19.11.04

FY 2002 Workplan:

Approved Detailed Project Descriptions and Budgets

Exxon Valdez Oil Spill Trustee Council

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

MEMORANDUM

TO: Restoration Work Force

FROM: Sandra Schubert
Program Coordinator

RE: Binders of FY 02 DPDs and Budgets

DATE: September 25, 2001

The attached binders contain DPDs and detailed budgets for the FY 02 projects approved by the Trustee Council on August 6, 2001. Deferred projects will be taken up by the Council at a December meeting (tentatively scheduled for December 11). DPDs and budgets for any projects approved at that time will be provided as addenda to these binders.

Each binder contains an index of projects approved in August, as well as a list of projects that have been deferred.

FY 02 WORK PLAN -- PROJECTS APPROVED BY TRUSTEE COUNCIL 8/6/01

Proj.No.	Project Title
02012-BAA	Photographic and Acoustic Monitoring of Killer Whales in Prince William Sound and Kenai Fjords
02052	Community Involvement/Planning for GEM
02100	Public Information, Science Management, and Administration
02126	Habitat Protection and Acquisition Support
02144	Common Murre Population Monitoring
02154	Support Costs: Archaeological Repository/Display Facilities/Exhibits
02163M	APEX: Numerical and Functional Response of Seabirds to Fluctuations in Forage Fish Density
02190	Construction of a Linkage Map for the Pink Salmon Genome
02195	Pristane Monitoring in Mussels
02210	Prince William Sound/Lower Cook Inlet Youth Area Watch
02245	Community-Based Harbor Seal Management and Biological Sampling
02247	Kametolook River Coho Salmon Subsistence Project
02250	Project Management
02256B-CLO	Sockeye Salmon Stocking at Solf Lake
02290	Hydrocarbon Database and Interpretation Service
02340	Toward Long-Term Oceanographic Monitoring of the Gulf of Alaska Ecosystem
02360-BAA	The *Exxon Valdez* Oil Spill: Guidance for Future Research Activities
02395	Workshop on Nearshore/Intertidal Monitoring
02396	Alaska Salmon Shark Assessment
02401	Assessment of Spot Shrimp Abundance in Prince William Sound
02404	Testing Archival Tag Technology in Coho Salmon
02407	Harlequin Duck Population Dynamics
02423	Patterns and Processes of Population Change in Selected Nearshore Vertebrate Predators
02441	Harbor Seal Recovery: Effects of Diet on Lipid Metabolism and Health
02455	GEM Data System
02462-CLO	Effects of Disease on Pacific Herring Population Recovery in Prince William Sound
02476	Effects of Oiled Incubation Substrate on Pink Salmon Reproduction
02479	Effects of Food Stress on Survival and Reproductive Performance of Seabirds
02492	Were Pink Salmon Embryo Studies in Prince William Sound Biased?
02535	EVOS Trustee Council Restoration Program Final Report
02538	Evaluation of Two Methods to Discriminate Pacific Herring Stocks along the Northern Gulf of Alaska
02543	Evaluation of Oil Remaining in the Intertidal from the *Exxon Valdez* Oil Spill
02550	Alaska Resources Library and Information Services (ARLIS)
02558	Harbor Seal Recovery: Application of New Technologies for Monitoring Health

FY 02 WORK PLAN -- PROJECTS APPROVED BY TRUSTEE COUNCIL 8/6/01

Proj.No.	Project Title
02561	Evaluating the Feasibility of Developing a Community- Based Forage Fish Sampling Project for GEM
02593	River Otters and Fishes in the Nearshore Environment: A Synthesis
02608	Permanent Archiving of Specimens Collected in Nearshore Habitats
02610	Kodiak Archipelago Youth Area Watch
02612	Detecting and Understanding Marine-Terrestrial Linkages in the Kenai River Watershed
02614	Monitoring Program for Near-Surface Temperature, Salinity, and Fluorescence in the Northern Pacific Ocean
02630	Planning for Long-Term Monitoring and Research Program
02649	Reconstructing Sockeye Populations in the Gulf of Alaska over the Last Several Thousand Years
02656	Retrospective Analysis of Nearshore Marine Communities Based on Analysis of Archaeological Material and Isotopes
02667	Effectiveness of Citizens' Environmental Monitoring Program
02671	Coordinating Volunteer Vessels of Opportunity to Collect Oceanographic Data in Kachemak Bay and Lower Cook Inle
02674-BAA	Assessing Pigeon Guillemot Restoration Techniques

FY 02 WORK PLAN -- DEFERRED PROJECTS

Proj.No.	Project Title
02052	Community Involvement/Planning for GEM
02159	Surveys to Monitor Marine Bird Abundance in Prince William Sound During Winter and Summer 2002
02190	Construction of a Linkage Map for the Pink Salmon Genome
02320	Sound Ecosystem Assessment (SEA): Printing the Final Report
02538	Evaluation of Two Methods to Discriminate Pacific Herring Stocks along the Northern Gulf of Alaska
02543	Evaluation of Oil Remaining in the Intertidal from the *Exxon Valdez* Oil Spill
02552-BAA	Exchange Between Prince William Sound and the Gulf of Alaska
02556	Mapping Marine Habitats: The First Step in a Spatially Nested Monitoring Program
02574-BAA	Assessment of Bivalve Recovery on Treated Mixed-Soft Beaches in Prince William Sound
02578	The Marine Macrofauna of Prince William Sound: An Annotated List
02584	Evaluation of Airborne Remote Sensing Tools for GEM Monitoring
02600	Synthesis of the Ecological Findings from the EVOS Damage Assessment and Restoration Programs, 1989-2001
02603	Implementation of an Ocean Circulation Model: A Transition from SEA to GEM
02621	Kenai River Flats Conservation Easement and Public Education
02622	Digital Maps from Existing Seasonal Environmental Sensitive Area Maps: Cook Inlet/ Kenai Peninsula
02624-BAA	A CPR-Based Plankton Survey Using Ships of Opportunity to Monitor the Gulf of Alaska
02630	Planning for Long-Term Monitoring and Research Program
02634	Expanding the Seabird Tissue Archival and Monitoring Project (STAMP) Program for GEM
02636-BAA	Ecosystem Recovery Through a Partnership with the Spill-Impacted Communities
02659-BAA	Preparation and Publication of Results from SEA and NVP Avian Predation Studies
02668	Developing an Interactive Water Quality and Habitat Database and Making it Accessible on the Web
02680	Remote Delivery of Persistent Organic Contaminants in Alaska Fishes
02681	Placeholder: Nearshore/Intertidal Monitoring

Revision
Approved 12 8-6-01

Photographic and Acoustic Monitoring of Killer Whales in Prince William Sound and Kenai Fjords

Project Number:	02012-BAA
Restoration Category:	Monitoring
Proposer:	C. Matkin/North Gulf Oceanic Society
Lead Trustee Agency:	NOAA
Cooperating Agencies:	None
Alaska SeaLife Center:	No
New or Continued:	Cont'd
Duration:	10th yr. 10 yr. project
Cost FY 02:	$35.2
Cost FY 03:	$0.0
Geographic Area:	Prince William Sound, Kenai Fjords
Injured Resource/Service:	Killer whale

ABSTRACT

This project will close out the monitoring of the damaged AB resident pod and the potentially endangered AT1 transient population as well other Prince William Sound/Kenai Fjords killer whales. Monitoring has occurred on a yearly basis since 1984. Analysis of FY 01 data will be completed, as well as additional modeling of the resident killer whale population and AB pod and publication of those results. Remote hydrophone data will be collected through December 2001 and data from all years will be summarized and assesed. Distribution of killer whales in Kenai Fjords over the course of the project will be examined using GIS techniques. A final examination of resident killer whale prey will be made using samples collected from 1997-2001. A final report will be submitted.

INTRODUCTION

This project is a closeout of the reduced annual killer whale monitoring program. Killer whales were monitored under EVOS Trustee Council funding in 1989, 1990, and 1991 (damage assessment) and in 1993 and 1995 (restoration monitoring). A reduced annual monitoring program was initiated in 1996. Analysis in this project will build on results of the comprehensive killer whale investigation initiated in FY95 and continued in FY96, FY97, and FY98. In FY99 and FY00 the monitoring program was augmented with matching funding to continue aspects of genetic and contaminant analysis and we expect this to be the case in 2002.

On March 31, 1989 AB pod was observed in oil sheens and six of the 36 pod members were missing. A total of 14 whales were lost from resident AB pod in the two years following the *Exxon Valdez* oil spill and there was no recruitment into the pod during those years. Since that time the social structure within AB pod has shown signs of deterioration. Maternal groups have traveled independently or with other pods, and pod members have not consistently traveled with closest relatives. Although 4 calves were recruited during the period 1992-1994, there were 5 additional mortalities in 1994. There has been a net increase of three individuals since 1995. In 2000 there was one recruited calf and no new mortalities, the pod currently contains 25 individuals. The rate of mortality observed in this pod after the oil spill far exceeds that recorded for other resident pods observed in Prince William Sound over the past 13 years or for 19 pods in British Columbia over the past 20 years. A reduced mortality rate is essential for the recovery of this pod.

Nine whales from the transient AT1 group have not been observed since 1989. Two additional AT1 whales have not been sighted for seven years. Another member of this group stranded and died on a beach near Cordova, Alaska in July 2000. From genetic and photographic data from beached whales, three of these twelve missing AT1 group whales are known to be dead. Although transient killer whale social structure is not fully understood, we are confident that the other missing AT1 whales also are dead. Statistical analysis backs up this supposition and strongly suggests that they have either died or permanently emigrated from the area. Since there is no record of these whales in adjacent regions and they appear to have a limited range, it is most likely that the missing AT1 whales are dead.

Seventeen years of systematic data collected under public and private funding have been placed in a specially designed GIS database currently housed at the U.S. Fish and Wildlife Service, Marine Mammals Management Division, Anchorage, Alaska and at Alaska Pacific University, Anchorage, Alaska under the management of collaborator, Dr. David Scheel The database contains 763 records of encounters with killer whales in and near Prince William Sound and Kenai Fjords, Alaska. Among these

are 557 encounters with resident whales and 206 encounters with transient-type whales. Analyses have determined large-scale differences in spatial distribution patterns between resident and transient whales over time (Sheel et al. 2001). Changes in transient whale distributions have been examined in relation to changes harbor seal populations.

There is worldwide concern that specific PCB and dioxin congeners may have negative effects on reproduction in mammals. The recovery of killer whales in Prince William Sound and the long-term health of the population is dependent on unimpeded reproductive processes. Recently there is concern over contaminant levels and their relationship to the recent decline of southern resident killer whales in Puget Sound. During this study we have measured contaminant levels in both resident and transient killer whales, and found much higher levels in the transient population. Contaminants apparently passed from mother to offspring via lactation and levels follow consistent patterns within genealogies (Ylitalo et al in press). Samples were obtained from individually identified living whales that can be re-identified and re-sampled to assess future changes in levels. The ability to sample and potentially resample specific known individuals and their known kin is a unique aspect of this project. Results of contaminant analysis (Ylitalo et al in press) raise concern that contaminants in transient whales could negatively impact reproduction and or reduce immune response leading to mortalities. There has been no successful reproduction in the AT1 group since 1984. All chemical analysis of tissue and assistance in the interpretation of results has been provided by the NMFS/NOAA Environmental Contaminant Laboratory, Seattle, Washington under a cooperative agreement with N.G.O.S.

In FY97 we initiated a remote hydrophone and acoustic monitoring as a long-term assessment tool. Initial analysis and separation of pods has been completed and an initial publication has been submitted. (Yurk et al. in review). Currently we are operating a single hydrophone in Resurrection Bay powered by solar and wind power and using microwave transmission technology. It is currently operational and is effectively documenting presence and absence of killer whales during the fall, winter and early spring months.

We are still compiling our catalogue of acoustic dialects for resident pods. In 2000 we obtained needed recordings of AJ, AD05 and AD16 pods. The dialect of the AT1 transient group have been established and also related to behavior. (Saulitis et al in review) The dialect catalogue is used to document the presence of specific killer whale pods and groups recorded from the remote hydrophone. The long-term goal of this aspect of the project is to determine the extent of winter use by killer whales of these inshore waters and provide an additional, innovative, cost effective tool for monitoring killer whales year round. A hydrophone in Resurrection Bay has the added benefit of providing a continuous live feed to the Alaska Sea Life Center and throughout Seward via FM link for the education of visitors and residents. In winter 2000-2001 acoustic monitoring indicated whales were present on an intermittent basis in late fall/early winter and also in late winter in Resurrection Bay. It appears AB pod and AJ pod were present on a routine basis in late winter/early spring.

NEED FOR THE PROJECT

A. Statement of Problem

The AB pod of killer whales was injured by the EVOS. Although it had shown signs of recovery from 1991 to 1993, mortalities in 1994/95 reduced the number of surviving AB pod whales to 22. Since 1995 there has been a net gain of three individuals, however, it will not be clear whether recovery will be dependent on reduced mortality rate (Matkin et al 2000). At least 12 of the original 22 members of AT1 group of transient killer whales have apparently died since 1989 and there has been no recruitment within the group. Recovery for this group seems doubtful at this time and a petition to list them as an endangered population is in preparation. This project will continue to monitor the status of AB pod and the AT1 group.

Sightability of killer whales in Prince William Sound has changed since the spill; particularly resident whales have been more frequently encountered in the Kenai Fjords region. Transient whales are seen less frequently in all areas than prior to the spill.

Initial mortalities within AB pod following the spill have apparently led to additional mortalities due to loss of key individuals. Deterioration of AB pod social structure has led to a situation where one subpod now travels separately most of the time (the AB25 subpod travels with AJ pod). The project will provide long-term insight into effects of changes in killer whale social structure due to unnatural mortalities. A detailed population model for resident killer whales is under construction.

Despite considerable effort, re-sightings of the AT1 group have declined and fewer individuals are seen when members of this transient group are located. We are confident that 12 of the original 22 members of this group are dead, or have emigrated to other regions; although the later possibility is very unlikely. None of the AT1 whales have been sighted or identified in southeastern Alaska despite healthy pinniped populations and frequent transient sightings in that region.

Although the rate of encounter with members of the AT1 transient group has declined, there has been no detectable increase in the sightings of other transient groups, suggesting that other transients are not increasing their use of the Sound as use of the region as AT1 group declines. Whether this overall decline in the encounters with transient (marine mammal eating) killer whales is related to oil spill effects or ecosystem changes is not clear, but we suspect a combination of the two factors. It is likely that the severe decline in harbor seals and Steller sea lions are important factors in the decline of transients in the region.

MtDNA and nuclear DNA analysis has demonstrated the genetic uniqueness of the AT1 group from residents as well as from other transients. If the AT1 population does not have other components in western Alaska, the loss of the AT1 group could represent a serious overall loss of genetic diversity.

Some environmental contaminants such as PCBs and DDTs have been linked to reproductive dysfunction in mammals and immune system dysfunction. We have discovered very high levels of these contaminants in the transient (marine mammal eating) killer whales, including the non-reproducing AT1 group. When compared to other cetacean populations, these levels appear to be in a range that could result in reproductive dysfunction and reduced immune response or other effects that might impede recovery of this group.

B. Rationale/Link to Restoration

A final analysis of data from killer whale population monitoring will detail the status of AB pod and the AT1 transient group. The status of AB pod is considered non-recovering at this time, the group numbered 25 whales and one subpod (AB25) traveled with primarily with AJ pod. It numbered 36 whales before the spill and was a unified pod. The recent slow growth in the pod suggests a recovery may finally be under way. Using the additional data from a population model will be completed that will compare AB pod with other resident killer whale pods through 2001.

An annual killer whale behavioral database of spanning 17 years now exists in a GIS format. It is accompanied by a photographic database that includes identifications of all individuals from each frame of film for every encounter logged in the GIS system. This will facilitate development of potential critical habitats for killer whales, particular in the Kenai Fjords region where data of this type has been collected in recent years.

Continued development of acoustic monitoring and a dialect directory has provided a cost-effective year- round extension of the monitoring program. We will continue to work cooperatively with the Alaska Sea Life Center, Kenai Fjords National Park, and See More Wildlife Systems in this endeavor. The signal is broadcast 24 hours a day on local FM in Seward. Our program directly involves residents and visitors in the process of monitoring and restoration through connection with Alaska Sea Life Center and Kenai Fjords tour and charter boat industry.

C. Location

This project is part of an ongoing killer whale research in Prince William Sound and the Kenai Fjords region, Alaska. The project involves the village of Chenega, Port San Juan Hatchery, the Alaska Sea Life Center, Kenai Fjords National Park, and other residents and visitors to the region. It operates cooperatively with the Kenai Fjords and Prince William Sound tourboat industry.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

There is great public concern and interest for killer whales in Prince William Sound and in Kenai Fjords. The rapidly expanding tourboat industry depends on a healthy killer whale population to attract and satisfy visitors and residents. We have been closely involved with tourboat and recreational operators and residents by exchanging sighting information on a daily basis and providing a catalogue of individual whales to enhance enjoyment of whale observation. We have provided and continue to provide workshops detailing whale biology. We are involved in the Youth Area Watch program, taking young students out to participate in our research. Recent publication of an updated identification catalogue that includes details of our research results and viewing guidelines has further sparked interest in these whales. Killer whales now draw thousands of visitors to the region each year.

We continue to collect observations and stories from native residents and others that will provide background for interpretation of our findings and place the work in a historical and cultural perspective. Some of these legends and stories are used to place

our research in a broader context in our recent publication: "Killer Whales of Southern Alaska" (Matkin et al 1999).

PROJECT DESIGN

A. Objectives

1. Summarize and analyze all resident killer whale population data collected under EVOS funding for inclusion in final report.

2. Final development and publication of population model for resident killer whales

3. Conduct additional analysis on GIS data investigating important killer whale habitat in the Kenai Fjords region; summarize and include in final report.

4. Analyze data collected on killer whale prey since 1997 and update feeding habits analysis and interpretation for resident killer whales.

5. Continued analysis of calls and separation of pod dialects necessary for final interpretation of remote hydrophone data.

6. Summarize all data collected from remote hydrophone project, analyze and interpret results. Evaluate success and potential of this aspect of the monitoring project.

7. Examine status of transient killer whales in the region and changes in encounter rates with these whales and include in final report.

8. Submission of final report.

B. Methods

The final report for the killer whale monitoring program will include a summary of field effort, and summary of the pods and individuals encountered and a status report on AB pod and the AT1 group. Changes within AB pod will be examined with consideration for the age and sex structure of the pod and maternal groups within the pod and related to the population model that will be finalized. Trends in transient killer whale sighting rates and demographics will also be examined and evaluated. Analysis of GIS data for the Kenai Fjords region will be used to assess importance of specific areas as killer whale habitat. Copies of killer whale encounter data and vessel logs will be made available to the EVOS Trustee Council and/or lead agency and this data will be archived in the GIS database for potential future analysis. Frame by frame identification data will also be made available on disk. Copies of the GIS program and data base will be available by request to NGOS.

Ages have been estimated for resident killer whales in Prince William Sound/Kenai Fjords and initial population modeling inititiated. We will continue to examine whether the Alaskan pods conform to the B.C. model (i.e. were indicative of population increasing at its intrinsic rate). The expected number of births each year will be estimated:

$$\text{Births} = Nf(x) \bullet FEC(x)$$

Where Nf(x) represents the number of females of age x and FEC(x) the age-specific fecundity rate as given in equation 26 of Olesiuk et al. 1990 (but updated to include data to the late 1990s). The expected number of juvenile, female and male deaths each year will be estimated as:

$$\text{Juvenile Deaths} = N(x) \bullet MR(x)$$

$$\text{Adult Female Deaths} = Nf(x) \bullet MRf(x)$$

$$\text{Adult Male Deaths} = Nm(x) \bullet MRm(x)$$

Where N(x), Nf(x) and Nm(x) represent the number of juveniles of either sex, adult females and adult males aged x in that year, MR(x) is the age-specific mortality rates of juveniles aged less than 15 of both sex as per Table 9 in Olesiuk et al (1990) but updated to included data to the late 1990s, and MRf(x) and MRm(x) represent the age-specific mortality rates of females and males aged 15 or greater as per Table s 11 and 12 respectively in Olesiuk et al (1990) again updated for data to the late 1990s.

We will compare the observed and expected number of deaths, and to dampen year-to-year fluctuations due to stochastic events (births and deaths are integers, where predicted values are real numbers), we will also calculate 3-year running means of the ratio of observed to expected values.

Since there were far more deaths in AB-pod than expected in 1989-90 following EVOS, we will continue to examine the effects of these losses. In order to estimate the lost production from females lost at the time of the spill, we will project their production in the years following their disappearance.

$$\mathbf{Nt+1} = \mathbf{M} \bullet \mathbf{Nt}$$

Where **Nt** is a vector giving the number of animals by age and **M** the Leslie projection matrix giving the age-specific fecundity and survival rates.

Analysis using the GIS database will include examination of the distribution of killer whales in the Kenai Fjords over the past six years (including 2001) area using methods similar to those developed for Prince William Sound (Scheel et al 2001). The region will be divided into cells of similar effort based on natural geography and other

considerations. Comparisons of killer whale use per unit of search effort will be statistically compared and differences interpreted. As possible specific killer whale behaviors also will be related to area. The possible importance of specific areas within Kenai Fjords will be discussed based on the results of our analysis.

Pod specific dialects for resident killer whales have been determined from recordings made by several researchers in the Prince William Sound area and in Southeast Alaska during the spring and summer months of the years 1984 to 2000. Construction of a catalogue of pod specific dialects for all pods, including those infrequently encountered is an ongoing process and dependent on recordings that will be made during the FY02 field season. Specific calls from Prince William Sound transient (AT1 group) killer whales also have been catalogued (Saulitis 1993, Saulitis in review.). A total of 8456 calls have been screened and digitized using a Kay Elemetrics Real Time Sound Spectrum Analyzer, Model 5500. Samples from this screening process were digitized using the Canary acoustic spectrum analysis software (The Cornell Bioacoustics Workstation). Calls from different killer whale pods and transient groups are being categorized method developed by Dr. John Ford in British Columbia, Canada. This process involves arbitrary acoustical identification paired with a visual and statistical comparison of sound spectra.

Continued assessment of repertoires of Prince William Sound killer whales will occur in 2001/02 and this information used to evaluate all calls obtained by remote hydrophone monitoring. A publication detailing the linkage of dialect and genetic data has been journal submitted and is in review (Jurk et al, in review). The recordings from the remote hydrophone obtained through December 2001 will be used in analysis presented in the final report.

Samples collected from the sites of resident killer whale predation over the past five years will be examined and prey species determined. This analysis will used to update the predation database and will be detailed in the final report.

PC (Windows) compatible computers owned by NGOS will be used to analyze field data. The GIS system at Alaska Pacific University (Dr. David Scheel) and U.F.W.S, Marine Mammal Management Division in Anchorage (Doug Burn) and VAX data system at the Pacific Biological Station, Nanaimo also will be used for data storage and analysis.

C. Contracts and Other Agency Assistance

The entire project will be completed under the auspices of the North Gulf Oceanic Society(NGOS) under federal research permits held by NGOS and issued under the Marine Mammal Protection Act. NGOS will provide a technician to enter data collected in 2002 into the GIS database housed at Alaska Pacific University and U.S.F.W.S. in Anchorage using the a preexisting menu interface. Harold Yurk at the University of British Columbia will conduct acoustic analysis and interpretation. Peter Olesiuk of the Alaska Department of Fish and Game will assist in population dynamics analysis and

population modeling. David Scheel of Alaska Pacific University will provide GIS analysis and interpretation.

SCHEDULE

A. Measurable Project Tasks for FY2002

January 2002: Summarize monitoring fieldwork for 2001.

Nov. 1, 2001 - Jan. 31, 2002: Analysis of photographs from 2001 fieldwork. Input data into GIS system.

January 2002: Acoustic analysis of killer whale calls from previous year.

Oct. 1, 2001- April 30, 2002: Preparation and submission of paper on population dynamics of killer whale pods.

Oct. 1, 2001- March 15, 2002. Analysis and interpretation of GIS data for Kenai Fjords region for inclusion in final report

January 1- April 30 2002: Prepare and submit final report

January 1- April 30 2002. Final analysis and reporting of remote hydrophone data collected through December 2001.

January 2002: Attend EVOS Trustee Council annual workshop

B. Project Milestones and Endpoints

The FY2002 killer whale project will provide for final analysis and reporting on photoidentification and acoustic monitoring program initiated in FY1997. Also included will be initial GIS analysis of existing Kenai Fjords region data for resident killer whales and an updated examination of resident killer whale feeding habits.

C. Completion Date

Final report will be submitted by April 30, 2002

PUBLICATIONS AND REPORTS

Matkin, C.O., G.E. Ellis, and E. Saulitis. Population dynamics of resident killer whales in the Prince William Sound/Kenai Fjords region. To be submitted to Marine Mammal Science. **(Held over from previous year)**

PROFESSIONAL CONFERENCES

Bienniel Conference of the Biology of Marine Mammals, Vancouver, B.C. Canada November 2001 (funded from FY 2001)

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

The monitoring of killer whales and analysis of historic and current data on killer whale behavior is part of an program to investigate killer whale recovery and the interactions of killer whales and harbor seals. It will be integrated with the concurrent harbor seal studies. In FY2002 this project will rely on approximately $11,000 in matching funds from other sources. As a non-profit research institution familiar with private funding sources and cooperative programs, NGOS can work with the Trustee Council cooperation to maximize potential for other funding in the future.

PROPOSED PRINCIPAL INVESTIGATOR:

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KEY PERSONNEL

Craig Matkin (M.S. University of Alaska), is the project leader. Matkin will be responsible for supervising the completion of all fieldwork and insuring successful operation of boats and equipment. He will be the operator of the R.V. *Natoa* and supervise directly all work completed from that platform. He will direct data analysis and assemble all material for annual and comprehensive reports and be responsible for completion and submission of these reports. He will represent this project and present the work to the EVOS Trustee Council.

Matkin has studied killer whales in Prince William Sound since 1977. He initiated systematic killer whale photoidentification in Prince William Sound, and is a founding member of NGOS. In 1994 he completed the "The Biology and Management of Killer

Whales in Alaska" for the U.S. Marine Mammal Commission. Other pertinent publications include EVOS killer damage assessment results ("The Status of Killer Whales in Prince William Sound 1984-1992", Craig O. Matkin, G. M. Ellis, M.E. Dahlheim, and J. Zeh in T.R. Loughlin. ed. Marine Mammals and the *Exxon Valdez* and Matkin and C.O., Matkin, D.R., Ellis, G.M. , Saulitis, E. and McSweeney, D. 1997. Movements of resident killer whales in Southeastern Alaska and Prince William Sound, Alaska. Marine Mammal Science, 13(3):469-475. Mr. Matkin also teaches at the University of Alaska, Lower Kenai Penninsula Campus.

Eva L. Saulitis (M.S. University of Alaska) , a director of NGOS, has conducted fieldwork on killer whales in Prince William Sound each season since 1987. She is a principal field biologist for the monitoring segment of this project (photoidentification) and will co-operate the research vessel *Natoa*. She will make ready and maintain all necessary equipment, complete photoidentification work and all logs and data sheets as required. She will provide entry of field data into the GIS system.

Saulitis completed her MS thesis "The Behavior and Vocalizations of the AT Group of Killer Whales in Prince William Sound, Alaska." in 1993. She coauthored the "Biology and Management of Killer Whales in Alaska" for the U.S. Marine Mammal Commission and "Killer Whales" for the EVOS Restoration notebook series and authored Saulitis, E.L., C.O. Matkin, K. Heise, L. Barrett Lennard, and G.M. Ellis. 2000. Foraging strategies of sympatric killer whale (*Orcinus orca*) populations in Prince William Sound, Alaska. Marine Mammal Science16(1):94-109. She has done extensive analysis of killer whale calls and has operated research vessels in Prince William Sound since 1988.

Harold Jurk Harald is a Phd. candidate at the University of British Columbia and specalizing in cetacean acoustics. He is conducting analysis and interpretation of killer whale acoustic data collected over the past 13 years in Prince William Sound/Kenai Fjords from vessels and from remote hydrophones.

LITERATURE CITED

Matkin, C.O., D. Scheel, G. Ellis, L. Barrett-Lennard, H. Jurk, and E. Saulitis. 2000. Photographic and Acoustic Monitoring of Killer Whales in Prince William Sound and Kenai Fjords, Alaska (Restoration Project 99012), North Gulf Oceanic Society, Homer, Alaska

Matkin, C.O., Ellis, G.M., Saulitis, E.L., Barrett-Lennard, L.G., & Matkin, D. 1999. *Killer Whales of Southern Alaska*. North Gulf Oceanic Society, Homer, Alaska.

Saulitis, E.L., F. H. Fay, C O. Matkin, in review. Acoustical Behavior of the AT1 Transient Killer Whale Population in Prince William Sound and Kenai Fjords, Alaska. Animal Behavior.

Scheel, D., C. Matkin, E. Saulitis. 2001. Distribution of killer whale pods in Prince William Sound, Alaska over a thirteen-year period, 1984-1996. Marine Mammal Science 17(3).

Ylitalo, G.M., C.O. Matkin, J. Buzitis, M. M. Krahn, L. L. Jones, T. Rowles, and J. Stein. in press. Influence of Life-History Parameters on Organochlorine Concentrations in Free-Ranging Killer Whales (*Orcinus orca*) from Prince William Sound, Alaska.. The Science of the Total Environment.

Yurk, H., L. Barrett-Lennard, J.K.B. Ford, And C.O.Matkin. in review. Parallel cultural and genetic lineages in resident killer whales off the coast of Southern Alaska. Animal Behavior.

Proposed Project Manager
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Revised 7-13-01
Approved 8-6-01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002
Personnel		$0.0
Travel		$0.0
Contractual		$32.9
Commodities		$0.0
Equipment		$0.0
Subtotal	$0.0	$32.9
General Administration		$2.3
Project Total	$0.0	$35.2
Full-time Equivalents (FTE)		0.0
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2003					

Dollar amounts are shown in thousands of dollars.

Comments:

FY02

Prepared: 7/13/01

Project Number: 02012
Project Title: Killer Whale Monitoring
Agency: NOAA

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revised 7-13-01
Approved TC 8-6-01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002
Personnel		$28,010.0
Travel		$910.0
Contractual		$0.0
Commodities		$970.0
Equipment		$0.0
Subtotal	$0.0	$29,890.0
Indirect		$2,989.0
Project Total	$0.0	$32,879.0
Full-time Equivalents (FTE)		0.6
Other Resources		$11,000.0

LONG RANGE FUNDING REQUIREMENTS

Dollar amounts are shown in thousands of dollars.

FY02

Prepared:

Project Number: 00212
Project Title: Killer Whale Monitoring
Name: North Gulf Oceanic Society

FORM 4A
Non-Trustee
SUMMARY

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Personnel Costs:				Months	Monthly		Proposed
	Name	Position Description		Budgeted	Costs	Overtime	FY 2002
	Craig O. Matkin	P.I.		3.0	4600.0		13,800.0
	Eva Saulitis	Data technician		0.8	3200.0		2,560.0
	Harald Jurk	Acoustic Analyst		1.0	3400.0		3,400.0
	Dave Scheel	GIS Analysis		1.0	4800.0		4,800.0
	Peter Olesiuk	Population Modeling		0.5	4800.0		2,400.0
		Office Assistant		0.7	1500.0		1,050.0
							0.0
							0.0
							0.0
		Subtotal		7.0	22300.0	0.0	
						Personnel Total	$28,010.0

Travel Costs:		Ticket	Round	Total	Daily	Proposed
	Description	Price	Trips	Days	Per Diem	FY 2002
	Homer/Seward/Homer (car travel)	140.0	2			280.0
	Homer/Anchorage/Homer	165.0	2	3	100.0	630.0
						0.0
						0.0
						0.0
						0.0
					Travel Total	$910.0

FY02

Prepared:

Project Number: 00212
Project Title: Killer Whale Monitoring
Name: North Gulf Oceanic Society

FORM 4B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed
Description	FY 2002
Contractual Total	$0.0

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Commodities Costs:	Proposed FY 2002
Description	
Phone	300.0
Computer Services	500.0
Shipping	170.0
Commodities Total	$970.0

FY02

Prepared:

Project Number: 00212
Project Title: Killer Whale Monitoring
Name: North Gulf Oceanic Society

FORM 4B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FY 2002
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 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

FY02

Project Number:
Project Title:
Name:

FORM 4B
Equipment
DETAIL

Prepared:

02100

Approved TC 8-6-01

Public Information, Science Management and Administration

Project Number:	02100
Restoration Category:	Public Information, Science Management and Administration
Proposer:	Restoration Office
Lead Trustee Agency:	All Trustee Agencies
Alaska SeaLife Center:	No
Duration:	Ongoing
Cost FY 96:	$3,439,600
Cost FY 97:	$2,940,500
Cost FY 98:	$2,796,300
Cost FY 99:	$2,495,700
Cost FY 00:	$2,033,900
Cost FY 01:	$1,500,000
Cost FY 02:	$1,500,000
Geographic Area:	N/A
Injured Resource/Service:	All

ABSTRACT

Project 02100 provides overall support for science management, public involvement and administration of the restoration program through the Restoration Office. This includes funding support for the Trustee Council staff working at the direction of the Executive Director, management of the scientific peer review process, public involvement efforts including the active participation of the 17-member Public Advisory Group (PAG), and support for Trustee agency participation in the restoration program.

INTRODUCTION

The Trustee Council, established under the terms of a court approved civil settlement in 1991, is comprised of six members: the Commissioner of the Department of Environmental Conservation; the Commissioner of the Department of Fish and Game; the Attorney General of the State of Alaska; the Secretary of the Department of the Interior; the Secretary of the Department of Agriculture; and the Director of the National Oceanic and Atmospheric Administration. In order to manage the settlement funds as directed by the Trustee Council, the Public Information, Science Management and Administration project (02100) provides for overall implementation of the restoration program.

This project makes extensive use of existing Trustee Council agency structures to keep administrative costs to a minimum. The proposed Project 02100 budget continues to make reductions in various areas of administrative and management costs as the overall work plan is reduced as directed by the Trustee Council. Because the lease at 645 G Street expires on December 31, 2001 and could not be renewed, the Restoration Office had to acquire new lease space. Costs for space have escalated in recent years and the cost for new space is significantly higher than previous costs. As proposed for FY 02, the budget of $1,500,000 reflects the same amount of funding as the FY 01 budget.

Components of the 02100 Public Information, Science Management and Administration project include:

Chief Scientist and Peer Review Process - The Trustee Council and principal investigators need access to the best possible scientific knowledge and understanding concerning injured resources and services. This information has been provided continuously by the Chief Scientist and expert peer reviewers since the injury assessment process started in 1989. The Chief Scientist draws upon a variety of qualified individuals with expertise in specific fields who provide individual reviews of project proposals as well as peer review of annual and final project reports. As proposed for FY 02, the budget of $270,000 has been reduced $23,700 from the FY 01 budget.

Restoration Office - The Restoration Office component includes funding for the Executive Director and staff. The Restoration Office provides for basic restoration program planning and implementation; intergovernmental and interagency coordination; public information; and overall program management functions of the Trustee Council. Restoration Office staff maintain the Trustee Council's financial records including preparation of the monthly investment reports, quarterly and annual financial reports; provide a quarterly report regarding the status of projects funded by the Trustee Council; and work closely with the Chief Scientist in facilitating the scientific review and evaluation process.

The budget also includes funding for public involvement and outreach. This includes funding associated with public meetings and the annual workshop; Public Notice and advertising expenses; all work plan documents (i.e., annual Invitation, Draft Work Plan, Final Work Plan, Annual Report); the Restoration Update newsletters; other publications; and postage for mailings. Funding is also included for the annual external audit. In addition, this budget includes funding for lease and operating costs for the Anchorage office. At the end of FY 01, the Restoration Office will move to 441 West 5th Avenue.

Public Advisory Group - The Public Advisory Group (PAG) consists of 17 members and two *ex-officio* members from the Alaska State Legislature. The PAG includes representatives of major interest groups (e.g., tourism/recreation, commercial fishing, Native landowners, forest products, subsistence, local government, science and academia) and five members representing the public-at-large. The PAG helps provide meaningful public involvement including guidance and input to the Trustee Council on such items as the annual work plans, budgets, and overall implementation of the *Restoration Plan.*

Liaison Support - The FY 02 budget for Liaison Support includes funding for Trustee agency liaisons as well as travel costs for Trustees to attend Council meetings. Funding for agency liaisons is consistent with liaison support for FY 01 at two months and travel funding remains the same as FY 01.

NEED FOR THE PROJECT

The project provides the essential management and administration necessary to efficiently implement the restoration program.

A. Statement of the Problem

Implementation of the restoration program as directed by the Trustee Council and guided by the *Restoration Plan* requires overall scientific management, meaningful public involvement and program administration.

B. Rationale/Link to Restoration

Project 02100 provides essential support to implement the restoration program as directed by the Trustee Council and guided by the *Restoration Plan.*

C. Location

The Trustee Council maintains the Restoration Office in Anchorage (441 West 5th Avenue, Anchorage, Alaska, 99501).

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Project 02100 supports various aspects of community involvement. This includes public information efforts to assist the general public and spill community residents to learn about and more effectively participate in the restoration program process. The FY 02 budget also reflects support for some costs (rent, phone-fax, copying) associated with the work of the Community Involvement Coordinator (see project /052), who works out of the Restoration Office.

PROJECT DESIGN

A. Objectives

The fundamental objective of the Public Information, Science Management and Administration project is to implement a comprehensive, balanced restoration program consistent with the *Restoration Plan* and Trustee Council actions.

Specific objectives for FY 02 include:

- Implement the authorized FY 02 Work Plan.
- Compile, manage, synthesize, and disseminate information about the restoration program, including: (1) production of the Restoration Update newsletter two times per year; (2) publication of the Annual Status Report, and (3) updating the Trustee Council's web page.
- Oversee and manage the science program, including the peer review and project evaluation process, under the direction of the Chief Scientist and the Science Coordinator.
- Develop and begin implementation of the Gulf Ecosystem Monitoring and Research Plan (GEM).
- Sponsor the annual Restoration Workshop, bringing together scientists, agency staff, Trustee Council staff, academia, and members of the general public.

- Continue habitat evaluations, appraisals and negotiations with willing sellers under both the Large Parcel and Small Parcel Habitat Protection Programs as applicable. Develop recommendations on the future of these programs, as directed by the Trustee Council in their resolution on the Restoration Reserve.

- Conduct regular meetings of the Public Advisory Group (PAG) as a means of obtaining public input into the Trustee Council process and conduct a PAG field trip.

- Work with the Community Involvement Coordinator and Community Facilitators to inform and involve spill area residents about restoration program activities and findings.

- Develop the FY 03 Work Plan, including publication of the initial Invitation to Submit Restoration Proposals and preparation of a Draft Work Plan for public comment.

- Oversee and manage current and prior years' projects funded by the Trustee Council, including the production of quarterly and annual reports.

- Complete an eighth independent audit.

- Track equipment purchased with settlement funds.

B. Methods

All Trustee Council operations are governed by the state and federal laws and regulations that apply to the respective agencies that comprise the Trustee Council.

C. Cooperating Agencies, Contracts and Other Agency Assistance

Multiple agencies are involved in the implementation of Project 02100. The Alaska Department of Fish and Game is the administering agency for most of the operations functions, although the Department of Interior, U.S. Geological Survey receives funding to pay for lease costs for the Anchorage office. In addition, the Alaska Department of Natural Resources administers the contract for the Chief Scientist/peer review process. The U.S. Department of the Interior receives funding for support in the Federal Budget Office as well as funding for participation of a federal officer associated with the Public Advisory Group. All Trustee agencies receive funding for liaison support.

A variety of contracts will be administered under Project 02100, including the Chief Scientist/peer review contract and the annual external audit. A number of small contracts will also be administered under Project 02100 for support services such as equipment maintenance and publication of documents.

SCHEDULE

The Trustee Council operates on the Federal Fiscal Year (October 1 - September 30).

A. Measurable Project Tasks for FY 01 (October 1, 2001 - September 30, 2002)

Measurable project tasks include holding the Annual Workshop and successful development of the FY 03 Work Plan. Other measurable tasks include meetings of the Trustee Council and the Public Advisory Group, preparation of quarterly financial reports and quarterly project status reports, preparation of habitat program status reports, completion of an eighth independent audit, and publication of the Restoration Update newsletter and the annual restoration program status report.

B. Milestones and Endpoints

Project Authorization Consistent with Trustee Council action:	October-September
Final Trustee Council action on the Final FY 02 Work Plan:	December
Publish FY 02 Final Work Plan:	December
Publish Newsletter:	December
Annual Restoration Workshop:	January
Complete FY 01 Audit:	January
Publish FY 03 Invitation:	February
Receive FY 03 Project Proposals:	April
Scientific/Technical/Policy/Legal Review of Proposals:	April-August
Publish FY 03 Draft Work Plan:	June
Publish Newsletter:	June
Trustee Council action on FY 03 Work Plan:	August
Executive Director authorizations to proceed:	August-September

C. Completion Date

Project /100 will continue throughout the life of the restoration program.

PUBLICATIONS AND REPORTS

See above (Measurable Project Tasks).

NORMAL AGENCY MANAGEMENT

Funding in the Project 02100 budget supports the science management, public involvement and administrative functions that are required to implement the *Restoration Plan.* The Restoration Office and the functions included within the Project 02100 budget are budgeted for the sole purpose of supporting restoration program activities and may not be used for other agency purposes.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

At the direction of the Trustee Council, the Executive Director implements Project 02100 to provide overall coordination and integration of the restoration program. As part of the adaptive management process, the Trustee Council sponsors the annual restoration workshop that brings together scientists, federal and state resource agency representatives, and members of the public to review the status of restoration. In addition, all project proposals are peer reviewed with regard to their coordination and integration aspects. Other coordination efforts include working with the agency liaisons and/or project managers to implement the restoration program.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

Total funding for FY 02 is consistent with total funding for FY 01.

PROPOSED PRINCIPAL INVESTIGATOR, IF KNOWN

Not applicable to this project.

approved TC 8-6-01

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	PROPOSED FFY 2002 TRUSTEE AGENCIES TOTALS					
			ADEC	ADF&G	ADNR	USFS	DOI	NOAA
			$23.0	$970.5	$307.6	$20.0	$156.3	$22.6
Personnel	$622.2	$650.9						
Travel	$69.2	$97.6						
Contractual	$658.4	$602.0						
Commodities	$15.3	$15.3						
Equipment	$3.4	$3.4	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$1,368.5	$1,369.1		Estimated				
General Administration	$131.5	$130.9		FFY 2003				
Project Total	$1,500.0	$1,500.0		TBD				
Full-time Equivalents (FTE)	8.2	8.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

This budget reflects further reduction of expenses associated with administration of the restoration program .

This budget:
* contractual costs in FY 02 are lower than FY 01 by $56.4.
* DOI's budget has increased significantly because the building lease is through DOI instead of ADF&G. The increase in the lease cost is because the current lease cannot be renewed and a new lease will cost more than the current one due to increased market rates;
*personnel costs in FY02 are higher than FY01 because of annual salary increases (with no reduction in staff);
*reduces the Chief Scientist's contract by $23.7.

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration
Agency: Multiple

FORM 2A
MULTI-TRUSTEE
AGENCY SUMMARY

PREPARED: 7/27/01

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$0.0	$0.0						
Travel	$0.0	$0.0						
Contractual	$293.7	$270.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$293.7	$270.0		Estimated FFY 2003				
General Administration	$18.4	$17.9						
Project Total	$312.1	$287.9		TBD				
Full-time Equivalents (FTE)	0.0	0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Chief Scientist and Peer Reviewers
Agency: AK Dept. of Natural Resources

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
	Subtotal		0.0	0.0	0.0	
					Personnel Total	$0.0

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
				Travel Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Chief Scientist and Peer Reviewers
Agency: AK Dept. of Natural Resources

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed
Description	FFY 2002
Contract to provide scientific support to the Trustee Council, including the services of the Chief Scientist and Peer Reviews. This is the last year for the contract currently in place. The contractor is paid monthly based upon services rendered.	270.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$270.0

Commodities Costs:	Proposed
Description	FFY 2002
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Chief Scientist and Peer Reviewers
Agency: AK Dept. of Natural Resources

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Chief Scientist and Peer Reviewers
Agency: AK Dept. of Natural Resources

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	PROPOSED FFY 2002 TRUSTEE AGENCIES TOTALS					
			ADEC	ADF&G	ADNR	USFS	DOI	NOAA
				$925.2			$132.5	
Personnel	$529.8	$555.6						
Travel	$38.4	$52.8						
Contractual	$364.7	$332.0						
Commodities	$15.3	$15.3						
Equipment	$3.4	$3.4	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$951.6	$959.0		Estimated				
General Administration	$99.3	$98.7		FFY 2003				
Project Total	$1,050.8	$1,057.7		TBD				
Full-time Equivalents (FTE)	7.2	7.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Administration, Public Information and Scientific Management - Restoration Office
Agency: Multiple

SUMMARY

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$512.4	$538.2						
Travel	$38.4	$52.8						
Contractual	$364.7	$219.5						
Commodities	$15.3	$15.3						
Equipment	$3.4	$3.4	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$934.2	$829.1		Estimated FFY 2003				
General Administration	$96.7	$96.1						
Project Total	$1,030.8	$925.2		TBD				
Full-time Equivalents (FTE)	7.0	7.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

The Administrative Assistant II (P. Banks) position ($50.4) is funded through ADF&G General Administration funds.

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: AK. Dept. of Fish and Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
McCammon	Executive Director		12.0	11.2		134.0
Mundy	Science Coordinator		12.0	10.0		119.6
Schubert	Program Coordinator		12.0	8.8		105.0
Hennigh	Special Assistant		12.0	6.2		73.9
Banks	Administrative Assistant II *		12.0	4.2		0.0
Womac	Administrative Assistant II		12.0	4.8		57.6
Hall	Administrative Clerk		12.0	4.0		48.0
Overtime					0.0	0.0
* Note: This position supported with GA funds ($50.4).	Subtotal		84.0	49.1	0.0	
					Personnel Total	$538.2

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
In-State Travel					
Anchorage to Juneau (administrative travel)	0.4	20	38	0.2	15.6
Anchorage to spill area community (3 staff/1 transcriber for TC mtg)	0.2	4	8	0.2	2.4
Workshop Travel					5.0
Community involvement/public meetings	0.2	6	12	0.2	3.6
Car rental (daily rate of $45.00)			14		0.6
Out-of-State Travel					
Anchorage - Washington D.C.	1.4	6	15	0.2	11.4
National conferences/meetings	1.4	6	10	0.2	10.4
Investment training travel	0.5	4	6	0.2	3.2
Car Rental (daily rate of $45.00)			12		0.5
				Travel Total	$52.8

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: AK. Dept. of Fish and Game

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs: Description	Proposed FFY 2002
2002 Audit Engagement	55.0
Phone, teleconferencing and fax	30.0
Postage (metered mail 6.0, bulk mail 5.0)	11.0
Courier service	3.5
Parking (7 spaces * $50 * 12 mon = $4,200)	4.2
Annual Restoration Status Report	10.0
Newsletter (2 issues: printing at $1,400 each)	2.8
Annual Invitation	5.5
Final Work Plan	1.2
Draft Work Plan	2.5
Equipment Maintenance Agreements (copiers, fax machines, postage meter in Anchorage)	11.8
Local Area Network/Web Server support contract (out source)	32.0
Public Notice (TC meetings 1.5, PAG 1.0, other meetings 0.5)	3.0
ADA Compliance (special access to meetings)	1.0
Transcription Services	5.0
Staff training	3.0
Annual Restoration Workshop	20.0
Other printing and publications	4.0
Meeting space rental (out of building)	1.0
56KB Line /DIS-WAN Access (ATU connect charges/dail-up 0.9, WAN/e-mail 4.2)	8.0
Investment Training/Working Group Costs	5.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$219.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: AK Dept. of Fish and Game

FORM 3B
Contractual & Commodities
DETAIL

Commodities Costs:	Proposed FFY 2002
Description	
Office Supplies	11.0
Local Area Network Software and Upgrades	2.3
Data Processing Supplies	2.0
Commodities Total	$15.3

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: AK. Dept. of Fish and Game

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FFY 2002
Replacement Computers	2	1.2	2.4
Office Equipment			1.0
Those purchases associated with replacement equipment should be indicated by placement of an R.		**New Equipment Total**	$3.4

Existing Equipment Usage: Description	Number of Units	Inventory Agency

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: AK. Dept. of Fish and Game

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel	$17.4	$17.4						
Travel	$0.0	$0.0						
Contractual	$0.0	$112.5						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0						
Subtotal	$17.4	$129.9		Estimated FFY 2003				
General Administration	$2.6	$2.6						
Project Total	$20.0	$132.5						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

No GA will be paid to USGS (sponsor for the building leased space) per agreement with USGS.

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: Dept. of the Interior

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
Baldauf	Federal Budget Officer		2.0	8.7		17.4
	Subtotal		2.0	8.7		
					Personnel Total	$17.4

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
				Travel Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: Dept. of the Interior

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
Building Lease Space (USGS sponsored) - 9 months at $10,696/mo, 3 mo reduced rate plus 8% GSA fee & $.14/sq ft service charge	112.5
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$112.5

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: Dept. of the Interior

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FFY 2002
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

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Restoration Office
Agency: Dept. of the Interior

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	PROPOSED FFY 2002 TRUSTEE AGENCIES TOTALS					
			ADEC	ADF&G	ADNR	USFS	DOI	NOAA
				$27.8			$3.5	
Personnel	$3.0	$3.0						
Travel	$13.8	$27.8						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$16.8	$30.8		Estimated FFY 2003				
General Administration	$1.0	$0.5						
Project Total	$17.8	$31.3		TBD				
Full-time Equivalents (FTE)	0.1	0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: Multiple

SUMMARY

Budget Category:	Authorized FFY 2001	Proposed FFY 2002
Personnel	$0.0	$0.0
Travel	$13.8	$27.8
Contractual	$0.0	$0.0
Commodities	$0.0	$0.0
Equipment	$0.0	$0.0
Subtotal	$13.8	$27.8
General Administration	$0.5	$0.0
Project Total	$14.3	$27.8
Full-time Equivalents (FTE)	0.0	0.0

LONG RANGE FUNDING REQUIREMENTS					
	Estimated FFY 2002				
	TBD				

Dollar amounts are shown in thousands of dollars.

Other Resources								

Comments:

Budget based on 4 meetings of the Public Advisory Group (two meetings in person and two by teleconference). PAG phone costs, printing and copying are a shared expense in the Operations component.

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: AK Dept. of Fish and Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
						0.0
	Subtotal		0.0	0.0	0.0	
					Personnel Total	$0.0

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
Member travel from various locations					
Regular meetings (1 one day meeting/1 two day meeting)					10.8
Other meetings/reviews (e.g., Restoration Workshop)					3.0
Note: In person meeting cost is approximately $4,900 per meeting for travel and per diem expenses. For a 2 day meeting, add $1,000 in per diem costs. Teleconference meetings cost approximately $600 per meeting.					
Member field trip					14.0
				Travel Total	$27.8

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: AK Dept. of Fish and Game

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: AK Dept. of Fish and Game

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: AK Dept. of Fish and Game

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$3.0	$3.0						
Travel	$0.0	$0.0						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$3.0	$3.0		Estimated FFY 2003				
General Administration	$0.5	$0.5						
Project Total	$3.5	$3.5		TBD				
Full-time Equivalents (FTE)	0.1	0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: Dept. of the Interior

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FFY 2002
Mutter	Regional Environmental Assistant		0.5	6.0		3.0
	Subtotal		0.5	6.0	0.0	
					Personnel Total	$3.0

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FFY 2002
				Travel Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: Dept. of the Interior

FORM 3B
Personnel
& Travel
DETAIL

actual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: Dept. of the Interior

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Public Advisory Group
Agency: Dept. of the Interior

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	PROPOSED FFY 2002 TRUSTEE AGENCIES TOTALS					
			ADEC	ADF&G	ADNR	USFS	DOI	NOAA
			$23.0	$17.5	$19.8	$20.0	$20.3	$22.6
Personnel	$89.4	$92.3						
Travel	$17.0	$17.0						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$106.4	$109.3						
General Administration	$13.4	$13.8						
Project Total	$119.8	$123.1						
Full-time Equivalents (FTE)	1.0	1.0						
			Dollar amounts are shown in thousands of dollars.					
Other Resources								

Comments:

FFY 02 budget reflects 2 months funding for each agency liaison.

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support

SUMMARY

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$16.6	$17.8						
Travel	$2.5	$2.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$19.1	$20.3						
General Administration	$2.5	$2.7						
Project Total	$21.6	$23.0						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Environmental Conservation

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:						
Name	Position Description	GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
See	Agency Liaison		2.0	8.9		17.8
	Subtotal		2.0	8.9	0.0	
					Personnel Total	$17.8

Travel Costs:					
Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Trustee and Agency Travel					2.5
				Travel Total	$2.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Environmental Conservation

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Environmental Conservation

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Environmental Conservation

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$13.6	$12.2						
Travel	$3.5	$3.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$17.1	$15.7						
General Administration	$2.0	$1.8						
Project Total	$19.1	$17.5						
Full-time Equivalents (FTE)	0.2	0.2						
			Dollar amounts are shown in thousands of dollars.					
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Fish and Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
Hauser	Agency Liaison		2.0	6.1		12.2
	Subtotal		2.0	6.1	0.0	
					Personnel Total	$12.2

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
Trustee and Agency Travel					3.5
				Travel Total	$3.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Fish and Game

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Fish and Game

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Fish and Game

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$14.8	$15.0						
Travel	$2.5	$2.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$17.3	$17.5						
General Administration	$2.2	$2.3						
Project Total	$19.5	$19.8						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Natural Resources

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:						
Name	Position Description	GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Fries	Agency Liaison		2.0	7.5		15.0
	Subtotal		2.0	7.5	0.0	
					Personnel Total	$15.0

Travel Costs:					
Description	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Trustee (Dept of Law) and Agency Travel					2.5
				Travel Total	$2.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Natural Resources

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Natural Resources

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FFY 2002
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

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: AK Dept. of Natural Resources

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002						
Personnel	$14.8	$15.2						
Travel	$2.5	$2.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$17.3	$17.7						
General Administration	$2.2	$2.3						
Project Total	$19.5	$20.0						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of Agriculture, Forest Service

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:						
Name	Position Description	GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Holbrook	Agency Liaison		2.0	7.6		15.2
	Subtotal		2.0	7.6	0.0	
					Personnel Total	$15.2

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FFY 2002
Trustee and Agency Travel					2.5
				Travel Total	$2.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison
Agency: Dept. of Agriculture, Forest Service

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of Agriculture, Forest Service

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of Agriculture, Forest Service

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel	$12.6	$15.5						
Travel	$2.5	$2.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0						
Subtotal	$15.1	$18.0						
General Administration	$1.9	$2.3						
Project Total	$17.0	$20.3						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of the Interior

FORM 3A
TRUSTEE AGENCY SUMMARY

Personnel Costs:		GS/Range/ Step	Months Budgeted	Monthly Costs	Overtime	Proposed FFY 2002
Name	Position Description					
FWS - DeGange	Liaison		1.0	8.5		8.5
NPS - Rice	Liaison		1.0	7.0		7.0
	Subtotal		2.0	15.5	0.0	
					Personnel Total	$15.5

Travel Costs:	Ticket Price	Round Trips	Total Days	Daily Per Diem	Proposed FFY 2002
Description					
Trustee and Agency Travel					2.5
				Travel Total	$2.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of the Interior

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of the Interior

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: Dept. of the Interior

FORM 3B
Equipment
DETAIL

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel	$17.0	$16.6						
Travel	$3.5	$3.5						
Contractual	$0.0	$0.0						
Commodities	$0.0	$0.0						
Equipment	$0.0	$0.0						
Subtotal	$20.5	$20.1						
General Administration	$2.6	$2.5						
Project Total	$23.1	$22.6						
Full-time Equivalents (FTE)	0.2	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: National Oceanic & Atmospheric Administration

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FFY 2002
Moles	Agency Liaison		2.0	8.3		16.6
	Subtotal		2.0	8.3	0.0	
					Personnel Total	$16.6

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FFY 2002
Trustee and Agency Travel					3.5
				Travel Total	$3.5

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: National Oceanic & Atmospheric Administration

FORM 3B
Personnel
& Travel
DETAIL

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Commodities Total	$0.0

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: National Oceanic & Atmospheric Administration

FORM 3B
Contractual & Commodities DETAIL

New Equipment Purchases:	Number of Units	Unit Price	Proposed FFY 2002
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		

2002

Project Number: 02100
Project Title: Public Information, Science Management and Administration - Liaison Support
Agency: National Oceanic & Atmospheric Administration

FORM 3B
Equipment
DETAIL

approved TC 8-6-01

COMMON MURRE POPULATION MONITORING

Project Number:	02144
Restoration Category:	Restoration Monitoring
Proposer:	DOI-FWS
Lead Trustee Agency:	USFWS
Cooperating Agencies:	None
Alaska SeaLife Center:	
Duration:	0.5 years
Cost FY 01:	$14.8K (estimated close-out costs for analyzing FY 01 Project 01144 data, preparing a power analysis, and writing a final report)
Geographic Area:	This proposed close-out study will be conducted at the Alaska Maritime National Wildlife Refuge headquarters in Homer, Alaska.
Injured Resource/Service:	Common murres

ABSTRACT

This proposed project is a close-out study for common murre population monitoring Project 01144, a previously approved study that will census the Chiswell Islands murre colonies during the upcoming FY 01 field season (see the EVOS fiscal year 2001 work plan) The close-out work will consist of analyzing the data collected during the FY 01 Chiswell Islands field work and comparing these results with previous postspill population counts, running a power analysis using these and other murre population count data (e.g., from the Barren Islands), and writing a final close-out report discussing the recovery status of murres at this injured nesting location and in the spill area.

INTRODUCTION

This proposed project is a close-out study for common murre population monitoring Project 01144, a previously approved study that will census the Chiswell Islands murre colonies during the upcoming FY 01 field season (see the EVOS fiscal year 2001 work plan) The close-out work will consist of analyzing the data collected during the FY 01 Chiswell Islands field work and comparing these results with previous postspill population counts, running a power analysis using these and other murre population count data (e.g., from the Barren Islands), and writing a final close-out report discussing the recovery status of murres at this injured nesting location and in the spill area.

NEED FOR THE PROJECT

A. Statement of Problem

The Chiswell Islands murre colonies were censused in 1989-1992 and 1998, and they will be censused again by previously approved Project 01144 during the upcoming 2001 field season. There will be a need to analyze the data collected during this work, compare the results with previous postspill counts, prepare a power analysis, and write a final close-out report discussing the recovery status of this injured population and common murres in the spill area.

B. Rationale/Link to Restoration

The Chiswell Islands murre colonies were censused in 1989-1992 and 1998, and they will be censused again by previously approved Project 01144 during the upcoming 2001 field season. There will be a need to analyze the data collected during this work, compare the results with previous postspill counts, prepare a power analysis, and write a final close-out report discussing the recovery status of this injured population and common murres in the spill area.

C. Location

The proposed FY 02 common murre close-out study will be conducted at the Alaska Maritime National Wildlife Refuge headquarters in Homer, Alaska.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

A large format, computer-generated color poster summarizing the close-out study results will be prepared and submitted to the Trustee Council for public display after data have been analyzed (similar posters showing results from common murre population monitoring studies 93049, 94039, 96144, 97144, and 99144 have been displayed at the Trustee Council January 1996-2000 restoration workshops). The printed posters are easy to transport and can be used by Trustee Council staff for a variety of purposes, including public displays at oil spill community meetings and schools. The posters and abstracts summarizing annual findings will also be available on-disk for inclusion in any on-line products that the Trustee Council may develop for public display. Copies of the poster will be sent to the Alaska SeaLife Center and the National Park Service Kenai Fjords Visitor Center in Seward, and one will be displayed at the AMNWR Visitor Center in Homer. Also, copies of the final close-out report will be available to the public in Homer and Anchorage. Study results will also be presented at public Trustee Council-sponsored meetings and workshops, and in scientific publications.

PROJECT DESIGN

A. Objectives

The project objectives are to analyze the data collected during the FY 01 Project 01144 Chiswell Islands common murre population monitoring work and compare the results with previous postspill counts, prepare a power analysis based on these counts, and write a final close-out report discussing the recovery status of this injured population and common murres in the spill area.

B. Methods

The project is designed to help test the null hypothesis that murre populations have not increased at nesting colonies in the spill area since the time of the event. The hypothesis will be tested by analyzing the Project 01144 population count data collected at the six Chiswell Islands nesting colonies during 2001 and statistically testing the updated postspill data set [i.e. FWS population counts made in 1989-1992, 1998, and 2001; and Dames & Moore (D&M) counts made in 1991] for differences among years and trends in population size (see Roseneau *et al.* 1999). Results will also be compared with 1989-1999 Barren Islands murre population numbers data to help determine the current recovery status of common murres in the spill area (see Roseneau *et al.* 2000).

Data Collection

No data collection is required. The data that will be analyzed and compared with previous postspill counts will be consist of the Project 01144 population census data collected at the six Chiswell Islands nesting colonies during the upcoming 2001 field season.

Data Analysis

Data will be analyzed by the same methods used during the 1998 Chiswell Islands and 1999 Barren Islands murre population monitoring studies (Projects 98144 and 99144; see Roseneau *et al.* 1999, 2000). To analyze the data, 1-day totals will be calculated for the 6-island nesting complex and then these scores will be averaged to obtain five- and six-island estimates. Results will be pooled with 1989-1992 and 1998 FWS and 1991 D&M scores (i.e., see Nysewander and Dipple 1990, 1991; Dipple and Nysewander 1992; Nysewander *et al.* 1993, Dragoo *et al.* 1995; Erikson 1995; Roseneau *et al.* 1999), and analyzed for trends and differences among years by running linear regressions and one-sample *t*-tests. The 0.1 significance level will be used to increase the power of the tests and reduce Type II error (the 0.9 confidence interval will be adequate for our purposes; see Roseneau *et al.* 1999 and 2000). The power analysis will be conducted using the latest version of the computer program MONITOR (new software by J.P.Gibbs).

C. Cooperating Agencies, Contracts and Other Agency Assistance

No contracts or other agency assistance are required for the study.

SCHEDULE

A. Measurable Project Tasks for FY 02 (1 October 2001 - 30 September 2002)

FY 02

1 Oct – 31 Dec 2001:	Review and analyze the Project 01144 Chiswell Islands murre population data, compare results with the 1989-1992 and 1998 FWS

	and 1991 D&M Chiswell Islands data, prepare an abstract and poster for the January 2002 EVOS work shop.
1 Jan 2002 – 15 Mar 2002:	Conduct a power analysis of the postspill Chiswell Islands common murre population census data, prepare a draft final close-out report and submit the draft for in-house review.
16 Mar - 10 Apr 2002:	Finalize the close-out report.
15 Apr 2002:	Submit the final close-out report to the Chief Scientist for peer review.

B. Project Milestones and Endpoints

December 2001:	Complete data analysis, and a poster and abstract for the January 2002 EVOS work shop.
March 2002:	Complete a draft final report on the FY 01 Chiswell Islands field activities, and a power analysis of the postspill murre population data.
April 2002:	Submit the final close-out report to the Chief Scientist.

C. Completion Date

A final close-out report will be submitted to the Chief Scientist on or before 15 April 2002.

PUBLICATIONS AND REPORTS

A final report on the 2001 Chiswell Islands common murre population monitoring study will be submitted to the Chief Scientist on or before 15 April 2002. Results of the study will also be included in the annual AMNWR seabird monitoring report, and reported in publications on northern Gulf of Alaska murre populations, as appropriate.

PROFESSIONAL CONFERENCES

Results from the 2001 Chiswell Islands common murre population monitoring study will be presented at the EVOS workshop in January 2002 ($0.9K have been included in the budget to cover the costs of the principle investigator attending this meeting). Results will also be presented at the next Alaska Bird Conference in 2003 (travel expenses for this conference will be paid by AMNWR).

NORMAL AGENCY MANAGEMENT

The proposed work is not something that AMNWR or the FWS is required to do by statute or regulation. The Chiswell Islands are listed as an intermittent monitoring site for seabirds in the refuge's seabird monitoring program, and as such, these colonies are only censused opportunistically about once every 10 years. Also, because the islands are not part of the FWS's highest priority ecosystem, the Bering Sea, support for this type of work will probably not be available until overall FWS priorities change (i.e., from the Bering Sea to other officially designated ecosystems within Alaska). The proposed project is needed to analyze the Chiswell

Islands common murre population census data collected by Project 01144 during the upcoming FY 01 field season, compare these data with previous post spill murre population counts at these colonies, run a power analysis using the postspill census data, and write a final close-out report discussing the recovery status of this injured population and common murres in the spill area.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

The proposed close-out study will be coordinated with other AMNWR seabird monitoring work in the northern Gulf of Alaska. The refuge will donate up to one month of the project manager's time to the project, and will also supply office space and computers/printers for the study.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

This is a close-out project. No changes have been made to the analytical methods and schedules listed in the previously approved Common Murre Population Monitoring Project 01144 DPD, with the exception that a power analysis will be run on the Chiswell Island postspill population counts.

PROPOSED PRINCIPAL INVESTIGATOR

Name: David G. Roseneau
Affiliation: Alaska Maritime National Wildlife Refuge
Mailing address: 2355 Kachemak Bay Drive (Suite 101), Homer, Alaska 99603-8021
Phone number: (907) 235-6546
Fax number: (907) 235-7783
E-mail address: dave_roseneau@fws.gov

PRINCIPAL INVESTIGATOR

1. David G. Roseneau (Principal Investigator)

David Roseneau will be responsible for conducting the project. He will analyze and interpret data, prepare posters and presentations for scientific conferences and meetings, and write the final close-out report. Mr. Roseneau received his B.S. degree in wildlife management and M.S. degree in biology from the University of Alaska - Fairbanks in 1967 and 1972, respectively. His thesis research was on the numbers and distribution of gyrfalcons, *Falco rusticolus* on the Seward Peninsula, Alaska. He joined the U.S. Fish and Wildlife Service in January 1993 and was project leader of common murre restoration monitoring studies in the Barren Islands during 1993-1994 (Projects 93049 and 94039). Mr. Roseneau was also principal investigator of the 1995-1999 APEX Barren Islands seabird and large fish as samplers studies (Projects 95163J, 95163K, 96163J, 97163J, 97163K, 98163J, 98163K, 99163J, and 99163K), and the 1996-1997 and 1999 Barren Islands and 1998
Chiswell Islands common murre population monitoring studies (Projects 96144, 97144, 98144, and 99144). Currently, he is principal investigator of the 2000 APEX Barren Islands seabird and large fish as samplers studies (Projects 00163J and 00163K) and the 2000 Barren Islands common murre population monitoring project (Project 00144). Prior to 1993, Mr. Roseneau was a consulting biologist for over 20 years. During that time, he conducted and managed marine bird, raptor, and large mammal projects in Alaska and Canada for government agencies and private-sector clients, and he also participated in several large-scale murre *(Uria* spp.*)* population monitoring projects. In 1976-1983, as co-principal investigator of NOAA/OCSEAP Research Unit 460, he conducted monitoring studies of murres and black-legged kittiwakes *(Rissa tridactyla)* at

capes Lisburne, Lewis, and Thompson in the Chukchi Sea, and St. Lawrence, St. Matthew, and Hall islands in the Bering Sea. He also studied auklets *(Aethia* spp.*)* at St. Lawrence and St. Matthew islands, and participated in murre and kittiwake projects at Bluff in Norton Sound. During 1984-1986, he also participated in monitoring studies of murres and kittiwakes in the northeastern Chukchi Sea, and in 1987-1988, 1991-1992, and 1995-1999, he conducted additional murre and kittiwake monitoring work at capes Lisburne and Thompson, and Chamisso and Puffin islands. Mr. Roseneau is experienced in collecting and analyzing data on numbers, productivity, and food habits of seabirds; relating trends in numbers and productivity to changes in food webs and environmental parameters (e.g., air and sea temperatures, current patterns); and assessing potential impacts of petroleum exploration and development on nesting and foraging marine birds. He has broad knowledge of rock climbing techniques and has operated inflatable rafts and other outboard-powered boats in the Bering, Chukchi, and Beaufort seas and on various Alaskan rivers in excess of 3,000 hrs. He has also accrued several hundred additional hours operating time in small boats and larger, more powerful vessels (e.g. 25 ft, 300-400 hp HydroSports and Boston Whalers) in Kachemak Bay, Prince William Sound, and Kenai Peninsula and Barren Island waters. . During his career, Mr. Roseneau has authored and co-authored 100 reports and publications, including 33 on Alaskan seabirds and 5 on a new sampling technique for capelin and sand lance. He has also made over 30 public presentations on seabirds, raptors, and caribou at scientific and wildlife law enforcement conferences and meetings.

Selected Seabird Publications

Murphy, E.C., A.M. Springer, and D.G. Roseneau. 1991. High annual variability in reproductive success of kittiwakes *(Rissa tridactyla* L.*)* at a colony in western Alaska. J. Anim. Ecol. 60: 515-534.

Springer, A.M., E.C. Murphy, D.G. Roseneau, C.P. McRoy, and B.A. Cooper. 1987. Paradox of pelagic food webs in the northern Bering Sea - I. Seabird food habits. Cont. Shelf Res. 7: 895-911.

Murphy, E.C., A.M. Springer, and D.G. Roseneau. 1986. Population status of *Uria aalge* at a colony in western Alaska: results and simulations. Ibis 128: 348-363.

Springer, A.M., D.G. Roseneau, D.S. Lloyd, C.P. McRoy, and E.C. Murphy. 1986. Seabird responses to fluctuating prey availability in the eastern Bering Sea. Marine Ecol. Prog. Ser. 32: 1-12.

Springer, A.M. and D.G. Roseneau. 1985. Copepod-based food webs: auklets and oceanography in the Bering Sea. Marine Ecol. Prog. Ser. 21: 229-237.

Murphy, E.C., D.G. Roseneau, and P.J. Bente. 1984. An inland nest record for the Kittlitz's murrelet. Condor 86: 218.

Springer, A.M., D.G. Roseneau, E.C. Murphy, and M.I. Springer. 1984. Environmental controls of marine food webs: food habits of seabirds in the eastern Chukchi Sea. Can. J. Fish Aquat. Sci. 41: 1202-1215.

OTHER KEY PERSONNEL

1. G. Vernon Byrd (Project Manager)

Vernon Byrd will supply overall guidance to the project, including providing advice during data analysis and report writing. He will also review reports and presentations as needed, and help prepare manuscripts for publication. Mr. Byrd received his B.S. degree in wildlife management from the University of Georgia in 1968, did post-graduate studies in wildlife biology at the University of Alaska-Fairbanks in 1975, and completed a M.S. degree in wildlife resources management at the University of Idaho in 1989. His thesis, entitled "Seabirds in the Pribilof Islands, Alaska: Trends and monitoring methods", explored statistical procedures for analyzing

kittiwake *(Rissa* spp.*)* and murre *(Uria* spp.*)* population data. Mr. Byrd has worked for the U.S. Fish and Wildlife Service for over 20 years, focusing on studies of marine birds in Alaska and Hawaii. His major interests center around monitoring long-term trends in seabird populations, including numbers of birds and reproductive performance, and he has worked at murre colonies in the Aleutian Islands, the Bering and Chukchi seas, and western Gulf of Alaska. Mr. Byrd was a co-author of the final T/V *Exxon Valdez* oil spill damage assessment report for murres. Also, he was project manager of the 1993-1994 Barren Islands common murre restoration monitoring projects (Projects 93049 and 94039), the 1995-1999 APEX Barren Islands seabird and large fish as samplers studies (Projects 95163J, 95163K, 96163J, 97163J, 97163K, 98163J, 98163K, 99163J, and 99163K), the 1996-1997 and 1999 Barren Islands and 1998 Chiswell Islands common murre population monitoring projects (Project 96144, 97144, and 98144), and EVOS-sponsored work designed to remove predators from seabird nesting habitats (Projects 94041 and 95041). Currently, Mr. Byrd is project manager of the 2000 APEX Barren Islands seabird and large fish as samplers studies (Projects 00163J and 00163K) and the 2000 Barren Islands common murre population monitoring project (Project 00144). He has authored and co-authored over 50 scientific papers and 75 U.S. Fish and Wildlife Service reports on field studies, and has made over 35 presentations on seabirds at scientific conferences and meetings. Mr. Byrd is the supervisory wildlife biologist at the Alaska Maritime National Wildlife Refuge, the premier seabird nesting area in the national public land system.

Selected Seabird Publications

Byrd, G.V., E.C. Murphy, G.W. Kaiser, A.J. Kondratyev, and Y.V. Shibaev. (In press). Status and ecology of offshore fish-feeding alcids (murres and puffins) in the North Pacific Ocean. Proceedings of "Symposium on the Status , Ecology, and Conservation of Marine Birds of the Temperate North Pacific". Canadian Wildlife Service, Ottawa.

Byrd, G.V., and J.C. Williams. Whiskered Auklet. 1993. A chapter describing the biology of the species *in* The birds of North America, No. 76 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia PA, and the American Ornithologists' Union, Washington, D.C. 12 pp.

Byrd, G.V., and J.C. Williams. Red-legged Kittiwake. 1993. A chapter describing the biology of the species *in* The birds of North America No. 60 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia PA, and the American Ornithologists' Union, Washington, D.C. 12 pp.

Springer, A.M. and G.V. Byrd. 1989. Seabird dependence on walleye pollock in the southeastern Bering Sea. Pages 667-677 *in* Proceedings of the International Symposium on the Biology and Management of Walleye Pollock. Alaska Sea Grant Rep. No. 89-1, Univ. of Alaska-Fairbanks.

LITERATURE CITED

Dipple, C. and D. Nysewander. 1992. Marine bird and mammal censuses in the Barren Islands, 1989 and 1990, with specific emphasis on species potentially impacted by the 1989 *Exxon Valdez* , including supplemental appendices for 1991 murre data. Unpubl. rept., U. S. Fish Wildl. Serv., Homer, Alaska.

Dragoo, D.E., G.V. Byrd, D.G. Roseneau, D.A. Dewhurst, J.A. Cooper, and J.H. McCarthy. 1995. Effects of the *T/V Exxon Valdez* oil spill on murres: A perspective from observations at breeding colonies four years after the spill. Final rept., Restoration Proj. No. 11, U.S. Fish Wildl. Serv., Homer, Alaska.

Erikson, D.E. 1995. Surveys of murre colony attendance in the northern Gulf of Alaska following the *Exxon Valdez* oil spill. Pp. 780-819 *in Exxon Valdez* oil spill: Fate and effects in Alaskan waters, ASTM STP 1219, P.G. Wells, J.N. Butler, and J.S. Hughes (eds.), Amer. Soc. for Testing and Materials, Philadelphia, Pennsylvania.

Nysewander, D. and C. Dipple. 1990. Population surveys of seabird nesting colonies in Prince William Sound, the outside coast of the Kenai Peninsula, Barren Islands, and other nearby colonies, with emphasis on changes in numbers and reproduction of murres. Bird Study No. 3. Unpubl. prog. rept., U.S. Fish Wildl. Serv., Homer, Alaska.

_____ and _____. 1991. Population surveys of seabird nesting colonies in Prince William Sound, the outside coast of the Kenai Peninsula, Barren Islands, and other nearby colonies, with emphasis on changes of numbers and reproduction of murres. Bird Study No. 3. Unpubl. prog. rept., U. S. Fish Wildl. Serv., Homer, Alaska.

_____, C.H. Dipple, G.V. Byrd, and E.P. Knudtson. 1993. Effects of the *T/V Exxon Valdez* oil spill on murres: A perspective from observations at breeding colonies. Bird Study No. 3. Final rept., U.S. Fish Wildl. Serv., Homer, Alaska.

Roseneau, D.G., A.B. Kettle, and G.V. Byrd. 1999. Common murre restoration monitoring in the Chiswell Islands, Alaska, 1998. Unpubl. annual rept. by the Alaska Maritime National Wildlife Refuge, Homer, Alaska for the *Exxon Valdez* Oil Spill Trustee Council, Anchorage, AK (Restoration Project 98144).

_____. 2000. Common murre restoration monitoring in the Barren Islands, Alaska, 1999. Unpubl. annual rept. by the Alaska Maritime National Wildlife Refuge, Homer, Alaska for the *Exxon Valdez* Oil Spill Trustee Council, Anchorage, AK (Restoration Project 99144).

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

approved TC 8-6-01

Budget Category:	Authorized FFY 2001	Proposed FFY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel	$14.6	$11.6						
Travel	$1.2	$0.9						
Contractual	$24.0	$0.0						
Commodities	$1.8	$0.6						
Equipment	$1.0	$0.0						
Subtotal	$42.6	$13.1	Estimated FFY 2003	Estimated FFY 2004	Estimated FFY 2005	Estimated FFY 2006	Estimated FFY 2007	Estimated FFY 2008
General Administration	$3.9	$1.7						
Project Total	$46.5	$14.8	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Full-time Equivalents (FTE)	0.4	0.2						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments: This project is a close-out study. The proposed budget covers the costs of analyzing the data collected by Common Murre Population Monitoring Project 01144 at the Chiswell Islands murre colonies in 2001, comparing the results with previous postspill counts, running a power analysis on these and other murre population count data (e.g., Barren Islands), and writing a final close-out report disscussing the recovery status of this injured population and common murres in the spill area.

Travel costs to attend the 2002 EVOS workshop in Anchorage are included in the proposed FFY 2002 budget.

The Alaska Maritime National Wildlife Refuge will donate 1 month of the project manager's time to the project. The refuge will also provide computers and office space for the study.

FY02

Project Number: 02144
Project Title: Common Murre Population Monitoring
Agency: DOI-FWS

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Prepared: 04/2/01

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FFY 2002
David G. Roseneau	Project Leader (Principal Investigator)	GS11/6	2.0	5.8	0.0	11.6
G. Vernon Byrd	Project Manager	GS13/1	1.0	0.0	0.0	0.0
C. Berg	Program Manager	GS12	0.5	0.0	0.0	0.0
	Subtotal		3.5	5.8	0.0	
					Personnel Total	$11.6

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FFY 2002
Travel to the EVOS workshop in Anchorage in January 2002	0.3	1	3	0.2	0.9
				Travel Total	$0.9

FY02

Prepared: 04/2/01

Project Number: 02144
Project Title: Common Murre Population Monitoring
Agency: DOI-FWS

FORM 3B
Personnel
& Travel
DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FFY 2002
Description	
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$0.0

Commodities Costs:	Proposed FFY 2002
Description	
Costs of producing & printing 4 large laminated format posters for public display of project results (1 each for the Trustee Council, Alaska SeaLife Center, National Park Service Kenai Fjords Visitor Center, and AMNWR Visitor Center).	0.6
[Note: FWS will furnish office materials and computers.]	
Commodities Total	$0.6

FY02

Prepared: 04/2/01

Project Number: 02144
Project Title: CommonMurre Population Monitoring
Agency: DOI-FWS

FORM 3B
Contractual & Commodities DETAIL

6/12/97

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FFY 2002
No equipment is needed for the project			$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
Computers and printers (non oil spill equipment)	2	FWS

FY02

Project Number: 02144
Project Title: Common Murre Population Monitoring
Agency: DOI-FWS

FORM 3B
Equipment
DETAIL

Prepared: 04/2/01

Revision 7-9-01
Approved TC 8-6-01

Numerical and Functional Response of Seabirds to Fluctuations in Forage Fish Density

Project Number:	02163 M
Restoration Category:	Research
Proposed By:	U.S. Geological Survey (PI- John F. Piatt)
Lead Trustee Agency:	DOI
Cooperating Agencies:	N/A
Duration:	1 year
Cost FY 02:	$50,000 (data analysis, reporting)
Geographic Area:	Cook Inlet, Gulf of Alaska
Injured Resource:	Multiple resources

ABSTRACT

Cook Inlet Seabird and Forage Fish Studies (CISeaFFS) was established in 1995 with EVOSTC (APEX) and USGS funding to measure the foraging (functional) and population (numerical) responses of seabirds to fluctuating forage fish densities around three seabird colonies in lower Cook Inlet. This involved at-sea surveys for forage fish (hydroacoustics, trawling, seining) and seabirds (line transects), and some characterization of oceanography (AVHRR satellite imagery, CTD profiles, moored thermographs), while measuring aspects of seabird breeding biology (egg and chick production, chick growth, population trends) and foraging behavior (diets, feeding rates, foraging time) at adjacent colonies. Following completion of a final report and data archive, we are now trying to finalize some synthetic papers on the work.

INTRODUCTION

Some seabird populations in the Gulf of Alaska declined markedly during the past few decades. Whereas human impacts such as those from the *Exxon Valdez* oil spill can account for some proportion of these declines, natural changes in the abundance and species composition of forage fish stocks have also affected seabird populations. Marine fish communities in the Gulf of Alaska changed dramatically during the past 20 years. Coincident with cyclical fluctuations in sea-water temperatures, the abundance

of small forage fish species such as capelin (*Mallotus villosus*) declined precipitously in the late 1970's while populations of large predatory fish such as walleye pollock (*Theragra chalcogramma*) and cod (*Gadus pacifica*) increased dramatically. Correspondingly, capelin virtually disappeared from seabird diets in the late 1970's, and were replaced by juvenile pollock and other species in the 1980's. Seabirds and marine mammals exhibited several signs of food stress (population declines, reduced productivity, die-offs) throughout the 1980's and early 1990's.

NEED FOR THE PROJECT

A. Statement of the Problem

Factors that regulate seabird populations are poorly understood, but food supply is clearly important. In many cases, anthropogenic impacts on seabird populations cannot be distinguished from the consequences of natural variability in food supplies. Thus, 'management' of seabird populations remains an uncertain exercise. For example, how can we enhance or predict recovery of seabird populations lost to the *Exxon Valdez* oil spill if food supplies in the Gulf of Alaska limit reproduction?

B. Rationale

To address these questions, the EVOSTC initiated APEX (Apex Predator Ecosystem Experiment) in 1995. In Cook Inlet, pilot studies were initiated with USGS and MMS support in 1995, and expanded in 1996 with substantial APEX support. The overall objective was to quantify and contrast seabird-forage fish relationships at three seabird colonies in lower Cook Inlet: Chisik Island, Gull Island (Kachemak Bay), and the Barren Islands (research there conducted and reported by the Alaska Maritime National Wildlife Refuge). The abundance and species composition of forage fish schools around each colony were quantified with hydroacoustic surveys, mid-water trawls, and beach seines. At each colony, we measured breeding success, diet composition, and foraging effort of several seabird species including: common murres, black-legged kittiwakes, pigeon guillemots, pelagic cormorants, glaucous-winged gulls, tufted puffins and horned puffins.

In 1997 and 1998, this research program was refined and expanded where appropriate. For example, we included benthic trawling nearshore since 1997, increased study effort on pigeon guillemots, added nearshore sampling for zooplankton, phytoplankton and nutrients (in collaboration with Peter McRoy, UAF), studied physiological responses of adult and chick seabirds to food stress, begun to measure adult survival of murres and kittiwakes on Gull and Chisik islands, and increased coordination of seabird studies at the three colonies using protocols developed in collaboration with other principal investigators in the EVOS/APEX program. The basic components of this study have not changed, however, and we measured the same fundamental parameters of forage fish and seabird biology for the duration of the study (1995-1999).

C. Location

The remaining work will take place at the Alaska Biological Science Center and University of Washington.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

None in this phase which draws only upon existing data and reports

PROJECT DESIGN

A. Summary of field work and findings to date

The main field program occurred in 1995-1999, however, we continued to collect data on seabird survival and stress in 2000 and 2001. Main results of the main study can be found in the final report to the EVOSTC. In summary, populations, productivity, diets and foraging behavior of murres and kittiwakes were studied at three seabird colonies in lower Cook Inlet (Chisik, Gull and Barren islands). Ancillary data were also collected on Tufted and Horned Puffins, Cormorants (spp.) and Glaucous-winged Gulls. Pigeon Guillemots were studies in Kachemak Bay only. Here we focus on the two main study species: Common Murres and Black-legged Kittiwakes. Oceanographic measurements, seabird and hydroacoustic surveys, trawls, and beach seines were conducted in waters around (<45 km) each colony.

In all years, offshore and southern waters of Cook Inlet were dominated by juvenile walleye pollock, important prey for murres and puffins. Nearshore waters of Cook Inlet were dominated by sandlance, which were consumed by seabirds (e.g., kittiwakes, guillemots, murres) in proportion to their local abundance. Other important prey species included capelin, smelts, and herring. More than 80 fish were captured in nets during the study. The CPUE of forage fish in either mid-water trawls or beach seines around Chisik Island was typically 1-2 orders of magnitude less than around the Barren Islands or in Kachemak Bay. Acoustically-measured forage fish biomass was lowest around Chisik Island, moderate around the Barrens and highest in Kachemak Bay. Water temperatures throughout the summers of 1995-1999 were similar and near long-term averages, except that temperatures in winter of 1997/98 were about 1-2 C higher than in previous years owing to warming from El Niño.

The breeding biology of seabirds differed markedly among colonies owing to differences in food supply, which in turn reflect differences in oceanography among areas. Over all years, breeding success of murres and kittiwakes was highest and least variable at Gull Island, high and more variable at the Barrens, and lowest at Chisik. Breeding success in most species (including gulls, cormorants, puffins) was lower in 1998 than in other years. Murres on Chisik Island had a near reproductive failure. Measures of baseline corticosteroid levels suggest that murres on Chisik were highly stressed even before they attempted to lay eggs in July. A large die-off of murres was observed in Cook Inlet in April and May of

1998, and although most birds affected were subadults, this die-off foreshadowed the poor breeding season for murres during summer of 1998.

Population censusing revealed that seabirds at Chisik Island continue in a long-term decline (ca. -4% to -9% per annum), whereas populations at Gull and Barren islands are increasing (ca. 5% to 9% p.a.). Behavioral studies reveal that seabirds work harder (longer foraging trips, less "free" time) at colonies or in years when nearby fish densities are lower. Preliminary results of survival studies suggest that the survival rate of adult kittiwakes on Chisik Island (where parental investment is low owing to typical failure to raise young) is substantially higher than on Gull Island (where chick fledging is typically high). In contrast, survival of adult murres-- which usually manage to fledge chicks at both colonies-- is lower at Chisik than at Gull, presumably because the cost of raising and fledging chicks is higher at Chisik.

Overall, the results show that seabird parameters (breeding success, foraging effort, diets, etc.) vary most between islands, and least between years. We attribute this regional stability in biological responses to distinct oceanographic regimes around each colony that tend to strongly influence the biology of birds within those areas. Thus, all measured seabird parameters varied some between years, but, for example, kittiwakes at Gull Island always fared much better than those at Chisik. While each colony responded differently to the ENSO perturbation of 1997/98, responses were commensurate with the underlying physical and biological regime observed in each area.

As predicted, the numerical and functional responses of seabirds to food density was generally non-linear. There were fundamental differences in response of murres and kittiwakes, owing to inter-species differences in metabolic demands and foraging abilities. In general, kittiwakes are hard-pressed throughout breeding to meet energy demands. They lay multiple-egg clutches and try to hatch and raise as many chicks possible, but pairs must forage 16 or more hours a day on average even when food supplies are good. Consequently, they have little discretionary time to buffer against change in food supply, and therefore fledging success is strongly correlated (in sigmoidal fashion) with local food density. In contrast, murres lay and hatch only one egg, and pairs spend only about 12 hours per day foraging when food supplies are average to good. When food supplies become scarce, murres compensate by spending more discretionary time foraging, and therefore fledging success in murres is not correlated with local food supply, whereas discretionary "loafing time" is strongly correlated (in sigmoidal fashion) with food density.

Aside from these differences in foraging time budgets and in their ability to buffer reproductive success against changes in prey density, murres and kittiwakes actually responded to prey variability in some similar ways. In the face of high variability (CV=80%) in prey abundance among 3 colonies and 5 years, both species minimized variability in their own body condition (CV<10%), variability in attendance by at least one adult at nest sites (<10%) and growth of young (CV<15%) . In both species, foraging behaviors (trip duration, chick feeding rate) were moderately variable (CV = 15-25%); as were some breeding parameters (laying success, hatching success, CV= 20-40%). In both species, variability in density of adults foraging at sea was similar (CV = 70-75%) to variability in prey abundance. In both species, variability in co-attendance of both adults at nest sites (index of discretionary "loafing time")

was of a similar or higher magnitude (CV = 65-140%) to variability in prey abundance. As noted above, the only real difference among species was that murres were able to use discretionary time to buffer breeding success (CV <30%) against variability in prey abundance whereas kittiwakes could not (breeding success CV = 90%, i.e., the same variability as prey abundance).

In general, these results are consistent with life history theory which suggests that long-lived, iteroparous seabirds should not invest so much in any one breeding attempt that adult survival is disproportionately affected. In the face of environmental variability, adults of both species tend to maintain their own body condition first, and maintain their chicks second. Flexibility is found in their behavioral responses to fluctuations in prey density, including foraging effort, prey selection (quality and quantity), use of discretionary time, etc., allowing birds to moderate effects of food variability on predation, food acquisition and chick feeding rates.

Considering the functional and numerical responses of murres and kittiwakes to prey abundance at the three study colonies, the average abundance of prey around each colony, and the deviation of seabird parameters (e.g., breeding success, foraging effort, attendance, etc.) from averages of all colony-years studied, it appears that food supplies at Gull and Barren islands, but not at Chisik, are presently adequate to support recovery of losses from the Exxon Valdez oil spill.

B. Objectives for FY02

In FY 2000 and 2001 we completed our data archive and our final report which included all significant findings and provides a preliminary synthesis and interpretation of results. After revisions based on reviewer's comments, this report will constitute a final repository for raw and summarized data, provide documentation of methods for the entire project, and serve as a useful reference for researchers who may wish to conduct research in lower Cook Inlet in the future.

Our main objective in FY 2002 is to write and publish a number of synthetic papers. The following lists indicate priority products for FY02, as well as products completed to date.

Cook Inlet related manuscripts proposed for write-up in FY02:

"The role of food supply and environmental variability in the regulation of seabird populations" (adapted from Chapter 14 in Final Report, synthesis of major findings on Cook Inlet environment, fish, and seabird biology and behavior) {Piatt et al.} Ecological Monographs

"Feeding ecology of Common Murres and Black-legged Kittiwakes in relation to food availability in lower Cook Inlet". (details of adult and chick diet composition, prey characteristics, prey selection versus availability, energy delivered to chicks) {Van Pelt, Shultz, Litzow et al.} Marine Ecology Progress Series

"Chick feeding rates, foraging time budgets, and nest site attendance of Common Murres and Black-legged Kittiwakes at three colonies with differing food regimes" (details and synthesis of behavioral data in relation to food) {Shultz, van Pelt, Harding et al.} Behavioral Ecology

"Breeding biology of Common Murres and Black-legged Kittiwakes in relation to food availability" (details and synthesis of data on laying, hatching, fledging and overall breeding success, chick growth and body condition of adults and chicks, in relation to food). {Litzow, Shultz, Harding, et al.} Ecology

"Spatial associations of seabirds and their prey around three colony sites in Lower Cook Inlet, Alaska" (measure and compare degrees of aggregation of birds and prey at varying scales to examine how seabird foraging patterns and strategies vary with changes in prey abundance, distribution, and species composition) {Speckman et al.} Marine Ecology Progress Series

"Foraging ecology of seabirds in Lower Cook Inlet, Alaska" (Ph.D. dissertation, University of Washington, School of Fisheries. Will consist of 3 main chapters, each addressing different aspects of the foraging ecology of seabirds, i.e., oceanographic influences on prey dispersion, characteristics of prey schools used by seabirds, temporal and spatial association of seabirds and their prey) {Speckman}

"Costs of egg production in common murres" (from M.Sc. thesis, results of manipulative experiment to assess reproductive costs of egg production at a food stressed colony) {Van Pelt et al.} Oecologia

"Breeding biology and feeding ecology of horned puffins at Chisik Island, Alaska" (from M.Sc. thesis, self-explanatory, details of 5 years of research) {Harding, Piatt, et al.} Condor

Cook Inlet related manuscripts, papers, and theses completed or in final stages of preparation:

Piatt, J.F., et al. 2001. Can seabirds recover from effects of the Exxon Valdez oil spill? (adapted from Chapter 14 of Final Report, consideration of ecological factors limiting recovery, current status of colonies in Cook Inlet, and forecast of future) for Biological Conservation

USGS and USFWS. 2001. Numerical and Functional Response of Seabirds to Fluctuations in Forage Fish Density. Exxon Valdez Oil Spill Restoration Project Final Report (Restoration Project 00163M), Alaska Biological Science Center, U.S. Geological Survey, Anchorage, Alaska. 450 pp.

Harding, A., J.F. Piatt, T. Van Pelt and A. Kitaysky. 2001. Parental Flexibility: An experimental reduction of provisioning effort in response to chick nutritional status in the Horned Puffin (*Fratercula corniculata*). Mss. submitted to Behavioural Ecology and Sociobiology.

Harding, A. M. 2001. The breeding ecology of Horned Puffins *Fratercula corniculata*. M.Sc. Thesis, University of Durham, England. 74 pp.

Abookire, A.A., J.F. Piatt, and B.L. Norcross. 2001. Summer habitat of juvenile groundfishes in Kachemak Bay, Alaska. *Accepted.* Alaska Fisheries Research Bulletin.

Litzow, M. A., J. F. Piatt, A. K. Prichard and D. D. Roby. 2001. Quality- predictability tradeoffs: Reproductive consequences of prey availability for the pigeon guillemot. Submitted to Ecologia.

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Litzow, M., J. Fischer, G. Golet, J. Piatt. 2001. Foraging effort of breeding Pigeon Guillemots: are high quality prey harder to catch? *In preparation*. For submission to Auk.

Kitaysky, A., J. Wingfield, and J. Piatt. 2000.Corticosterone facilitates begging and affects resource allocation in the Black-legged Kittiwake. *In Press.* Behavioral Ecology.

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Van Pelt, T.I. 2000. Reproductive costs and their expression in the Common Guillemot *Uria aalge.* M.Sc. Thesis, University of Glasgow, Scotland. 119 pp.

Romano, M.D. 2000. Effects of diet on growth and development of nestling seabirds. M.Sc. Thesis, Oregon State University, Corvallis OR. 59 pp.

Abookire, A.A., J. F. Piatt and M.D. Robards. 2000. Nearshore fish distributions in an Alaskan estuary in relation to stratification, temperature and salinity. Estuarine, Coastal and Shelf Science 51: 45-59.

Piatt, J.F. and A.S. Kitaysky. 2000. Horned Puffin (*Fratercula corniculata*). *In* The Birds of North America (A. Poole and F. Gill, Eds.). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists Union. Mss. *Accepted.*

Litzow, M.A., J.F. Piatt, A.A. Abookire, A.K. Prichard, and M.D. Robards. 2000. Monitoring temporal and spatial variability in sandeel (*Ammodytes hexapterus*) abundance with pigeon guillemot (*Cepphus columba*) diets. ICES Journal of Marine Science 57: 976-986.

Seiser, P. E., L. K. Duffy, A. D. McGuire, D. D. Roby, G. H. Golet, and M. A. Litzow. 2000. Comparison of pigeon guillemot, *Cepphus columba*, blood parameters from oiled and unoiled areas of Alaska eight years after the *Exxon Valdez* oil spill. Marine Pollution Bulletin 40:152-164.

Robards, M.D. 2000. Ecology and demographics of Pacific sand lance, *Ammodytes hexapterus* Pallas, in lower Cook Inlet, Alaska. M.Sc. Thesis, Memorial University of Newfoundland, St. John's, Canada. 105 pp.

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Ostrand, W. D., T. A. Gotthardt, S. Howlin, J. Kern, and M. D. Robards. 2000. Habitat selection by Pacific sand lance in Prince William Sound, Alaska. *In preparation.* To be submitted to Fishery Bulletin.

Anderson, P.J., and J.F. Piatt. 1999. Community reorganization in the Gulf of Alaska following ocean climate regime shift. Marine Ecology Progress Series 189:117-123.

Piatt, J.F., G. Drew, T.Van Pelt, A. Abookire, A. Nielsen, M. Shultz, and A. Kitaysky. 1999. Biological effects of the 1997/1998 ENSO event in lower Cook Inlet, Alaska. PICES Scientific Report No. 10:93-100.

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Kuletz, K. and J.F. Piatt. 1999. Juvenile Marbled Murrelet nurseries and the productivity index. Wilson Bulletin 111:257-261.

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Robards, M. D., Willson, M. F. Armstrong, R.H., Piatt, J.F., (eds). 1999. Sand lance: a review of biology and predator relations and annotated bibliography. Research Paper PNW-RP-521. Portland, OR, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 327 p. [http://www.fs.fed.us/pnw/pubs.htm]

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Piatt, J.F., and R. G. Ford. 1996. How many seabirds were killed by the *Exxon Valdez* oil spill? Pp. 712-719 in: Exxon Valdez Oil Spill Symposium Proceedings. Rice, S. D., R. B. Spies, D. A. Wolfe and B. A. Wright, (Eds). American Fisheries Society Symposium 18, Bethesda, Maryland.

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C. Cooperating Agencies, Contracts, and Other Agency Assistance

Writing of papers will be conducted in collaboration with personnel at the Alaska Maritime National Wildlife Refuge, USFWS. Contracts will be issued to support Suzann Speckman and Ann Harding.

SCHEDULE

A. Measurable Project Tasks for FY 02

June 30, 2003 Final Synthesis Manuscripts Completed.

B. Project Milestones and Endpoints

September 30, 2003 All final manuscripts for synthesis submitted for journal publication.

C. Completion Date

September 30, 2003

PUBLICATIONS AND REPORTS

See objectives above for publications.

PROFESSIONAL CONFERENCES

None budgeted

NORMAL AGENCY MANAGEMENT

N/A

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

This project integrates studies conducted as part of the EVOSTC APEX project with those funded by the USGS and MMS.

EXPLANATION OF CHANGES IN CONTINUING PROJECT

N/A

PRINCIPAL INVESTIGATOR

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PRINCIPAL INVESTIGATOR

Dr. John F. Piatt, Research Biologist (GS-14) with the Alaska Science Center, Biological Resources Division, USGS in Anchorage. Obtained a Ph.D. in Marine Biology from Memorial University of Newfoundland in 1987 (dissertation on seabird-forage fish interactions). Since 1987, studied seabirds at colonies and at sea in Gulf of Alaska, Aleutians, Bering and Chukchi seas. Author on 90 peer-reviewed scientific publications about seabirds, fish, marine mammals, and effects of oil pollution on marine birds. Responsible for coordination and oversight of the project.

FY 02 BUDGET

The FY02 budget (see attached) includes only requests for support of staff needed to complete the above reports and manuscripts.

In particular, we need continuing support for Suzann Speckman at the University of Washington. The Ph.D. program at UW is rigorous, and Suzann spent the first three years there doing extensive course-work and exams. Her summers were busy with collecting hydroacoustic and bird survey data. During the past year, Suzann had to completely reanalyze all the acoustic data using new software (EchoView) and contribute to the final report. Now she is busy working on her actual thesis papers, and with no other obligations, should make good progress during the remainder of 2001 and 2002. Suzann is supported through a cooperative agreement with UW, and it is essential that we continue to support her so she can finish what she has started.

Other support is needed to pay staff to complete preparation of manuscripts for publication, some of which is from thesis work recently completed.

No funds are requested for field work, travel or supplies.

Approved TC 8-6-01
w/attached addendum

APR 12 2001

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

Youth Area Watch

Project Number:	02210
Research Category:	General Restoration
Proposer:	Chugach School District
Lead Trustee Agency:	ADF&G
Cooperating Agency:	DNR
Alaska SeaLife Center:	Yes
Duration:	7th year, seven year project
Cost FY 02:	$90,000 (project) plus $6.3 (ADF&G GA) = $96.3 total
Geographic Area:	Prince William Sound, Resurrection Bay and Lower Cook Inlet including: Cordova Harbor and Orca Inlet, Port San Juan and Evans Island, Tatitlek Narrows, Boulder Bay, Landlocked Bay
Injured Resource/Service:	Harbor seal, mussels, pink salmon, killer whales, subtidal and intertidal communities, subsistence, passive.

ABSTRACT

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

INTRODUCTION

Since the inception of Youth Area Watch, coordination between research and restoration projects and the communities affected by the oil spill continues to increase. Resulting from many factors, community involvement in the restoration process continues to grow and strengthen; Youth Area Watch is an example of this coordinated effort through the connection that students, the communities and researchers maintain. This relationship creates an environment where youth are encouraged to interpret the data collected and apply the information to the ecosystem.

Students from the oil spill impacted communities are screened and selected for participation in Youth Area Watch at the beginning of each school year. Those showing an interest, academic ability and concern for the oil spill effects on local ecosystems are invited to represent their community as a student of the project. Students work with principal investigators of research projects and community facilitators, as well as independently to achieve the set project objectives.

Three core research projects funded by the Trustee Council serve as the central link for all Youth Area Watch activities. Initial cooperating projects include pristane mussel analysis (02195), harbor seal management and biological sampling (02244F) and comprehensive killer whale investigation in Prince William Sound (02012A). These projects continue to work with Youth Area Watch, providing specific research activities for students to conduct and protocol training for those duties. According to protocol, students collect samples and data for the cooperating research and monitoring projects. The samples and data are compiled by a Youth Area Watch project coordinator located in Anchorage and sent on to the principal investigator of the respective projects. Information on the data collected is maintained by the project coordinator for project analysis conducted by the students during group project sessions.

Yearly, students select a local restoration project to conduct. As in previous years, students will begin by completing a planning process during the winter months. Students work with local Community Involvement coordinators to integrate, where possible, their knowledge and expertise.

Students will post project information on their web site (http://www.micronet.net/users/~vaw) for the public to view. This information will be updated throughout the project year.

NEED FOR THE PROJECT

A. Statement of Problem

Youth Area Watch, identified by the Trustee Council as a "general restoration" project, is committed to collecting the requisite samples and data for principal investigators of research projects to make informed decisions concerning the ecology of oil spill impacted areas. Research and restoration project PI's identify needed data collection within the oil spill impacted communities that in many instances can best be facilitated through local involvement of community residents.

Given the finite resources available for project activities, cost containment is necessary. By working with local community youth, information can be collected at a minimal cost. In addition, a greater quantity of data collection from an increased number of sites throughout the year can be accomplished by Youth Area Watch project activities.

As a part of the Memorandum of Agreement and Consent Decree approved by the U.S. District Court, "meaningful public participation in the injury and assessment and restoration process" is recognized as an important component of the restoration process. While there are a variety of instituted mechanisms for this involvement, Youth Area Watch offers positive examples of meaningful public participation expressed by the oil spill impacted communities through the involvement of community facilitators (Community Involvement \052A) and other community-based projects. The project continues to receive strong support both within the communities that it is conducted as well as among the principal investigators involved with the youth.

B. Rationale/Link to Restoration

Community-based participation in ecosystem restoration is supported by recent research. Graduate field ecology work conducted through SUNY, Stony Brook applied co-management principles to revitalize the Oak Brush Plains Preserve of Long Island, New York (Block, p. 38). In this exercise, a local group familiar with the environment assisted in replanting and management efforts while the researcher actively participated in their experiential activities so that cooperative management strategies could best be achieved. This approach is supported by research techniques used in other ecological restoration projects such as fisheries (Pinkerton) and tropical rain forests (Allen). Furthermore, the link between Native cultures and environmental revitalization has gained significant support as a mechanism for sustaining ecological practices within communities (Rogers-Martinez). Given this research, appropriate extension is made to youth within the restoration region so that "the issue of how people will inhabit, utilize and maintain the area in a manner that sustains its integrity" can be addressed (Block, p. 38).

Youth Area Watch is based on the commitment by principal investigators of research and restoration projects to involve students in their work. Participating projects are funded by the Trustee Council and have met the guidelines under the settlement. It is through the

cooperating projects that Youth Area Watch holds an interest in the immediate restoration activities.

As a long-term goal, project activities are expected to provide the foundation for long-term commitment to restoration of the impacted area to pre-spill levels. Involvement of youth in research and monitoring activities is essential in developing local commitment to the restoration plan adopted by the Trustee Council. Cooperating PI's request precise and detailed sampling/data collection from the youth. Students, in turn, have increased their knowledge and participation through their connection to the projects. As a result, students are now stakeholders in the restoration process.

C. Location

While Youth Area Watch is administered through the Chugach School District's main office in Anchorage by project coordinators, project activities currently take place in the nine participating communities and in the oil spill impacted area. Local communities include Chenega Bay, Cordova, Port Graham, Nanwalek, Seldovia, Seward, Tatitlek, Valdez and Whittier.

The science teacher (site teacher) within each of the nine communities oversees the day-to-day activities pertaining to the project. Project coordinators travel to the local communities to facilitate in-class integration of project activities and off-shore research in specific locations of importance to the identified research projects. Local projects activities identified by each site occur at or near the community.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

One of the main goals of Youth Area Watch is to facilitate community involvement in the restoration process at a primary and secondary school age. It is through community interest and participation that the project has had a positive impact on students. Ultimately, long-term impacts, to include local ongoing restoration and ecosystem sustainability, are anticipated as youth conduct established research and apply this knowledge to community efforts to understand and preserve species affected by the oil spill. As a result, communities continue to request participation in Youth Area Watch.

Local oil spill impacted communities are involved and participate in Youth Area Watch. The local facilitators of Community Involvement (/052A) continue to work with students and the community Youth Area Watch activities to involve youth. Local facilitators and parents of participating youth assist with various aspects of project activities such as serving as chaperones, providing traditional ecological knowledge and coordinating opportunities for youth to work with local projects. Through this cooperative effort, information is exchanged between projects and across generations.

As a component of the project scope, students at each site are asked to identify a local project that they will conduct. Through these local projects, students gain a greater understanding of what the research and restoration process means at the community level, as well as an interest in meaningful project outcomes.

PROJECT DESIGN

A. Objectives

Selected students from the identified communities participate in research and restoration activities set out by Alaska Department of Fish and Game principal investigators, NOAA staff, University of Alaska, Fairbanks biologists and other project principal investigators working with Youth Area Watch. As part of an area watch project that works with existing research and restoration projects, students collect samples and data that is then provided to the respective projects.

Youth Area Watch objectives include:

1. Research project principal investigators interacting with students.
2. Identifying all research and data collection activities.
3. Updating memoranda of agreement with school districts.
4. Completing site teacher orientation.
5. Conducting school orientations for students on Youth Area Watch.
6. Selecting students to participate in Youth Area Watch.
7. Conducting site teacher training on project activity protocol.
8. Completing the student project orientation and training.
9. Conducting oceanographic data collection.
10. Assisting local hunters/technicians collecting harbor seal biological samples.
11. Conducting a local research/restoration projects.
12. Maintaining a Youth Area Watch web site.
13. Collecting blue mussels for pristane/mussel analysis.
14. Facilitating project follow-up training for site teachers.
15. Conducting killer whale monitoring

B. Methods

The Chugach School District currently works with the Kenai Peninsula Borough School District, Cordova School District and Valdez School District through memoranda of agreement so that the communities of Chenega Bay, Cordova, Nanwalek, Port Graham, Seldovia, Seward, Tatitlek, Valdez and Whittier may participate. School districts will operate under the existing agreements during the seventh project year.

Youth Area Watch project coordinators work with the principal investigators of the cooperating projects to solidify project expectations. Protocol is established for

sample/data analysis. In addition, principal investigators commit to working with the students for a period of time during the training and/or data collection stage.

The Chugach School District developed an application and screening tool to select students for participation in the project. Up to 28 students will be selected from the communities to be a part of Youth Area Watch. While the distribution may vary according to the interest and ability of students that apply, it is expected that the distribution will be as follows: two students from Chenega Bay, three students from Cordova, two students from Port Graham, two students from Nanwalek, two students from Seldovia, six students from Seward, three students from Tatitlek, four students from Valdez, three students from Whittier, and one remote site student.

Prior to the beginning of school in the fall, participating Youth Area Watch teachers at the local sites will come together for an orientation session facilitated by project coordinators. It is anticipated that site teachers will again receive protocol training directly from principal investigators. This training will occur at one community site and the training will be videotaped for future referral.

Youth Area Watch relies on the participation of research projects, sites and program resources to successfully fulfill the project objectives. Throughout the project year, students travel to research vessels, specific project sites near their community and research labs in the process of project activity completion. In the past year, Youth Area Watch was able to coordinate with projects conducting research cruises and work cooperatively on task completion while sharing the costs of vessel hiring. In FY99, FY 00 and FY01, Youth Area Watch coordinators assisted with the coordination of harbor seal protocol training. It is expected that this type of cooperative effort will continue in the present and coming years.

Students will participate in the core research projects as a group. This will consist of coming together as a group to work on collection protocol, as well as conducting activities for these projects in their community. In addition, students will participate in local projects that pertain to their geographic area. It is during the local project work that students receive a high degree of one-on-one interaction and involvement with principal investigators and their research. Youth Area Watch coordinators will continue to be open to working with other projects funded by the Trustee Council if students can have meaningful participation in these projects.

Ongoing Youth Area Watch research and restoration projects include:

1. Pristane/mussel analysis, Project Number 01195. Jeff Short and Pat Harris at the NOAA Auke Bay laboratory study the pristane levels in blue mussels. There are approximately thirty mussel collection sites in Prince William Sound. Students will continue to collect mussels twice a month at sites appropriate for collection according to set protocol. During the fall and winter months, students are responsible for overall mussel bed seasonal watch. Students will tag, identify mussel bed characteristics and predator/prey activities.

2. Harbor seal management and biological sampling, Project Number 01244F. The project is conducted by Monica Reidel of the Alaska Native Harbor Seal Commission, in cooperation with Vicki Vanek from the Department of Fish and Game in Kodiak. After they have participated in traditional ecological knowledge and protocol training, students will pair up with local technicians/hunters and assist with bio-sampling activities. Students collect different parts of the seal, including the skin, blubber, teeth and stomach. Adherence to sampling protocol is ensured by working directly with the local hunters.

3. Comprehensive Killer Whale Investigation in Prince William Sound, Project Number 01012A. The principal investigator is Craig Matkin. The project tracks the killer whale population in Prince William Sound and Kenai Fjords. Whales are photographed and cataloged based on identifying markings and family relationships. Genetic studies on the whales are also conducted through the use of darting. Students will assist in locating and identifying the whales during day cruises in and around Resurrection Bay.

In addition to the core projects in which Youth Area Watch students participate, each site is selecting a restoration project to work on in their local community. This restoration activity is something that the students select and not necessarily a project that is currently funded by the Trustee Council. However, local projects are closely linked to existing restoration activities.

Coordination between Youth Area Watch and participating research projects remains strong. Where possible, research vessel costs are shared to maximize resources for project activities. In the case of the pristane/mussel project, Youth Area Watch has paid for the biologist's chartered flights to sites for mussel collection to allow students to participate in the process. In other instances, time and resources are contributed by participating projects to Youth Area Watch.

At this point, the YAW project is in the midst of a metamorphosis. With the trustee council transitioning to the greatly reduced work level of the GEM program, YAW must transition also if it is to remain vital and current. There is a significant degree of uncertainty within the research community as to what exactly the GEM program will look like. In the current climate, we must remain flexible and agile so as to most advantageously position ourselves to participate in long term research and monitoring projects. While we maintain our working understanding with the three previously mentioned projects, (Pristane/mussel analysis, Project Number 01195, Harbor seal management and biological sampling, Project Number 01244F and Comprehensive Killer Whale Investigation in Prince William Sound, Project Number 01012A), we expect that changes in the working protocol will probably occur. We also fully expect to forge new, long-term partnerships as the GEM program settles into a more steady state.
During this time of funding reductions, student contributions to research projects will become more and more important. The past six years have allowed us to demonstrate that students can cost effectively and reliably collect scientific data for existing projects. As we

move toward a program of low cost, high yield monitoring, it is time for our previous work to bear fruit. The many relationships we have built within the research community will serve us well in the next chapter of the Youth Area Watch program.

As funding for the Youth Area Watch project comes from increasingly non-trustee sources, and the pool of Trustee Council projects diminishes, the project will transition to include some non-Trustee Council funded projects. This shift will be necessary in order to meet the goals of the original project proposal and provide a long-term role for middle and high school students in research and restoration projects.

Objectives and Activities

Objective 1: Youth Area Watch students will interact with research project principal investigators, gaining a greater understanding of the affects of the oil spill on the ecosystem.

- Activity 1: Principal investigators commit to working with students directly at least once during the project year.[1]
- Activity 2: Students work beside principal investigators during field work.
- Activity 3: Students independently conduct activities set out by the principal investigators.
- Activity 4: Students draw conclusions from their independent work to be reported at the annual Science Review.
- Activity 5: Students work with Community Involvement (/052) local facilitators and community members to increase awareness of restoration activities and the status of the ecosystem.

Objective 2: Project coordinators identify all research and data collection activities to be conducted by students at all sites participating in Youth Area Watch.

- Activity 1: Project coordinators meet with the principal investigators or delegate project research personnel either by phone or in person to set student activity parameters.
- Activity 2: Activity protocol forwarded by the principal investigator or delegate, including sample and data forwarding process, to project coordinators.

[1] It is expected that additional contact occur throughout the project year, though not necessarily in person. Research project PIs receive updates and samples according to the protocol set out for students.

Activity 3: Project coordinators finalize project activities for site teacher and students.

Objective 3: Project coordinators update memoranda of agreement with the Valdez School District, Cordova School District, and Kenai Peninsula Borough School District for participation in Youth Area Watch.

Activity 1: Project coordinators contact each school district to evaluate the current agreement and make any necessary changes.

Activity 2: Site teachers are identified by each school district for the participating communities.

Objective 4: Site teachers receive Youth Area Watch project orientation.

Activity 1: Project coordinators develop an orientation and training session plan in consultation with research project principal investigators.

Activity 2: Project coordinators set a date in the early part of October to conduct orientation. Site teachers are contacted to determine the most appropriate dates.

Activity 3: Project coordinators perform site teacher orientation and training.

Objective 5: Project coordinators conduct school orientations on Youth Area Watch.

Activity 1: Project coordinator travels to each participating school site prior to beginning the project year.

Activity 2: Project coordinators present Youth Area Watch to community science classes. Students that have participated in prior years will be asked to assist.

Activity 3: Students will be informed of the process to apply and participate in Youth Area Watch '02.

Objective 6: Students are selected to participate in Youth Area Watch.

Activity 1: Project coordinator distributes student applications to project sites. All village council/tribal offices (Chenega Bay, Seward, Tatitlek, Valdez, Seldovia, Port Graham, Nanwalek) will receive application forms, as well as the Valdez, Cordova and Kenai Peninsula Borough School Districts for their respective community sites.

Activity 2: Project coordinators convene a committee to review student applications for Youth Area Watch participation. The committee is comprised of Chugach School District staff and may be assisted by participating school district staff and community facilitators (/052).

Activity 3: The review committee examines applications and selects students based on science interests, academic achievement, maturity and site teacher recommendation.

Objective 7: Project coordinators conduct site teacher training on project activity protocol.

Activity 1: Project coordinators set a date in early October for site teacher protocol training and coordination

Activity 2: Project coordinators request the attendance of research project principal investigators at the site teacher orientation.

Activity 3: Project coordinators facilitate a protocol training session to ensure that correct information and research practices are followed by students during the project year.

Objective 8: Project coordinators complete the student project orientation and training. All participating students from the community sites collectively meet at the Seward SeaLife Center for the Youth Area Watch introduction and preliminary activity participation.

Activity 1: Project coordinators work with SeaLife Center staff to determine appropriate dates for orientation.

Activity 2: The project coordinators invite research project principal investigators to participate in the student orientation.

Activity 3: The Youth Area Watch principal investigator coordinates travel arrangements for student participation in the orientation.

Activity 4: In cooperation with the research project principal investigator(s), project coordinators conduct the student orientation to Youth Area Watch goals, responsibilities and activities. Students learn about the ecosystems, and identify ways in which project activities fit into the biotic cycle.

Objective 9: Students conduct oceanographic data collection in their local communities. Site teachers oversee these activities.

Activity 1: Students take twice monthly water temperature and salinity readings at their local site.

Activity 2: A weather station is installed at each site under the supervision of the site teacher. Students measure the wind speed and direction, air temperature and barometric pressure.

Activity 3: Data is collected at each site and transmitted to the project coordinator periodically.

Activity 4: Data is posted on the Youth Area Watch web page by the project coordinators

Objective 10: Students assist local hunters/technicians collecting harbor seal biological samples.

Activity 1: Project coordinators work with principal investigators to coordinate harbor seal biosampling trainings for students and local hunters.

Activity 2: Students analyze an available sample to become acquainted with what is taken and what to look for in a sample. Students collect various parts of the seal for analyzing, which include: skin, blubber, teeth, stomach, skull, liver, heart and kidney. Additionally, measurements and weight are taken for each animal.

Activity 3: Students at local sites participate in taking samples from harvested seals.

Activity 4: Students assist the hunter/technician in preparing the sample for shipment to the harbor seal management principal investigator.

Objective 11: Each community site conducts a local research/restoration project.

Activity 1: The site teachers and project coordinator work with participating students to identify a local research/restoration project.

Activity 2: During the winter months of November through January, students develop a plan for their local restoration project. This is completed with the appropriate assistance and coordination of community facilitators.

Activity 3: Site teachers work with project PIs where appropriate to develop protocol for student participation.

Activity 4: Students conduct local project activities according to protocol

and timelines set out by site teachers.

Activity 5: Students provide data/samples to project PIs according to protocol.

Objective 12: Students maintain a Youth Area Watch web site.

Activity 1: Students become Internet proficient and learn to update their web site with current YAW information.[1]

Activity 2: Students analyze data collected from the research projects, both past and current.

Activity 3: Using the established reporting format, the data is posted on the web site.

Activity 4: Students update data on research activities as necessary.

Objective 13: Students at each site collect blue mussels for pristane/mussel analysis.

Activity 1: Students tag and identify mussel bed characteristics during fall and winter months at their local sites.

Activity 2: Students note predator/prey activity at the identified mussel bed sites monthly.

Activity 3: Students collect mussels according to principal investigator request during the spring months. Sites are selected by the principal investigator and noted in project reporting.

Activity 4: Students label and cold storage mussels for transport to the Auke Bay laboratory in Juneau.

Activity 5: Students send mussels to project coordinators once an adequate collection has accumulated for transport to Auke Bay Labs.

Activity 6: Students count mussels in the beds according to set protocol.

Activity 7: Students compile site data for transmission to the project coordinator.

Activity 8: Students travel to the Auke Bay laboratory to participate in the analysis of data.

[1] While many students will be familiar with the Internet, some communities recently linked will need training. Additionally, previous Youth Area Watch participants may be proficient at updating the web site, yet new students will need assistance.

Objective 14: Project coordinators facilitate project follow-up training for site teachers in the spring.

Activity 1: Project coordinators set a date convenient for site teachers to conduct a spring follow-up session.

Activity 2: Project coordinators invite principal investigators of participating projects to assist in the follow-up session.

Activity 3: Project coordinators facilitate a follow-up session for site teachers to share information and identify strategies for improving student activities.

Objective 15: Students participate in killer whale identification project.

Activity 1: Principal investigators train students in killer whale identification methods. Students are also informed of project scope and goals.

Activity 2: Students participate in a day cruise with principal investigators to track and identify killer whales in and around Resurrection Bay including: hydrophonic monitoring of whales, photographic recording of individual animals, and darting to obtain blubber and skin samples.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

The Chugach School District serves as the administrative agency for Youth Area Watch through their contract with the Department of Fish and Game. The school district has shown that it is an effective link to the students and communities impacted by the oil spill. As the administrative entity, the Chugach School District will maintain memoranda of agreement with the Valdez School District, Cordova School District and Kenai Peninsula Borough School District as the school districts that serve the identified communities.

The Chugach School District continues to work with the Chugachmiut and Chugach Regional Resources Commission to coordinate and exchange community information with regard to regional restoration activities. As the coordinating agency for community involvement, Chugach Regional Resources Commission works with the youth through the local facilitators so that students may participate in research and restoration activities.

Since the inception of the project, significant contributions have been made and are identified in the budget. Contractors have provided discounted services, as in the case of vessel hiring. Expensive equipment used in project activities are offered by coordinating agencies. Cooperating agencies provide technical assistance, student supervision and support for project activities. The Chugach School District relies heavily on the

commitment and participation of cooperating school districts involved in the project. Site teachers dedicate their time to the goals of Youth Area Watch, serving as an in-kind contribution.

In keeping with its commitment to secure additional support for Youth Area Watch activities, Chugach School District has sought and received two significant grants that offset the cost of the project. A three-year ($1,450,000) M.A.T.E. grant allows the District to couple real life activities with education, focusing on how these experiences will be applied in adulthood; a particular objective of the grant is directed at science opportunities in response to Youth Area Watch. The second grant is a three-year ($510,000) 21-Century grant from the Department of Education that provides funds for real life after-school activities for students. In addition, the district will continue to commit general funds to the project and will seek out alternative funding sources as the program transitions away from Trustee Council support. The success of the project activities motivates the Chugach School District to commit additional funding through diversified means so that the youth are equipped to continue their restoration and ecological management activities as an integral component of their education.

As Trustee Council responsibility for restoration activities decreases due to the decline of settlement funds, the project coordinators continue to pursue opportunities where Youth Area Watch project activities can transition to a more stable position. Toward this end, the school district maintains cooperative relationships with entities engaged in ecological management and restorative projects, independent of Trustee Council funding. Particularly with respect to local restoration projects where other agencies, organizations and private groups are involved, the Youth Area Watch project scope is expanding so that a smooth shift of focus can occur. By building and maintaining these cooperative working relationships, resource exchanges can be enhanced to augment other district resources.

SCHEDULE

A. Measurable Project Tasks for FY 02 (October 1, 2001 - September 30, 2002)

July 1 - August 1, 2001:	Confirm research & data collection activities
August 15 - 31, 2001:	Site teacher orientation
September 1 - 18, 2001:	School site orientations
September 15 - 30, 2001:	Students selected for participation
October 1 - 31, 2001:	Site teacher training on protocol
October 1 - 31, 2001:	Student orientation and training
November 1 - 7, 2001:	Sites prepare weather stations
November 1 - July 30, 2002:	Students participate in research activities
November 1 - May 31, 2002:	Students maintain web site
March 1, 2002:	Project Coordinator sends data to PIs
May 1 - 15, 2002:	Site teacher follow-up training
June 1, 2002:	Project Coordinator sends data to PIs
June 1, 2002:	Students complete project reports for FY 01

Ongoing Activities:

February 02 - August 02:	Student bi-monthly collection of mussels
October 01 - September 02:	Student mussel bed monitoring
October 01 - September 02:	Student weather station monitoring (daily)
October 01 - September 02:	Students collect harbor seal samples with local hunters
October 01 - September 02:	Students conduct local project activities
October 01 - September 02:	Students assist in documenting local TEK
October 01 - September 02:	PIs interact and exchange information with students

B. Project Milestones and Endpoints

October 17, 2001:	Students selected for participation
October 30, 2001:	Protocol training complete
November 1, 2001:	Students conduct project activities
March 1, 2002:	Data/samples to PIs
June 1, 2002:	Data/samples to PIs and reports complete
October 17, 2002:	Students selected for participation
October 30, 2002:	Protocol training complete
November 1, 2002:	Students conduct project activities
March 1, 2003:	Data/samples to PIs
June 1, 2003:	Data/samples to PIs and reports complete

C. Completion Date

Objectives identified in the project design will continue to serve as guidelines for community involvement within the civil settlement throughout the life of the restoration effort. It is expected that the Youth Area Watch project will continue beyond the seven years of Trustee Council Funding.

PUBLICATIONS AND REPORTS

Youth Area Watch was featured in "The Science Teacher," "Living on Earth" and "Alaska Magazine." Copies of these articles have been forwarded to the Restoration Office. In addition, the project has been featured on NPR. The project will also be featured during state-wide broadcasts on the Alaska Rural Communication System during programs on standards in education.

The Youth Area Watch Web site www.micronet.net/users/~yaw continues to be an important venue for students to both receive and distribute information. Each project that students work with has a student generated page of explanation and photographs. There is also space for students reports on their own local restoration projects as well as meteorological and oceanographic data. The site is utilized by students during training at the beginning of the year as they attempt to learn about each of the projects with which they will participate work over the course of the year. FY '02 will be the second year that all of the community schools involved in the project are online. This connectivity has been a strong benefit in allowing the project coordinator to communicate directly and regularly with students at each school. This increase in communication and coordination enables more flexible and responsive action by project coordinators and school site participants.

PROFESSIONAL CONFERENCES

Throughout the year, Chugach School District administrative staff showcase Youth Area Watch. This year, the project will be highlighted to the Oxford Coalition at Harvard University and to members of the Gates Coalition at their annual meeting. Youth Area Watch will also be a feature in the Principal Investigator's keynote speech to the National Quality School Conference in Los Angeles California.

NORMAL AGENCY MANAGEMENT

This section is not applicable.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Youth Area Watch relies on the participation of Trustee Council funded projects to maintain coordination with restoration efforts. Through the commitment of principal investigators, youth conduct research activities with and for participating projects. Students work independently, as well as beside researchers during the project year. Costs

are shared between projects to allow for increased research vessel time and one-on-one interaction between students and the researchers.

Various people contribute the necessary technical assistance and resources. Local community facilitators from Community Involvement (/052) work with students and serve as chaperones for project activities. School districts provide teacher time and facility space for activities.

A variety of funding sources and project contributions ensure the success of the project. The Chugach School District commits over $142,000 in FY '02 to the project. These funds come in the form of administrative time, certified teacher time, travel expenses and housing for students. Other school districts contribute $58,300 in teacher time and $21,420 in facility resources. Communities and school districts contribute $11,600 in lodging. Equipment in-kind contributions total $6,200. Participating principal investigators from research projects contribute $8,520 worth of their time.

PROPOSED PRINCIPAL INVESTIGATOR

Richard DeLorenzo
Chugach School District
9312 Vanguard Drive, Suite 100
Anchorage, AK 99507
Office: (907) 522-7400
Fax: (907) 522-3399

PRINCIPAL INVESTIGATOR

Richard DeLorenzo is the superintendent of the Chugach School District. He maintains administrative authority over all day-to-day functions of the district's activities. Mr. DeLorenzo has extensive experience administering grants, adhering to project objectives and managing budgets. Mr. DeLorenzo will be directly responsible for budget expenditures, negotiating contracts and working with the participating school districts to ensure effective project management.

OTHER KEY PERSONNEL

Project Coordinator: Randy Fleharty is a certified secondary teacher with Bachelor of Science degree in physics. Mr. Fleharty's responsibilities include:

1. working with principal investigators of research projects to ensure proper protocol.
2. coordinating student selection process.
3. coordinating all orientation and training sessions with site teachers and staff.
4. ensuring that site teachers and students have proper supplies.
5. completing site visits.
6. monitoring project activity of students.
7. providing support to site teachers.
8. coordinating principal investigator-student interaction through research.
9. transmitting data to principal investigators.
10. completing necessary project reports and/or materials for publication.
11. continuing to seek additional funding sources for project activities beyond the life of the Trustee Council.

LITERATURE CITED

Allen, W.H. "Biocultural Restoration of a Tropical Forest." Bioscience. 38(3): 156-161, 1988.

Block, Mindy. "Pine Barrens - Upland Associations." Notes, 1997.

Pinkerton, E. Cooperative Management of Local Fisheries: New Directions for Improved Management and Community Development. Vancouver: University of British Columbia Press, 1989.

Rogers-Martinez. "The Sinky One Intertribal Park Project." Restoration & Management Notes, 1992.

Rec'd 5-18-01, #2
approved TC 8-6-01

ADDENDUM TO PROJECT 02210 DETAILED PROJECT DESCRIPTION:

Subsequent to the original submission of the project 02210 DPD, a significant opportunity has presented itself. Please consider this addendum to the project 02210 DPD.

The JASON foundation is a nonprofit organization dedicated to education and community outreach in the area of environmental science and research. The program originated with Dr. Robert Ballard and his famous expedition to the RMS Titanic. After discovering the wreck of the RMS Titanic, world-famous explorer and oceanographer Dr. Robert Ballard received letters from students around the world who wanted to go with him on his next expedition. Dr. Ballard founded the JASON Project to bring the thrill of discovery to millions of students worldwide. Since its inception, JASON has undertaken a new expedition each year. Teachers and students world-wide follow each expedition with an extensive curriculum and a two week live broadcast.

Now for its thirteenth expedition, JASON will be coming to South Central Alaska. This year's curriculum and is called "Frozen Worlds" and the live broadcast will take place in Seward at the SeaLife Center and at Portage Lake. In addition to a curriculum that focuses on local organisms, geography, climate and culture, JASON XIII's live broadcast portion will heavily feature annual YAW activities such as harbor seal biosampling and blue mussel collection and analysis.

The JASON project is a significant crossroads between the educational and scientific communities. In many ways the goals of JASON and the goals that the Trustee Council has tried to meet through support of Youth Area Watch are aligned. JASON has a much larger scope and impact than YAW, and this partnership represents a significant opportunity for both organizations. With JASON's decision to come to Alaska this year, the local knowledge and experience contained within the YAW program will be vital to their success. In turn we have the opportunity to achieve some national and international recognition for the excellent work that the Trustee Council and YAW have accomplished over the past six years.

We propose to send all Youth Area Watch site coordinators, and five additional teachers, two from Seward, two from Valdez and one from Whittier to receive training and curriculum materials to participate in JASON XIII. This training will take place in Anchorage on September 22, 2001. At least one coordinator and two students from the YAW program will participate in the two week live broadcast in Jan/Feb. of 2002. The additional cost to the Trustee Council will be limited to travel, workshop and curriculum expenses for the 14 educators. A total of $9,100, mostly in the area of travel. The Chugach School District will provide lodging during the training (approximately $3,000), and the JASON foundation has agreed to a greatly reduced rate for the training, as well as complete funding for the live broadcast portion of the project (approximately $7,000).

This opportunity should not be missed. Participation in JASON XIII will provide three substantial benefits. First, the JASON foundation is respected by both the education and the science community. They will make a strong partner for Youth Area Watch. Second, the national and international exposure that participation will bring will greatly assist in the ever present task of securing funding to ensure that YAW continues indefinitely. Finally, the JASON training, curriculum and live broadcast will ensure that YAW not only impacts the students in the program but students in classrooms across the

state and the world. Involvement with JASON will be well worth the additional investment.

Approved TC 8-6-0

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002						
Personnel		$32.3						
Travel		$0.0						
Contractual		$12.0						
Commodities		$0.0						
Equipment		$0.0	LONG RANGE FUNDING REQUIREMENTS					
Subtotal	$0.0	$44.3		FY2003				
General Administration		$5.7		0				
Project Total	$0.0	$50.0						
Full-time Equivalents (FTE)		0.7						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:
Final year funds for writing of publications synthesizing results of Cook Inlet reasearch for APEX

FY02

Prepared:

Project Number: 00163M
Project Title: Response of Seabirds to Forage Fish Density
Agency: USGS

FORM 3A
TRUSTEE
AGENCY
SUMMARY

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2000
T. van Pelt	Wildlife Biologist	GS9	2.8	4,062		11.4
M. Shultz	Wildlife Biologist	GS7	2.8	3,400		9.5
M. Litzow	Wildlife Biologist	GS9	2.8	4,062		11.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		8.4	11524.0	0.0	
					Personnel Total	$32.3

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 2000
					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

FY02

Prepared:

Project Number: 00163M
Project Title: Response of Seabirds to Forage Fish Density
Agency: USGS

FORM 3B
Personnel
& Travel
DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FY 2000
Description	
4A S. Speckman, Research Work order with the University of Washington	9.0
Final year of support for PhD thesis in School of Fisheries	
A. Harding, contract with Durham Univ. to complete publications	3.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$12.0

Commodities Costs:	Proposed FY 2000
Description	
Commodities Total	$0.0

FY02

Prepared:

Project Number: 00163M
Project Title: Response of Seabirds to Forage Fish Density
Agency: USGS

FORM 3B
Contractual & Commodities DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 2000
			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

FY02

Project Number: 00163M
Project Title: Response of Seabirds to Forage Fish Density
Agency: USGS

FORM 3B
Equipment
DETAIL

Prepared:

Interim Bdgt 7-5-01
Approved TC 8-6-01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002	LONG RANGE FUNDING REQUIREMENTS					
			Estimated FY 2003					
Personnel		$0.0						
Travel		$0.0						
Contractual		$40.3						
Commodities		$0.0						
Equipment		$0.0						
Subtotal		$40.3						
General Administration		$2.8						
Project Total		$43.1						
Full-time Equivalents (FTE)		0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments:

FY02

Prepared:7/5/01

Project Number: 02190
Project Title: Construction of a Linkage Map for the Pink Salmon Genome
Agency: ADF&G

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Interim Budget 7-5-01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002
Personnel	$132.0	$28.0
Travel	$14.1	$0.9
Contractual	$0.0	$0.0
Commodities	$35.5	$2.5
Equipment	$0.0	$0.0
Subtotal	$181.6	$31.4
Indirect	$41.9	$8.9
Project Total	$223.5	$40.3
Full-time Equivalents (FTE)	3.2	0.5
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2003
$75,000.0

Dollar amounts are shown in thousands of dollars.

Comments:

Indirect costs are based on the University of Montana rate of 43.7% of salaries and wages.

Travel costs are included to attend one scientific meeting to present results.

Personnel time includes time for report and manuscript preparation.

FY02

Prepared: July, 2001

Project Number: 02190
Project Title: Construction of a Linkage Map for the Pink Salmon Genome
Name: University of Montana

FORM 4A
Non-Trustee
SUMMARY

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Personnel Costs:			Months	Monthly		Proposed
	Name	Position Description	Budgeted	Costs	Overtime	FY 2002
	F Allendorf	Project Director	0.5	10.7		5.4
						0.0
	K Lindner	Research Specialist	5.8	3.9		22.6
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
		Subtotal	6.3	14.6	0.0	
					Personnel Total	$28.0

Travel Costs:		Ticket	Round	Total	Daily	Proposed
	Description	Price	Trips	Days	Per Diem	FY 2002
						0.0
						0.0
						0.0
	Travel to a national meeting to present results.	0.6	1	3	0.1	0.9
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
					Travel Total	$0.9

FY02

Prepared: July, 2001

Project Number: 02190
Project Title: Construction of a Linkage Map for the Pink Salmon Genome
Name: University of Montana

FORM 4B
Personnel
& Travel
DETAIL

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FY 2002
Description	
Contractual Total	$0.0

Commodities Costs:	Proposed FY 2002
Description	
Materials and supplies for microsatellite, allozyme, and morphological analysis.	2.0
Equipment repair and maintenance	0.5
Commodities Total	$2.5

FY02

Prepared: July, 2001

Project Number: 02190
Project Title: Construction of a Linkage Map for the Pink Salmon Genome
Name: University of Montana

FORM 4B
Contractual & Commodities DETAIL

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 2002
			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	
Hitachi FMBIO 100 Fluorescent Imaging Scanner	1	

FY02

Project Number: 02190
Project Title: Construction of a Linkage Map for the Pink Salmon Genome
Name: University of Montana

FORM 4B
Equipment
DETAIL

Prepared: July, 2001

Revision 9-12-01
Approved TC 8-6-01

Pristane Monitoring in Mussels

Project Number:	02195
Restoration Category:	Research and Monitoring
Proposers:	Jeffrey W. Short and Patricia M. Harris NMFS, Auke Bay Laboratory ABL Program Manager: Dr. Stan Rice
Lead Trustee Agency:	NOAA
Cooperating Agencies:	None
Alaska Sea Life Center:	No
Duration:	Closeout
Cost FY02:	$ 20,000
Cost FY03:	
Cost FY04:	
Geographic Area:	Prince William Sound
Injured Resource/Service:	Pink Salmon

ABSTRACT

This project has focused on the transport of pristane from *Neocalanus ssp* copepods into mussels in Prince William Sound (PWS) for the past 6 years. In FY00 and FY01 the utility of monitoring the response of pristane in mussels to mass-release of juvenile pink salmon from PWS hatcheries was successfully initiated using pristane concentration levels. In this closeout year, the project will fully analyze 6 years of data to address the seasonal, interannual, and geographic variabilities of pristane concentrations in mussels. The utility of monitoring pristane levels to assess feeding conditions and survival of juvenile pink salmon during their initial marine residence will be evaluated by comparing survival forecasts to actual returns. The relation of marine survival estimates for hatchery pink salmon to wild stocks in PWS will also be examined.

INTRODUCTION

Predicting recruitment is a fundamental goal of fisheries management, but an adequate understanding of the factors modulating recruitment are rarely achieved. This project has been funded in the hope that it would elucidate recruitment factors for salmon and herring in Prince William Sound (PWS)during their early marine phases. Project results, augmented by agency-sponsored research, indicate that monitoring pristane in mussels may provide a basis for predicting marine survival of pink salmon, which might also be applicable to other salmon species (especially chum salmon). In 2000 this project advanced to the validation stage, and compared pink salmon survival forecasts with actual returns, to assess reliability. Preliminary analysis of 2000 and 2001 data indicates that pristane monitoring provides fisheries managers with a new tool to improve salmon and ecosystem management in PWS.

Monitoring the response of pristane in mussels to mass-releases of juvenile pink salmon from PWS hatcheries indicated the key causal link required to predict marine survival. Prince William Sound Aquaculture Corporation (PWSAC) hatcheries in PWS have adopted a strategy of releasing juvenile salmon *en masse* in recent years to minimize predation. Numbers of released juveniles usually range from 20 to more than 100 million per release. Released juveniles immediately begin searching for adequate prey, and they become increasingly vulnerable to predation until prey adequate to support rapid growth are located.

By far the most available prey during spring in PWS are *Neocalanus* copepods, which contain pristane concentrations of about 1% (dry weight basis). High-density patches of these copepods accumulate near shorelines in response to wind-driven surface currents, and juvenile pink salmon remain close to shorelines during their first few weeks of marine residence searching for prey. Abundant fecal material rich in pristane is produced when large numbers of released pink salmon encounter concentrated near-shore patches of copepods. This pristane-laden fecal material is readily incorporated by mussels, so monitoring the increase of pristane concentrations in mussels near PWSAC hatcheries 2 to 3 weeks following releases of juveniles provides an indication that the released fish have located adequate prey. Conversely, failure to detect pristane increases in mussels anywhere within 25 km of hatcheries following a mass release strongly suggests low prey availability, leading to high vulnerability of fry to predators.

Most aspects of the transport pathway linking pristane generation in copepods to consumption by mussels have been validated by field and laboratory experiments. Field studies have demonstrated that high *Neocalanus* copepod abundance alone does not result in much pristane accumulation by mussels, hence direct incorporation of pristane dissolved into seawater from copepods, or of pristane in feces produced by these copepods, are negligible pathways to mussels. Other zooplanktivorous fishes may also produce pristane-laden feces during Spring, but are unlikely to pose significant confounding because compared with pink salmon they are not as abundant near hatcheries just after releases of pink salmon, and other these zooplanktivorous fishes are less closely associated with the shoreline. Shoreline association is important because

both field and laboratory studies showed that effective incorporation of pristane by mussels requires production of feces just above mussel beds at higher tidal stages. Laboratory studies also showed that mussels accumulate pristane within hours when exposed to pristane-laden feces, attaining thousand-fold concentration increases within a few days, and that depuration occurs much more slowly over a period of a few weeks.

Marine survival of juvenile pink salmon released *en masse* from PWS hatcheries was found to be significantly associated with pristane concentration increases in mussels near hatcheries 2 - 3 weeks following releases. Pristane concentrations have been monitored during Spring at a network of 30 stations for each of the last 6 years in PWS. The network of sampling stations was increased by 11 in 2000 to optimize geographic coverage near the hatcheries. Comparison of marine survival determined from adults returning to these hatcheries, with pristane concentration increases in mussels collected from sampling stations within 25 km of hatcheries before and 2 - 3 weeks following release of juveniles, showed that 33% of the interannual survival variability is explained by pristane increases ($P < 0.05$, $df = 13$). These results strongly suggest that continued monitoring of pristane in mussels may have predictive value to forecast marine survival of hatchery-released pink salmon. Pristane concentration data from the network of sampling stations, especially in the last two years of the project, will permit assessment of the relation of marine survival estimates for hatchery pink salmon to wild stocks in PWS.

NEED FOR THE PROJECT

A. Statement of Problem

Pink salmon are still a recovering species in PWS. This project will synthesizepristane concentration data over the length of the project to assess pristane monitoring as a way to examine feeding conditions for juvenile pink salmon during the critical period of initial marine residence, and to forecast survivals through this period. If these forecasts prove sufficiently reliable, they may help improve management of salmonids in PWS. Improved management will aid the full recovery of this species.

B. Rationale

Pristane in PWS mussels has been monitored for the last 6 years to assess whether seasonal variability of tissue concentrations may be related to recruitment of salmon. Pristane is an environmentally persistent hydrocarbon naturally produced by *Neocalanus* copepods in PWS. These copepods account for nearly all of the planktonic biomass available as prey for zooplanktivorous fishes during early Spring, especially juvenile pink salmon during initial marine residence. Laboratory and field experiments have confirmed that these fishes excrete some of the pristane ingested with *Neocalanus* copepods in feces, and the feces are subsequently ingested by mussels. The time scale for pristane accumulation by mussels exposed to pristane-

laden feces is a few days, and for depuration of accumulated pristane a few weeks. Monitoring pristane concentration increases in mussels during Spring thus indicates the conversion of nearby copepods into fish feces, implying growth of the zooplanktivorous predators. Rapid growth during early life history is essential for high survival. Verification of survival forecasts will permit more precise assessment of human impacts on this species.

C. Location

Data analysis and report synthesis will occur at Auke Bay Laboratory, Juneau, Alaska. Marine survival forecasts for pink salmon will help improve management of salmonids in PWS.

COMMUNITY INVOLVEMENT

We will continue to involve Prince William Sound residents in this project to share knowledge and interest in PWS ecosystems. Since 1994, the Prince William Sound Aquaculture Association has collected mussels near their 4 hatcheries at the appropriate times and stored them until the end of the season for pick-up. Hatchery managers and state resource managers are very interested in the utility of pristane monitoring to forecast pink salmon early marine survival and will benefit from the synopsis of our results.

PROJECT DESIGN

A. Objectives

In 2002 this project will revisit previous objectives in light of a larger data set to:

1. Examine the seasonal variability of pristane concentrations in mussels at the more than 30 sites in PWS that have been sampled over the length of the study.

2. Evaluate inter-annual variability in pristane concentrations in mussels.

3. Determine the existence and location of regions in PWS where pristane concentraions have been consistently above average, and synthesize these data over time.

4. Evaluate the utility and reliability of using pristane concentrations in mussels to forecast marine survival of pink salmon in PWS.

B. Methods

1. Sample Collection and Chemical Analysis

We have described sample collection and chemical analysis in previous proposals and reports. (Short and Harris 2000)

2. Data analysis

The following analyses have all been presented previously as well, but are restated here since they will be rerun on the complete data set to prepare the final report.

Seasonal, Interannual and Geographic variability (objectives 1,2,3)

Pristane concentrations in mussels will be analyzed statistically using least-significant difference (LSD) criteria based on an extensive sampling of the error distribution for these measurements. An error distribution for log-transformed pristane concentrations in mussels can be generated from 178 triplicate and 61 duplicate samples analyzed for the *Exxon Valdez* oil spill, which are contained in the *Exxon Valdez* Oil Spill of 1989: State/Federal Trustee Council Hydrocarbon Database 1989 - 1995 (EVTHD). These replicated samples were collected and analyzed by the same methods, and they all contained pristane concentrations above method detection limits. The variances of these replicates are homoscedastic after log transformation, so a distribution for differences of two random samples of the error distribution can be generated by Monte Carlo simulation. Based on this distribution of differences, the LSD at an $\alpha = 0.05$ type I error rate is about 1.015, which corresponds to a ratio of about 2.75 for un-transformed data. Thus, mussels from two different samples are judged significantly different if the ratio of the larger pristane concentration to the smaller is more than 2.75. The power of this test to detect an actual increase of 3 is about 58%, again derived from Monte Carlo simulation of the error distribution. Since pristane concentrations in mussels typically increase by factors of greater than 10 during the season, the power of the sampling design is more than adequate.

Pristane Accumulation Index

Quantitative comparisons of the amount of pristane accumulated by mussels across stations and through time are based on a pristane accumulation index (PAY), calculated as:

$$PAI = (t_2 - t_1)\,[P]_1 + \sum_{i=2}^{I-1} \frac{(t_{i+1} - t_{i-1})\,[P]_i}{2} + (t_I - t_{I-1})\,[P]_I \approx \int_{t_1}^{t_I} [P]\,dt$$

where $[P]_i$ is the pristane concentration measured in mussels collected at time t_i, for mussels collected on I successive samplings throughout the collection season from the same station. This approximation method is used because it does not require equally spaced sampling intervals, or that sampling begin and end on exactly the same dates among different sites, and missed samplings are readily accommodate. These are considerable advantages of practicality for a

long-term sampling program involving many stations that may not always be accessible due to poor weather. It is, however, necessary that [P] at t_i and at t_f be near the annual minimum concentration, and that the number of samplings (I) be sufficiently numerous to adequately describe the shape of the accumulation profile in mussels.

Pristane Productivity Index

Interannual comparison of pristane accumulation by mussels averaged across stations is based on a pristane productivity index (Σ PAY), calculated as the PAIs summed across 25 selected stations. These 25 stations were selected because they are the most consistently sampled stations during the period 1996 through 2001.

Geographic Trends

Patterns in the geographic distribution of the PAY are evaluated by calculating the proportion of sampling years that the PAY at a station exceeds the average PAY for the respective year, and examining the geographic distribution of stations classified according to these proportions. That is, an average PAY may be calculated for each of the 6 sampling years 1996-2001 and stations with PAIs exceeding these averages are recorded. Stations that are consistently above-average in this sense are included in one classification, stations that are above-average in 5 of 6 years in another, etc., and the geographic distribution of stations in each class is examined. This procedure prevents differences in the average PAY among years from obscuring identification of stations where the PAY is relatively high (or low) most years.

Propagation of errors for derived indexes indicates that 66% increases of the pristane accumulation index (PAI) are significant at the $\alpha = 0.05$ type I error rate. The power of these criteria to detect an actual doubling of the PAI is about 80%, estimated by Monte Carlo simulation. The power to detect differences among years for the sum of the PAI's across stations is even greater, due to the larger number of measurements involved: increases of 22% are significant, and the power to detect such increases when they occur is about 50%.

Marine Survival (objective 4)

Maximum increases of pristane concentrations in mussels at stations within 25 km of hatcheries 2 weeks following mass-releases of pink or chum salmon will be normalized to the size of the release. This ratio, denoted as the pristane index (PI), will be regressed against marine survival of released hatchery salmon (denoted S). Historical regressions of S vs. PI for each hatchery will be used as the basis for survival predictions. Pristane increases at more distant stations will be compared with increases near hatcheries to evaluate wild-stock survivals. The regression relation of S vs. PI for all hatcheries combined will be used as the basis for wild-stock survival estimates. Wild-stock estimates will be made for each salmon management district within PWS.

Because there is no other practical way of estimating energy conversion from *Neocalanus* to their near-shore predators over a broad geographic area such as PWS, there are no alternative methodologies to consider here.

C. Contracts and Other Agency Assistance

It will be necessary to contract a technician to assist in data management, analysis, and report preparation.

SCHEDULE

A. Measurable Project Tasks for FY02

FY02:

Oct.15, 2001:	Submission of sample collection and pristane concentration data to pristane database
Nov. 1, 2001:	Compilation of pink salmon survival data from Prince William Sound Aquaculture Association and Alaska Department of Fish and Game
Sept. 30,2002:	Completion of final report

B. Project Milestones and Endpoints

Final Report

C. Completion Date

Sept. 30, 2002

PUBLICATIONS AND REPORTS

A final report will be produced by September 30, 2002.

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

None expected in this closeout year.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

not applicable

PRINCIPAL INVESTIGATOR

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Jeffrey W. Short

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

Relevant 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 - 1996: Principal Investigator, Exxon Valdez project Subtidal #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. In addition, this project produced both hard-copy and computer display maps of all the sediment and mussel hydrocarbon data.
1994 - 1995: Initiated data analysis and pilot projects that established the role of pristane in

Prince William Sound.
1996-2001: Principal Investigator of the Pristane Monitoring Project (96195, 97195, 98195, 99195, 00195, and 01195)
2001- Principal Investigator Prince William Sound Shoreline Assessment Project (01543)

OTHER KEY PERSONNEL

Patricia M. Harris

Education: University of Alaska Fairbanks; B.S. Biological Science 1966
Graduate work at U of A Fairbanks, U of A Southeast, University of British Columbia, U. of Washington

Relevant Experience:
1989-1992: Co-principal investigator of NRDA study Subtidal 3, was responsible for field logistics and sample collection and assisted in data analysis and report preparation; also assisted other NRDA projects in field collections.
1992 -1996: participated in study design, field work, proposal preparation, data analysis, and report preparation for mussel bed monitoring and restoration (R103-96090).
1994-2001 pristane project: participated in logistics, sampling, and community involvement coordination for the pilot pristane project, 96195-001195
2001: assisted in planning, logistics, sampling, and data analysis for the Prince William Sound Shoreline Assessment Project (01543)

Literature Cited

Short, J. and P. Harris. 2000. Pristane Monitoring in Mussels, *Exxon Valdez* Oil Spill Restoration Project Annual Report (Restoration Project 99195). Auke Bay Laboratory, Juneau, Alaska.

Revision 9-12-01
Approved 10-8-6-01

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 to September 30, 2002

Budget Category:	Authorized FY2001	Proposed FY 2002
Personnel	$21.9	$9.6
Travel	$26.2	$3.6
Contractual	$1.0	$5.0
Commodities	$2.5	$0.0
Equipment	$0.0	$0.0
Subtotal	$51.6	$18.2
General Administration	$3.4	$1.8
Project Total	$55.0	$20.0
Full-time Equivalents (FTE)	0.3	0.1
Other Resources	23.3K	26.15

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2003	Estimated FY 2004
$0.0	$0.0

Dollar amounts are shown in thousands of dollars.

Comments:

NOAA contribution: Principle Investigator, Senior Research Chemist Jeff Short 2 months@19.75 K, zoologist Pat Harris 1 month at 6.4K

FY02

Prepared: 9/12/01

Project Number: 02195
Project Title: Pristane Monitoring in Mussels
Agency: National Oceanic and Atmospheric Administration

FORM 3A
TRUSTEE
AGENCY
SUMMARY

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 to September 30, 2002

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2002
Pat Harris	Zoologist	11/4	1.5	6.4		9.6
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		1.5	6.4	0.0	
					Personnel Total	$9.6

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 2002
Anchorage EVOS Workshop	0.4	1	3	0.2	1.0
Scientific meetings (2)	0.7	2	6	0.2	2.6
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$3.6

FY02

Project Number: 02195
Project Title: Pristane Monitoring in Mussels
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Personnel
& Travel
DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 to September 30, 2002

Contractual Costs:	Proposed
Description	FY 2000
Temporary labor to assist in data analysis and report preparation	5.0
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$5.0

Commodities Costs:	Proposed
Description	FY 2000
Commodities Total	$0.0

FY02

Prepared: 9/12/01

Project Number: 02195
Project Title: Pristane Monitoring in Mussels
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Contractual & Commodities DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 to September 30, 2002

New Equipment Purchases:	Number	Unit	Proposed
Description	of Units	Price	FY 2000
			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
personal computers, printers		

FY02

Project Number: 02195
Project Title: Pristane Monitoring in Mussels
Agency: National Oceanic and Atmospheric Administration

FORM 3B
Equipment
DETAIL

Pr ed: 9/12/01

Approved TC 8-6 01
w/attached addendum

APR 1 2 2001

Youth Area Watch

Project Number:	02210
Research Category:	General Restoration
Proposer:	Chugach School District
Lead Trustee Agency:	ADF&G
Cooperating Agency:	DNR
Alaska SeaLife Center:	Yes
Duration:	7th year, seven year project
Cost FY 02:	$90,000 (project) plus $6.3 (ADF&G GA) = $96.3 total
Geographic Area:	Prince William Sound, Resurrection Bay and Lower Cook Inlet including: Cordova Harbor and Orca Inlet, Port San Juan and Evans Island, Tatitlek Narrows, Boulder Bay, Landlocked Bay
Injured Resource/Service:	Harbor seal, mussels, pink salmon, killer whales, subtidal and intertidal communities, subsistence, passive.

ABSTRACT

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

INTRODUCTION

Since the inception of Youth Area Watch, coordination between research and restoration projects and the communities affected by the oil spill continues to increase. Resulting from many factors, community involvement in the restoration process continues to grow and strengthen; Youth Area Watch is an example of this coordinated effort through the connection that students, the communities and researchers maintain. This relationship creates an environment where youth are encouraged to interpret the data collected and apply the information to the ecosystem.

Students from the oil spill impacted communities are screened and selected for participation in Youth Area Watch at the beginning of each school year. Those showing an interest, academic ability and concern for the oil spill effects on local ecosystems are invited to represent their community as a student of the project. Students work with principal investigators of research projects and community facilitators, as well as independently to achieve the set project objectives.

Three core research projects funded by the Trustee Council serve as the central link for all Youth Area Watch activities. Initial cooperating projects include pristane mussel analysis (02195), harbor seal management and biological sampling (02244F) and comprehensive killer whale investigation in Prince William Sound (02012A). These projects continue to work with Youth Area Watch, providing specific research activities for students to conduct and protocol training for those duties. According to protocol, students collect samples and data for the cooperating research and monitoring projects. The samples and data are compiled by a Youth Area Watch project coordinator located in Anchorage and sent on to the principal investigator of the respective projects. Information on the data collected is maintained by the project coordinator for project analysis conducted by the students during group project sessions.

Yearly, students select a local restoration project to conduct. As in previous years, students will begin by completing a planning process during the winter months. Students work with local Community Involvement coordinators to integrate, where possible, their knowledge and expertise.

Students will post project information on their web site (http://www.micronet.net/users/~vaw) for the public to view. This information will be updated throughout the project year.

NEED FOR THE PROJECT

A. Statement of Problem

Youth Area Watch, identified by the Trustee Council as a "general restoration" project, is committed to collecting the requisite samples and data for principal investigators of research projects to make informed decisions concerning the ecology of oil spill impacted areas. Research and restoration project PI's identify needed data collection within the oil spill impacted communities that in many instances can best be facilitated through local involvement of community residents.

Given the finite resources available for project activities, cost containment is necessary. By working with local community youth, information can be collected at a minimal cost. In addition, a greater quantity of data collection from an increased number of sites throughout the year can be accomplished by Youth Area Watch project activities.

As a part of the Memorandum of Agreement and Consent Decree approved by the U.S. District Court, "meaningful public participation in the injury and assessment and restoration process" is recognized as an important component of the restoration process. While there are a variety of instituted mechanisms for this involvement, Youth Area Watch offers positive examples of meaningful public participation expressed by the oil spill impacted communities through the involvement of community facilitators (Community Involvement \052A) and other community-based projects. The project continues to receive strong support both within the communities that it is conducted as well as among the principal investigators involved with the youth.

B. Rationale/Link to Restoration

Community-based participation in ecosystem restoration is supported by recent research. Graduate field ecology work conducted through SUNY, Stony Brook applied co-management principles to revitalize the Oak Brush Plains Preserve of Long Island, New York (Block, p. 38). In this exercise, a local group familiar with the environment assisted in replanting and management efforts while the researcher actively participated in their experiential activities so that cooperative management strategies could best be achieved. This approach is supported by research techniques used in other ecological restoration projects such as fisheries (Pinkerton) and tropical rain forests (Allen). Furthermore, the link between Native cultures and environmental revitalization has gained significant support as a mechanism for sustaining ecological practices within communities (Rogers-Martinez). Given this research, appropriate extension is made to youth within the restoration region so that "the issue of how people will inhabit, utilize and maintain the area in a manner that sustains its integrity" can be addressed (Block, p. 38).

Youth Area Watch is based on the commitment by principal investigators of research and restoration projects to involve students in their work. Participating projects are funded by the Trustee Council and have met the guidelines under the settlement. It is through the

cooperating projects that Youth Area Watch holds an interest in the immediate restoration activities.

As a long-term goal, project activities are expected to provide the foundation for long-term commitment to restoration of the impacted area to pre-spill levels. Involvement of youth in research and monitoring activities is essential in developing local commitment to the restoration plan adopted by the Trustee Council. Cooperating PI's request precise and detailed sampling/data collection from the youth. Students, in turn, have increased their knowledge and participation through their connection to the projects. As a result, students are now stakeholders in the restoration process.

C. Location

While Youth Area Watch is administered through the Chugach School District's main office in Anchorage by project coordinators, project activities currently take place in the nine participating communities and in the oil spill impacted area. Local communities include Chenega Bay, Cordova, Port Graham, Nanwalek, Seldovia, Seward, Tatitlek, Valdez and Whittier.

The science teacher (site teacher) within each of the nine communities oversees the day-to-day activities pertaining to the project. Project coordinators travel to the local communities to facilitate in-class integration of project activities and off-shore research in specific locations of importance to the identified research projects. Local projects activities identified by each site occur at or near the community.

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

One of the main goals of Youth Area Watch is to facilitate community involvement in the restoration process at a primary and secondary school age. It is through community interest and participation that the project has had a positive impact on students. Ultimately, long-term impacts, to include local ongoing restoration and ecosystem sustainability, are anticipated as youth conduct established research and apply this knowledge to community efforts to understand and preserve species affected by the oil spill. As a result, communities continue to request participation in Youth Area Watch.

Local oil spill impacted communities are involved and participate in Youth Area Watch. The local facilitators of Community Involvement (/052A) continue to work with students and the community Youth Area Watch activities to involve youth. Local facilitators and parents of participating youth assist with various aspects of project activities such as serving as chaperones, providing traditional ecological knowledge and coordinating opportunities for youth to work with local projects. Through this cooperative effort, information is exchanged between projects and across generations.

As a component of the project scope, students at each site are asked to identify a local project that they will conduct. Through these local projects, students gain a greater understanding of what the research and restoration process means at the community level, as well as an interest in meaningful project outcomes.

PROJECT DESIGN

A. Objectives

Selected students from the identified communities participate in research and restoration activities set out by Alaska Department of Fish and Game principal investigators, NOAA staff, University of Alaska, Fairbanks biologists and other project principal investigators working with Youth Area Watch. As part of an area watch project that works with existing research and restoration projects, students collect samples and data that is then provided to the respective projects.

Youth Area Watch objectives include:

1. Research project principal investigators interacting with students.
2. Identifying all research and data collection activities.
3. Updating memoranda of agreement with school districts.
4. Completing site teacher orientation.
5. Conducting school orientations for students on Youth Area Watch.
6. Selecting students to participate in Youth Area Watch.
7. Conducting site teacher training on project activity protocol.
8. Completing the student project orientation and training.
9. Conducting oceanographic data collection.
10. Assisting local hunters/technicians collecting harbor seal biological samples.
11. Conducting a local research/restoration projects.
12. Maintaining a Youth Area Watch web site.
13. Collecting blue mussels for pristane/mussel analysis.
14. Facilitating project follow-up training for site teachers.
15. Conducting killer whale monitoring

B. Methods

The Chugach School District currently works with the Kenai Peninsula Borough School District, Cordova School District and Valdez School District through memoranda of agreement so that the communities of Chenega Bay, Cordova, Nanwalek, Port Graham, Seldovia, Seward, Tatitlek, Valdez and Whittier may participate. School districts will operate under the existing agreements during the seventh project year.

Youth Area Watch project coordinators work with the principal investigators of the cooperating projects to solidify project expectations. Protocol is established for

sample/data analysis. In addition, principal investigators commit to working with the students for a period of time during the training and/or data collection stage.

The Chugach School District developed an application and screening tool to select students for participation in the project. Up to 28 students will be selected from the communities to be a part of Youth Area Watch. While the distribution may vary according to the interest and ability of students that apply, it is expected that the distribution will be as follows: two students from Chenega Bay, three students from Cordova, two students from Port Graham, two students from Nanwalek, two students from Seldovia, six students from Seward, three students from Tatitlek, four students from Valdez, three students from Whittier, and one remote site student.

Prior to the beginning of school in the fall, participating Youth Area Watch teachers at the local sites will come together for an orientation session facilitated by project coordinators. It is anticipated that site teachers will again receive protocol training directly from principal investigators. This training will occur at one community site and the training will be videotaped for future referral.

Youth Area Watch relies on the participation of research projects, sites and program resources to successfully fulfill the project objectives. Throughout the project year, students travel to research vessels, specific project sites near their community and research labs in the process of project activity completion. In the past year, Youth Area Watch was able to coordinate with projects conducting research cruises and work cooperatively on task completion while sharing the costs of vessel hiring. In FY99, FY 00 and FY01, Youth Area Watch coordinators assisted with the coordination of harbor seal protocol training. It is expected that this type of cooperative effort will continue in the present and coming years.

Students will participate in the core research projects as a group. This will consist of coming together as a group to work on collection protocol, as well as conducting activities for these projects in their community. In addition, students will participate in local projects that pertain to their geographic area. It is during the local project work that students receive a high degree of one-on-one interaction and involvement with principal investigators and their research. Youth Area Watch coordinators will continue to be open to working with other projects funded by the Trustee Council if students can have meaningful participation in these projects.

Ongoing Youth Area Watch research and restoration projects include:

1. Pristane/mussel analysis, Project Number 01195. Jeff Short and Pat Harris at the NOAA Auke Bay laboratory study the pristane levels in blue mussels. There are approximately thirty mussel collection sites in Prince William Sound. Students will continue to collect mussels twice a month at sites appropriate for collection according to set protocol. During the fall and winter months, students are responsible for overall mussel bed seasonal watch. Students will tag, identify mussel bed characteristics and predator/prey activities.

2. Harbor seal management and biological sampling, Project Number 01244F. The project is conducted by Monica Reidel of the Alaska Native Harbor Seal Commission, in cooperation with Vicki Vanek from the Department of Fish and Game in Kodiak. After they have participated in traditional ecological knowledge and protocol training, students will pair up with local technicians/hunters and assist with bio-sampling activities. Students collect different parts of the seal, including the skin, blubber, teeth and stomach. Adherence to sampling protocol is ensured by working directly with the local hunters.

3. Comprehensive Killer Whale Investigation in Prince William Sound, Project Number 01012A. The principal investigator is Craig Matkin. The project tracks the killer whale population in Prince William Sound and Kenai Fjords. Whales are photographed and cataloged based on identifying markings and family relationships. Genetic studies on the whales are also conducted through the use of darting. Students will assist in locating and identifying the whales during day cruises in and around Resurrection Bay.

In addition to the core projects in which Youth Area Watch students participate, each site is selecting a restoration project to work on in their local community. This restoration activity is something that the students select and not necessarily a project that is currently funded by the Trustee Council. However, local projects are closely linked to existing restoration activities.

Coordination between Youth Area Watch and participating research projects remains strong. Where possible, research vessel costs are shared to maximize resources for project activities. In the case of the pristane/mussel project, Youth Area Watch has paid for the biologist's chartered flights to sites for mussel collection to allow students to participate in the process. In other instances, time and resources are contributed by participating projects to Youth Area Watch.

At this point, the YAW project is in the midst of a metamorphosis. With the trustee council transitioning to the greatly reduced work level of the GEM program, YAW must transition also if it is to remain vital and current. There is a significant degree of uncertainty within the research community as to what exactly the GEM program will look like. In the current climate, we must remain flexible and agile so as to most advantageously position ourselves to participate in long term research and monitoring projects. While we maintain our working understanding with the three previously mentioned projects, (Pristane/mussel analysis, Project Number 01195, Harbor seal management and biological sampling, Project Number 01244F and Comprehensive Killer Whale Investigation in Prince William Sound, Project Number 01012A), we expect that changes in the working protocol will probably occur. We also fully expect to forge new, long-term partnerships as the GEM program settles into a more steady state.
During this time of funding reductions, student contributions to research projects will become more and more important. The past six years have allowed us to demonstrate that students can cost effectively and reliably collect scientific data for existing projects. As we

move toward a program of low cost, high yield monitoring, it is time for our previous work to bear fruit. The many relationships we have built within the research community will serve us well in the next chapter of the Youth Area Watch program.

As funding for the Youth Area Watch project comes from increasingly non-trustee sources, and the pool of Trustee Council projects diminishes, the project will transition to include some non-Trustee Council funded projects. This shift will be necessary in order to meet the goals of the original project proposal and provide a long-term role for middle and high school students in research and restoration projects.

Objectives and Activities

Objective 1: Youth Area Watch students will interact with research project principal investigators, gaining a greater understanding of the affects of the oil spill on the ecosystem.

- Activity 1: Principal investigators commit to working with students directly at least once during the project year.[1]
- Activity 2: Students work beside principal investigators during field work.
- Activity 3: Students independently conduct activities set out by the principal investigators.
- Activity 4: Students draw conclusions from their independent work to be reported at the annual Science Review.
- Activity 5: Students work with Community Involvement (/052) local facilitators and community members to increase awareness of restoration activities and the status of the ecosystem.

Objective 2: Project coordinators identify all research and data collection activities to be conducted by students at all sites participating in Youth Area Watch.

- Activity 1: Project coordinators meet with the principal investigators or delegate project research personnel either by phone or in person to set student activity parameters.
- Activity 2: Activity protocol forwarded by the principal investigator or delegate, including sample and data forwarding process, to project coordinators.

[1] It is expected that additional contact occur throughout the project year, though not necessarily in person. Research project PIs receive updates and samples according to the protocol set out for students.

Activity 3: Project coordinators finalize project activities for site teacher and students.

Objective 3: Project coordinators update memoranda of agreement with the Valdez School District, Cordova School District, and Kenai Peninsula Borough School District for participation in Youth Area Watch.

Activity 1: Project coordinators contact each school district to evaluate the current agreement and make any necessary changes.

Activity 2: Site teachers are identified by each school district for the participating communities.

Objective 4: Site teachers receive Youth Area Watch project orientation.

Activity 1: Project coordinators develop an orientation and training session plan in consultation with research project principal investigators.

Activity 2: Project coordinators set a date in the early part of October to conduct orientation. Site teachers are contacted to determine the most appropriate dates.

Activity 3: Project coordinators perform site teacher orientation and training.

Objective 5: Project coordinators conduct school orientations on Youth Area Watch.

Activity 1: Project coordinator travels to each participating school site prior to beginning the project year.

Activity 2: Project coordinators present Youth Area Watch to community science classes. Students that have participated in prior years will be asked to assist.

Activity 3: Students will be informed of the process to apply and participate in Youth Area Watch '02.

Objective 6: Students are selected to participate in Youth Area Watch.

Activity 1: Project coordinator distributes student applications to project sites. All village council/tribal offices (Chenega Bay, Seward, Tatitlek, Valdez, Seldovia, Port Graham, Nanwalek) will receive application forms, as well as the Valdez, Cordova and Kenai Peninsula Borough School Districts for their respective community sites.

Activity 2: Project coordinators convene a committee to review student applications for Youth Area Watch participation. The committee is comprised of Chugach School District staff and may be assisted by participating school district staff and community facilitators (/052).

Activity 3: The review committee examines applications and selects students based on science interests, academic achievement, maturity and site teacher recommendation.

Objective 7: Project coordinators conduct site teacher training on project activity protocol.

Activity 1: Project coordinators set a date in early October for site teacher protocol training and coordination

Activity 2: Project coordinators request the attendance of research project principal investigators at the site teacher orientation.

Activity 3: Project coordinators facilitate a protocol training session to ensure that correct information and research practices are followed by students during the project year.

Objective 8: Project coordinators complete the student project orientation and training. All participating students from the community sites collectively meet at the Seward SeaLife Center for the Youth Area Watch introduction and preliminary activity participation.

Activity 1: Project coordinators work with SeaLife Center staff to determine appropriate dates for orientation.

Activity 2: The project coordinators invite research project principal investigators to participate in the student orientation.

Activity 3: The Youth Area Watch principal investigator coordinates travel arrangements for student participation in the orientation.

Activity 4: In cooperation with the research project principal investigator(s), project coordinators conduct the student orientation to Youth Area Watch goals, responsibilities and activities. Students learn about the ecosystems, and identify ways in which project activities fit into the biotic cycle.

Objective 9: Students conduct oceanographic data collection in their local communities. Site teachers oversee these activities.

Activity 1: Students take twice monthly water temperature and salinity readings at their local site.

Activity 2: A weather station is installed at each site under the supervision of the site teacher. Students measure the wind speed and direction, air temperature and barometric pressure.

Activity 3: Data is collected at each site and transmitted to the project coordinator periodically.

Activity 4: Data is posted on the Youth Area Watch web page by the project coordinators

Objective 10: Students assist local hunters/technicians collecting harbor seal biological samples.

Activity 1: Project coordinators work with principal investigators to coordinate harbor seal biosampling trainings for students and local hunters.

Activity 2: Students analyze an available sample to become acquainted with what is taken and what to look for in a sample. Students collect various parts of the seal for analyzing, which include: skin, blubber, teeth, stomach, skull, liver, heart and kidney. Additionally, measurements and weight are taken for each animal.

Activity 3: Students at local sites participate in taking samples from harvested seals.

Activity 4: Students assist the hunter/technician in preparing the sample for shipment to the harbor seal management principal investigator.

Objective 11: Each community site conducts a local research/restoration project.

Activity 1: The site teachers and project coordinator work with participating students to identify a local research/restoration project.

Activity 2: During the winter months of November through January, students develop a plan for their local restoration project. This is completed with the appropriate assistance and coordination of community facilitators.

Activity 3: Site teachers work with project PIs where appropriate to develop protocol for student participation.

Activity 4: Students conduct local project activities according to protocol

and timelines set out by site teachers.

Activity 5: Students provide data/samples to project PIs according to protocol.

Objective 12: Students maintain a Youth Area Watch web site.

Activity 1: Students become Internet proficient and learn to update their web site with current YAW information.[1]

Activity 2: Students analyze data collected from the research projects, both past and current.

Activity 3: Using the established reporting format, the data is posted on the web site.

Activity 4: Students update data on research activities as necessary.

Objective 13: Students at each site collect blue mussels for pristane/mussel analysis.

Activity 1: Students tag and identify mussel bed characteristics during fall and winter months at their local sites.

Activity 2: Students note predator/prey activity at the identified mussel bed sites monthly.

Activity 3: Students collect mussels according to principal investigator request during the spring months. Sites are selected by the principal investigator and noted in project reporting.

Activity 4: Students label and cold storage mussels for transport to the Auke Bay laboratory in Juneau.

Activity 5: Students send mussels to project coordinators once an adequate collection has accumulated for transport to Auke Bay Labs.

Activity 6: Students count mussels in the beds according to set protocol.

Activity 7: Students compile site data for transmission to the project coordinator.

Activity 8: Students travel to the Auke Bay laboratory to participate in the analysis of data.

[1] While many students will be familiar with the Internet, some communities recently linked will need training. Additionally, previous Youth Area Watch participants may be proficient at updating the web site, yet new students will need assistance.

Objective 14: Project coordinators facilitate project follow-up training for site teachers in the spring.

Activity 1: Project coordinators set a date convenient for site teachers to conduct a spring follow-up session.

Activity 2: Project coordinators invite principal investigators of participating projects to assist in the follow-up session.

Activity 3: Project coordinators facilitate a follow-up session for site teachers to share information and identify strategies for improving student activities.

Objective 15: Students participate in killer whale identification project.

Activity 1: Principal investigators train students in killer whale identification methods. Students are also informed of project scope and goals.

Activity 2: Students participate in a day cruise with principal investigators to track and identify killer whales in and around Resurrection Bay including: hydrophonic monitoring of whales, photographic recording of individual animals, and darting to obtain blubber and skin samples.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

The Chugach School District serves as the administrative agency for Youth Area Watch through their contract with the Department of Fish and Game. The school district has shown that it is an effective link to the students and communities impacted by the oil spill. As the administrative entity, the Chugach School District will maintain memoranda of agreement with the Valdez School District, Cordova School District and Kenai Peninsula Borough School District as the school districts that serve the identified communities.

The Chugach School District continues to work with the Chugachmiut and Chugach Regional Resources Commission to coordinate and exchange community information with regard to regional restoration activities. As the coordinating agency for community involvement, Chugach Regional Resources Commission works with the youth through the local facilitators so that students may participate in research and restoration activities.

Since the inception of the project, significant contributions have been made and are identified in the budget. Contractors have provided discounted services, as in the case of vessel hiring. Expensive equipment used in project activities are offered by coordinating agencies. Cooperating agencies provide technical assistance, student supervision and support for project activities. The Chugach School District relies heavily on the

commitment and participation of cooperating school districts involved in the project. Site teachers dedicate their time to the goals of Youth Area Watch, serving as an in-kind contribution.

In keeping with its commitment to secure additional support for Youth Area Watch activities, Chugach School District has sought and received two significant grants that offset the cost of the project. A three-year ($1,450,000) M.A.T.E. grant allows the District to couple real life activities with education, focusing on how these experiences will be applied in adulthood; a particular objective of the grant is directed at science opportunities in response to Youth Area Watch. The second grant is a three-year ($510,000) 21-Century grant from the Department of Education that provides funds for real life after-school activities for students. In addition, the district will continue to commit general funds to the project and will seek out alternative funding sources as the program transitions away from Trustee Council support. The success of the project activities motivates the Chugach School District to commit additional funding through diversified means so that the youth are equipped to continue their restoration and ecological management activities as an integral component of their education.

As Trustee Council responsibility for restoration activities decreases due to the decline of settlement funds, the project coordinators continue to pursue opportunities where Youth Area Watch project activities can transition to a more stable position. Toward this end, the school district maintains cooperative relationships with entities engaged in ecological management and restorative projects, independent of Trustee Council funding. Particularly with respect to local restoration projects where other agencies, organizations and private groups are involved, the Youth Area Watch project scope is expanding so that a smooth shift of focus can occur. By building and maintaining these cooperative working relationships, resource exchanges can be enhanced to augment other district resources.

SCHEDULE

A. Measurable Project Tasks for FY 02 (October 1, 2001 - September 30, 2002)

July 1 - August 1, 2001:	Confirm research & data collection activities
August 15 - 31, 2001:	Site teacher orientation
September 1 - 18, 2001:	School site orientations
September 15 - 30, 2001:	Students selected for participation
October 1 - 31, 2001:	Site teacher training on protocol
October 1 - 31, 2001:	Student orientation and training
November 1 - 7, 2001:	Sites prepare weather stations
November 1 - July 30, 2002:	Students participate in research activities
November 1 - May 31, 2002:	Students maintain web site
March 1, 2002:	Project Coordinator sends data to PIs
May 1 - 15, 2002:	Site teacher follow-up training
June 1, 2002:	Project Coordinator sends data to PIs
June 1, 2002:	Students complete project reports for FY 01

Ongoing Activities:

February 02 - August 02:	Student bi-monthly collection of mussels
October 01 - September 02:	Student mussel bed monitoring
October 01 - September 02:	Student weather station monitoring (daily)
October 01 - September 02:	Students collect harbor seal samples with local hunters
October 01 - September 02:	Students conduct local project activities
October 01 - September 02:	Students assist in documenting local TEK
October 01 - September 02:	PIs interact and exchange information with students

B. Project Milestones and Endpoints

October 17, 2001:	Students selected for participation
October 30, 2001:	Protocol training complete
November 1, 2001:	Students conduct project activities
March 1, 2002:	Data/samples to PIs
June 1, 2002:	Data/samples to PIs and reports complete
October 17, 2002:	Students selected for participation
October 30, 2002:	Protocol training complete
November 1, 2002:	Students conduct project activities
March 1, 2003:	Data/samples to PIs
June 1, 2003:	Data/samples to PIs and reports complete

C. Completion Date

Objectives identified in the project design will continue to serve as guidelines for community involvement within the civil settlement throughout the life of the restoration effort. It is expected that the Youth Area Watch project will continue beyond the seven years of Trustee Council Funding.

PUBLICATIONS AND REPORTS

Youth Area Watch was featured in "The Science Teacher," "Living on Earth" and "Alaska Magazine." Copies of these articles have been forwarded to the Restoration Office. In addition, the project has been featured on NPR. The project will also be featured during state-wide broadcasts on the Alaska Rural Communication System during programs on standards in education.

The Youth Area Watch Web site www.micronet.net/users/~yaw continues to be an important venue for students to both receive and distribute information. Each project that students work with has a student generated page of explanation and photographs. There is also space for students reports on their own local restoration projects as well as meteorological and oceanographic data. The site is utilized by students during training at the beginning of the year as they attempt to learn about each of the projects with which they will participate work over the course of the year. FY '02 will be the second year that all of the community schools involved in the project are online. This connectivity has been a strong benefit in allowing the project coordinator to communicate directly and regularly with students at each school. This increase in communication and coordination enables more flexible and responsive action by project coordinators and school site participants.

PROFESSIONAL CONFERENCES

Throughout the year, Chugach School District administrative staff showcase Youth Area Watch. This year, the project will be highlighted to the Oxford Coalition at Harvard University and to members of the Gates Coalition at their annual meeting. Youth Area Watch will also be a feature in the Principal Investigator's keynote speech to the National Quality School Conference in Los Angeles California.

NORMAL AGENCY MANAGEMENT

This section is not applicable.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

Youth Area Watch relies on the participation of Trustee Council funded projects to maintain coordination with restoration efforts. Through the commitment of principal investigators, youth conduct research activities with and for participating projects. Students work independently, as well as beside researchers during the project year. Costs

are shared between projects to allow for increased research vessel time and one-on-one interaction between students and the researchers.

Various people contribute the necessary technical assistance and resources. Local community facilitators from Community Involvement (/052) work with students and serve as chaperones for project activities. School districts provide teacher time and facility space for activities.

A variety of funding sources and project contributions ensure the success of the project. The Chugach School District commits over $142,000 in FY '02 to the project. These funds come in the form of administrative time, certified teacher time, travel expenses and housing for students. Other school districts contribute $58,300 in teacher time and $21,420 in facility resources. Communities and school districts contribute $11,600 in lodging. Equipment in-kind contributions total $6,200. Participating principal investigators from research projects contribute $8,520 worth of their time.

PROPOSED PRINCIPAL INVESTIGATOR

Richard DeLorenzo
Chugach School District
9312 Vanguard Drive, Suite 100
Anchorage, AK 99507
Office: (907) 522-7400
Fax: (907) 522-3399

PRINCIPAL INVESTIGATOR

Richard DeLorenzo is the superintendent of the Chugach School District. He maintains administrative authority over all day-to-day functions of the district's activities. Mr. DeLorenzo has extensive experience administering grants, adhering to project objectives and managing budgets. Mr. DeLorenzo will be directly responsible for budget expenditures, negotiating contracts and working with the participating school districts to ensure effective project management.

OTHER KEY PERSONNEL

Project Coordinator: Randy Fleharty is a certified secondary teacher with Bachelor of Science degree in physics. Mr. Fleharty's responsibilities include:

1. working with principal investigators of research projects to ensure proper protocol.
2. coordinating student selection process.
3. coordinating all orientation and training sessions with site teachers and staff.
4. ensuring that site teachers and students have proper supplies.
5. completing site visits.
6. monitoring project activity of students.
7. providing support to site teachers.
8. coordinating principal investigator-student interaction through research.
9. transmitting data to principal investigators.
10. completing necessary project reports and/or materials for publication.
11. continuing to seek additional funding sources for project activities beyond the life of the Trustee Council.

LITERATURE CITED

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Block, Mindy. "Pine Barrens - Upland Associations." Notes, 1997.

Pinkerton, E. Cooperative Management of Local Fisheries: New Directions for Improved Management and Community Development. Vancouver: University of British Columbia Press, 1989.

Rogers-Martinez. "The Sinky One Intertribal Park Project." Restoration & Management Notes, 1992.

Rec'd 5-18-01, #2
approved TC 8-6-01

ADDENDUM TO PROJECT 02210 DETAILED PROJECT DESCRIPTION:

Subsequent to the original submission of the project 02210 DPD, a significant opportunity has presented itself. Please consider this addendum to the project 02210 DPD.

The JASON foundation is a nonprofit organization dedicated to education and community outreach in the area of environmental science and research. The program originated with Dr. Robert Ballard and his famous expedition to the RMS Titanic. After discovering the wreck of the RMS Titanic, world-famous explorer and oceanographer Dr. Robert Ballard received letters from students around the world who wanted to go with him on his next expedition. Dr. Ballard founded the JASON Project to bring the thrill of discovery to millions of students worldwide. Since its inception, JASON has undertaken a new expedition each year. Teachers and students world-wide follow each expedition with an extensive curriculum and a two week live broadcast.

Now for its thirteenth expedition, JASON will be coming to South Central Alaska. This year's curriculum and is called "Frozen Worlds" and the live broadcast will take place in Seward at the SeaLife Center and at Portage Lake. In addition to a curriculum that focuses on local organisms, geography, climate and culture, JASON XIII's live broadcast portion will heavily feature annual YAW activities such as harbor seal biosampling and blue mussel collection and analysis.

The JASON project is a significant crossroads between the educational and scientific communities. In many ways the goals of JASON and the goals that the Trustee Council has tried to meet through support of Youth Area Watch are aligned. JASON has a much larger scope and impact than YAW, and this partnership represents a significant opportunity for both organizations. With JASON's decision to come to Alaska this year, the local knowledge and experience contained within the YAW program will be vital to their success. In turn we have the opportunity to achieve some national and international recognition for the excellent work that the Trustee Council and YAW have accomplished over the past six years.

We propose to send all Youth Area Watch site coordinators, and five additional teachers, two from Seward, two from Valdez and one from Whittier to receive training and curriculum materials to participate in JASON XIII. This training will take place in Anchorage on September 22, 2001. At least one coordinator and two students from the YAW program will participate in the two week live broadcast in Jan/Feb. of 2002. The additional cost to the Trustee Council will be limited to travel, workshop and curriculum expenses for the 14 educators. A total of $9,100, mostly in the area of travel. The Chugach School District will provide lodging during the training (approximately $3,000), and the JASON foundation has agreed to a greatly reduced rate for the training, as well as complete funding for the live broadcast portion of the project (approximately $7,000).

This opportunity should not be missed. Participation in JASON XIII will provide three substantial benefits. First, the JASON foundation is respected by both the education and the science community. They will make a strong partner for Youth Area Watch. Second, the national and international exposure that participation will bring will greatly assist in the ever present task of securing funding to ensure that YAW continues indefinitely. Finally, the JASON training, curriculum and live broadcast will ensure that YAW not only impacts the students in the program but students in classrooms across the

state and the world. Involvement with JASON will be well worth the additional investment.

Revision 5-1
approved TC 8-6-01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel		$0.0						
Travel		$0.0						
Contractual		$99.2						
Commodities		$0.0						
Equipment		$0.0						
Subtotal		$99.2	Estimated FY 2003					
General Administration		$6.9						
Project Total		$106.1						
Full-time Equivalents (FTE)		0.0						
			Dollar amounts are shown in thousands of dollars.					
Other Resources								

Comments:

FY02

Prepared: 5/18/01

Project Number: 02210
Project Title: Youth Area Watch
Agency: ADF&G

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Revision 5-18-01
approved TC 8-6-01

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel	$52.0	$50.0						
Travel	$25.0	$27.1						
Contractual	$5.0	$5.0						
Commodities	$3.0	$5.1						
Equipment	$0.0	$0.0						
Subtotal	$85.0	$87.2						
Indirect	$15.0	$12.0				Estimated FY 2003		
Project Total	$100.0	$99.2				$80.0		
Full-time Equivalents (FTE)	1.0	1.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources	$277.5	$248.0				$221.0		

Comments:
Personnel - The project coordinator is responsible for the duties of monitoring and facilitating the project activities at all sites.
Travel - Students travel by both charter (especially when conducting field work, such as mussel collection with the scientist). Student travel to Anchorage for the Science Review is a project contribution. Only transport expenses are requested through the budget.
Contractual - The hiring of boats at a rate of $1,000 per day (5 days) will occur in conjunction with research on surf scoters and kittiwakes.
Commodities - Each major classroom site is allocated $333 for project supplies. Supplies from previous years will be used as well.
Indirect - School district administrative costs are calculated at 15%. This accounts for the direct oversight of fiscal reporting and associated support at the administrative offices in Anchorage. In addition, these costs offset the expenses that sites incure including telephone, fax, postage and other general support.
Other resources - Teacher time ($52,100); participating PIs ($7,940); Youth Area Watch PI ($13,025); Facility space ($22,340); equipment ($6,200); travel, facilities, lodging and additional adminstrative support ($146,385).

FY02

Project Number: 02210
Project Title: Youth Area Watch
Name: Chugach School District

FORM 4A
Non-Trustee
SUMMARY

Prepared: 4/01

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Personnel Costs:			Months	Monthly		Proposed
	Name	Position Description	Budgeted	Costs	Overtime	FY 2001
	Project Coordinator	The coordinator facilitates training for both site teachers and participating students; coordinates youth interaction with research PIs; schedules project travel; works with local sites to develop community restoration projects; works with local facilitators and site teachers to ensure the exchange of information; monitors the completion of project activities; solicits additional funding for project enhancement.	12.0	4.20		50.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
		Subtotal	12.0	4.2	0.0	
					Personnel Total	$50.4

Travel Costs:		Ticket	Round	Total	Daily	Proposed
	Description	Price	Trips	Days	Per Diem	FY 2001
	Charter and /or commerical trips for students to training/research.	0.5	28			14.0
	Project coordinator from Anchorage to Cordova.	0.3	2			0.6
	Project coordinator from Anchorage to Nanwalek.	0.2	2			0.4
	Project coordinator from Anchorage to Port Graham.	0.2	2			0.4
	Project coordinator from Anchorage to Seward.	0.1	3			0.3
	Project coordinator from Anchorage to Tatitlek.	1.0	2			2.0
	Project coordinator from Anchorage to Valdez.	0.2	2			0.4
	Research PI travel to training sites.	0.5	4			2.0
	Site Coordinators and teachers Travel to Anchorage for JASON trainin	0.5	14			7.0
						0.0
						0.0
					Travel Total	$27.1

FY02

Project Number: 02210
Project Title: Youth Area Watch
Name: Chugach School District

FORM 4B
Personnel
& Travel
DETAIL

Prepared: 4/01

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FY 2001
Description	
The hiring of boats at a rate of $1,000 per day (5 days) will occur in conjunction with research on killer whales and kittiwakes.	5.0
Contractual Total	$5.0

Commodities Costs:	Proposed FY 2001
Description	
Supplies for each classroom site are necessary. This will replace consumable commodities used during the project year. Commodities include chemicals, sampling containers (beakers, plastic bags), water resistent note pads and office supplies associated with the project. Each major classroom site (8) will require $375 for supplies, totaling $3,000.	3.0
JASON curriculum and workshop fees; 14 participants at $150 each, totaling $2,100	2.1
Commodities Total	$5.1

FY02

Prepared: 4/01

Project Number: 02210
Project Title: Youth Area Watch
Name: Chugach School District

FORM 4B
Contractual & Commodities DETAIL

2002 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 2001
			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
Weather stations have been purchased in previous years. They will continue to be used in FY 02.	5
Computers and peripherals are used at each site to synthesize and post information on the Youth Area Watch web site.	8
Video equipment is used to document activities for future review and use.	1
A GPS unit is used during various project activities.	1

FY02

Project Number: 02210
Project Title: Youth Area Watch
Name: Chugach School District

FORM 4B
Equipment
DETAIL

Prepared: 4/01

Revision 7-9-01
Received 7-23-01
approved TC 8-6-01

COMMUNITY-BASED HARBOR SEAL MANAGEMENT AND BIOLOGICAL SAMPLING

Project Number:	02245
Restoration Category:	General Restoration
Proposer:	Alaska Native Harbor Seal Commission
Lead Trustee Agency:	Alaska Department of Fish and Game
Cooperating Agencies:	
Alaska SeaLife Center:	No
Duration:	4th year; four-year project
Cost FY 96:	
Cost FY 97:	
Cost FY 98:	
Cost FY 99:	$70,700
Cost FY 00:	$56,500
Cost FY 01:	$40,000
Cost FY 02:	$25,000
Geographic Area:	Prince William Sound, Cook Inlet, Kodiak, Alaska Peninsula
Injured Resource/Service:	Harbor seals; subsistence

ABSTRACT

This project will close out work supported through previous harbor seal restoration projects (\244, 99245, 00245 and 01245). This is a biological sample collection program, implemented in FY96 and expanded in FY97, in Prince William Sound, lower Cook Inlet, Kodiak Island, and the Alaska Peninsula. Village-based technicians were selected by the Alaska Native Harbor Seal Commission (ANHSC) and trained by the Alaska Department of Fish and Game to collect samples from subsistence harvested harbor seals. The samples are transported to Kodiak for further subsampling and distribution to participating scientists for analysis and the University of Alaska Museum for archival. The ANHSC will produce and distribute a newsletter with summaries of the biological sampling program.

INTRODUCTION

The goal of this project (which continues the work of #\244) is to support collaboration between subsistence hunters of harbor seals, scientists, and resource management agencies to assess the factors which are affecting the recovery of the harbor seal population of the oil spill area and to identify ways to reduce these impacts. In FY 94 (Project 94244) and FY 95 (95244), the Trustee Council provided funding for the Alaska Department of Fish and Game, Division of Subsistence, to compile available data, collect additional information, and to organize workshops and community meetings with scientists and subsistence users. Participants in the workshops concluded that the lack of a formal organization which represents subsistence users of harbor seals is a major impediment to communication between scientists and hunters and to the inclusion of subsistence hunters as full partners in harbor seal research and restoration. To fill this gap, Alaska Native participants in the harbor seal restoration workshop of March 2, 1995 voted to form an Alaska Native Harbor Seal Commission. In FY 96, Project 96244 assisted the ANHSC by providing it with funds to organize two workshops held in conjunction with commission meetings and to produce and distribute two newsletters and other communications. Additional workshops took place under Project 97244, Project 98244, and Project 99245.

A second consensus point reached at the workshops was that subsistence hunters are in an excellent position to assist in scientific studies through providing biological samples from subsistence-taken animals. A goal of Project 96244 was to test the practicality and effectiveness of a community-based harbor seal biological sampling program, designed and administered cooperatively between the Alaska Native Harbor Seal Commission, the Alaska Department of Fish and Game, and the University of Alaska. In FY 97, this program was expanded to collect samples from the Kodiak Island area and add Valdez to the sample communities in Prince William Sound. This program continued in FY 98, FY 99, FY 00, and FY01, with a proposed expansion of the program to the Alaska Peninsula (two Perryville hunters were trained in October 1999) and to one more village on Kodiak (one Ouzinkie hunter was trained in February 2000). The program was further expanded to Kodiak City hunters in FY01.

As of mid May 2001, samples from 347 animals had been collected for researchers. Table 1 shows the number and sex of harbor seals biosampled in each fiscal year. Table 2 shows the number of tissue types distributed in each fiscal year. The total number of a specific tissue sample or part collected may not equal the total of animals biosampled. In certain circumstances, one or more types of samples may not be collected from the animal. Table 3 shows the community origin of the samples from the oil spill region, as of September 2000. From October 2000 to May 2001, samples have been collected from Cordova, Tatitlek, Valdez, Akhiok, Old Harbor, and Kodiak City. A more complete number of samples collected during FY01 will be provided in the annual report.

Finally, this project supported other restoration projects conducted in FY 96-01 and proposed for FY02, such as Harbor Seals: Monitoring and Field Research (\064), Harbor Seals: Health and Diet (\341), Harbor Seal Metabolism/Stable Isotopes (\371), Harbor Seal Diet: Lipid Metabolism and Health (\441),the Community Involvement and Traditional Knowledge Project (\052), and the Youth Area Watch (\210). The project also contributes to the Trustee-Council's recovery objectives for subsistence by facilitating involvement of subsistence users in the restoration process.

The ANHSC and the National Marine Fisheries Service signed a Co-Management Agreement for harbor seals in 1999. As established in the agreement's Action Plan, biosampling is a high priority research area.

Table 1. Summary of the number of harbor seals biosampled by fiscal year

		NUMBER of HARBOR SEALS BIOSAMPLED			
		Total	Male	Female	Unknown Sex
FY96	Oct 95 - Sept 96	27	18	8	1
FY97	Oct 96 - Sept 97	54	23	24	7
FY98	Oct 97 - Sept 98	41	19	21	1
FY99	Oct 98 - Sept 99	63	39	22	2
FY00	Oct 99 - Sept 00	85	46	36	3
FY01	Oct 00 - mid May 01	78*			

*NOTE: The total for FY01 is estimated to reach between 90-100 by the end of Sept 01.

Table 2. Summary of the number of each tissue type collected.

	NUMBER COLLECTED IN					
TISSUE TYPE	FY96	FY97	FY98	FY99	FY00	FY01*
Head	27	53	21	62	85	78*
Whiskers	27	53	41	59	85	78*
Stomach	26	54	36	61	85	78*
Blubber	26	45	35	52	65	33*
Skin / Muscle	27	54	41	62	85	78*
Heart / Liver / Kidney	27	46	37	54	65	33*
Female Reproductive Tract	1	17	8	17	20	10*

*NOTE: Numbers for FY01 are miminum numbers known as of mid May 01

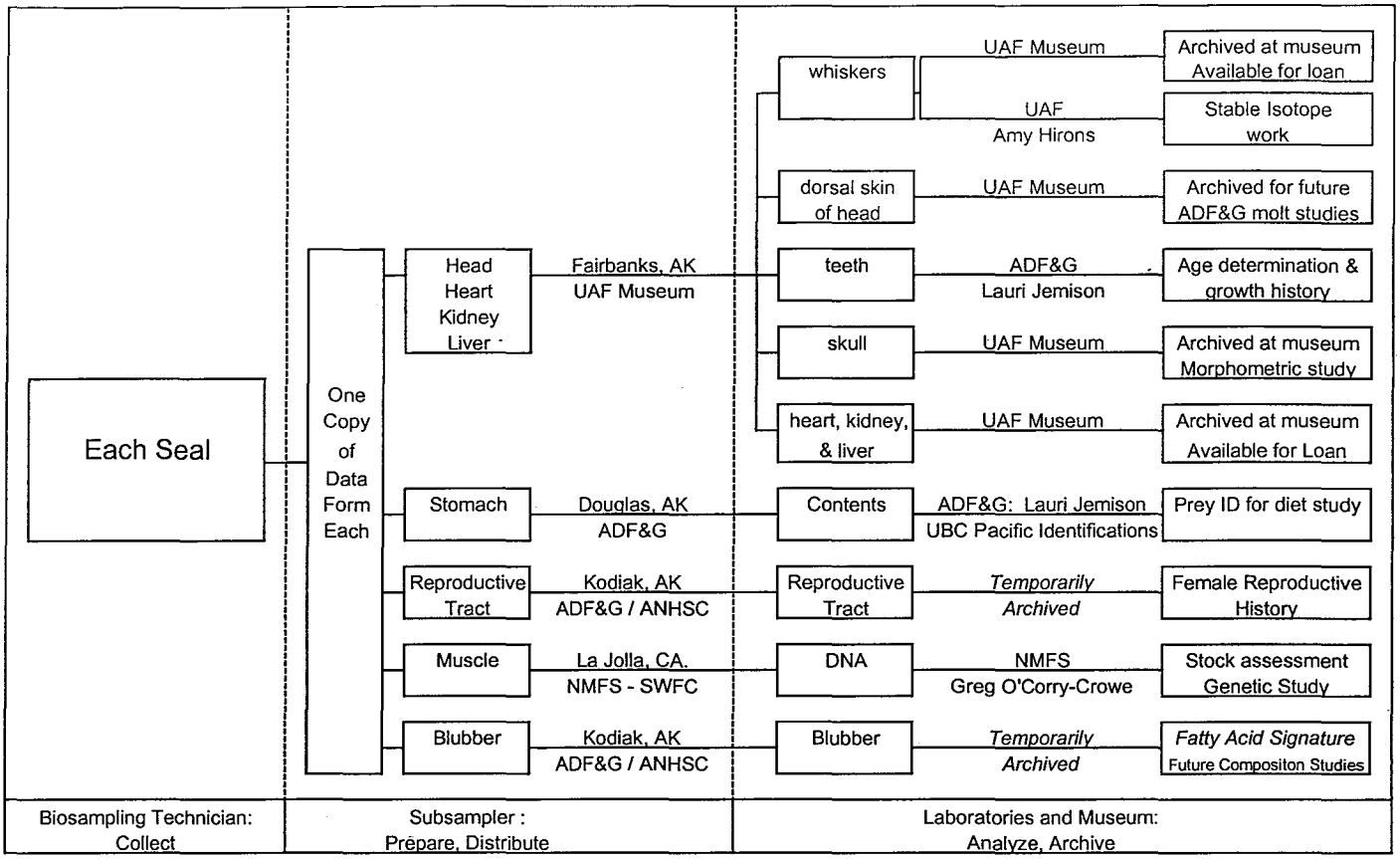


Figure 1. Distribution of Baseline Samples and Chain of Responsibility 2001

Table 3. Total Number of Harbor Seal Biosamples Collected during FY96-00

Community	Number of Seals Biosampled	
	Full Set of Samples	Partial Set of Samples
Chenega Bay	6	5
Nuciiq	4	0
Cordova	48	6
Tatitlek	73	55
Valdez	37	0
Nanwalek	6	2
Port Graham	1	0
Seldovia	2	3
Afognak Island	1	1
Akhiok	8	0
Old Harbor	5	1
Port Lions	1	1
Ouzinkie	1	0
Perryville	2	0
GRAND TOTAL	195	74

FULL SET = Head, whiskers, stomach, muscle, skin, blubber, liver, heart, kidney, female reproductive tract
PARTIAL SET = A portion of the above list.
*NOTE: From Oct 00 - mid May 01, 78 animals were sampled in Cordova, Tatitlek, Valdez, Akhiok, Old Harbor, and Kodiak

NEED FOR THE PROJECT

A. Statement of Problem

The harbor seal populations of Prince William Sound and the northern Gulf of Alaska were in decline before the oil spill for unknown reasons. The spill injured these populations, adding to the decline, and they are not recovering. Harbor seals are a primary subsistence resource in the Alaska Native communities of the oil spill region. Subsistence harvests of harbor seals have declined in many of communities since the spill because of the reduced population size and voluntary efforts on the part of hunters to limit their harvests to aid in recovery. In order to assess these efforts and to identify measures which subsistence users could take to further assist in harbor seal restoration, the Trustee Council funded projects in FY 94 and FY 95 to compile existing data, collect additional information, organize meetings of scientists and subsistence users, and develop recommendations for hunters. Two workshops took place. Among other things, participants at the workshops recognized that without a formal organization representing subsistence hunters of harbor seals, it was unlikely that a consensus on recommendations could be developed or that a dialogue between hunters and scientists could be maintained. Workshop participants stressed that strong involvement of hunters in research activities and management decisions was an essential ingredient in any plan for harbor seal recovery. Several other restoration projects are examining the potential causes of the harbor seal population decline and lack of recovery, including mortality caused by humans. The need exists to continue to follow through on the workshop recommendations to support these harbor seal restoration efforts.

B. Rationale/Link to Restoration

The recovery objective for harbor seals states that recovery will have occurred when harbor seal population trends are stable or increasing. Based on findings from two workshops which involved scientists and subsistence users of harbor seals (conducted under Projects 94244 and 95244), meeting this recovery objective is enhanced by continuing dialogue between scientists and subsistence users, involving subsistence hunters in research efforts, involving traditional knowledge in scientific studies, and collaborating in the development of recommendations for subsistence hunters about how they can assist in harbor seal recovery. This project implements the recommendations of the workshops by continuing a biological sampling program and helping to support the activities of the Alaska Native Harbor Seal Commission.

The FY 96, FY 97, FY 98, FY 99, and FY 00 Restoration Work Plans included research projects to monitor seal population trends and conduct research to discover why harbor seals are not recovering. Other non-EVOS funded harbor seal research projects in the oil spill area continue in FY01, FY02, and beyond. Assessing parameters that affect marine mammal abundance and health requires access to and examination of animals or tissues. Marine mammals are inherently difficult to study and the collection and examination of tissues is further complicated by legal limitations imposed by federal protective measures and permitting procedures. Sacrificing animals for research purposes is either undesirable or illegal, and beachcast carcasses are often too decomposed to be of value. An invaluable source of fresh specimens exists in Alaska, where coastal Alaska Natives still legally use marine mammals for subsistence or handicraft purposes. This project has developed a successful community-based bio-sampling program. This program has succeeded because:

1. Local people support the program and its goals, are involved in the sample collection, understand the significance of the data being collected, are willing to store and ship samples from villages to a central receiver, and are trained and willing to record data and collect samples as instructed.

2. Samples are easily collected, stored and shipped; they are subsequently sub-sampled by ADF&G staff; are analyzed in due time; and results are returned to villages.

Furthermore, over the last several years, the Trustee Council has attempted to involve spill-area communities more fully in the restoration process. The biosampling effort is a prime example of this involvement and collaboration.

C. Location

The biological sampling portion of the project includes the Prince William Sound communities of Cordova, Chenega Bay, Valdez, and Tatitlek; the lower Cook Inlet communities of Seldovia, Port Graham, and Nanwalek; the Kodiak Island communities of Akhiok, Old Harbor, Ouzinkie, Port Lions, and Kodiak City (expansion to Ouzinkie in FY00, Kodiak City in FY01); and the Alaska Peninsula community of Perryville (planned expansion in FY 00) (Table 3).

COMMUNITY INVOLVEMENT AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Community and subsistence user involvement in the restoration process and in harbor seal recovery has been a central purpose of this project. A primary continuing goal is to support the involvement of the Alaska Native Harbor Seal Commission in the biosampling program. As part of the continuing biological sampling effort, the ANHSC selected technicians (most of whom are subsistence harbor seal hunters) in participating communities. New technicians were trained by ADF&G staff to collect biological samples. Subsistence hunters will supply the samples and were trained through hands-on instruction and the use of an instructional video (produced in FY 96), as needed. Also, participants in the Youth Area Watch Project in Prince William Sound and lower Cook Inlet (\210) and the more recently formed Kodiak Island Youth Area Watch (\052A) will be included in project activities, including community technician training sessions. The ANHSC will produce a newsletter with summaries of the biosampling efforts. (The Fall 2000 newsletter was distributed to over 1,000 individuals and organizations.) Although project funds are no longer available to help support a workshop, it is anticipated that the biosampling program and results will be reviewed at ANHSC meetings.

As of March 2001, three training sessions partially funded through this project in FY01 had taken place in Old Harbor, Cordova, and Anchorage. About 10 new hunters and 20 students attended these sessions. Through other funding, training has also taken place in Yakutat, Alaska with Southeast hunters from Yakutat and Ketchikan. A biosampling training session was held in conjunction with the ANHSC meeting in Kodiak in April 2001 with Kodiak Island students and hunters from Kodiak City, Akhiok, Old Harbor, Dillingham in Bristol Bay, and the Aleutians:

Sand Point and Akutan. Additional demonstrations are planned for Youth Spirit Camps in the spring and summer of 2001.

PROJECT DESIGN

A. Objectives

The primary premise upon which this project is based is that restoration of harbor seal populations is facilitated by involving subsistence users in research and management activities. Key to the success of this effort is support for the activities of the Alaska Native Harbor Seal Commission. Specific objectives include to:

1. Continue a community-based program to collect biological samples and other information from harbor seals in Prince William Sound and the northern Gulf of Alaska involving hunters from Cordova, Tatitlek, Chenega Bay, Valdez, Seldovia, Port Graham, Nanwalek, Akhiok, Old Harbor, Ouzinkie, Port Lions, Kodiak City, and Perryville. Specific sub-objectives include:

    a. Train local technicians and hunters in biological sample collection procedures. Any new trained biosamplers in FY02 will occur with other funding.
    b. Maximize sampling for efficiency and coordination with other harbor seal projects
    c. Evaluate the program's effectiveness and develop a more long-term funding plan.

2. Collect biological samples and other information from harbor seals harvested by subsistence hunters in 13 communities: Tatitlek, Chenega Bay, Valdez, Cordova, Seldovia, Port Graham, Nanwalek, Akhiok, Old Harbor, Ouzinkie, Port Lions, Kodiak City, and Perryville. Provide these samples to researchers for analysis and archival.

    a. Collect information about the number, sex, approximate age and place and date of harvest for harbor seals taken in each village
    b. Collect biological samples to be analyzed in cooperation with other harbor seal projects, including blubber, whiskers, skin, heads, muscle, kidney, liver, heart, female reproductive tracts, and stomachs (see Table 3 and Figure 1).
    c. Store samples in a community freezer and periodically ship samples to Anchorage or Kodiak for further processing and distribution for analysis
    d. Maintain a database of biosamples

3. In collaboration with the Alaska Native Harbor Seal Commission, communicate information about research and results of harbor seal studies to hunters and scientists on a regular basis.

    a. Produce an informational newsletter describing results of harbor seals studies, ongoing harbor seal research, and community involvement
    b. Maintain a database of biosamples and research
    c. Discuss biosampling program and results at periodic meetings of the ANHSC (these meeting are funded through other programs)

4. Collaboratively produce recommendations for subsistence users of harbor seals that derive from study findings and the discussions at community meetings and workshops

a. These recommendations will be based on traditional knowledge, contemporary observations, and scientific findings
b. Recommendations will be developed at meetings of the ANHSC.

5. Evaluate the program's effectiveness and explore options for a long-term funding plan for the biological sampling program

6. Coordinate with the Youth Area Watch Programs in Prince William Sound and lower Cook Inlet (/210) and on Kodiak Island (/052A) to involve participants in that program in biological sampling and workshops.

B. Methods

Objectives 1, 2, & 6: Biological Sampling Program

For Objectives 1, 2, and 6, the Biological Sampling Program, the following procedures will be used:

1. *Trainings*

As part of Project 96244 (and revised as part of 97244 and 98244), a marine mammal biologist, Kate Wynne of the University of Alaska, and Vicki Vanek, a veterinarian with the Division of Subsistence (ADF&G) compiled protocols, synthesized these into useable formats, developed data forms, labels, and sampling kits, and incorporated instructions for their use into a training program. In FY 99 under 99245, Vanek assumed full responsibility to apply these materials and revise them as appropriate.

Instruction. Sampling requires instruction or training of community-based sampling technicians, who ideally are also subsistence seal hunters. New village-based technicians attended a full-day sampling training session. There will be no new training sessions planned under this proposal in FY02. At least two statewide biosampling trainings under other funding will occur that new hunters may attend. Vanek will provide a detailed explanation of project goals, and significance and use of data to be collected; distribute sampling kits; explain and demonstrate sampling techniques and use of equipment; and distribute written and graphic instructional materials to take to villages.

Other hunters will be informed of program objectives and specified sampling requirements through communication with village technicians and other project personnel and through written, graphic, and video instructional materials.

2. *Training Materials*

Manual. This was produced in FY 96 (Project 96244). It includes step-by-step diagrams and a visual guide. It is waterproof and is included in the sampling kit. Labor is involved in laying out, laminating, and binding each manual.

Necropsy Examples. If a seal is available, participants work on an actual animal at the training session, collecting tissue samples, labeling, measuring, and recording data onto the data forms. Otherwise, the training relies on slides, video, artificial props, and simulated lab exercises.

Video. In FY 96 (Project 96244), a training video was produced by ADF&G, incorporating footage shot at the two training sessions. It has been distributed to the technicians trained at these sessions. The video includes project rationale and objectives; footage of current research and population declines; significance and use of data to be collected; demonstrations of how to fill in data forms and labels; demonstrations how to use sampling kit and supplies; demonstrations of where and how to remove tissues from animals; and demonstrations of how to sub-sample, bag, and label tissues.

Resource Notebook. In FY00, a resource notebook was developed to provide additional information for hunters, technicians, and students to use as reference material at home and during the trainings. In FY01, it was expanded with more material.

3. *Sample collection*

Technicians. There is a village-based technician in each participating community, whose responsibilities are to take samples from seals taken by themselves or participating hunters, record data as requested, assure access to freezer and sampling supplies, notify Vanek or Riedel when supplies are low or freezer is nearly full, and load and ship coolers with samples to Anchorage, Cordova, or Kodiak.

Key hunters. Ideally at least two hunters per village provide subsistence taken seals from which the technicians take samples, and record data as requested.

Sample size and distribution. It is difficult to predict the number of samples that may be collected in this program annually or by community, but we have assumed a total of 90 animals for estimating costs. This proposal will support collection from technicians for 65 animals. Other funding is secured for the additional 25.

Tissues to be collected. A minimal sample can be collected by technicians in each village with relative ease and subsequently sub-sampled in Anchorage or Kodiak to provide the suite of tissue samples required. We have trained technicians and hunters to record information about harvest location and date, animals' sex, evidence of tags or markers, and standard measures of weight, length, girth, and blubber thickness. Technicians are trained to collect the whole head; vibrissae; stomach (after tying off both ends); female reproductive tract; and samples of liver, heart, kidney, blubber, and muscle. Although collecting the reproductive tracts is highly desirable, it is realistic to assume they will be not be collected from every female sampled as they can be hard to find especially in nongravid young females.

Researchers utilizing samples in their work were contacted late June 2000 and asked to submit information to the EVOS Trustee Council Office outlining the type and number of tissues they would like collected to be used in their work in FY01 or to be archived for possible future use. Table 4 is a summary of the information supplied.

Table 4. Summary of requests and information from researchers on sample collection in FY01

Researcher	Agency	Tissue Type	Number	Notes
Derek Campbell Greg O'Corry-Crowe	NMFS Southwest Fisheries Center	skin & muscle	75-100	
Mike Castellini	U of Alaska-Fairbanks	blubber	nns*	
Don Schell	U of Alaska-Fairbanks	muscle	nns*	
Kathy Frost Sara Iverson	ADF&G Dalhousie U	blubber	nns*	
Jennifer Burns	U of Alaska-Anchorage	specific skeletal muscles	18	specific age class
Joe Cook Gordan Jarrell	U of Alaska Museum	heads whiskers heart liver kidney	150 from south central & western Alaska	tissues used by researchers world-wide (see letter for list)
Bob Small Lauri Jemison Kelley Hastings	ADF&G	stomachs teeth repro tracts liver kidney blubber	?as many as possible " " ?5 - 10 ?5 - 10 ?5 - 10	exact info delayed - numbers based on recent past communication

*nns = no number specified In past, these researchers have utilized as many as collected

Standard Tissue Distribution and Research Use in FY01 and FY02:

Samples were distributed according to Figure 1 in FY01.

1) Muscle/Skin: to NMFS Southwest Fisheries Research Center for genetic work in determining the stock composition in Alaska. It was determined that muscle provided better genetic material extraction and in mid FY01 the decision was made to discontinue collection of skin. The need for muscle samples in quantity continues.
2) Stomach: to ADF&G, L. Jemison for prey identification from the contents for one component of ADF&G's diet studies. As many stomachs as are collected will continue to be needed.
3) Teeth: extracted from the head at the museum and sent to L. Jemison at ADF&G. A commercial lab will determine the age in FY01. Because of the delays in the success of the technique development by NMFS to determine growth history from the teeth in addition to age, teeth will simply be aged this year. Determining ages from teeth will continue in FY02 and happen most likely at the commercial lab.
4) Blubber: In FY01, the blubber was temporarily archived as no active lab analyses were being conducted. Mike Castellini's proposal to study seal oil made from blubber and its health properties was still pending. He strongly supports the

nonbroken continuity of yearly collection. It is unknown at this writing the date his lab will start using blubber samples. In FY01, main staff of ADF&G's harbor seal program changed. During the transition and wait for the arrival in mid FY01 of Peter Olesiuk, the new program head, decisions regarding fatty acid signature work were on hold. Sarah Iverson is interested in continuing this work. It is still a proposed component in the scope of ADF&G's diet investigations, though no new active work was done during FY01.

5) Head/Whiskers: sent to the University of Alaska Museum. Whiskers are removed and a) archived and made available for loan and b) distributed to Amy Hirons as requested for continued stable isotope work. A new project proposal was being developed this spring by a graduate student in Don Shell's lab that will use muscle subsampled at the museum from the head. Don Shell's lab is also considering the use of other tissue types from the head. A piece of dorsal skin is archived for ADF&G for future molt studies. The skull becomes a part of the permanent collection and is available for morphometric study by students and researchers. Small pieces of bone from the broken edges of the trajectory entry hole are made available for loan and have been used mainly in other isotope studies by researchers worldwide requesting loans through the museum's mammal collection. The biosampling program is a permanent project partner with the museum. The museum supports longterm unlimited sample archival and loan availability worldwide.
6) Heart/Liver/Kidney: sent to the UAF Museum for archiving and made available for loan

Specialized Collection in FY01 and FY02:

1) Specific muscles from a small range of age class for J. Burns will continue in FY02.
2) The development of the protocols for collecting blubber, kidney, liver, and muscle tissues for a baseline assessment in a contaminant monitoring plan for ADF&G and limited collection took place in FY01. The main collection of tissues will take place in FY02 and possibly FY03.
3) There has been interest in tissue collection for contaminant analyses by S. Atkinson at the Seward Sealife Center to compliment contaminant studies being conducted with captive seals. In addition, there is joint drafting underway by the Alaska Native Science Commission, Alaska Native Health Board, and the Alaska Native Inter Tribal Council for a comprehensive contaminants study that would use seal blubber samples. No arrangements have been finalized at this time.

Sampling procedure.

Step 1. In the community: village technician receives sample from the hunter, or works with an animal they have taken themselves. The data form is filled out at the time samples are taken by technician-hunters in the field, or by non-hunting technicians in the community, or by youth from the Youth Area Watch projects. The dataform and samples from one animal are placed in one animal specimen bag for village-based storage. Technicians have a kit that includes supplies adequate for sampling of 5 animals. Among the items in each kit are 1) ziploc sampling bags for collection of the head, stomach, and tissues, 2) large garbage bags in which to place the sample bags collected from each animal, and 3) data forms and specimen labels. The head, stomach, and tissues will each be individually bagged in their own ziploc bag. Each is identified on the outside with a marker and has a specimen label enclosed with the same information that uniquely

identifies the animal in the field (this system uses the technician's name, village, harvest date and sequential number of animal sampled and is also recorded on the dataform). All the individual sample bags from one animal are placed in one large garbage bag along with its data form. The specimen bag and the data form are placed in a freezer without sub-sampling, the technician contacts Vicki Vanek or Monica Riedel when a full shipment has accumulated, and then sends the samples to Kodiak or Anchorage.

Step 2. Vicki Vanek receives samples in Anchorage and stores them at ADF&G or receives them in Kodiak and stores them at the Kodiak Fisheries Research Center. Periodic sub-sampling efforts occur as depicted in Figure 1. At this time, each animal is assigned a unique number tied to the University of Alaska Museum Archive numbering system, in order that all researchers may easily identify other tissue samples from this animal with other researchers or those archived at the museum. Each tissue sample is identified with this assigned number on the outside of the sample bag, on the label inside, and on the dataform. Subsamples from each seal are repackaged into individual bags and labeled. They are kept frozen and shipped to the appropriate laboratory (see Figure 1).

4. *Data collection*

Data are recorded on write-in-the-rain forms designed for standardization of data with other harvest-sampling programs. Presently, copies of the original forms have been supplied along with the subsample to researchers on paper only. A future goal continues to be the development of an electronic version of this form, as recommended during the EVOS scientific review committee's review of project \244. It was realized that this would most efficiently be accomplished through the new system being developed at the museum which will allow in the future the possibility of researchers accessing on their own the data through the internet. Development of this is delayed until the completion of the museum database system conversion (see below). All of the data recorded on the forms in the field is entered and kept in a EXCEL database along with other tracking information. Sample label and freezer log forms have been developed to assure adequate sample tracking. In the field, technicians uniquely identify each animal. At the time of processing, each animal receives a unique number that is tied to the UAF Museum Archive numbering system. The number is assigned before any subsampling occurs so all parts are linked to the appropriate animal and can be easily tracked.

5. *Sample analysis*

Figure 1 provides a summary of the research programs involved in the tissue analysis. It is expected that participating scientists will acknowledge in any reports and publications the role of the ANHSC in facilitating the biological sampling program. Also expected is the return of reports on research results and analyses to ANHSC; and lab results specific to one animal, such as age or identification of stomach contents, to the hunter/biosampler with the help of the ANHSC.

6. *Data management and reporting*

Biological data collected from this program have been managed and maintained in a database using Microsoft Excel software that is easily translated or integrated with software used by other agencies and organizations. This database has been centrally maintained by ADF&G and a summary of the samples collected and analyzed were included in the project's annual and final reports to the Trustee Council, with copies to pertinent agencies, such as NMFS.

In Project 00245 and continuing in Project 01245, steps are being taken to enhance this database, as recommended by the EVOS scientific review committee. These include:

a. Enhance UAF Museum database for back-up tracking, to include information on the biosampled seals, such as the names of researchers who received samples and identification of the sample with this program (see below).
b. Development of an electronic data form (see above). This will facilitate communication of information and incorporation of sample data into databases
c. Development of a form that summarizes research investigators, contact numbers, projects, and publications for samples from a particular animal
d. Development of a biannual biosample status report. Presently there is no automatic system in place for researchers to return the results of their analyses or to update other participants on their activities and progress.

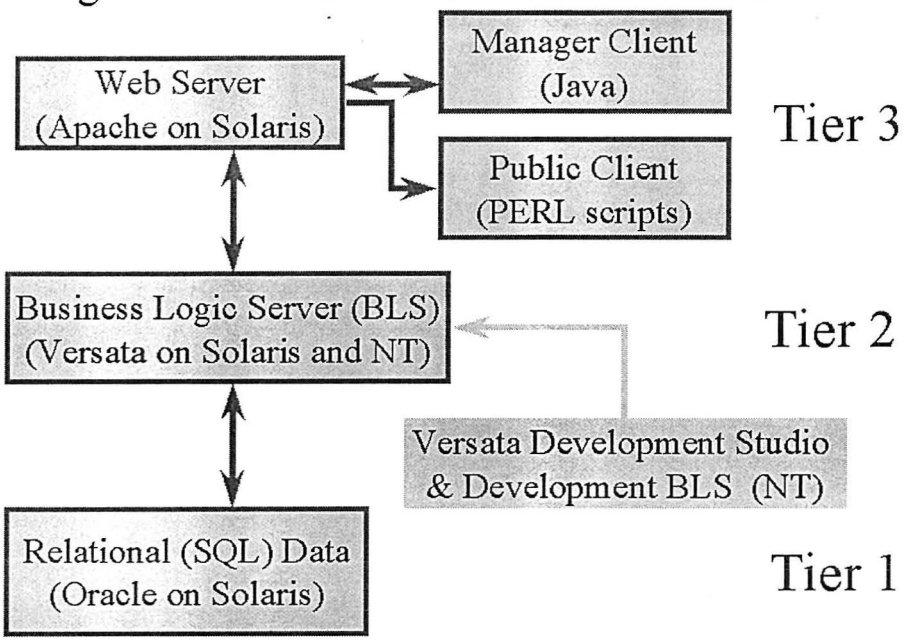
UAF Museum Database update.
The Museum's database upgrading began in October 1998. This evolved into changing to a new cutting edge data management system developed and coordinated with the University of California at Berkeley's museum database. (See below for more detail.) Various unforeseen steps in the building of a new information structure and developing the various layers concept delayed the actual startup. The museum was in the final stage of getting all screens and interfaces working and started the data import from the original system in 2001. The Harbor seal projects were some of the first sets of data to be transferred over into the new system. This new system can now be accessed from the Web. All steps of the conversion have not been completed and not all elements of the program's capabilities are yet available, such as being able to list all research loan requests using tissues from a particular animal. Completion of the layers allowing these advanced features are expected in the next one to two years.

The following information was supplied by Gordan Jarrell, the acting Curator of Mammals of the University of Alaska Museum:

Database development for the Alaska Frozen Tissue Collection (AFTC) is now intertwined with the larger initiative of bringing all of the Museum's biological collections into the comprehensive database of the new NSF funded Arctic Archival Observatory (AAO). A key part of this project is to create a web-based, georeferenced database of a wide variety of ecological samples.

Since 1996, the AFTC has had a summary database of its holdings on the Worldwide Web. We are now engaged in implementing a far more sophisticated system (Fig. 1) on an enterprise-caliber platform. The 110-table database is running in Oracle software on a dedicated Sun server. The database architecture and the development environment for user and client interfaces are identical to those at University of California's (Berkeley) Museum of Vertebrate Zoology (http://elib.cs.berkeley.edu/mvz/). MVZ's programmer, John Wieczorek, has moved mammal records into the system, and the AAO's full-time programmer, Dorothy Corbett, is now working with him on expanding the model and developing interfaces for our other biological collections.

Figure 1 - "Three-tiered" Architecture



An important feature of the database structure is the incorporation of "Projects" (Fig. 2). Projects that contribute specimens (such as the ANHSC), projects that use specimens, and projects that do both can be related through data on specimens sources (accessions) and specimen usage ("loans" which includes donations when a subsample is sent for destructive analysis). Most of this structure is now implemented but we have not yet incorporated data on loans nor have we systematically associated accessions with projects. This will be reasonably straightforward once we have developed our internal interface for managing loans. Nevertheless, at this time there is a web interface that displays the available projects data, including the ANHSC.

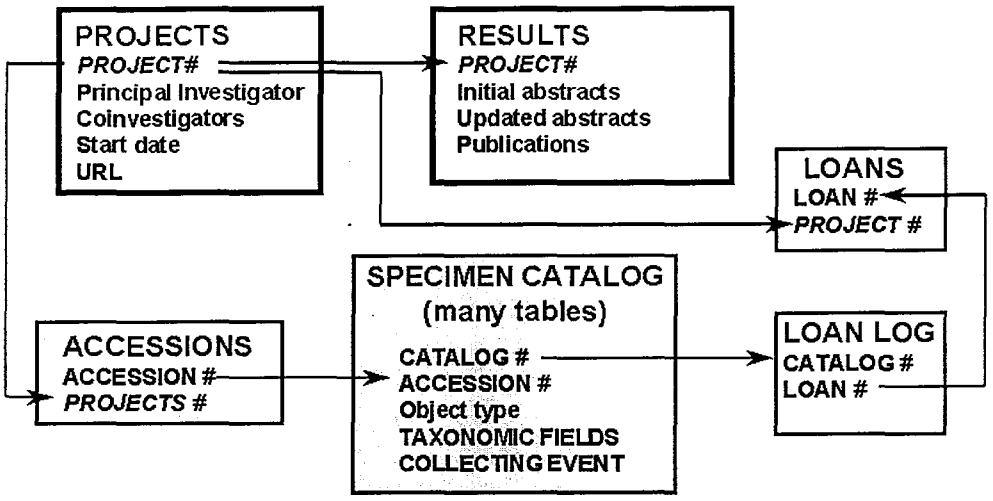


Figure 2 - SCHEMATIC OF PROJECTS LAYER

Projects are defined as programs that contribute samples, use samples, or both. An accession is an acquisition of samples. With project numbers in loans and accessions, queries can link projects producing samples to those using them.

Some relevant URLs:
General Museum database interface: http://arctos.museum.uaf.edu:8080/uam_db/
Projects: http://arctos.museum.uaf.edu:8080/cgi-bin/uam_db/projects.cgi
Specimens: http://arctos.museum.uaf.edu:8080/cgi-bin/uam_db/specimensearch.cgi

7. *Youth Area Watch programs*

Participants will attend biosampling trainings and be trained as technicians. In FY02, participation with individual groups of Youth Area Watch students will be reduced due to the involvement of the Biosampling Program and Riedel and Vanek as host researchers for the Jason Foundation's Jason Project. This is a multimedia interactive educational program that will feature Alaska and Antarctica this coming school year. A few Youth Area Watch students will participate in the live broadcasts. The Kodiak Island Borough, Anchorage, Fairbanks, and Juneau schools, among others in all of Alaska, will be using the program in their classrooms. This is a year-long teaching curriculum covering all subjects aimed at middle school grades. The Jason project will reach over one million students and 25,000 teachers in at least 9 countries. More information can be found at www.jasonproject.org.

Summary: Proposed responsibilities of each cooperating group for Objectives 1 and 2:

Vicki Vanek of the Alaska Department of Fish and Game, Division of Subsistence will:

1. Compile protocols, develop data forms and sampling kits, and incorporate instructions for their use into a training program (this was completed in Project 96244; appropriate revisions will take place in Project 00245); make appropriate revisions to the instruction manual.
2. Communicate with researchers
3. Help answer biosamplers' questions
4. Train new community assistants when replacements are necessary;
5. Receive samples from village-based technicians, process samples, and ship samples to participating researchers for analysis
6. Maintain the in-house database of biological data and work with the UAF Museum in development of the database there
7. Collate the results of the sample analysis into a readily understandable form.
8. Write a brief summary of the project for inclusion in the interim and final reports for the Trustee Council
9. Provide technical support for Youth Area Watch school curriculums
10. Develop and maintain electronic exchange of information with researchers, including providing data forms to researchers and researchers' subsample status and results (from biannual reports) for annual reports and reports prepared by the ANHSC.

The Alaska Native Harbor Seal Commission will:

1. Identify and subcontract with 13 communities' technicians
2. Purchase sampling kits and distribute kits and other supplies to village-based technicians
3. Facilitate production of manual and resource notebook
4. Set up air freight accounts for shipping samples and facilitate shipping from communities to Kodiak or Anchorage
5. Receive samples from Prince William Sound biosamplers, in Cordova and prepare for shipping to Kodiak for subsampling and distribution.
6. Communicate study findings through a newsletter and at its periodic meetings

Objectives 3, 4, and 5: Communications, Recommendations, and Evaluation

Communication of study findings, development of recommendations for hunters, project evaluation, and development of a long-term funding plan, are part of a collaborative effort met in part through a contract with the ANHSC, which will do the following:

1. Communicate with communities involved in the biological sampling project to review data and any recommendations developed by the ANHSC. These communications may be through phone discussions or take place during community visits connected with biosampling training or other ANHSC business
2. Write a newsletter which provides overviews of findings from harbor seal research and ANHSC activities.
3. Participate in the Trustee Council restoration workshop and contribute to Trustee Council's annual and final reports

The Division of Subsistence will provide technical assistance to the Commission as needed. The goals of these objectives are also addressed through the development and maintenance of databases, as discussed above.

Annual and final reports: the Division of Subsistence and the ANHSC will jointly prepare annual and final reports for the project.

ANHSC Efforts for Statewide Integration of the Biosampling Program with other Programs:

1) The *Exxon Valdez Oil Spill* Trustee Council through the Alaska Department of Fish & Game Subsistence Division has supported the ANHSC Biosampling Project for the past 6 years.

2) The ANHSC has received funding for FY00 and 01 from the North Pacific Research Program at UAF that expands the scope of the biosampling program to include the Aleutian and Bristol Bay Areas. During those years, ANHSC staff held four training sessions with the hunters from villages in those areas. In FY00 this was coordinated with additional funding from a small grant awarded to the Bristol Bay Native Association's Marine Mammal Program. Samples have been received from those hunters.

3) ANHSC is working closely with the Aleut Marine Mammal Commission and the Bristol Bay Marine Mammal Council to coordinate further efforts to train and collect samples in their area.

4) In FY01, the ANHSC contracted with the NMFS in conjunction with ADF&G Wildlife & Conservation Division to hire a Statewide Biosampling Coordinator (Vanek) for part of the year. Funds from the ANHSC/ NMFS grant was set aside for this effort. This contract is in its final stages. The purpose is to outline a statewide structure of the program and strengthen it for further growth and stability as outlined in the ANHSC/NMFS Harbor Seal Co-management Action Plan. (see ANHSC web site: http://www.ctcak.net/~akharborseal).

5) The ANHSC has operational funds from the NMFS on ongoing bases. In addition to supporting a Statewide Biosampling Coordinator, funding is provided for a full time salaried Executive Director. Part of her time is designated to the Biosampling program. In addition, funds to train hunters and collect samples from Southeast Alaska are included in that budget.

6) The BIA Natural Resources Department supported the ANHSC Spring Meeting and Biosampling Training session held in Kodiak in April 2001. EVOS Trustee Council also provided additional travel funds for Community Facilitators and Hunter/Instructors. This session was also coordinated with Kodiak's Youth Area Watch.

7) The Alaska Sealife Center has been very supportive of the ANHSC Biosampling Program. There is a continued network of communication and coordination between the two.

8) The ANHSC Executive Director participated in the Alaska Native Science Commission/Alaska Inter Tribal Council/Alaska Native Health Board Statewide Comprehensive Contaminants draft planning session in June 2001. It is envisioned that the ANHSC Biosampling program will be used as a model for training and collecting subsistence food samples for contaminant analysis, including seal blubber samples.

9) Currently, the ANHSC Executive Director is seeking support for the continuation of the Program from the National Science Foundation. ANHSC members will be meeting with NSF Ocean Biologists in Washington D.C in July 2001.

C. Cooperating Agencies, Contracts, and Other Agency Assistance

A. In prior study years, a contract was developed with the Alaska Native Harbor Seal Commission to undertake portions of the project. This contract will be amended to include the objectives for Project 01245. Tasks for the ANHSC under this contract will include:

1. Purchase sampling kits and distribute kits and other supplies to village-based technicians
2. Set up air freight accounts for shipping samples
3. Identify and subcontract with local community technicians
4. Prepare brief (letter format) quarterly reports on its activities as related to this project.
5. Attend the Trustee Council Restoration Workshop and contribute to Trustee Council's annual and final reports

Through subcontracts with the ANHSC, community technicians in 13 communities (Cordova, Tatitlek, Chenega Bay, Valdez, Seldovia, Port Graham, Nanwalek, Akhiok, Old Harbor, Ouzinkie, Port Lions, Kodiak City, and Perryville) will do the following:

1. Have attended a one day training session
2. Collect samples (stomach, female reproductive tract, liver, heart, kidney, muscle, blubber, head)
3. Record data on harvest locations, sex, evidence of tags or markers, length, girth, and weight
4. Label and freeze samples, notify Vicki Vanek or the ANHSC when freezers are full, and load and ship coolers with samples to Kodiak or Anchorage

Contract A: Budget

Personnel	Wildlife Biologist II for 4.0mos @4.6 1/3 time	$18,400
	Program Assistant for 6.5 months @ ¼ time	0
Travel	Executive Director travel	0

Operational costs: phone & mailing	0
Insurance	0
Sampling and freezer supplies, shipping	0
Subcontract, village-based technicians	2,925
15% indirect program cost	3,199
Total	$24,524

Other funding from NMFS was secured for Monica Riedel's time. Her availability may be slightly reduced at times due to new obligations.

Subcontract: Village-based Technicians

Training honorarium: $100/day for two new technicians for one day each:		0
Compensation for taking biological samples of seals		2,925
	Total	2,925

Note: it is anticipated that samples will be taken from a total of 65 seals and that it will take about 3 hours per seal to take samples, store samples, and ship samples. At a rate of $15/hour, this gives: $15 x 3 hours x 65 seals = $2,925.

The costs for shipping and supplies will be covered from other sources than this proposal in FY02.

SCHEDULE

A. Measurable Project Tasks for FY 01

Start-up to October 15, 2001:	Update contract with the Alaska Native Harbor Seal Commission; hire technicians
November 2001:	Hold a training session for biological sampling for new community technicians and students (through other funding)
October 2001 - September 2002:	Biological sample collection
November 2001 - September 2002:	Process samples
March/April 2002:	Produce and distribute newsletter (Alaska Native Harbor Seal Commission)
April 15, 2002	Annual report
September 2002:	Evaluate fifth year of program

B. Project Milestones and Endpoints (includes \244)

1. Development of sampling program: October/November 1995
2. Production and distribution of Instructional video: March 1996
3. Workshops to train local hunters and technicians in collection procedures: October/November 1995
4. Workshop in conjunction with meeting of Alaska Native Harbor Seal Commission: March 1996
5. Produce and distribute first proceedings report: April 1996
6. Maximize coordination with other programs: ongoing
7. Ship samples to appropriate laboratories for subsequent analysis: ongoing
8. Advise villages and scientists of analytical results when available: ongoing
9. Conduct interviews with hunters to collect traditional knowledge: ongoing
10. Second workshop in conjunction with Commission meeting: September 1996
11. Produce and distribute second proceedings report: September 1996
12. Train new village technicians and new Youth Area Watch participants: November 1996
13. Hold workshop in conjunction with ANHSC meeting: March 1997
14. Demonstrate updated Traditional Knowledge Database: March 1997
15. Produce and distribute proceeding for 1997 workshop: April 1997
16. Annual report: April 15, 1997
17. Complete map database and report: June 1997
18. Present Biosampling Demonstrations at Youth Spirit Camps June/July 1997
19. Evaluate the program's effectiveness and develop a more long-term funding plan: September 1997 and September 1998
20. Train new Youth Area Watch participants: October 1997
21. Hold workshop in conjunction with ANHSC meeting: March 1998
22. Produce and distribute proceedings for 1998 workshop: April 1998
23. Develop electronic forms for researcher exchange of information and system to transmit forms, assist UAF Museum to add tracking information to computer programs as a backup to main database: ongoing
24. Assist in Youth Area Watch curriculum development: May 1998
25. Present Biosampling Demonstrations at Youth Spirit Camps July 1998

26. Final report, \244: September 30, 1998
27. Train new community technicians and new Youth Area Watch participants: October/November 1998
28. Hold workshop in conjunction with ANHSC meeting: March 1999
29. Produce and distribute proceedings for 1999 ANHSC meeting: April 1999
30. ANHSC sign Co-Management Agreement with NMFS April 1999
31. Biosampling Demonstration at multi-community Cultural Week May 1999
32. Present community reports May 1999
33. Facilitate sampling collection between hunters and scientists in field June 1999
34. Initiate contract for expanded biosampling program with UAF July 1999
35. Implement expanded biosampling program with UAF Aug 1999
36. Plan and facilitate training workshops Sept 1999
37. Develop Harbor Seal Biosampling Resource Notebook Sept – Oct 1999
38. Facilitate development of Kodiak Youth Area Watch Aug – Dec 1999
39. Produce and distribute newsletter Oct 1999
40. Conduct expanded training workshop for hunters Oct 1999
41. Train Youth Area Watch participants - PWS Nov 1999
42. Train Youth Area Watch participants and hunters - Lower Cook Inlet Dec 1999
43. Conduct audit for FY 98 and FY99 Jan 2000
44. Present poster and biosampling data at EVOS workshop Jan 2000
45. Present poster and biosampling data at Marine Mammal Stranding workshop Feb 2000
46. Train Youth Area Watch and hunters - Kodiak Feb 2000
47. Hold workshop in conjunction with ANHSC meeting April 2000
48. Present community reports May 2000
49. Facilitate sample collection with hunters and scientists in field June 2000
50. Maximize coordination with other programs and Native Organizations: ongoing
51. Collection of biosamples: ongoing
52. Process and ship samples to labs and UA museum for subsequent analysis and archival: ongoing
53. Advise Tribes, communities, and scientists of research results: ongoing
54. Produce and distribute proceedings from April 2000 meeting July 2000
55. Present Biosampling Demonstration to Youth Spirit camp participants July 2000
56. Annual Report 7/30/00
57. Produce and distribute newsletter Sept 2000
58. Facilitate planning for training workshop and Youth Area Watch programs Sept 2000
59. Training workshops for technicians and students Oct – Dec 2000
60. Hold training workshop in conjunction with ANHSC meeting Oct 2000
61. Participate in EVOS GEM workshop Oct 2000
62. Conduct audit for FY00 Nov 2000
63. Collect, process, and ship samples for analysis and archival: ongoing
64. Advise Tribes, communities, and scientists of research results when available: ongoing
65. Continue development of Resource Notebook and high school curriculum: ongoing
66. Hold training workshops Jan - March 2001
67. Hold training workshop in conjunction with ANHSC spring meeting April 2001
68. Produce and distribute newsletter March –April 2001
69. Present community reports May 2001
70. Present Biosampling Demonstration to Youth spirit camp participants June –Aug 2001
71. Annual Report 7/30/01

72. Annual Report 4/15/02
73. Final Report 9/30/03

C. Completion Date

This project should continue as long as the Marine Mammal Ecosystem Research package is underway. It has contributed to several marine mammal restoration projects including: \064 (Harbor Seals: Monitoring and Field Research, \341 (Harbor Seals: Health and Diet), \371 (Harbor Seal Metabolism/Stable isotopes), and \441 (Harbor Seal Diet: Lipid Metabolism and Health). Harbor seal research projects in the oil spill area with other funding continue to utilize samples collected in the Biosampling Project.

PUBLICATIONS AND REPORTS

Annual report	July 30, 2001
Annual report	April 15, 2002
Final report	September 30, 2002

PROFESSIONAL CONFERENCES

No attendance planned for FY 01.

NORMAL AGENCY MANAGEMENT

The Division of Subsistence of the Alaska Department of Fish and Game has no statutory or regulatory responsibilities for marine mammal management. Without this project, marine mammal biologists who are working on harbor seal recovery will lose a key source of biological information on this species. Trustee Council support of the activities of the Alaska Native Harbor Seal Commission has improved management of the injured harbor seal resource by facilitating communications between scientists and subsistence users and providing traditional knowledge to factor in to harbor seal studies. The ANHSC has received a congressional appropriation through the National Marine Fisheries Service to support certain administrative and operational costs, such as office space and travel to certain meetings and conferences. It is seeking funding from NMFS in accordance with provisions of the Marine Mammal Protection Act to support its long-term activities.

COORDINATION AND INTEGRATION OF RESTORATION EFFORT

The project provides biological samples from subsistence-taken harbor seals to address potential health and nutritional problems that may be impeding harbor seal recovery, and contributed to restoration project numbers \064, \341, \371, and \441. The project has provided information to researchers working on harbor seal restoration projects and facilitates their work with Alaska

Native hunters. Participants in the Youth Area Watch projects (\210and \052A) participate in community technician training sessions and attend workshops.

Several programs exist using sample tissues collected from harbor seals in the spill area (see Figure 1 and Table 4). As noted above, every effort is made to coordinate with these programs to minimize the burden and confusion of hunters and communities, maximize logistical efficiency, collect comparable or standardized data whenever possible, and limit the likelihood of duplication of efforts. The National Marine Fisheries Service assists with coordinating the harbor seal sampling and testing programs.

Additional funding for the operations of the Alaska Native Harbor Seal Commission has been received from the National Marine Fisheries Service and the U.S. Congress, and additional funding is being sought from these entities as well as the National Science Foundation. Such funding supports more extensive activities for the Commission across the entire range of the harbor seal in Alaska. As of April 1997, a congressional appropriation to support basic commission functions (office, accounting, travel to conferences) was being administered through NMFS. The ANHSC received a Title VIII ANILCA grant to assist in the development of co-management plans.

EXPLANATION OF CHANGES IN CONTINUING PROJECTS

No additions to project objectives or methods of the detailed project description submitted and approved for Project 01245 are being proposed. Previously, the ANHSC organized a workshop in conjunction with one of its meeting and prepared a proceedings report. This task was eliminated in FY00 in light of reduced funding. We do also not anticipate expanding the project into new communities. No trainings are proposed under this project, but will be held with other funding and may include hunters from this funded area. It is anticipated that review of project progress will still take place at ANHSC meetings. In FY 01 and 02, Vicki Vanek assumed responsibilities as co-principal investigator (along with Monica Riedel), replacing James Fall. In FY 01 and 02, other funding was secured for Monica Riedel's time and a part time assistant to the Biosampling Program has been added. In FY02 the assistant's time will be covered by other funding.

ENVIRONMENTAL COMPLIANCE

This project is a continuation of Project 01245 which was classified as categorically excluded under NEPA guidelines. While this project will collect biological samples from subsistence-taken harbor seals, the sampling effort will not result in any additional takings of seals.

PROPOSED PRINCIPAL INVESTIGATORS

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PERSONNEL

Monica Riedel, an Alaska Native resident of Cordova, is the executive director and chief executive officer of the Alaska Native Harbor Seal Commission. She has held this position for the past 6 years. Ms Riedel is responsible for the ANHSC activities under this project, including identifying and subcontracting with local village technicians, developing subcontracts, and developing the newsletter.

Vicki Vanek is a Wildlife Biologist with the Division of Subsistence in Kodiak. She holds a Doctor of Veterinary Medicine degree, and has worked on previous Division projects in collecting marine mammal samples and training hunters as well as on the biological sampling tasks of 96244, 97244, and 98244. Dr. Vanek is responsible for overall project performance for the Division. She will assist hunters and community technicians in biosampling, and will train newly hired technicians. Dr. Vanek will also process biosamples. She will also prepare information for newsletters, which reports results of the biosampling efforts and will also coordinate preparation of annual and final reports. Four months of funding is being requested for her work on this project.

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Approved TC 8-6-01

Budget Category:	Authorized FY 2001	Proposed FY 2002
Personnel		$19.2
Travel		$1.2
Contractual		$3.3
Commodities		$0.0
Equipment		$0.0
Subtotal	$0.0	$23.7
General Administration		$3.1
Project Total	$0.0	$26.8
Full-time Equivalents (FTE)		0.3
Other Resources		

LONG RANGE FUNDING REQUIREMENTS

Estimated FY 2003					

Dollar amounts are shown in thousands of dollars.

Comments:

FY02

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Agency: Alaska Department of Fish and Game

FORM 3A
TRUSTEE
AGENCY
SUMMARY

Prepared:4/14/01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Personnel Costs:		GS/Range/	Months	Monthly		Proposed
Name	Position Description	Step	Budgeted	Costs	Overtime	FY 2002
Vicki Vanek	Wildlife Biologist II	16B	4.0	4.8		19.2
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		4.0	4.8	0.0	
					Personnel Total	$19.2

Travel Costs:	Ticket	Round	Total	Daily	Proposed
Description	Price	Trips	Days	Per Diem	FY 2002
Kodiak - Anchorage	0.3	2	6	0.1	1.2
Restoration Workshop and one training session					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.2

FY02

Prepared: 4/13/01

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Agency: Alaska Department of Fish and Game

FORM 3B
Personnel
& Travel
DETAIL

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FY 2002
Description	
4A Linkage	3.3
When a non-trustee organization is used, the form 4A is required. **Contractual Total**	$3.3

Commodities Costs:	Proposed FY 2002
Description	
Commodities Total	$0.0

FY02

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Agency: Alaska Department of Fish and Game

FORM 3B
Contractual & Commodities DETAIL

Prepared:4/13/01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 2002
			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

FY02

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Agency: Alaska Department of Fish and Game

FORM 3B
Equipment
DETAIL

Prepared: 4/13/01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Budget Category:	Authorized FY 2001	Proposed FY 2002	LONG RANGE FUNDING REQUIREMENTS					
Personnel		$0.0						
Travel		$0.0						
Contractual		$2.9						
Commodities		$0.0						
Equipment		$0.0						
Subtotal	$0.0	$2.9	Estimated					
Indirect		$0.4	FY 2003					
Project Total	$0.0	$3.3						
Full-time Equivalents (FTE)		0.0						
	Dollar amounts are shown in thousands of dollars.							
Other Resources								

Comments: indirect = 15% of program costs

FY02

Prepared:4/13/01

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Name: Alaska Native Harbor Seal Commission

FORM 4A
Non-Trustee
SUMMARY

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET

October 1, 2001 - September 30, 2002

Personnel Costs:			Months	Monthly		Proposed
	Name	Position Description	Budgeted	Costs	Overtime	FY 2002
						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 2002
						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

FY02

Prepared:4/13/01

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Bioligical Sampling
Name: Alaska Native Harbor Seal Commission

FORM 4B
Personnel
& Travel
DETAIL

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

Contractual Costs:	Proposed FY 2002
Description	
For local technicians: 65 seals biosampled @ 3 hrs/seal @ $15/hour	2.9
Contractual Total	$2.9

Commodities Costs:	Proposed FY 2002
Description	
Commodities Total	$0.0

FY02

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Name: Alaska Native Harbor Seal Commission

FORM 4B
Contractual & Commodities
DETAIL

Prepared:4/13/01

FY 02 *EXXON VALDEZ* TRUSTEE COUNCIL PROJECT BUDGET
October 1, 2001 - September 30, 2002

New Equipment Purchases: Description	Number of Units	Unit Price	Proposed FY 2002
			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

FY02

Project Number: 02245
Project Title: Community-Based Harbor Seal Management and Biological Sampling
Name: Alaska Native Harbor Seal Commission

FORM 4B
Equipment
DETAIL

Prepared:4/13/01