denied a permit application to continue development of Mariner Park.

With the partial reopening of the breach in 1992, the tidal stream resumed transport, at lower levels, of nutrients into the intertidal lagoon. The refreshed lagoon and raised gravel plain attracted a small number of waterfowl and cranes. The breach was again closed in 1994 during a severe storm and was partially re-opened in 1996. As a consequence of the tidal stream closures, Mariner Park has experienced a noticeable increase in the rate of habitat degradation.

B. Rationale/Link to Restoration

As a protective measure against oil entering Mariner Park's wetlands during the *Exxon Valdez* incident, the tidal stream inlet was closed. The result of the closure was that critical nutrients were prevented from entering the intertidal lagoon. By cutting-off the stream from the outer bay and tides, the saltwater lagoon and marshes dried, thus, biologically rich portions of Manner Park were not able to sustain themselves.

With the inability of Mariner Park to sustain a vibrant intertidal community, the feeding habitat for shorebirds was injured. This transformed a once thriving habitat viewing area into an unattractive and unavailable tourist and recreation destination.

In addition to directly restoring the injury caused by the response to *EVOS* (i.e., closing the tidal stream inlet), this proposal is also justified as replacement for, and enhancement of, injured intertidal resources. Intertidal wetlands on the Homer Spit must be protected, as much as reasonably possible, if we are to maintain a healthy and productive ecosystem for populations of shorebirds and provide residents and tourists unique wildlife experiences.

C. Location

The environmental assessment project will be undertaken in Homer, Alaska. The flora, fauna, and hydrological studies will be conducted at the base of Homer Spit to include both sides of the Spit Road, (Mariner Park and the nearshore portions of Mud Bay).

The project will directly benefit the Homer area. Additionally, given the international interest in the ecosystem of Kachemak Bay, the environmental assessment will provide invaluable information to the scientific community on the integration of wetland restoration in high use areas. An eventual product of a restoration project is increased tourism to observe the unique habitat and shorebird migration. This will benefit the Cook Inlet region, specifically, and the State, generally.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

This project is a collaborative venture. Its success is predicated on a collegial relation where the interests of individuals, community groups, and governmental bodies are woven with scientific findings and Trustee Council concerns into tapestry for an optimal restoration outcome which is in the best interest of Homer and the environment. Frequent, open, and candid dialogue is the effective mechanism to achieve this goal.

While scientific information will shape the technical elements of the habitat restoration design, the program will only be effective if placed in a community context. It is incumbent and expected that the project will solicit community involvement and draw upon local resources for input to the planning, scheduling, assessment, and design efforts. A major objective of the project coordinator's scope of work is to communicate with residents, in non-technical terms, on all aspects of the project. It is the project's responsibility to establish and implement procedures

for collecting technical, local, and traditional ecological knowledge as well as investigating the issues and concerns raised by the public.

Homer is a community blessed with residents who possess a broad spectrum of knowledge and represent a myriad of talents. It is assumed the project will call on this talent to provide project support. For example, Homer is home to renowned biologists who have studied the intricacies of the big-diverse Kachemak Bay and the effects of change on ecosystems and habitats. These respected "birders" have intimate knowledge of the area, which translates into project effectiveness and cost savings. They are expected to be an integral component of the planning, assessment, and design team. As to the nuts 'n bolts issues of the project, depending on availability, the assessment team will use local labor and resources, such as equipment and vessels, to assist in collecting data.

PROJECT DESIGN

A. Objectives

The eventual restoration goal, for which this proposal is a critical element, is to restore the intertidal community. The principal objective of this project proposal is to develop a National Environmental Policy Act - Environmental Assessment that will provide a feasible project to restore the intertidal community of Mariner Park. In turn, the restoration project is to restore and rehabilitate the area in such a way as to increase, preserve, and protect a diverse feeding habitat for migrating shorebirds. Correspondingly, due to the fact that Mariner Park is on the flight approach to the airport, the plan will address the issue of how to discourage geese and cranes from frequenting the area, (i.e. inhibit the growth of submergent and emergent vegetation). Additionally, the plan establishes mechanisms to enhance the recreational use of the area in an environmentally compatible manner.

The restoration construction project, the topic of a follow-on proposal to the Trustee Council, is meant to enhance the spectacle of the spring shorebird migration. This translates into increased resident and tourist interest in the area especially during the annual Kachemak Bay Shorebird Festival. With the implementation of an optimal restoration design, Mariner Park will be a showcase of wetland rehabilitation in a high use area.

Concurrently with thisproject the City is proceeding with improvements to Mariner Park, including a windbreak and interpretive signage describing the Critical Habitat Area and shorebirds that flock to the Homer Spit.

To meet the proposal objectives, scientific and testimonial information is gathered to develop comprehensive restoration alternatives. These alternatives are compared and a preferred restoration alternative is tendered.

The objectives of the project are addressed by, but are not limited to, the tasks listed below.

1. Conduct a review of past documentation to establish an historical perspective for the comparison of past to present community related information and technical data.

2. Collect traditional and local information on prior and expected use of the area in relation to economic, social, and environmental issues. Solicit comments on issues and concerns relative to the impact on resources and services from a restoration project.

3. Measure the diversity, frequency, and abundance of flora and fauna in Mariner Park.

4. Determine the geophysical characteristics of Mariner Park and the head of Mud Bay.

5. Develop restoration design alternatives and conduct a comparative study to identify the preferred restoration project design.

6. Write a National Environmental Policy Act - Environmental Assessment.

B. Methods

The feasibility project being proposed involves collecting biological, botanical, hydrological, and community data that is used to produce an EA. Coordination and management of the project are the responsibilities of a representative for the City of Homer. Field, analytical, and formal EA efforts are to be developed and performed by consultant(s) hired by the City. The consultant(s) will formulate the details and methods for field studies. Generally, the elements of the project are as follows:

1. Research past biological, botanical, and hydrological studies of the area in order to develop a catalogue of historical data and information. !

2. Conduct field studies to catalogue the flora and fauna presently in Mariner Park. The data will establish a baseline for comparing historical data in an effort to delineate changes in the project area.

3. Conduct a hydrological study of Mariner Park and Mud Bay. Perform hydraulic, soil classification (test hole), and sediment transport studies.

The information acquired from the technical and community studies will provide the basis for determining the optimal restoration program. Production of the EA will follow NEPA guidelines.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

The City of Homer is the sponsoring, coordinating, and responsible agency for this project. The lead Trustee agency is the Alaska Department of Natural Resources (ADNR). Aside from providing technical expertise on environmental restoration issues, as property owner of a significant portion of the project area, the ADNR has land use interests in the Mariner Park.

Additionally, during discussions with ADNR and ADF&G it was suggested that the project may best be served if the agencies act in the role of co-lead Trustees. This is a viable option that would facilitate the efficient prosecution of the project.

A restoration project in Mariner Park directly impacts and interfaces with several state and federal agencies. Of the many agencies touched by the project, the primary Trustee cooperating agencies are the Alaska Department of Fish and Game (ADF&G) and the US Department of Interior, Fish and Wildlife Service (USF&WS). Both agencies have technical knowledge and vested interest in projects that purport to restore and protect habitat. By providing key insight on biological relationships, the agencies can provide valuable support during the analysis of field data, the developing of restoration alternatives, and the selection of the preferred alternative.

With respect to the USF&WS role, it is expected they will provide expertise and review functions during the environmental assessment phase of the project. The EA is the primary planning and permitting document for the project. As such, it is a primary tool for communicating the merits and options for follow-on restoration activities at the site and its consequence on neighboring facilities and habitats.

The Alaska Department of Transportation and Public Facilities (ADOT&PF), US Army Corps of Engineers (COE), and Federal Aviation Administration (FAA) possess significant technical knowledge of the area. Additionally, these agencies have vested interest in a Mariner Park restoration construction project because the area is in proximity to their spheres of influence and responsibility: the Homer Spit Road is an ADOT&PF facility, the airport is the privy of FAA, and the COE is a permitting agency representing coastal water concerns. Other agencies with peripheral interest are the Alaska Department of Environmental Conservation (ADEC - State Water Quality Certification) and the Alaska Office of Management and Budget: Division of Governmental Coordination (Certification of Consistency with the Alaska Coastal Management Program). In all cases, the EA will provide a basis for understanding the relationship of the project to the environment and be a mechanism to critique the potential of the project in meeting the established restoration goals.

When appropriate, the project will attempt to contract with local talent and resources for specific project services. In some cases experts from outside the Homer area may best meet the objectives of the project. Expectations are to contract with private consultants for biological, botanical, and hydrological studies.

SCHEDULE

A. Measurable Project Tasks for FY 99

October 1 - November 15:	Collect and review historic information and data. Develop contract proposals for consultant(s) effort, advertise for cost proposals, and evaluate proposals. Conduct community involvement, (education and information gathering), component of project.

December 10:	Award contracts.
December 11 - January 1:	Assist contractors in logistics for field efforts.
January 1 - March 27:	Assist with winter field surveys. Analyze historic information and data. Prepare portions of EA.
January 15 - January 24:	Attend Annual Restoration Workshop, (3-day workshop).
February 1 - March 15:	Conduct community involvement component of project.
March 16 - April 14:	Prepare annual report of activities to date.
April 15:	Submit annual report.
April 15 - September 30:	Consultant(s) conduct spring, summer, and fall field efforts and analyze data. Conduct formal community involvement component of project. Produce EA.

B. **Project Milestones and Endpoints**

December 1: Collect and analyze historic data.
January 15: Initiate EA process.
September 1: Complete EA field studies and analysis of data..
September 30: Submit EA and Report of Project to Trustee Council.

C. Completion Date

Substantial completion of the project is September 30, 1999. The principal objective to be completed by this date is the production of a NEPA-EA. Elements encumbered by this objective are historic and community perspectives, field studies, restoration design alternatives, no action alternative, comparative study of alternatives, preferred alternative, and final draft of the environmental assessment document.

PUBLICATIONS AND REPORTS

The project does not, at this writing, plan to submit manuscript(s) for peer-reviewed publication(s) in FY 99.

The project will submit to the Council an annual progress report on April 15, 1999 and a final project report on September 30, 1999.

PROFESSIONAL CONFERENCES

The project does not plan to present at professional conferences in FY 98.

NORMAL AGENCY MANAGEMENT

N/A

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

The location and nature of this project requires close local, state, and federal agency coordination. During the formulation of this proposal substantive discussions have taken place with community organizations, local authorities, and state/federal agencies: ADNR, ADF&G, ADOT&PF, COE, USF&W, and FAA. As the project unfolds it is expected that the coordination effort will expand.

Interested parties from the public, private, and government sectors are encouraged to engage the project during planning, design, implementation, and review processes. Similarly, the project will share data from the field efforts and welcomes feedback on its analyses, conclusions, and recommendations.

At present, the project addressed by this proposal has not solicited matching funding. This does not preclude such; rather, it is expected the project will take advantage of complimentary work undertaken by other entities, (i.e. shorebird counts and COE projects scheduled for the Spit).

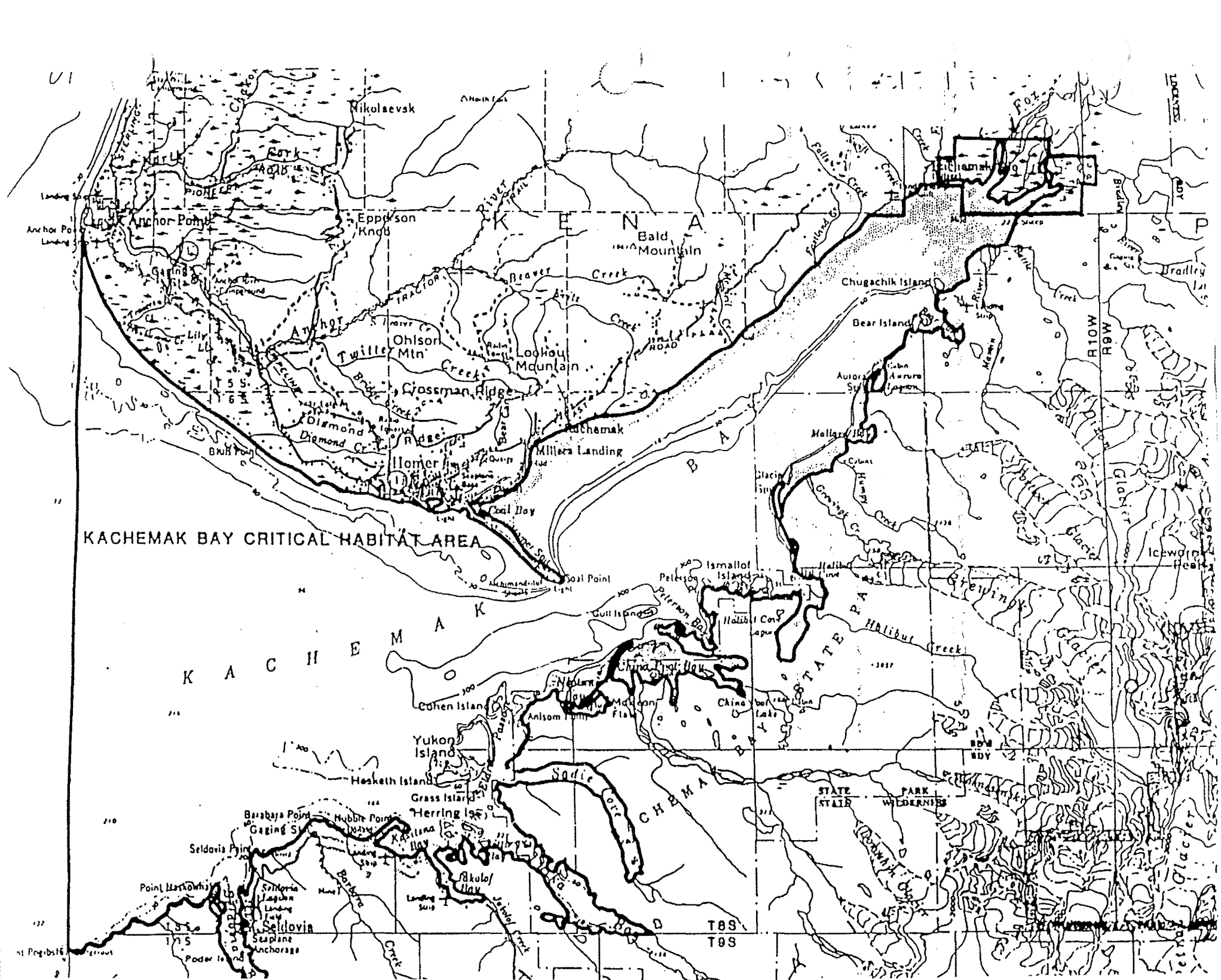
It is planned that the follow-on restoration construction project will vigorously seek matching funding from non-Trustee Council sources. Potential sources for matching funds are the COE "Project Modifications for Environmental Improvement, Section 1135" and ADNR restoration grants.

EXPLANATION OF CHANGES IN CONTINUING PROJECT

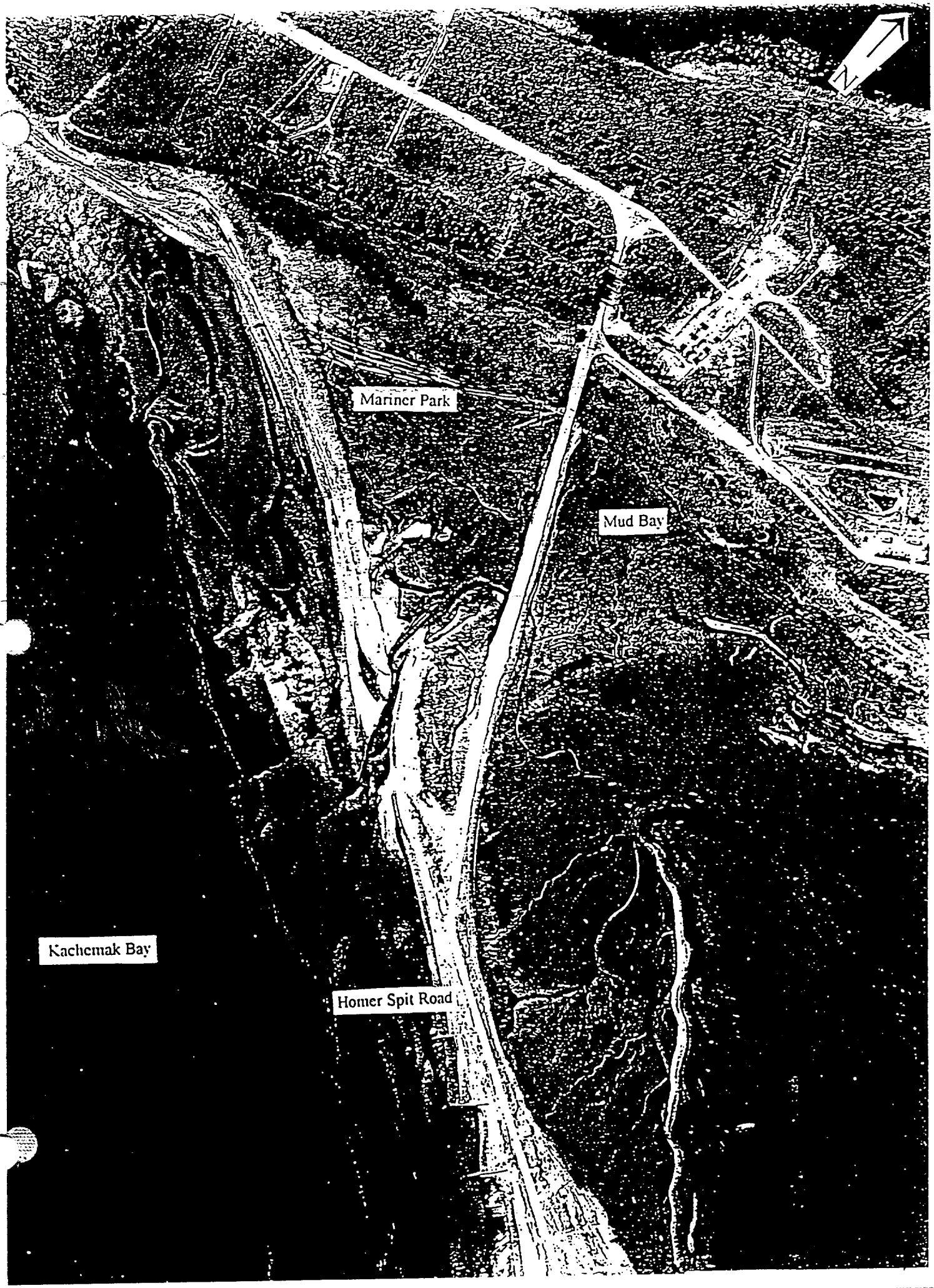
N/A

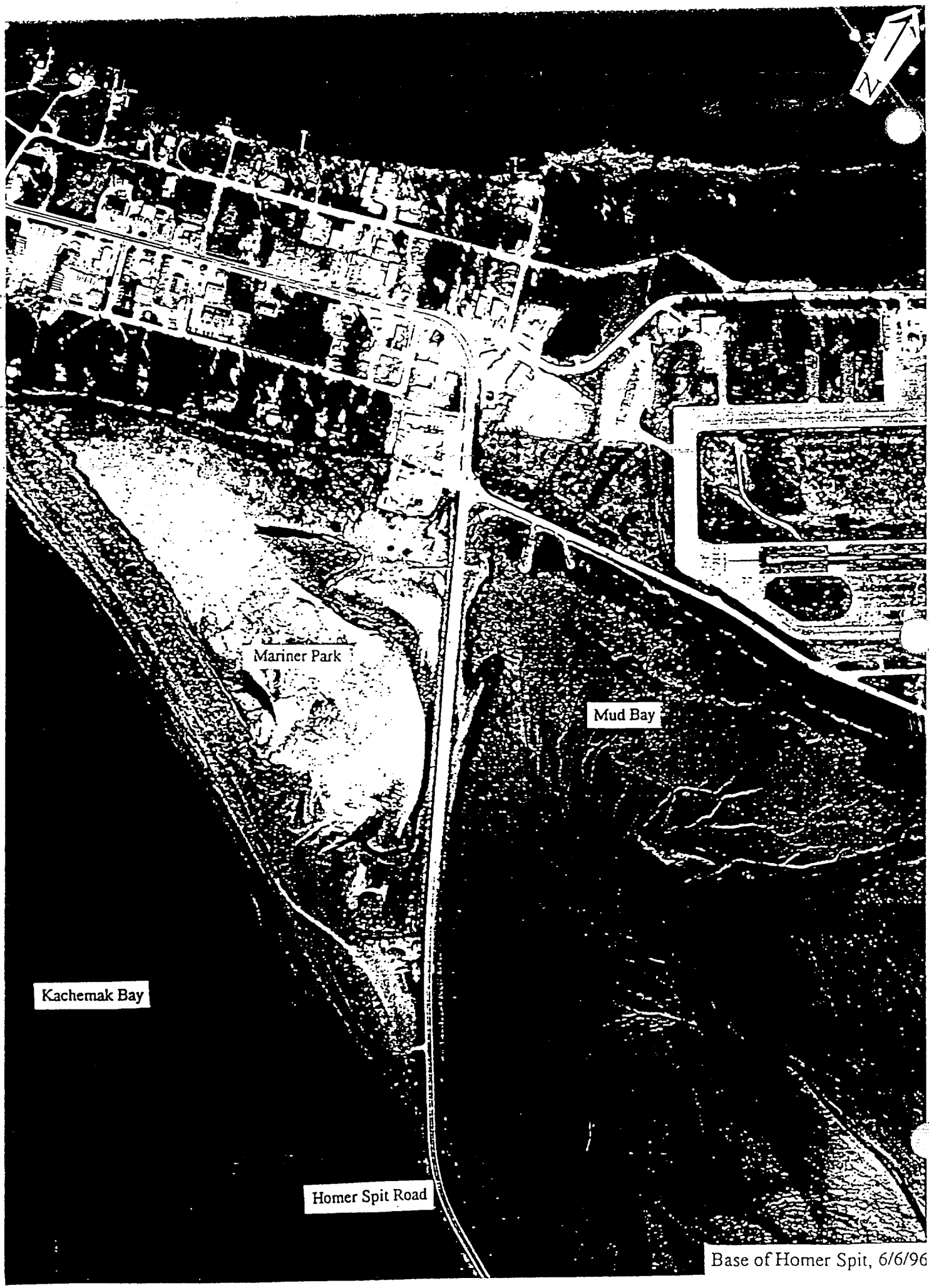
PROPOSED PRINCIPAL INVESTIGATOR

The City of Homer plans to employ a Project Coordinator to manage the EA process. At present, the City does not know who will fill the Coordinator position.


KACHEMAK BAY CRITICAL HABITAT AREA
K E N A I P
K A C H E M A K B A Y
Nikolaevsk
Anchor Point
Eppkison Knob
Bald Mountain
Beaver Creek
Ohlson Mtn
Twitter Creek
Lookout Mountain
Crossman Ridge
Diamond Ridge
Homer
Bluff Point
Coal Bay
Coal Point
Kachemak
Millers Landing
Chugachik Island
Bear Island
Mallard Isl
Ismailof Island
Gull Island
Halibut Cove
Halibut Creek
China Poot Bay
Cohen Island
Yukon Island
Hesketh Island
Grass Island
Herring Isl
Sadie Cove
Barabara Point
Gaging Sta
Seldovia Point
Point Harkowhi
Seldovia
Seaplane Anchorage
Akulof Bay
Jakolof Bay
Jakolof Creek
Barabara Creek
Kamishak Bay
Glacier
Grewingk Glacier
Icework Peak
STATE PARK WILDERNESS
T8S
T9S
R10W
R9W

Base of the Homer Spit, 1944


N
Mariner Park
Mud Bay
Kachemak Bay
Homer Spit Road



Base of Homer Spit, 6/6/96

Approved TC -13-98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999						
Personnel		$0.0						
Travel		$0.0						
Contractual		$93.0						
Commodities		$0.0						
Equipment		$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal		$93.0		Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		
General Administration		$6.5						
Project Total		$99.5						
Full-time Equivalents (FTE)		0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

FY 99

Project Number: 99314
Project Title: Homer Mariner Park
Agency: ADNR

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revised 4,23/98

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Budget Category:	Authorized FY 1998	Proposed FY 1999
Personnel		$14.4
Travel		$2.7
Contractual		$60.0
Commodities		$0.0
Equipment		
Subtotal	$0.0	$77.1
Indirect		$15.9
Project Total	$0.0	$93.0
Full-time Equivalents (FTE)		1.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

	Estimated FY 2000	Estimated FY 2001	Estimated FY 2002		

Dollar amounts are shown in thousands of dollars.

Comments:

The Indirect Cost multiplier for the project is 20%. The Indirects include, but are not limited to: utilitites, phones, copying, office supplies, administrative and finance functions, and mail service.

FY 99

Project Number: 99314
Project Title: Homer Mariner Park Habitat Assessment & Restoration Design Project
Name: City of Homer, Alaska

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Personnel Costs:			Months	Monthly		Proposed
Name	Position Description		Budgeted	Costs	Overtime	FY 1999
Vacant	Project Coordinator		12.0	1200.0		14,400.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		12.0	1200.0	0.0	
					Personnel Total	$14,400.0

Travel Costs:		Ticket	Round	Total	Daily	Proposed
Description		Price	Trips	Days	Per Diem	FY 1999
Project Coordinator: meetings and research in Anchorage		130.0	3	8	100.0	1,190.0
Official(s) of the City of Homer: meetings in Anchorage		130.0	4	10	100.0	1,520.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
					Travel Total	$2,710.0

FY 99

Project Number: 99314
Project Name: Homer Mariner Park Habitat Assessment & Restoration Design Project
Name: City of Homer, Alaska

FORM 4B
Personnel & Travel DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1998 - September 30, 1999

Contractual Costs:	Proposed
Description	FY 1999
Consultant(s) Firm to design and produce EA. Work includes biologic, botanical, and hydrologicl field studies	56,000.0
Survey	2,000.0
Printing and Photographs	2,000.0
Contractual Total	$60,000.0

Commodities Costs:	Proposed
Description	FY 1999
Cost associated with office materials, postage, utilties, etc. are addressed in the indirect rate.	
Commodities Total	$0.0

FY 99

Project Number: 99314
Project Title: Homer Mariner Park Habitat Assessment & Restoration Design Project
Name: City of Homer, Alaska

FORM 4B
Contractual & Commodities DETAIL

FY 99 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 1998 - September 30, 1999

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 1999
Description			
Computer (IBM:price per COMP USA)			0.0
Fax/copier/printer (HP: price per COMP USA)			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
Those purchases associated with replacement equipment should be indicated by placement of an R.	**New Equipment Total**		$0.0

Existing Equipment Usage:	Number of Units	
Description		

FY 99

Project Number: 99314
Project Title: Homer Mariner Park Habitat Assessment & Restoration Design Project
Name: City of Homer, Alaska

FORM 4B
Equipment
DETAIL