

Project 95121

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1. Project Title:	Stable isotope ratios and fatty acid signatures of selected forage fish species in Prince William Sound, AK				
2. Project Leader:	Graham A.J. Worthy, Ph.D.				
3. Lead Agency:	Physiological Ecology Research Laboratory Marine Mammal Research Program Texas A&M University Galveston, TX 77551				
4. Cost of Project:	FY95: \$42K FY96: \$13K				
5. Project Dates:	May 1, 1995-April 30, 1996				
6. Project Duration:	l year				
7. Geographic Area:	Prince William Sound, AK				
8. Contact Person:	Graham A.J. Worthy Marine Mammal Research Program 4700 Avenue U, Bldg 303, Texas A&M University Galveston, TX 77551 (409) 740-4721 (409) 740-4717 e-mail WORTHY_G@TAMUG2.TAMU.EDU				

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INTRODUCTION

Food web dynamics is a central topic of ecology and fisheries and wildlife management. Evaluating the flow of energy between predator and prey is an important process in marine ecosystem dynamics (Platt *et al.* 1981). Until recently, stomach content analysis of dead animals and scat analysis provided the only sources of information on the diet of marine mammals and fish. Although widely used, these techniques have several limitations in both their methodology and results. Such limitations of these techniques provide the initiative to explore alternative methods of determining diets. Although its origins are in geology and geochemistry (Craig 1953; McMullen and Thode 1963; Bowen 1966), the use of naturally occurring carbon and nitrogen stable isotopes have recently come forth as a powerful tool to trace ecosystem dynamics and predator prey relationships.

Previous studies on marine mammals, birds, and fish (Fry 1988; Schell *et al.* 1989; Hobson 1990; Ostrom *et al.* 1993; Abend 1993) using carbon and nitrogen stable isotope tracers have shown that the isotopic composition of a prey is reflected in the tissues of the predator. The trophic level of the predator is also reflected based on its diet (Rau 1983; Hobson 1990; Wada 1991; Ostrom *et al.* 1993). Trophic level refers to the number of successive transfers of energy from resource to consumer. This technique uses differences in the ratios of carbon ($^{15}C/^{12}C$) and nitrogen ($^{15}N/^{14}N$) to trace diet through carbon and nitrogen pathways. The carbon isotope ratio $^{15}C/^{12}C$ indicates the source of the diet, whereas the nitrogen isotope ratio $^{15}N/^{14}N$ reflects the trophic level of the animal (DeNiro and Epstein 1978, 1981; Minagawa and Wada 1984).

An advantage over traditional stomach content analysis is that the ratios of the stable carbon and nitrogen isotopes reflect the actual prey items that assimilate into the predator's tissues over time, providing a more accurate indication of their dietary history. The time course of the dietary history of an animal determined using stable isotope tracers and various tissues will depend upon the turnover rates of the tissue examined. Since individual tissue turnover rates vary based on their metabolism (Thompson 1953), analyses of stable isotopes of different tissues from the predator can provide information on the relative time frame of prey consumption (Tieszen *et al.* 1983). This approach with various fish tissues will depend upon the growth rate of the fish species. Slow growing fish may take years for a change in the isotopic ratio to occur in a tissue, whereas the isotope ratio in a fast growing fish may show up sooner (Hesslein *et al.* 1993).

If the predator consumes multiple foods, isotope values can indicate, but not prove, that a certain type of food was ingested. However, isotope tracers can sometimes prove when a food item was not consumed and assimilated (Gearing 1991). Recently, an additional method has been proposed for understanding marine food webs, even determining prey items and diet of marine mammals, through the use of fatty acid signatures (Iverson 1993). In overview, fatty acids are essentially the building blocks of lipids. Organisms are able to biosynthesize and modify fatty acids, but are subjected to biochemical limitations and differences in these processes depending on the phylogenetic group or even species. Specific fatty acids cannot be synthesized by animals, noted as essential fatty acids, and therefore can only originate from the diet. Lipids from marine organisms are characterized by an exceptionally complex array of fatty

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acids and substantial differences in fatty acid composition exist among species and prey types, as well as within species by geographical regions (Cook 1985; Iverson 1993). In carnivores and marine mammals, dietary fatty acids are often deposited in body tissue without modification (e.g. Iverson et al. submitted) and therefore it is possible to trace fatty acids obtained from the diet and to compare arrays in the tissues of the predator to those in the prey consumed.

In addition to fatty acid patterns, fatty acids may sometimes be used as individual tracers. For instance, a study by Hooper *et al.* (1973) indicated that jellyfish were a component of the diet of sunfish (*Mola mola*) on the basis of a single unusual fatty acid which was initially found in leatherback turtles (*Dermochelys coriacea coriacea*) (Ackman *et al.* 1972) whose diet is exclusively jellyfish. The combination of using stable isotope tracers and fatty acid signatures will trace food webs beyond to what is presently possible with existing methods.

However biological markers can also have multiple sources resulting in ambiguous results. The use of stable isotopes or fatty acids may not fully decipher the diet of an animal on their own. The use of a third approach could interpret such data whose resolution is not well defined for successful analysis. This new approach in food web analysis will be the analysis of the isotopic ratio of the fatty acids themselves. This will provide a higher resolution that may differentiate isotopic ratios and fatty acid signatures that are similar. Investigations suggest that the stable isotope compositions of discrete molecular structures more accurately reflect their origin and history than either isotopic composition or structure alone. The higher cost of this analysis preclude the use on a routine basis and will be used to interpret in situation where the results of tracers and signatures are similar.

The strength of the combination of these three methodologies will be the ability to define and identify individual stocks of prey that are being consumed by marine mammals, fish and birds. This would provide valuable data on marine mammal-fishery, bird-fishery interactions and for fisheries management of the specific fish stocks (herring, cod, salmon) that marine mammals and birds may be impacting.

Since predators are not 100% efficient in assimilating all of the biomass ingested, the energy available to the predator from prey must be determined. This will be accomplished by using bomb calorimetry and compositional analysis to determine caloric values. This project will initiate and complement a full study of fish energetics being submitted separately.

NEED FOR THE PROJECT

This study will provide the background data necessary for future studies of food web dynamics and ecology of food resources used by many species (whales, seals, birds and fish) within Prince William Sound. With increasing pressure on our natural resources, especially fisheries, new techniques of life history interpretation and science are needed. The combination of tracer techniques will greatly enhance the knowledge available on the physiological ecology of predator-prey relationships with the Sound.

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PROJECT DESIGN

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The objectives of this study are to provide baseline diet, energy, and trophic level data of fish species which are prey of marine mammals and birds in Prince William Sound. Knowing the stable isotope ratios, fatty acid signatures, and caloric values of prey fish will further enhance our understanding of the food web structure of Prince William Sound and provide comparative results with stomach analysis.

It is suggested that sampling be conducted a minimum of two seasons when maximum productivity is occurring. Fish species to be sampled would be those that are known prey of marine mammals, seabirds, and large fish species. These would include capelin (Mallotus villosus), herring (Clupea harengus pallasi), sand lance (Ammodytes hexapterus), pollock (Pollachius virens), surf smelt (Hypomesus pretiosus), squid (Gonatopsis makka, Berryteuthis magister), salmon (Oncorhynchus sp.), as well as macrozooplankton and euphausiids.

Twelve samples from each species per sampling area would be collected. Samples will be stored frozen and shipped to Texas A&M for processing and analysis. A brief synopsis of the analytical techniques follows.

Isotope Analysis:

Carbon and nitrogen occur naturally in two stable forms. Lighter forms ¹²C and ¹⁴N are more abundant than the heavier isotopes ¹³C and ¹⁵N. The common vernacular is to refer to the heavier isotope concentrations as a ratio in d notation in part per thousand noted (ppt) as determined from:

$$d\mathbf{X} = [(\mathbf{R}_{\text{sample}}, \mathbf{R}_{\text{standard}}) - 1] \times 1,000$$

where X is ¹³C or ¹⁵N and R is the corresponding ratio ¹³C/¹²C or ¹⁵N/¹⁴N. For this study, stable isotope values will be measured using a carbon-nitrogen isotope ratio gas mass spectrometer. The stable isotope value of a predator is directly related to its diet as follows:

$$d_{\text{tissue}} = d_{\text{diet}} + \Delta_{at}$$

where \triangle represents the isotopic fractionation factor between dietary and consumer tissue (Hobson 1990). Carbon isotope ratios are similar for marine systems typically differing between prey protein and consumer protein by +1ppt (DeNiro and Epstein 1978; Tieszen *et al.* 1983), while nitrogen isotope ratios differ between dietary protein and consumer tissue by 3-4ppt (Minagawa and Wada 1984; Dickson 1986; Fry 1988).

Fatty acid Analysis:

Tissue samples will be extracted in 2:1 chloroform/methanol (volume/volume) with 0.01% BHT (weight/volume) by the Folch method (Folch *et al.* 1957) as modified by Iverson (1988). Fatty acid methyl esters will be prepared directly from aliquots of the chloroform extract by the addition of borontriflouride in methanol, sealing under nitrogen, and heating at 100°C for one hour. Following transesterification, methyl esters will be extracted and purified in hexane.

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Analyses of fatty acid methyl esters will be performed according to Iverson *et al.* (1992) using temperature programmed capillary gas liquid chromatography on a Perkin Elmer Autosystem II Capillary FID Chromatograph fitted with a 30m x 0.25 mm i.d. column (J&W DB-23) and linked to a computerized integration system (Turbochrom 4 software). Identifications of fatty acids and isomers will be determined from known standard mixtures (Nu Check Prep., Elysian, MN) and silver-nitrate chromatography (Iverson 1988; Iverson *et al.* 1992). Fatty acids will be designated by shorthand IUPAC nomenclature of carbon chain length:number of double bonds and location (n-x) of the double bond nearest the terminal methyl group.

Fatty acid data will be analyzed using a multivariate statistic method (tree-based regression models) which has been successfully applied to the analysis of these types of data (Iverson, Smith and Bowen, unpublished data).

Stable isotope-fatty acid analysis:

A gas chromatograph-isotope mass spectrometer will be used to analyze the stable isotope ratios of individual fatty acid molecules. This instrument performs stable carbon isotope analyses of individual compounds separated by gas-chromatography. This technique of using a gas chromatograph-isotope ratio mass spectrometer combines the separatory power of capillary gas chromatography with the precision of an mass spectrometer.

PROJECT IMPLEMENTATION

This proposal is being submitted by the Physiological Ecology Research Laboratory (PERL) of the Marine Mammal Research Program at Texas A&M University-Galveston. The uniqueness and strength of this proposal is the association of PERL with the stable isotope labs at Texas A&M University-College Station, and the fatty acid lab at Dalhousie University, Halifax that will be combining to analyze the samples. Data collected would be available to other agencies involved in restoration projects.

COORDINATION OF INTEGRATED RESEARCH EFFORT

Collection of prey species will be undertaken by NMFS. Sample analysis will be multifaceted within Texas A&M University (Depts. of Marine Biology, Oceanography, and Rangeland Ecology and Management) and Dalhousie University, Halifax, Nova Scotia (Dept. of Biology).

PUBLIC PROCESS

We encourage all aspects of public process of this proposal.

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PERSONNEL QUALIFICATIONS -

Graham Worthy's research interests relate to the understanding of the physiological ecology of marine mammals through the study of their energetics, growth and nutrition. His research program integrates laboratory and field based investigations utilizing stable and radioisotopes, calorimetry, compositional analyses and radio/satellite tracking techniques in an attempt to elucidate the capabilities of different species to withstand normal seasonal variation in their environment. Worthy's program includes ongoing investigations into the life history parameters and the physiological ecology of manatees, cetaceans, and pinnipeds. The overall program centers around the energy requirements of marine mammals and how the availability and quality of food impacts their survival and growth. To that end Worthy is involved in studies investigating the thermoregulatory capabilities, milk production, water balance, feeding ecology and free-ranging energetics of several important species of marine mammals.

Luis Cifuentes research involves the understanding of oceanographic and estuarine processes using stable isotope tracers. Recently his ecological research with stable isotope tracers has involved the assessment of the stock structure of the king mackerel (*Scomberomorus cavalla*) in the Gulf of Mexico, determination of the source of DDT found in bottle nose dolphins (*Tursiops truncatus*) stranded along the Texas coastline, and the tracing of carbon through the microbial loop. Geochemical and organic chemistry research includes using lipids as tracers of carbon flow in non-photosynthetic ecosystems, application of gas chromatograph isotope ratio mass spectrometer (GC/IRMS) to tracing carbon sources in colloidal organic matter, distribution of stable carbon isotope ratios as an indicator of the source of atmospheric particulate organic carbon, and defining intrinsic tracers of pollutants in the marine environment Cifuentes has over 8 years of experience running mass spectrometers and recently obtained a GC/IRMS through NSF funding, which will be used in this project.

Dr. Thomas Boutton is a specialist in the application of stable isotopes to the study of nutrient cycling, ecophysiology and biological change in the terrestrial environment. Last May, Dr. Boutton sponsored a workshop at TAMU University entitled: "Stable Isotopes: Recent Advances in Plant Biochemistry, Physiology, and Ecology". Among the more than 180 participants were well-known scientists from the US and Canada. Dr. Boutton (see vitae) has been involved in the management and direction of stable isotope laboratories continuously since 1979, and established new laboratories at Augustana College and Texas A&M University.

Sara Iverson has worked extensively on marine mammal fatty acid metabolism. Her early studies led to the development of the use of fatty acid signatures in determining marine food webs. Currently, Iverson has assembled a collaborative group of scientists to work on fatty acids as indicators of diet and to develop statistical models for analysis of such data. This research program is looking at marine mammal/fisheries interactions in eastern Canada, specifically that of harp seals and grey seals in relation to cod and other commercial fish stocks. This program is describing the fatty acid patterns of seals and their prey species as part of a broad ecological survey and is related to the current proposal in that it provides some of the underlying framework and financial support for sample collection and captive studies.

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Alan Abend has a broad background in marine and terrestrial wildlife research and husbandry. For his masters degree, he studied the distribution and diet of long-finned pilot whales (*Globicephala melas*) using carbon and nitrogen stable isotopes. This research was, in part, initiated by and reported to the International Council for the Exploration of the Seas Pilot Whale Study Group.

		BUDGET
1. Personnel:	FY95 \$12.3K	FY96 \$ 4.0K
2. Travel:	\$ 4.0K	\$ 1.0K
3. Contractual Services:	\$ 9.1K	\$ 1.3K
4. Commodities:	\$ 1.5K	\$ 0.5K
5. Equipment:	\$ 0.0K	\$ 0.0K
6. Capital Outlay:	\$ 0.0K	\$ 0.0K
7. General Administration:	\$ 2.0K	\$ 2.0K
8. Indirect Costs (45%):	\$13.0K	\$ 4.0K
Total Project Costs:	\$41.9K	\$12.8K

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Exxon Valdez Oil Spill Trustee Council

Restoration Office 645 G Street, Suite 401, Anchorage, AK 99501-3451 Phone: (907) 278-8012 Fax: (907) 276-7178



TO:	Work Plan Reviewers	•
FROM:	Eric Myers, Groject Coordinator	DECEIVED
SUBJECT:	Work Plan Supplement #3: 19 Proposals	AUG 1 0 1994
DATE:	August 1, 1994	EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

For your reference, please find attached the following Brief Project Descriptions. Almost all of these projects were developed through the Subsistence Planning Project, working with local communities in the spill area to identify priority subsistence related projects for consideration by the Trustee Council.

- 95122 Mapping Potential Nesting Habitat of the Marbled Murrelet in PWS Using Habitat Models Linked to Geographic Databases. FY95 \$167,500. Robert L. DeVelice.
- 95123 Native Village of Tatitlek Community Village. FY95 \$300,000. Gary Kompkoff, Tatitlek Village IRA Council.
- 94124A Tatitlek Mariculture Development Project. FY95 \$109,500. David Daisy.
- 94124B Tatitlek Mariculture Development Project. FY95 \$405,000. David Daisy.
- 95125 Tatitlek Sockeye Salmon Release Program. FY95 \$39,000. Gary Kompkoff, Tatitlek Village IRA Council.
- 95127 Tatitlek Coho Salmon Release Program. FY95 \$39,000. Gary Kompkoff, Tatitlek Village IRA Council.
- 95128 Teaching Subsistence Practices and Values. FY95 \$69,000. Don Callaway, NPS
- 95129 Tatitlek Fish and Game Processing Center/Smokery. FY95 \$515,500. Gary Kompkoff, Tatitlek IRA Village Council.
- 95130 Long Range Planning of and Training for a Healing Center. FY95 \$106,100. Martha Vlasoff, Copper Mountain Foundation.
- 95131 Nanwalek/Port Graham/Tatitlek Clam Restoration Project. FY95 \$447,500. David Daisy.
- 95132 Port Graham and Nanwalek Subsistence Baseline. FY95 \$488,200. Pat Norman, Port Graham Corporation.
- 95133 English Bay River Sockeye Salmon Subsistence Project. FY95 \$128,800. David Daisy.
- 95134 Chenega Bay Mariculture Development Project. FY95 \$184,300. David Daisy.
- 95135 Provide Funds to Offset the Increased Cost of Subsistence Hunting and Fishing. FY95 \$50,000. Gail Evanoff, Chenega Corporation.
- 95136 Skin Sewing Crafts Restoration Project. FY95 \$29,900. Don Callaway, NPS.

Trustee Agencies

- 95138 Elders/Youth Conference on Subsistence and the Oil Spill. FY95 \$77,700. James Fall, ADFG.
- 95140 Subsistence Skills Program. FY95 \$36,700. Helmer Olson, Valdez Native Association.
- 95141 Afognak Island State Park Interim Support. FY95 \$21,500. Neil Johannsen, ADNR.

In addition to these BPDs, you will also find attached a copy of a Brief Project Description from PWSAC: Restoration of PWS Wild Stock Salmon Resource and Services - An Integrated Approach. FY95 \$1,690,331. This proposal should *replace* the earlier proposal submitted by PWSAC (95093).

Attachments

MAPPING POTENTIAL NESTING HABITAT OF THE MARBLED MURRELET IN PRINCE WILLIAM SOUND USING HABITAT MODELS LINKED TO GEOGRAPHIC DATABASES

Project Number: 95XXX

Project Leader: Robert L. DeVelice, Ph.D.

Lead Agency: USDA Forest Service

Cost of Project: \$167,500

Project Start-up Date: 1 October 1994

Project Completion Date: 31 December 1995

Project Duration: 1.25 years

Geographic Area: Prince William Sound, Alaska

Contact Person: Robert L. DeVelice Chugach National Forest 3301 C Street, Suite 300 Anchorage, Alaska 99503 907-271-2500

B. Introduction

Marbled murrelets were injured by oil contamination from the *Exxon Valdez* oil spill of March, 1989. Between 9,500 and 14,000 marbled murrelets died from the direct effects of oiling (Ford et al. 1991). This estimated mortality represents approximately 10% of the present total population size within the spill area (Klosiewski and Laing, MS). Presently, there is no known evidence of population recovery within the spill area (Klosiewski and Laing, MS; Kuletz, MS).

Habitat modifications (such as logging) both within and outside the spill area may pose additional threats to the area's marbled murrelet populations. Protection of nesting habitat areas through acquisition and stewardship may reduce the extent of future disturbance so that population recovery may proceed.

This study represents an extension of previous work conducted by the USDI Fish and Wildlife Service and the USDA Forest Service as Restoration Project 93051 Part B (DeVelice et al. 1994; Kuletz et al. 1994). These studies characterize the nesting habitat of marbled murrelets throughout the spill area. The currently proposed work would be an operational application of the conceptual and quantitative models described in DeVelice et

al. (1994) and Kuletz et al. (1994). The models would be linked to geographic database of vegetation and physical site characteristics in the identification of potential nesting habitat of the marbled murrelet in Prince William Sound. The map outputs from this project will provide a state-of-science means for evaluating habitat protection or acquisition options in reference to marbled murrelets (or other species whose potential habitat can be specified based on vegetation and landscape features).

C. Need for the Project -- Why the Project will Help Restoration

Marbled murrelet populations in Prince William Sound are reportedly not yet recovering from the spill and from the pre-spill population decline (*Exxon Valdez* Oil Spill Trustee Council 1994). However, protection of habitat is thought to be an important strategy for assisting in population recovery (*Exxon Valdez* Oil Spill Trustee Council 1994). Using the best available scientific information, the proposed work would provide a digital map of potential nesting habitat of the marbled murrelet. Land protection/acquisition personnel could directly use this map product in selecting alternative sites with the greatest potential towards ensuring population recovery.

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D. Project Design -- Objectives, Methods, Schedule and Location

1. Objectives

Potential habitat of the marbled murrelet in Prince William Sound would be mapped by linking models described in DeVelice et al. (1994) and Kuletz et al. (1994) to spatial databases of vegetation and physical site characteristics. To meet this objective, a spatial database of vegetation types based on satellite imagery would need to be completed as part of this project. A DRAFT version of this digital map (developed by USGS EROS Alaska Field Office and USDA Forest Service Forest Sciences Laboratory personnel, in cooperation with the Chugach National Forest) is currently available for Prince William Sound. This project would verify and refine this vegetation database.

2. Methods

DeVelice et al. (1994) and Kuletz et al. (1994) describe both conceptual and statistical models that relate marbled murrelet occurrences to vegetation and physical site attributes. For example, both reports highlight a preference of marbled murrelets for forested habitats, particularly older forests with numerous mossy platforms (potential nest sites) in the trees. Additionally, DeVelice et al. (1994) indicates that marbled murrelet sightings increase with the proportion of coniferous forest in an area. Both reports show a higher occurrence of marbled murrelets in more sheltered landscape positions (e.g., heads of bays; aspects protected from major storms). Models described in these and other studies relating marbled murrelet occurrences to vegetation type and landscape features would be applied in queries of the digital vegetation type and digital elevation model databases. Ultimately, this process will result in a digital map of potential marbled murrelet habitat in Prince William Sound. The proposed steps involved in this process are as follows:

- The Chugach National Forests DRAFT digital vegetation type map (based on satellite imagery) must be verified and refined before the habitat models can be effectively applied. Existing survey data will be used for initial refinement. Currently, almost 800 detailed sample plots spanning the range of vegetation types are available in the Chugach National Forest vegetation ecology database for Prince William Sound. These plots, 40 randomly-located 1-km radius digital vegetation maps from Prince William Sound, and a digital vegetation map covering Naked, Storey, and Peak islands will be the primary input to the initial supervised classification of the digital vegetation map. All of these plot and polygon coverages reside in digital databases on the Chugach National Forest.
- The marble murrelet habitat models based on vegetation type and landscape features will be linked (via GIS technology) to the digital vegetation map and digital elevation model (basically, a computerized topographical map) covering Prince William Sound.

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- During the summer of 1995, field surveys throughout Prince William Sound will be conducted to fill in gaps in the database of vegetation and physical sites for use in verification and refinement of the digital vegetation type map. The survey crews will be directed to sites that, in the aggregate, represent the full range of vegetation and physical site combinations present within Prince William Sound (however, ice fields will not be surveyed). These sample sites will be complementary to those sites already in the Chugach National Forest databases. The vegetation type classification developed by DeVelice et al. (1994) will be used in the identification of vegetation types at each verification site. The precise location of each site will be quantified using a geographical positioning system (GPS).
 - Use the data from the summer of 1995 for the supervised classification of the digital vegetation map of Prince William Sound. The marbled murrelet habitat models would then be reapplied to this database (and the digital elevation model) to produce a digital map of potential marbled murrelet habitat. Although the digital vegetation map will initially by applied towards mapping potential habitat of the marbled murrelet, the potential applications of the digital map are vast. Among these applications are: mapping potential habitat for brown bear; assessing biodiversity patterns at the landscape level; assessing the ecological representativeness of alternative networks of nature preserves.

3. Schedule

1994 October	provide GIS/remote sensing analyst with vegetation plot and polygon data for initial verification of digital vegetation map based on satellite imagery
Nov Dec.	revise vegetation map based on plot and polygon data
1995 January	create models of marbled murrelet potential habitat that can be linked to the digital vegetation map and the digital elevation model
FebApril	apply the models to the digital vegetation and elevation coverages and make initial assessments of their validity
March	secure charter vessel for use in vegetation map verification advertise for field personnel
April	hire field personnel (two biotechnicians) prepare for field work (e.g., organize training for field crew; acquire maps and aerial photographs; order necessary equipment; generate sufficient copies of field forms)

Мау	safety training vegetation/characterization training identification of locations of field verification sites
June-Aug.	Prince William Sound vegetation map verification surveys
SeptOct.	data entry and refinement of digital vegetation map
NovDec.	final analysis and report writing
Dec. 31	final report submitted

4. Technical Support

This project will require 18.5 person months of effort. Ecological support will be provided by R.L. DeVelice (six months; Chugach NF) and C. Hubbard (two months; Chugach NF). Habitat capability modeling support will be provided by L. Suring (one month; Chugach NF). GIS/remote sensing analysis will provided by K. Winterberger (three months; Forest Sciences Laboratory). Field work will largely be accomplished by two biotechnicians (total of six months).

Computational, analytic, and data archiving support will be provided by the USDA Chugach National Forest and Forest Sciences Laboratory, and USGS EROS Alaska Field Office (including the extensive use of personal computers and GIS workstations that will be required).

5. Location

The study area includes all of Prince William Sound.

E. Project Implementation -- Who Should Implement the Project

This project would be conducted by ecology and geographic information system personnel of the USDA Forest Service, Chugach National Forest and Forest Sciences Laboratory, and USGS EROS Alaska Field Office (Anchorage, Alaska). Chugach National Forest and Forest Sciences Laboratory personnel have been actively developing geographic databases of vegetation and physical site characteristics in Prince William Sound over the past eight years. Extensive ecological survey in the area has provided Chugach National Forest personnel with unparalleled familiarity with the ecological characteristics present. This experience is necessary for efficient verification of the map products generated by this study. Additionally, Chugach National Forest personnel (in cooperation with the USDI Fish and Wildlife Service) have developed models relating vegetation and physical site characteristics to marbled murrelet occurrences in Prince William Sound (study entitled "Characterization of Upland Nesting Habitat of the Marbled

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Murrelet in the Exxon Valdez Oil Spill Area (Project 93051 Part B)" completed in April of 1994). The personnel involved in developing these models would be best qualified towards applying them operationally, as proposed.

F. Coordination of Integrated Research Effort

This project will be independent of other known restoration projects proposed for fiscal year 1995.

G. Public Process

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Map outputs from this project (showing potential nesting habitat of the marbled murrelet) would be made available for review by the public and scientific community late in calendar year 1995.

H. Personnel Qualifications

Project Leader: Robert L. DeVelice received his Ph.D. in plant ecology from New Mexico State University, Las Cruces, in 1983. His dissertation involved the development of a vegetation type classification in the southern Rocky Mountains. Robert was a postdoctoral fellow in New Zealand from 1984 - 1987 where he conducted preserves selection and design research. From 1987 - 1989 Robert worked as a contract scientist working on global climatic change research for the US Environmental Protection Agency. Prior to joining the staff of the Chugach National Forest in 1992, Robert worked as the Montana state ecologist for The Nature Conservancy. The focus of much of Robert's work and experience is field vegetation ecology and quantitative plant community analysis. Robert was a co-leader of the study entitled "Characterization of Upland Nesting Habitat of the Marbled Murrelet in the Exxon Valdez Oil Spill Area (Project 93051 Part B)" completed in April of 1994.

Project Scientist: Connie Hubbard received her M.S. in forest science from Oregon State University. Her thesis involved developing a plant association classification for the College of Forestry's research forest lands. Connie has worked for the USDA Forest Service as Forester, Silviculturalist, and Ecologist. She has also worked for both state and private resource management agencies in Idaho and Montana. Connie is currently the District Ecologist for the Glacier Ranger District of the Chugach National Forest. The emphasis of this position is the development and application of community classifications for the Forest, including plant association classification in Prince William Sound. Connie was a co-leader of the study entitled "Characterization of Upland Nesting Habitat of the Marbled Murrelet in the Exxon Valdez Oil Spill Area (Project 93051 Part B)" completed in April of 1994.

Project Scientist: Lowell H. Suring received his M.S. in wildlife science from Oregon State University, Corvallis, in 1974. His thesis involved assessing habitat use and activity patterns of Columbian white-tailed deer along the lower Columbia River. Lowell was a leader of the Endangered Species and Wildlife Biometrics units in New York State between 1974 and 1977. From 1977 - 1978 he conducted research on secondary succession in pinyon-juniper woodlands in northwest Colorado. From 1978 - 1984 Lowell held biologist positions with the USDI Fish and Wildlife Service and USDA Forest Service in New Mexico and Minnesota. Since 1984 Lowell has been a major player in the development of wildlife habitat relationships models in the Alaska Region of the USDA Forest Service (this included chairing an interagency effort to assess viability concerns for wildlife species associated with old-growth forests in southeast Alaska). Lowell's professional expertise and interests focus on analyzing habitat use patterns of wildlife and the development/application of habitat assessment techniques. Currently, Lowell is employed by the Chugach National Forest where he is developing and implementing analytic techniques and tools that may be used to evaluate the capability of habitats to support wildlife and the effects of land management activities on habitat capability.

Project Scientist: Kenneth C. Winterberger has done graduate work at the University of Idaho studying remote sensing and it's use in forest mensuration. Ken has worked for the Pacific Northwest Experiment Station, in Alaska, as a remote sensing and inventory specialist since 1976. He has been responsible for land cover classification and inventory projects throughout the state of Alaska; a current project involves the development of a land cover classification derived from Landsat TM and SPOT data. Ken is presently working with a group from the International Boreal Forest Research Association defining and delineating the boreal forest zone on a worldwide basis. Ken is also working with scientists from the Sukachev Institute of Forests in Kasnoyarsk, Russia to develop a methodology to use NOAA AVHRR data to detect and monitor catastrophic forest damage over large areas.

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- Kuletz, K.J., D.K. Marks, N.L. Naslund, N.G. Stevens, and M.B. Cody. 1994. Information needs for habitat protection: marbled murrelet habitat identification. Restoration Project 93051 Part B. U.S. Fish and Wildlife Service, Anchorage, Alaska.

Budget (\$K)

Personnel	\$83.5
Travel	5.0
Contractual Services	60.0
Commodities	1.0
Equipment	3.0
Capital Outlay	0.0
subtotal	\$152.5
General Administration total	\$16.7 \$ 169.2

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL SUBSISTENCE RESTORATION PROJECT DESCRIPTION

Project Title: Native Village of Tatitlek Community Store Project Leader: Tatitlek Village IRA Council Lead Agency: Alaska Department of Community and Regional Affairs Cost of Project: FY 95 \$300.0 Start-up/Completion Dates: June 1, 1995 through November 1, 1995 Project Duration: Ongoing Geographic Area: Native Village of Tatitlek Contact Person: Gary P. Kompkoff, President Tatitlek Village IRA Council

P.O. Box 171 Tatitlek, Alaska 99677 Phone: (907) 325-2311 Fax: (907) 325-2298

INTRODUCTION

" The disruption in the lives of the people in the subsistence based villages was one of the most drastic and damaging of the entire oil spill. The effects are probably among the most lingering—and measurable of the spill".

> The Exxon Valdez Oil Spill Final Report, State of Alaska Response

For many generations, the residents of the Native Village of Tatitlek have been able to rely on the subsistence resources from the land and sea for their sustenence and lifestyles; for many generations the residents have been able to harvest adequate subsistence resources to provide for their families and elders. Because of the dramatic effects that the Exxon Valdez oil spill has had on subsistence resources, the availability of subsistence resources has declined continuously since March 24, 1989 to a point where Tatitlek residents are not able to sustain adequate harvest levels to fill the needs of their families and elders and are forced to rely, to a much higher degree, on "store bought" goods for their sustenence.

The residents of the Native Village of Tatitlek are very aware of the strain that the oil spill has put on the subsistence resources and proposes a community store to alleviate the continual decline of those resources. This project would provide an avenue for replacing resources no longer available in sufficient numbers to meet the needs of the residents of the Native Village of Tatitlek, and more importantly, will lessen the impact that continued subsistence harvests at the present level may have on the already depleted resource base, until it becomes feasible to resume pre-oil spill harvest levels.

NEED FOR THE PROJECT

Most subsistence resources were severely damaged as a result of the EVOS. Availability of subsistence resources in th spill impacted areas continue to decline much more noticeably with each passing yeat. The percentages of normal harvests for the last year (1993) were down drastically.

Harbor Seals	25% of normal harvest levels
Sea Lions	10% of normal harvest levels
Salmon	30% of normal harvest levels
Ducks	10% of normal harvest levels
Shellfish	20% of normal harvest levels
Herring	0% of normal harvest levels
Herring Spawn	0% of normal harvest levels

The community store would contribute greatly to the restoration of subsistence resources by providing an avenue for lessening the impacts that continued subsistence harvests may have on an already depleted resource base. Tatitlek residents are very sensitive to the status of the resources that have provided for their lifestyles for thousands of years and are aware that decreased harvest levels may be necessary in order for the resources to respond favorably. The EVOS also created a much greater awareness of Prince William Sound, making visitors to the village a much greater issue, the store would provide access to supplies for the visitors.

PROJECT DESIGN

I. Objectives

a) Develop a long-range business plan for the development of a small, rural general store that will ensure is continued operational success.

b) Design and construct a building for utilization as a community store.

c) Develop, purchase and maintain an inventory suitable to the needs of the residents of Tatitlek.

d) Provide a community store capable of meeting the needs of visitors and guests.

e) Provide employment and educational opportunities for residents of Tatitlek.

II. Methods

a) A long rang business plan will be developed with assistance from recognized consulting firms specializing in small business development (primarily Community Enterprise Development Corporation), to ensure the long term operational success of the store. This plan will include construction, design, inventory development, and long term operational plans.

b) A new building will be constructed at a centralized location, on lands owned by the Tatitlek Village IRA Council.

c) An inventory list will be developed with input from willage residents and consultants.

d) Store Inventory goods will be shipped in conjuntion with Mariculture Project products in-order to limit freight costs.

e) Local residents will be trained to operate the store in all aspects of business administration.

III. Schedule

June 1,1995	Develope contract with Community Enterprise Development Corporation to provide				
	technical assistance for store design and inventory listing, Begin traing manager and employees in business administration.				
July 1,1995	Complete store design, order building materials.				

August, 1995 Begin construction of store building, under store inventory.

October, 1995 Complete store construction, recieve store inventory.

Nov. 1,1995 Open Native Village of Tatitlek Community Store to public for business.

IV. Technical Support

Community Enterprise Development Corporation, which has much experience and expertise in rural business development will provide technical assistance for the development of building design and inventory.

Alaska Department of Community & Regional Affairs will assist in development of grant agreement.

Alaska Department of Fish & Game, Subsistence will provide assistance in developing grant application and follow through.

V. Location

The Community Store will be constructed on a centralized location within the Native Village of Tatitlek on lands owned by the Tatitlek Village IRA Council and serve residents of Tatitlek, Ellamar and visitors and guests.

PROJECT IMPLEMENTATION

The Native Village of Tatitlek Community Store should be implemented by the Alaska Department of Community & Regional Affairs, in conjunction with the Alaska Department of Fish and Game, Subsistence Restoration Planning and Implementation Project which has been funded by the criminal settlement agreement.

COORDINATION OF INTEGRATED RESEARCH EFFORT

This project could be integrated with the Mariculture Enhancement Project that the Native Village of Tatitlek intends to submit for consideration under the Subsistence Restoration Planning and Implementation Project. Materials and supplies for both projects could be integrated very well to limit freight costs, which are a major expense for rural projects. Supplies for the Community Store could be shipped on the return trip of the vehicle which will be used for transporting mariculture products to market on the Alaska State Ferry System, which is to be constructed this year.

PUBLIC PROCESS

Public meetings by the Tatitlek Village IRA Council have been held periodically since 1990 addressing the restoration of subsistence resources. It has been determined by the residents and government of the Native Village of Tatitlek that the resources affected by the oil spill will not soon recover unless efforts are made to assist that recovery. Limiting harvests until it has been determined that it is safe to resume preoil spill harvest levels is an effort that would benefit the resources greatly, provided that the residents have an alternative means to provide for their sustenance.

PERSONNEL QUALIFICATIONS

The Tatitlek Village IRA Council has much experience in administering grant rpojects and has an excellent working relationship with the Departments of Community and Regional Affairs and Fish and Game Subsistence Division.

BUDGET (\$P	(λ)
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Store Construction:	• •
Materials	75.0
Freight	20.0
Labor	65.0
Store Equipment:	
Freezers	7.5
Coolers	7.5
Display Cases	5.0
Store Inventory	
Supplies	85.0
Freight	15.0
Consultants	
Fees	10.0
SUBTOTAL	290.0
General Administration	10.0
PROJECT TOTAL	300.0

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Project Title: <u>Tatitlek Mariculture Development Project</u>

Project Leader: Gary Kompkoff

Lead Agency: Tatitlek IRA Council

Cost of Project: FY 95 - \$109.5K; FY 96 - \$122.0K; FY 97 - \$156.1

Project Start-up/Completion Dates: October, 1994 to September, 1997

Project Duration: <u>3 years</u>

Geographic Area: Tatitlek, Prince William Sound

Contact Person: David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; phone 243-8544, fax 243-1183

Introduction

This project is intended to provide a long term source of subsistence food and income for the residents of Tatitlek. It will provide a means for the villagers to maintain their traditional lifestyle in the face of increased and sometimes conflicting use of the area of the Chugach region. The project has already gone through feasibility testing. This funding is being sought to help the mariculture project through the development stage and achieve self sufficiency. The development stage will continue through the next three years and will consist of continued training of local mariculture workers, cost of operations and setting up the project management structure in the village.

Project Need

This project is needed to replace lost subsistence resources and economic opportunities and provide the village with a means to develop a local bivalve resource in a manner that provides some level of protection against future man-made disasters such as EVOS. The oil spill amply demonstrated how vulnerable the local marine resource is to disasters such as the oil spill. As well as being an efficient way of utilizing the local marine environment, the mariculture techniques that will be utilized in this project will allow steps to be taken to protect the shellfish that are under culture from the effects of disasters such as EVOS.

Project Design

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Objectives:

By September 30, 1995 a village management structure will be in place that will provide total oversight and accountability for the mariculture project.

By September 30, 1996 the mariculture will be making a substantial contribution to the subsistence needs of the village.

By September 30, 1997 the Tatitlek Mariculture Project will become self sustaining through the sale of shellfish produced by the project.

Methods:

The project will continue under the guidance of a mariculture expert. A business development company will be contracted to set up the project management system in the village.

Schedule:

The project will operate year round. Site health certification will take place in early summer, PSP sampling will be on a weekly basis, product will be available for subsistence use and sale year round, activity reports will be submitted quarterly.

Technical Support:

Mariculture expert, lab analysis for certification and PSP samples.

Location:

The project will take place near the village of Tatitlek.

Project Implementation

The Tatitlek IRA Council will be primarily responsible for the project with assistance from the Chugach Regional Resources Commission (CRRC).

Personnel Qualifications

The Tatitlek IRA Council has been involved with the mariculture project since it began in 1991. CRRC has been providing administrative assistance. Jeff Hetrick of Alaska Aquafarms, Inc. will continue to provide training and technical guidance. Mr. Hetrick has extensive experience in mariculture development in Alaska. Tatitlek Mariculture Project - Operational Budget Request

Budget

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This project will fund only a portion of the total mariculture budget. The following are those items from the budget that will be funded by this project,

Item		Estimated Cost		
		FY 95	FY 96	FY 97
Personnel		\$59.5	\$59.5	81.1
Contractual		.\$15.0	\$15.0	- \$15.0 -
Comodities		\$25.0	\$37.5	\$50.0
Administration	_	. \$10.0	\$10.0	\$10.0
	Total	\$ 109.5	\$ 122.0	\$ 156.1

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Project Title: Tatitlek Mariculture Development Project; Capital Outlay

Project Leader: <u>Gary Kompkoff</u>

Lead Agency: <u>Tatitlek IRA Council</u>

Cost of Project: FY 95 - \$405.0K; FY 96 - 201.0K

Project Start-up/Completion Dates: November, 1994 to September, 1996

Project Duration: 2 years

Geographic Area: Tatitlek, Prince William Sound

Contact Person: David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; Phone 243-8544, fax 243-1183

Introduction

The village of Tatitlek has been engaged in a shellfish mariculture development project as a way of restoring and/or replacing lost shellfish subsistence and economic development opportunities near the village as a result of the Exxon Valdez oil spill. Shellfish resources in the oil spill-affected area suffered double jeopardy. First, the sheltered habitats that were most hospitable to shellfish were also most protected against Prince William Sound's natural cleansing action. Oil spill residues tend to persist in contaminated shellfish habitats. The National Oceanic and Atmospheric Administration estimated that oil could remain in sheltered, low energy areas for twenty years or longer. Regardless of the action taken to remove the oil from shellfish beds, it will be a long time before these shellfish could be considered fit to eat. Second, the tendency of shellfish to accumulate, concentrate and store toxic contaminants such as polycyclic aromatic hydrocarbons (PAHS) compounds this habitat damage.

Because of the possible shellfish contamination from the oil spill village confidence in the healthfulness of the local wild shellfish stocks has been badly eroded. This is why the Tatitlek village council chose to undertake the mariculture development project. Mariculture is a feasible and cost effective means to conserve, repair and enhance the natural productivity of the natural resource base.

The project was initiated in 1991 and has now reached the point where a major capital outlay is needed to enable it to become self sufficient.

Tatitlek Mariculture Project - Capital Outlay Request

Project Need

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This project will provide a certified clean bivalve resource on a self sustaining basis that can meet local subsistence needs as well as provide an economic base for the village. The local marine environment, as well as being the primary source for subsistence foods, offers one of the very few opportunities available to Tatitlek for economic development. EVOS amply demonstrated how vulnerable the marine environment is to disasters such as an oil spill. Unlike the wild bivalve resource, steps can be taken with shellfish raised under mariculture to protect them should another disaster such as EVOS ever occur.

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Project Design

Objectives:

By September 30, 1995 the concrete foundation and floor for the processing building will be installed and the prefabed building itself put on order. By September 30, 1995 the shellfish holding facility will be completed. By September 30, 1995 the mariculture workboat will be purchased. By September 30, 1995 the mariculture transport truck will be purchased. By August 31, 1996 the processing building will be completely set up and all processing equipment purchased and installed.

Methods:

The processing building will be professionally designed and construction overseen by a reputable contractor. Workboat, transport truck and processing equipment specifications have already been developed.

Technical Support:

The project will require engineering, construction and mariculture expertise.

Location:

The project will take place in the village of Tatitlek.

Project Implementation

The Tatitlek IRA Council will implement project. The council will have oversight over all engineering, building and construction contracts and equipment ordering.

Personnel Qualifications

The Tatitlek IRA Council has extensive experience in involvement and oversight of capital projects conducted in their village. Budget

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The budget will consist entirely of capital outlay. The following is a list of the separate pieces that make up the capital budget with an estimated cost for each by fiscal year

Item		Estimated Cost	
•		FY 95	FY 96
Holding Facility		\$122.0	\$0.0
Processing Building	.: `	\$185.0	\$144.0
Processing Equipment	. s'	\$0.0	\$57.0
Workboat	*	\$53.0	\$0.0
Transport Truck		\$45.0	\$0.0
	Totals	\$ 405.0	\$ 201.0

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EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

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Title:

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Project Leaders: Gary Kompkoff

Agency:

Tatitlek Traditional Council Alaska Department of Fish and Game Prince William Sound Aquaculture Corporation

Tatitlek Sockeye Salmon Release Program

Cost of Project: \$3

Dates of Project

\$39,000 (FY95)

1 October 1994 to 30 September 1995

Project Area:

Contact Person:

Gary Kompkoff, President Tatitlek Village IRA Council P.O. Box 171 Tatitlek, Alaska 99677 (907) 325-2298

Prince William Sound, Tatitlek vicinity
B. Introduction

Subsistence, as well as commercial and sport fisheries were drastically disrupted by the *Exxon Valdez* Oil Spill. Traditional usage of fish and fishing grounds by residents of the Village of Tatitlek was greatly reduced. The Tatitlek Sockeye Salmon Release Project will assist in the restoration for lost subsistence fishing opportunities and establish alternative subsistence fishing opportunities.

C. Needs for the Project

Many subsistence resources were impacted by the *EVOS* and Tatitlek residents have been forced to substitute commercially obtained processed foods for their traditional subsistence food resources. Subsistence uses have not returned to pre-spill levels and will not until subsistence resources return to pre-spill levels. In addition, resources will have to appear to be free of tainting by hydrocarbons. This project is designed to provide sockeye salmon for substitution for lost subsistence resources, until those resources reach pre-spill levels. The project will use Tatitlek Village laborers to the maximum extent possible.

The project will provide for the restoration and improvement of subsistence salmon harvests that were disrupted as a direct result of the *Exxon Valdez* Oil Spill.

D. Project Design 1. O

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Objectives

Enhance sockeye salmon stocks in the vicinity of Tatitlek to provide subsistence foods needed for maintenance of the Villagers subsistence life style. The goal is to enhance subsistence resources by permitted releases of sockeye salmon at designated locations near the Village of Tatitlek in northeastern Prince William Sound. The objective would be a harvest of approximately 2000 adult sockeye salmon.

2. Methods

a. Sockeye salmon eggs will be taken from an ADF&G approved site. The incubation of the eggs and raising to smolt stage will occur at a salmon hatchery in Prince William Sound . Possible stocks would be Eyak Lake stock, or possibly one close to the Village.

b. Smolts would be transported by boat to a permitted site for remote release.

c. Smolts will be held and fed in net pens for approximately two weeks before releasing to improve survival rates and provide imprinting to the designated site.

d. Adults will be harvested for subsistence use in a terminal fishery designated for the village of Tatitlek.

Schedule	
Date	Action
Jan 1995	Plans are reviewed by the NEPA Process.
Feb. 1995	Plans reviewed by the Prince William Sound Planning Team. and run through the Fish Transport Permit process. Compliance with the Alaska Genetics policy will also occur at
	this time.
June 1995	Sockeye salmon smolt transported, pen fed and released.
June 1996	First adult "jack" returns of sockeye salmon.
June 1997	First complete complement of all sockeye salmon age classes return to remote release site.

4. Technical Support

The project will require support from the Alaska Department of Fish and Game, Commercial Fish Development and Enhancement Division, as well as the Prince William Sound Aquaculture Division.

5. Location

Northeastern Prince William Sound, around the Village of Tatitlek.

E. Project Implementation

ADF&G will evaluate candidate remote release sites for the sockeye salmon. They will determine the appropriateness of the candidate sites. It is expected that the Village of Tatitlek will be employed for the work at the net pen remote release sites. Private non-profit corporations will provide the hatchery service.

F. Coordination of Integrated Research

This project will be coordinated with other 1995 salmon and subsistence restoration projects.

G. Public Process

This project will be reviewed through the NEPA process, the Prince William Sound Regional Planning Team, and the Alaska Department of Fish and Game fish transport permitting process.

H. Personnel Qualifications

Area and regional ADF&G biologists with many years of fish culture experience will provide the technical support.

I.	Budget (SK)	
	Personnel	2.5
	Travel	0.0
	Contractural	21.5
	Commodities	0.0
	Equipment	0.0
	Capital Outlay	10.0
	SUB-TOTAL	34.0
	General Administration	3.0
	NEPA Compliance	2.0
	Total	39.0

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL SUBSISTENCE RESTORATION PROJECT DESCRIPTION

Project Title:Tatitlek Coho Salmon Release ProgramProject Leader:Tatitlek Village IRA CouncilLead Agency:Alaska Department of Fish & GameCost of Project:FY 95 \$39.0Start-Up/ Completion Dates:January, 1995 - June 1997Project Duration:OngoingGeographic Area:Prince William Sound, Tatitlek NarrowsContact Person:Gary P. Kompkoff, President

Tatitlek Village IRA Council P.O. Box 171 Tatitlek, AK. 99677 Phone: (907) 325-2311 Fax: (907) 325-2298

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL RESTORATION PROJECT DESCRIPTION

Project Title: Tatitlek Coho Salmon Release Program

B. INTRODUCTION

Subsistence as well as commercial and sport fisheries were severely disrupted by the oil spill. This project is intended to enhance subsistence resources by permitted releases of coho salmon at designated locations near the Native Village of Tatitlek in order to provide a long term subsistence resource for the residents of Tatitlek. Valdez Fisheries Development Corporation presently maintains an enhancement project near the Village of Tatitlek, at Boulder Bay. This project would ensure the continuation of that project.

C. NEED FOR THE PROJECT

Subsistence harvests of all salmon resources have declined considerably since the oil spill, and continue to be affected by it. This project would enhance the recovery of the salmon resources and provide a means for lessening the impacts of continued harvests on resources affected by the spill.

D. PROJECT DESIGN

I. Objectives:

-provide for the continued production of 50,000 coho salmon smolt at the Solomon Gulch Hatchery in Valdez for transport and release near the Native Village of Tatitlek (Boulder Bay). -hold and feed coho salmon smolt at net pens at the release site for two weeks prior to release. -harvest approximately 2,000 coho salmon annually upon their return to imprinting site.

II. Methods:

-Coho salmon will be taken from an ADF&G approved site for incubation and care and raised to smolt stage at the Solomon Gulch Hatchery in Valdez

-Smolt will be transported by boat in designated imprinting sites

-Smolt will be held and fed at net pens for approximately two weeks before releasing to improve survival rates and imprinting.

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III. Schedule:

January 1995	Plans reviewed by the NEPA Process, salmon hatcheries
June, 1995	Eggs taken from salmon near the Native Village of Tatitlek
June, 1995	First salmon smolt transported, penned, fed and released
June, 1996	First adult salmon returns of coho salmon
June, 1997	First complete complement of all coho salmon age groups.

Each year smolts will he released in late May or early June.

Tatitlek coho Salmon Release Program Page 3

IV. Technical Support:

Utilization of experience and technical support of Alaska Department of Fish & Fame is necessary for this project. Valdez Fisheries Development Corporation expertise will also be utilized.

V. Location:

The project will occur near the Native Village of Tatitlek. Salmon will be raised to smolt stage at the Solomon Gulch Hatchery at Valdez and released, after imprinting at Boulder Bay.

E. PROJECT IMPLEMENTATION

Valdez Fisheries Development Corporation, who have extensive experience in salmon enhancement activities, will continue their present enhancement of coho salmon near the village. ADF&G expertise will also be utilized.

F. COORDINATION OF INTEGRATED RESEARCH EFFORT

This project is intended to provide funds for the continuance of a salmon enhancement project presently undertaken by Valdez Fisheries Development Corporation and could be accomplished in conjunction with a Sockeye Salmon Release Project being proposed by the Tatitlek Village IRA Council.

G. PUBLIC PROCESS

Public meeting in the Native Village of Tatitlek have been held periodically by the Tatitlek Village IRA Council addressing the prioritizing of restoration work.

H. PERSONAL QUALIFICATIONS

Valdez Fisheries Development Corporation personnel leave much experience and expertise in this field, they would work in cooperation with ADF&G personnel in accomplishing the goals of this project.

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Tatitlek Coho Salmon Release Program Page 4

I. Budget (\$K)

ADF&G

Personnel	\$2,5	
Travel	0.0	
Contractual	21.5	
Capital Outlay	10.0	
SUB-TOTAL	34.0	
Gen. Administration	3.0	
NEPA Compliance	2.0	
PROJECT TOTAL	\$39.0	

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Project Title: Teaching Subsistence Practices and Values Project Leaders: Martha Vlasoff and Gary Kompkoff Lead Agency: Subsistence Divisions of ADF&G and NPS. Cost of Project: FY 95 \$69,000 FY 96 \$52,000 FY 97 \$52,000 Start/Completion Dates: 10/95 - 9/98 Project Duration: Three Years Geographic Area: Tatitlek and environs Contact Person: Don Callaway

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Don Callaway National Park Service, Subsistence Division 2525 Gambell, Suite 102 Anchorage, AK (907) 257-2408

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B. Introduction -Project Overview:

Many of the harvest areas used by residents of Tatitlek for subsistence were impacted by the Exxon Valdez oil spill. As documented by the Alaska Department of Fish and Game, Division of Subsistence subsistence harvests in Tatitlek declined from 652 pounds per capita between April 1988 and March 1989 to 207 pounds per capita between April 1989 and March 1990, 68.3 percent decline; the largest decline of any of the impacted communities. Five years after the spill, harvests have rebounded somewhat, but subsistence users in Tatitlek continue to report the scarcity of some resources and a distrust of the wholesomeness of resources in the oiled areas. As a result of the interruption of subsistence activities by the EVOS, there has been less opportunity to teach subsistence skills to young people in Tatitlek.

This project will provide funding for a spirit camp where young people from the community of Tatitlek will learn how to harvest, prepare and distribute a variety subsistence resources. Elders and other experienced individuals from the community will guide these activities. Young people will learn the practical aspects of harvesting, be introduced to the preparation and taste of traditional resources. They will also learn the spiritual, ethical and cultural importance of these resources for their community. The camp will be established in Galena Bay, which was not oiled in the EVOS, on land owned by the Tatitlek Corporation.

The camp will help restore a subsistence service currently unavailable in the community. It will provide a continuity in subsistence harvesting activities until the resources can be reestablished and confidence in their safety restored in the traditional harvest areas which were oiled.

C. Need for the Project:

Subsistence resources, and the activities associated with the harvest of these resources, provide more than food. Participation in family and community subsistence activities helps to teach young people basic cultural values. These activities define and establish the sense of family and community. It is through such activities that a person learns to identify, harvest, efficiently process and prepare resources.

The distribution of these resources establishes and promotes the basic ethical values in a culture, including generosity, respect for the knowledge and guidance of elders, selfesteem. No other set of activities provide a similar moral foundation for continuity between generations. Food preferences are the most conservative behaviors in any culture. The unique preparation and special taste of foods encountered by children as they grow up stays with them forever. Years later the taste and smell of certain foods evoke memories of family and belonging.

The interruption of these harvest activities, to the service provided by subsistence resources, is key to the restoration concerns elicited in Tatitlek, Chenega Bay, Port Graham and other small Native communities affected by the Exxon Valdez Oil Spill.

D. Project Design:

1. Objectives:

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To establish a camp site in Galena Bay, and provide training and experience in subsistence activities for youth of Tatitlek

2. Methods:

A group of locally hired workers from Tatitlek will clear the campsite and construct tent platforms as well as cooking and sanitation facilities. Tents, skiffs, fuel and other supplies will be purchased. The Tatitlek Village IRA Council will select and hire local elders and other experienced individuals to provide guidance and training in subsistence harvest activities. Camp support personnel will also be hired locally. The support personnel will be expected to document the educational program conducted at the camp, so it may be evaluated as an model for other such programs. It will be necessary to contract a vessel to transport the participants to the camp. Skiffs will be needed to travel to beaches within Galena Bay for harvest activities.

3. Schedule:

Four to six camp sessions of approximately two weeks each will be conducted during the appropriate seasons for harvest activities.

4. Technical Support:

Assistance may be required from various state and federal agencies to identify and obtain any permits necessary to establish and operate the camp.

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5. Location:

The proposed site of the camp will be in Galena Bay, on land owned by the Tatitlek Corporation. The use of the land for this purpose will be contributed by the corporation.

E. Project Implementation:

The project should be implemented through a cooperative agreement between the Tatitlek Village IRA Council, the National Park Service (NPS) with a subsidiary cooperative agreement between the NPS and the Subsistence Division of the ADF&G. Section 809 under Title VIII of ANILCA empowers the Secretary to enter into cooperative agreements with other Federal agencies, the State, Native Corporations and other persons and organizations to oeffectuate the purposes and policies of this title".

F. Coordination of Integrated Research Effort.

This project will reinforce the efforts of the Subsistence Foods Testing Project (95279) in restoring subsistence services impacted by the EVOS. It will also further some of the goals of the Elder/Youth conference proposed by the Division of Subsistence of ADF&G and the impacted communities, by promoting communication between the generations. This project may also help the recovery of some resources in the oiled areas, by redirecting some harvest activities to an unoiled area.

G. Public Process:

The Subsistence Restoration Planning and Implementation Project composed of state representatives from the Subsistence Division of ADF&G and the Municipal and Regional Assistance Division of DCRA, along with representatives of the Forest Service and NPS have met in public meeting with the community of Tatitlek to solicit their recommendations for oil spill restoration projects. This project description is a product of that public meeting. The public at large will have an opportunity to comment during the public process associated with dissemination of FY 95 Draft Work Plan.

H. Personnel Qualifications:

Federal and state participants in the planned cooperative agreement have all had extensive experience in subsistence related research and regulatory programs. In addition both entities have conducted and monitored numerous cooperative agreements. Who knows better the values and activities associated with Tatitlek subsistence harvests than the members of the community themselves? I. Budget

PERSONNEL	<u>`</u> 35.0
TRAVEL	1.5
CONTRACTUAL	14.0
COMMODITIES	4.5
EQUIPMENT	0
CAPITAL OUTLAYS	9.0
GENERAL ADMINISTRATION	5.0
TOTAL	69.0
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A. EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

1. Project Title: Tatitlek Fish and Game Processing Center/Smokery

2. Project Leader: Gary Kompkoff, President, Tatitlek I.R.A. Council

3. Lead Agency: Alaska Department of Fish & Game

4. Cost: \$515,500

5. Project Start Up/Completion dates: Spring 1994 - 2000

6. Project Duration: Facility built in increments

7. Location: Tatitlek, AK

8. Contact Person: Gary Kompkoff, Tatitlek I.R.A. Council, PO BOX 171 Tatitlek, AK 99677 ph. (907) 325-2311 **B.** Introduction: Tatitlek proposes to build a fish and game processing/storage/smokery facility. The purpose of this center will be to enhance the injured services of participation in subsistence activities and increase the amount of subsistence food available to the community while providing year-round employment for Tatitlek residents.

C. Need for the Project: Tatitlek's traditional subsistence harvests have not yet recovered to the pre-1989 oil spill level. Subsistence activities take more time than they did before the spill because residents have to travel farther and wait longer to find subsistence resources. The residents have also had to use fish to compensate for the decline in shellfish harvesting, which showed a more serious decline than salmon. As an example from Chenega Bay, a subsistence community similarly impacted by the spill,-in 1984/85, fish represented only 29 percent of the total harvest; in 1985/86 fish represented 38 percent of the harvest, but in 1991, fish made up 74 percent of the harvest (AK Dept. of Fish and Game Household Survey.)

A processing center will permit residents to better process the resources they are still able to harvest. An improved storage facility/freezer will improve the quality of stored resources. The commercial part of this facility would also replace unrecovered subsistence activity with economic development.

D. Project Design:

1. Objectives: The community will be able to clean, process, and store their subsistence food more efficiently than they are currently able. Operating and maintenance costs of the facility will be paid through the sale of smoked oysters and salmon.

2. Method: Tatitlek IRA council will select an

architecture/engineering firm to design the facility this Fall. Construction will begin in Spring of 1995. A contractor will also be selected using a bid type process. The council will hire someone to operate the facility. Once a year a technician from a refrigeration service will come to Tatitlek to check the facility and do preventative maintenance.

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The design will be complete by early spring 1995 and will be submitted for public review. Construction will begin later that season. Local hire will be encouraged. After construction, the council will oversee the operation of the facility. The council plans to start out the project on small scale with basic equipment, then further develop the facility as they establish its successfully and find other sources of funding. The council will hire a staff to operate, maintain and monitor the facility.

A marketing consultant will assist the council in selling the oysters. If the state ferry stops at Tatitlek, which is a strong possibility as an oil spill response/ferry dock is scheduled to be built by the Dept. of Transportation in Fall 1994, the fish and oysters will be sold to tourists.

Technical support will be available from the equipment supplier and the council will contract with a local refrigeration specialist to do yearly inspections and preventative maintenance as well as -repairs as the need occurs.

The project will be located in Tatitlek, AK at the staging area of the ferry/oil spill response dock which will be built in the Fall of 1994.

E. Project Implementation: The village council will manage the construction and operation of the facility. They will hire staff to clean the facility, monitor the freezer temperature and check that sanitation regulations are followed. They will also contract with a refrigeration services specialist for preventative and emergency maintenance.

F. Coordination of Integrated Research Effort: This project has the potential to also meet the needs of the mariculture project which is submitted for FY 95. Currently preparation of oysters is done in a tiny, windowless trailer with no equipment and there is no facility in the community to smoke them for commercial use. This project also integrates with the boat project which will hopefully increase the number of fish and game which needs to be processed.

G. Public Process: The idea for this facility was presented at a public meeting held June 15, 1994 in Tatitlek. The council will ask for ideas from the community on what amenities they would use in the facility. These suggestions would go to the designer.

H. Personnel Qualifications: Gary Kompkoff has been president of the Tatitlek Village IRA council for 15 years and works for the council as supervisor of capital projects. He is chair of the board of directors for the North Pacific Rim Housing Authority He also fishes commercially and for subsistence.

I. Budget: Detailed information for a complete budget is not available at this time. An overall figure of \$515,500 for the construction of the facility and one year's operations and maintenance was based on the cost of a fish processing and storage facility in Levelock, Alaska. Cost estimates are as follows:

 1. Personnel
 \$109,000

 2. Travel
 15,500

 3. Contractual Services
 25,000

 4. Commodities
 1,000

 5. Equipment
 100,000

 6. Capital Outlay
 200,000

 7. General Administration
 50,000

 8. Parts, repairs, etc.
 15,000

 TOTAL

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Healing Center FY 95 Project Proposal

A. Cover Page

1. Long range planning of and training for a Healing Center

2. Project Directors : Martha Vlasoff / PJ Overholtzer

3 Lead Agency : Chugachmiut and Copper Mountain Foundation

4 Project Cost: FY 95- \$106.1; FY 96-\$120.8 FY 97 \$100.7

5. Project Start up: December, 1994; Continuing

6. Project Duration: 5 years (estimated)

7. Geographic Areas: Oil Spill Area Wide

8. Contact Persons: Martha Vlasoff Copper Mountain Foundation Box 6 Cordova, Alaska, 99574 424-3777

> Sandy Stone Advocates for Victims of Violence Box 524 Valdez, Alaska, 99686 835-2980

PJ Overholtzer Chugachmiut 4201 Tudor Centre Drive Anchorage Alaska 99508 562-4155

Mental Health Center FY 95 Project

B. Introduction

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The Exxon Valdez Oil Spill in 1989 was a major disruption to the way of life for the people living in the oil spill affected area not only in a physical realm but also in the emotional and psychological realm. Many mental health programs were established shortly after the spill to try to compensate the great loss that was felt then. But little attention

has been paid to mental health issues in light of the budget cuts of recent years which have left a serious gap in the services urgently needed to help local people cope with what is now appearing to be an ongoing psychological struggle which is partially due to the continued lack of sufficient subsistence resources and doubts whether the food is really safe to eat. Also there is a financial burden to all the communities because the commercial fishing resources are no longer able to support the fleet in Tatitlek, Valdez, Chenega or Cordova and Pt Graham, Nanwalek and the villages around Kodiak .This brings about an increase in dysfunctional behaviors including increased abuse of drugs and alcohol with the accompanying emotional results which usually manifest themselves as spouse abuse, child abuse, depression, compulsive behavior, and lead to an increased incidence of divorce , suicide., and other destructive activities.

C. Need for Project

What is needed for the area is the development of a Healing Center which will be based on the cultural values of the Native people and would provide trainings in and access to counseling to Native people and non-Native people on delayed grief, post traumatic stress associated with the loss of their lifestyle since the oil spill, and the issues surrounding increased drug and alcohol abuse. As the commercial fishing industry continues to dwindle each year there will be a even greater need to help people cope psychologically with the increased financial stress to their families and communities. This project will be to make a concerted effort to help the people who are having a hard time emotionally with the ongoing effects of this oil spill to give them coping tools through trainings, direct counseling, :.' reexamining cultural values and spiritual needs, and planning for the establishment of a Healing Center to be built in a retreat setting to facilitate the constructive changes which are needed in order to empower the affected people to lead sober and productive lives proud of who they are.

D. Project design

1. Objectives

The Project Director will coordinate public meetings in the villages of Tatitlek, Chenega, Cordova and Valdez to solicit the priorities of these communities to determine what they see as their most pressing problems regarding mental health. A planning consultant will also attend these meetings to work with the communities on visioning what kind of facility would be best suited to accomplish their goal and dreams of a well community. Because the truth is that "until we are all free, none of us are free", applies here too. Unless you deal with the underlying root causes of destructive behaviors in a society whether it is Native or non-Native then all the money you invest in projects and jobs ends up feeding that same destructive mentality which threatens to render a society powerless against its well being. Trainings will be conducted in the villages on delayed grief which has never been dealt with from generation to generation in the Native society dating back to the Russian era of enslavement and torture through the epidemics of the late 1800's and early 1900's on to the devastation of the "64" Earthquake and now the Exxon Valdez Oil Spill.

Living in the villages, the people knew they had a loss of their land in Russia selling Alaska to the Americans; they suffered the loss of their language when the School Systems forbid them to use their Native tongue, and the loss of their cultural values in an acculturation process to embrace the modern Western way of life; but they always believed they still had the bounty of the sea and the pristine atmosphere of the area surrounding their village to fall back on whenever they needed to. Since the Exxon Valdez Oil Spill that confidence has been dashed like the tanker itself, torn apart and no longer a resource to depend on. Losing the confidence that we had in being able to live off the land was just another loss in a series of losses that the Native people have felt since their lands were first "discovered ".What the trainings, counseling and development of a Healing Center will facilitate will be a closure and healing to these intergenerational losses so future generations of the people can be empowered to stop that cycle of abuse.

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Methods

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The staff at Chugachmiut will coordinate with the village councils. the mental health programs like the Advocates for Victims of Violence and the project leader Martha Vlasoff to hire a team of consultants including Jane Middleton Moz, a noted trainer in the field of post traumatic stress related issues, and Anna Lattimer President of Native Adult Children of Alcoholics who will be hired to conduct intensive workshops in the affected villages and communities. A planning consultant, Edward Deaux, Ph.D., from The Deaux Enterprise will be hired to conduct planning workshops in the villages for the establishment of the Healing Center. The project will be accomplished over a period of three years of which the first will be dedicated to conducting the intensive trainings and planning workshops. The second year will continue the trainings and work with Mental Health facilitators to develop outreach programs in the local communities to deal with the emotional problems identified by the consultants and coordinators in the first year of the program. There will also be a face-to-face conference in the second year to give the people of the oil spill-affected area an opportunity to share their experiences which they have not had an opportunity to do since the "89" oil spill. The third year will be dedicated to the establishment of the facility which will house the Healing Center.

The Project Directors will coordinate all hiring of consultants and their travel and accomodations in the villages. Also they will be in charge of coordinating the Healing Conference in the second year of the project. Proposals submitted by consultants and consulting firms in response to the Request for Proposals will detail how the consultants will facilitate the meetings and conferences, which communities will support the project, and identify organizations and local people who will work together to accomplish the goals of this project. Proposals will be submitted in the format of detailed work plans including a narrative describing the program proposed and details of the proposed budget.

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3. Schedule

October 94	project approval
October 94	develop contract guidelines, evaluate bids award contracts
November -Jan 95	Coordinate with consultants and plan workshops
FebJune 95	Conduct workshops
July -Aug.95	Evaluate workshop proceedings
Sept. 95	complete project yearly report
Fy 96 Fy 97	Continued trainings, planning, and conference Completion of the Healing Center

Technical Support

This project will require technical assistance which will be provided by the consultants.

Location

The location of this project will include the Chugach and Kodiak Region.

E.Project Implimentation

The Copper Mountain Foundation, which is a non-profit subsidary of the Tatitlek Corporation will be primarily responsible for the project with assistance from Chugachmiut, the regional non- profit corporation for the Chugach Region.

F. Coordination

In addition to working with the service programs of Chugachmiut the project will also coordinate with mental health and substance abuse prevention treatment providers throughout the area, including the appropriate divisions of the Alaska Dept. of Health and Social Services.

G. Public process

The public will be involved in all aspects of this project and there participation is key to the success of the project.

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H. Personnel Qualifications

The Project Directors have both worked on coordinating regional projects similar to the one proposed and the Chugachmiut non profit has been ifluential in the implimentation of mental health programs in the region since 1971. (for consultants see attached resume.)

I. Budget	Fy95	Fy 96	Fy 97
Personel	34.6	36.3	38.2
Travel	20.3	40.0	20.0
Contractual	29.0	27.0	25.0
Commodities	5.0	5.0	5.0
Equipment	10.0	5.0	5.0
General Administration	7.5	7.5	7.5
Total	106.1	120.8	100.7

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RÉSUMÉ

Edward B. Deaux, Ph.D.

Sole Proprietor The Deaux Enterprise Consulting Services Post Office Box 92379 Anchorage, Alaska 99509 (907) 258-0875 08/1985 -08/1985 - 08/1987 Office Located in Kodiak **Previous Positions:** Director of Planning and Program Development 12/1987-11/1992 Southcentral Foundation 670 West Fireweed Lane Anchorage, Alaska 99503 (907) 276-3343 03/1988-11/1989 Planner Cook Ihlet Tribal Council 670 West Fireweed Lane Anchorage, Alaska 99503 (907) 272-7529 02/1987 - 09/1987 **Director of Special Projects** 09/1985 - 02/1987 Director of Planning and Program Development Kodiak Area Native Association 402 Cepter Avenue Kodiaki Alaska 99615 07/1983 - 09/1985 Chief Research and Evaluation Bureau Health Planning and Development Division New Mexico Health and Environment Department Post Office Box 968 Santa Fe, New Mexico 87504-0968 08/1980 -- 07/1983 Chief Directors Office of Research, Evaluation, and Planning Behavioral Health Services Division New Mexico Health and Environment Department 09/1976 - 08/1980 Chief Substance Abuse Bureau Behavioral Health Services Division New Mexico Health and Environment Department

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Edward B. Deaux Page 2

Previous Positions, continued:

8/1974 - 9/1976 Senior Research Psychologist and Coordinator Polydrig Research and Treatment Center Bala Cynwyd, Pennsylvania 19004

1975 - 1976

Visiting Professor Department of Psychology University of Pennsylvania Philadelphia, Pennsylvania

8/1967 - 6/1976 (on leave '75-)

Assistant Professor, then
 Associate Professor, and Chairman ('71-'75)
 Department of Psychology
 Antioch College
 Yellow/Springs, Ohio 45387

Consultations Past and Present:

- Alaska Native Human Resource Development Program, University of Alaska, Anchorage. Program development, planning, evaluation, proposal writing. (September 1993 to present)
- Tongass Tribe, Ketchikan, Alaska. Community development planning. (September 1992 to present)
- Southcentral Foundation, Anchorage, Alaska. Proposal writing, planning, quality improvement, evaluation. (June 1993 to present)
- Alaska Natives Commission Anchorage, Alaska. Research, analysis, policy development, report writing. (May 1993 to present)
- Copper River Native Association, Copper Center, Alaska. Planning, needs assessment, proposal writing, management development, mental health staffing, clinical consulting, (January 1993 to present)
- North Slope Borough, Department of Health and Social Services, Barrow, Alaska. Planning, evaluation, proposal writing, health program development, facilitation, and evaluation. (January 1992 to present)
- Aleutian/Pribilof Islands Association, Anchorage, Alaska. Proposal writing, facilitation, and training. (December 1991 to present)
- Organized Village of Kake, Kake, Alaska. Planning, survey construction and analysis, evaluation, management consulting for IRA Council. (December 1989 to present)
- Alaska Native Foundation, Ahchorage, Alaska. Planning, proposal writing, evaluation, report writing, management consulting. (July 1989 to present)

Alaska Department of Health and Social Services, Division of Mental Health and Developmental Disabilities, Juneau, Alaska. On-site technical assistance, community development, program evaluation. (August 1988 to present)

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Consultations, continued:

- Alaska Native Health Board, Anchorago, Alaska. Proposal writing, report writing, and evaluation. (July 1991 to July 1993)
- The North Pacific Rim (now Chugachmiut), Anchorage, Alaska. Planning, group facilitation, survey construction, evaluation, and proposal writing. (October 1991 to July 1993)
- Mount Marathon Native Association, Seward, Alaska. Planning, health survey and analysis, Board training. (September 1991 to April 1992)
- Inuit Circumpolar Conference, Anchorage, Alaska. Planning, proposal writing, program development, evaluation. (January 1991 to July 1992)
- Bristol Bay Native Association, Dillingham, Alaska. Training workshops for village representatives in proposal writing, project/program management, and community development. (March 1989 to October 1991)
- Kuskokwim Planning and Management Corporation, Anchorage, Alaska. Planning, proposal writing, community development consulting. (September 1987 to July 1992)
- University of Alaska Southeast, Islands Campus, Sitka, Alaska. Training workshops in proposal writing in Sitka and Kake. (January 1990)
- Egegik Traditional Council, Egegik, Alaska. Report writing, planning, and management consulting. (March November 1989)
- American Indian Technical Services, Inc., Broomfield, Colorado. Coordinating technical assistance effort in Alaska for the Administration for Native Americans. (1987 1988)
- Administration for Native Americans, U. S. Department of Health and Human Services, Seattle, Washington. Chairman of panel for review of proposals submitted by Alaska Native applicants. (1987)
- American Indian Resource Organization, Inc., Mesa, Arizona, and Anchorage, Alaska. Evaluating health projects in Alaska; directing national training program. (1980 - 1985)
- Alaska Women's Resource Center, Anchorage. Technical assistance in developing and implementing evaluation methodologies for health promotion projects administered by the Center and conducted in four sites in Alaska. (1983 - 1984)
- Alaska Department of Health and Social Services, Division of Public Health, Juneau. Technical assistance in data collection, instrument development, and statistical analysis of needs assessment and evaluation studies. (1982 - 1983)
- National Institute on Drug Abuse (NIDA), Rockville, Maryland. Appointed to the Drug Abuse Resource Development Committee, responsible for reviewing all prevention, researchdemonstration, and training proposals. (1979 - 1982)

Indian Coalition on Drug Abuse, a national organization of Indian Drug Abuse Prevention and Treatment Program Directors. Served as principal technical assistant. (1977 - 1980)

Edward B. Deaux Page 4

Education:

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Undergraduate:

A.B. in Psychology, Cum Laude Indiana University Bloomington, Indiana

Graduate:

Ph.D. in Psychology University of Texas Austin, Texas

Scholarships, Fellowships, Honors, and Affiliations:

Phi Beta Kappa Society of the Sigma Xi Public Health Service (NIMH) Predoctoral Fellow The Burnet Scholarship, Indiana University Adjunct Faculty: Norwich University, 1992 to present

Presentations, Reports, and Non-juried Publications:

State Plan for Drug Abuse Prevention 1977-1978, Department of Hospitals and Institutions, State of New Mexico, 1977.

State Plan for the Prevention and Treatment of Alcohol Abuse, Alcoholism, and Drug Abuse 1978-1979, 1979-1980, and 1980-1981 Health and Environment Department, State of New Mexico, 1978, 1979, and 1980, respectively.

New Mexico Trails, 1977 - 1980, a bi-monthly statewide newsletter on drugs and drug abuse. Editor.

New Mexico [Salud!, 1980, a bi-monthly statewide newsletter on alcohol, alcohol abuse, and alcoholism. Editor.

Marijuana as Medicine. U. S. Journal of Drug and Alcohol Dependence, June, 1979.

The A-D-M Block Gran: A Guide For Indian Drug Abuse Program Directors. AIRO, September, 1981.

Report on the Evaluation of Two Health Promotion/Risk Reduction Projects in Alaska, June, 1982.

Analysis and Discussion of the Data from Two Health Promotion/Risk Reduction Projects in Alaska, July, 1982.

Communication Skills and Public Speaking, (A Training Manual), March, 1983.

Planning and Evaluating Health Promotion Projects, (A Training Manual), October, 1983.

Edward B. Deaux Page 5

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Presentations, Reports, and Non-juried Publications, continued:

Planning for the Sixties: A Retrospective View of Anticipating Effective Programmatic Responses to the Drug Abuse Phenomenon, a chapter in Treating Substance Abuse, a book published by Sahdoz, 1985.

Writing Proposals, (A Manual), March, 1989; Second Edition, February, 1990; Third Edition, August, 1991.

Community Development, (A Manual), September, 1989.

Pulling Together: A Community Development Guidebook, co-authored with Carl Berger and Christina Reagle published by Alaska Department of Health and Social Services, 1990.

Writing A.N.A. Proposals, (A Manual), Alaska Native Foundation, August 1993.

Juried Publications:

These total 24 articles and reports which have appeared in several scientific journals including Science, Journal of Experimental Psychology, Contemporary Psychology, Journal of Comparative and Physiological Psychology, Physiology and Behavior, American Journal of Physiology, Evaluation Review, Social Pharmacology. The most recent publication is:

Deaux, E. Health Locus of Control in Chukotka Children. Alaska Medicine, 1992, 34, 135-139.

Submitted for Publication:

Deaux, E. A Russian view of alcoholism and its treatment: An interview with Tatyana Sajina.

December 1993

References available on request.

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Project Title: Nanwalek/Port Graham/Tatitlek Clam Restoration Project

Project Leader: <u>Project Leader(s) will be appointed by the Nanwalek and Port Graham village</u> <u>councils</u>

Lead Agency: Nanwalek and Port Graham village councils

Cost of Project: <u>FY 95 - \$447.5; FY 96 - \$497.9; FY 97 - \$437.4; FY 98 - \$437.4; FY 99 -</u> <u>\$437.4</u>

Project Start-up/Completion Dates November, 1994 to October 1999

Project Duration: <u>5 Years</u>

Geographic Area: Port Graham/Nanwalek area: Tatitlek area

Contact Person: David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; Phone 243-855; Fax 243-1183

Introduction

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This project will develop the technology and begin to reestablish local clam populations for subsistence use in the Nanwalek/Port Graham area and in the Tatitlek area. Clams were once a major subsistence food in these communities, but the local clam populations have been decreasing to very low levels in recent years and their contribution to the subsistence harvest has been greatly reduced.

There are probably several reasons why local clam populations are currently at low levels. These include changes in current patterns and beach configurations resulting from the 1964 earthquake, increasingly heavy sea otter predation and the Exxon Valdez oil spill.

The oil spill impacted the wild clam populations and their importance as a subsistence food in two ways. First, many clam beds suffered from direct oiling. The impact of the oil on the clam beds in Windy Bay, for instance, destroyed one of the most productive clam beds in the lower Kenai Peninsula. Second, even though some shellfish weren't killed from the oil, they have a tendency to accumulate, concentrate and store the toxic contaminants from non-lethal amounts of oil. This has badly eroded the confidence in the villages in the healthfulness of the remaining wild clam populations as a subsistence food.

One of the main problems with clam enhancement in Alaska has been the availability of a sufficient supply of seedstock. The Qutekcak Native Tribe of Seward is developing a shellfish hatchery that is currently focusing on providing Pacific oyster seed for the Alaskan aquatic farming industry. The hatchery has also been working to develop the technology for producing clam seedstock and is currently working on the Littleneck clam. This clam has never before

Nanwalek/Port Graham/Tatitlek Clam Restoration Project

been produced in a hatchery. However, the hatchery staff has been able to bring small batches of Littleneck clams through the most critical stage of development and it seems certain that the techniques for successfully producing Littleneck clam seedstock in the hatchery can be developed. In addition to Littleneck clams the hatchery will soon will doing seedstock development work on Butter clams. A major part of this project will be enabling the Qutekcak hatchery to provide the needed quantities of seedstock for developing populations of clams near the Native villages.

Project Need

This project will provide the villages of Nanwalek, Port Graham and Tatitlek with an easily accessible source of clams for subsistence use. These clams will also be afforded some measure of protection against sea otter predation. With the wild clam populations at a low ebb, the questionable safety as a food source of those that remain in addition to the heavy sea otter predation that these clams are now subjected to, the need to develop safe, protected sources of clams for the villages is greater than ever. If this project is successful it will enable the villages to develop their own supplies of this traditional subsistence food.

Project Design

Objectives

Develop the techniques and the capacity in the Qutekcak hatchery for producing sufficient quantities of various sized clam seed.

Obtain the required permits for conducting the field work

Determine the survival and duration of culture to harvest size for different sizes of seed.

Determine the growth rates and survival in different types of substrate.

Determine the efficacy of various types of passive predator control measures such as fabric covers, bird netting and rack and bag culture.

Schedule

The hatchery work will run the year round. The field season for testing the various culture scenarios will run from late April to the end of October. Reports will be done quarterly with the annual report issued in January.

Technical Support

Technical assistance will be needed in the hatchery operations, in setting up field trials and in testing clams for contamination.

Location

The Qutekcak shellfish hatchery is in Seward. Field work will take place in the Port Graham/Nanwalek area and in the Tatitlek area.

Project Implementation

This project will be implemented by project teams selected and controlled by the village councils.

Coordination

Technical assistance and services will be obtained from private contractors, the Chugach Regional Resources Commission (CRRC), the Alaska Department of Fish & Game (ADF&G), the Alaska Department of Natural Resources (DNR) and the Alaska Department of Environmental Conservation (DEC).

Personnel

Technical assistance with project development and implementation will be primarily provided by David Daisy and Jeff Hetrick. Mr. Daisy, formally a program manager with the ADF&G fisheries enhancement program, has many years experience in Alaska with fisheries project development and implementation. Mr. Hetrick also has many years experience with fisheries enhancement projects in Alaska. He has been extensively involved with the development of the Native aquaculture farms in Prince William Sound and has been working with the Qutekcak shellfish hatchery staff in developing the clam culture techniques.

Budget

Item	Estimated Cost				
	FY 95	FY 96	FY 97	FY 98	FY 99
Personnel	\$117.7	\$121.5	\$125.0	\$125.0	\$125.0
Travel	\$7.2	\$7.2	\$8.0	\$8.0	\$8.0
Contractual	\$192.9	\$203.6	\$168.0	\$168.0	\$168.0
Commodities	\$43.7	\$77.2	\$80.0	\$80,0	\$80.0
Equipment	\$42.0	\$40.0	\$15.0	\$15.0	\$15.0
General Accounting	\$44.0	\$48.4	\$41.4	\$41.4	\$41.4
Totals	\$ 447.5	\$ 497.9	\$ 437.4	\$ 437.4	\$ 437.4

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Project Title: Port Graham and Nanwalek Subsistence Baseline

Project Leaders: Pat Norman and Carol Kvasnikoff

Lead Agency: Port Graham Village Council, Nanwalek Village Council

Cost of Project: FY 95 \$488.2 FY 96 \$488.2 Start/Completion Dates: 10/95 - 9/97

Project Duration: Two Years

Geographic Area: The lower Kenai Peninsula from Port Graham Bay to Port Dick.

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Contact Person: Pat Norman Port Graham Corporation P.O. Box 5509 Port Graham, AK (907) 284-2212

B. Introduction - Project Overview:

This project proposes a subsistence foods testing program to establish baseline data on all subsistence salmon fishing and shellfish gathering areas used by the people of Port Graham and Nanwalek.

C. Need for the Project.

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Many of the areas used by residents of Port Graham and Nanwalek were impacted by oil as a result of the Exxon Valdez oil spill. Even now (summer 1994), tarballs continue to wash up on these harvest areas. The continued presence of oil has caused residents of these comunities to be wary of using resources, especially shellfish, from their traditional harvest areas. While some samples of subsistence foods from the harvest areas of Port Graham and Nanwalek have been tested for the presence of hydrocarbons under studies conducted by the Oil Spill Health Task Force, the Division of Subsistence of the Alaska Department of Fish and Game, the National Oceanic and Atmospheric Administration, and Exxon, funds were limited and only a few sites or species could be tested. Residents of these communities want a more comprehensive survey and testing of resources from their harvest areas.

This project would give the people of Port Graham and Nanwalek very specific information on what subsistence foods are safe to eat, and the location of subsistence foods that continue to be contaminated. It will also provide information that can be used as a baseline for comparison in the event of another oil spill reaching these areas.

D. Project Design.

1. Objectives:

To provide very specific, detailed, and comprehensive information to the residents of Port Graham and Nanwalek on the safety of subsistence resources in their traditional harvest areas. A second, subsidiary goal is to establish a baseline of hydrocarbon exposure for comparison in the event of another oil spill.

2. Methods:

Samples of clams, chitons, snails, mussels, cockles, whelks, octopus and all species of salmon will be collected, where they occur, in ten bays from Port Graham Bay to Port Dick on the lower Kenai Peninsula. Three locations will be tested in each bay. Four samples of each shellfish species to be tested should be collected at each location. Eight individuals of each species of salmon to be tested should be sampled at each location. Bile and flesh samples will be taken from each salmon, to allow for bile metabolite screening.

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A biological consultant will be contracted to oversee the collection of samples. The biological consultant will provide sampling supplies. Trained field assistants are locally available in each community. There will also be a local project leader who will supervise local hiring, monitor the performance of the biological consultant, and communicate results of the testing back to the communities.

The samples will be tested for hydrocarbon contamination. In order to provide consistency with earlier testing, the samples should ideally be tested at the National Marine Fisheries Service laboratory in Seattle.

3. Schedule:

Samples will be collected during low tide cycles throughout the spring of 1995 and 1996.

4. Technical Support:

It will be necessary to contract with a biological consultant to oversee the collection of samples and apply for the necessary scientific collection permits. The services of a biological laboratory specializing in hydrocarbon bioassay will also be required. Ideally, the samples should be tested at the NMFS laboratory in Seattle, to provide consistency with earlier studies. Additional technical support in setting up the project may be provided by the Alaska Department of Fish and Game, Division of Subsistence. The Oil Spill Health Task Force and the Expert Toxicological Committee may provide assistance in the interpretation of test results.

5. Location:

The project will be conducted on the lower Kenai Peninsula from Port Graham Bay to Port Dick, including the communities of Port Graham and Nanwalek. Testing of samples may be carried out in Seattle.

E. Project Implementation.

The project should be implemented by the Village Councils of Port Graham and Nanwalek.

F. Coordination of Integrated Research Effort.

This project is part of the Subsistence Restoration Planning and Implementation Project (94428), and would further the goal of restoring subsistence services damaged by the EVOS. It would carry on work done under the Subsistence Foods Testing Project (93017 and 94279), to help restore the confidence of subsistence

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users in their ability to determine the safety of their traditional wild foods. The project would also help to establish a baseline of hydrocarbon exposure of shellfish and salmon in this area for comparison in the event of another oil spill.

G. Public Process.

The Subsistence Restoration Planning and Implementation Project composed of state representatives from the Subsistence Division of ADF&G and the Municipal and Regional Assistance Division of DCRA, along with representatives of the Forest Service and NPS have met in public meetings with the communities of Chenega Bay, Tatitlek, Port Graham, Cordova (including members of the Native Village of Eyak), and Valdez (including the Valdez Native Association) to solicit their recommendations for oil spill restoration projects. This project description is a product of those public meetings. The public at large will have an opportunity to comment during the public process associated with dissemination of FY 95 Draft Work Plan. If funded, this project would be carried out by the communities themselves, providing for a maximum degree of public involvement.

H. Personnel Qualifications.

The Village Councils' of Port Graham and Nanwalek have worked closely with the Oil Spill Health Task Force and the Alaska Department of Fish and Game, Division of Subsistence on the Subsistence Food Testing Project and the earlier testing projects. A number of individuals in each community have been trained in the collection of subsistence food samples for hydrocarbon testing.

I. Budget.

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Project Title: English Bay River Sockeye Salmon Subsistence Project

Project Leader: <u>Carol Kvasnikoff</u>

Lead Agency: <u>Nanwalek Traditional Council - Sockeye Development Team</u>

Cost of Project: FY 95 - \$129.8; FY 96 - \$126.0; FY 97 - \$168.4

Project Start-up/Completion Dates: March, 1995 to November, 1997

Project Duration: <u>3 Years</u>

Geographic Area: English Bay Lake system

Contact Person: David Daisy; 3936 Westwood Drive, Anchorage, AK 99517; Phone 243-8544; Fax 243-1183 English Bay River Sockeye Subsistence Restoration Project

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over the long run it will provide a safe, reliable and badly needed supply of salmon to meet the area's subsistence and economic needs. However, additional funds are needed to sustain this enhancement effort. Additional funding is being requested under this project to ensure that the total program will continue through the development stage.

Project Need

This project will provide the villages of Nanwalek and Port Graham with the means to increase the local sockeye run. In the past this run has been a vital part of the economic and social fabric of these communities. With the safety and availability of other fisheries resources in the area in doubt, the need to restore and enhance this sockeye run is more important than ever. This resource has the potential of providing these villages with a safe and reliable supply of a traditional subsistence food.

Project Design

Objectives:

In 1995, 1996 and 1997 take 1.2 million English Bay sockeye eggs each year for incubation at the Port Graham Hatchery.

Transfer the resultant fry from the Port Graham hatchery to net pens in the English Bay lakes for rearing to at least eight grams and release into the system just before freeze-up.

Count the number of smolt leaving the system each year and the number of adults entering it. Collect pertinent information from any tagged fish.

Do an acoustic survey of the English Bay system, after the annual smolt outmigration is over, to determine the biomass of hold-over smolt.

Schedule:

The field season runs from April to the end of November each year. The smolt outmigration takes place from early May through June; the pen rearing operation runs from early June to just before freeze-up; the eggtake occurs in August and the acoustical survey is done in late July. Reports are done quarterly with the annual report issued in January.

Technical Support:

Technical assistance is needed in fish culture, tags analysis and the acoustical surveys.

Location:

The English Bay Lake system.

English Bay River Sockeye Subsistence Restoration Project

Project Implementation

This project will be implemented by the Nanwalek Sockeye Development Team, an arm of the Nanwalek Traditional Council.

Coordination

Technical assistance and services are being provided by the Chugach Regional Resources Commission (CRRC) and the Alaska Department of Fish & Game (ADF&G).

Personnel

Assistance with program development and implementation is being provided by David Daisy of CRRC. Mr. Daisy, formerly a program manager with the ADF&G fisheries enhancement program, has many years experience in Alaska with fisheries project development and implementation. Thomas Kohler is under contract to CRRC to provide technical training and general field oversight for the program. Mr. Kohler, formerly a fisheries biologist with the ADF&G fisheries enhancement program, has several years of varied experience in Alaska with fisheries enhancement program. ADF&G fisheries enhancement program, has several years of varied experience in Alaska with fisheries enhancement projects. CRRC is also providing the project with accounting services. ADF&G is providing technical assistance in fish culture, tag analysis and limnology work.

Budget

This project will fund only a portion of the total English Bay Sockeye Salmon Enhancement Program budget. The following are those items from the total program budget that will be funded by this project.

Item		Estimated Cos	st
	FY 95	FY 96	FY 97
Personnel	\$37.3	\$39.2	\$41.1
Travel	\$4.5	\$4.7	\$5.0
Contractual	\$37.0	\$25.0	\$27.0 ·
Commodities	\$17.0	\$18.0	\$19.0
Equipment	\$7.5	\$11.3	\$47.0
General Administration	\$26.5	\$27.8	\$29.3
Totals	\$ 129.8	\$ 126.0	\$ 168.4

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Project Title: Chenega Bay Mariculture Development Project

Project Leader: Gail Evanoff

Lead Agency: Chenega Bay IRA Council

Cost of Project: FY 95 - \$184.3; FY 96 - \$77.5; FY 97 - \$75.5

Project Start-up/Completion Dates: October, 1994 to September, 1997

Project Duration: <u>3 years</u>

Geographic Area: Sawmill Bay, Prince William Sound

Contact Person: <u>David Daisy</u>, <u>3936 Westwood Drive</u>, <u>Anchorage</u>, <u>AK</u> <u>99517</u>; phone 243-8544, fax 243-1183

Introduction

This project is intended to provide a long term source of subsistence food and income for the residents of Chenega Bay. It will provide a means for the villagers to maintain their traditional lifestyle in the face of increased and sometimes conflicting use of this area of the Chugach region. The project was initiated in 1992, has already gone through feasibility testing, and has now reached the point where a major capital outlay and market development are needed to enable it to become self sufficient. Continued technical assistance with the project is also needed.

Project Need

This project is needed to replace lost subsistence resources and economic opportunities and provide the village with a means to develop a local bivalve resource in a manner that provides some level of protection against future man-made disasters such as EVOS. The oil spill amply demonstrated how vulnerable the local marine resource are to disasters such as the oil spill. As well as being an efficient way of utilizing the local marine environment, the mariculture techniques that will be utilized in this project will allow steps to be taken to protect the shellfish that are under culture from the effects of disasters such as EVOS.

Project Design

Objectives:

Obtain processing and culture equipment that will make the project more efficient and allow it to become self sustaining. This equipment includes a workboat, an Chenega Bay Mariculture Project

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efficient anchoring system, a processing facility and processing equipment.

Make the growing and processing operation more efficient.

Develop a marketing plan for the cultured oysters.

Methods:

The shell of the processing facility is already in place. All that is needed is for the interior to be finished to meet health specifications and to be connected to water and electricity. The improved anchoring system design has been developed as have the specs for the processing equipment and workboat.

Schedule:

The processing shed will be finished off as soon as funds are available and water and electricity connected as soon as the ground is thawed. The workboat and processing equipment specifications have already been developed and will be ordered as soon as funds are available. Making the project more efficient will continue through 1997 under the guidance of a mariculture expert. A marketing consultant will be contracted in the spring of 1995 to help develop the marketing plan.

Technical Support:

Mariculture expert, marketing expert.

Location:

The project will take place near the village of Chenega Bay.

Project Implementation

The Chenega Bay IRA Council will be primarily responsible for the project with assistance from the Chugach Regional Resources Commission (CRRC).

Personnel Qualifications

The Chebega Bay IRA Council has been involved with the mariculture project since it began in 1992. CRRC has been providing administrative assistance. Jeff Hetrick of Alaska Aquafarms, Inc. will continue to provide training and technical guidance. Mr. Hetrick has extensive experience in mariculture development in Alaska. A marketing expert has yet to be identified. Chenega Bay Mariculture Project

Budget

This project will fund only a portion of the total mariculture budget. The following are those items from the budget that will be funded by this project,

Item		Estimated Cost	· .
	FY 95	FY 96	FY 97
Personnel	\$37,5	\$37.5	\$37.5
Travel	. ` `\$6.0	\$6:0	- \$6.0
Contractual	\$23.3	12.0	10.0
Comodities	\$15.0	\$15.0	\$15.0
Equipment	\$85.5	\$0.0	\$0.0
General Administration	\$17.0	\$7.0	\$7.0
Total	\$ 184.3	\$ 77.5	\$ 75.5

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Project Title: Provide funds to offset the increased cost of subsistence hunting and fishing

Lead Agencies: Chenega Bay Village IRA Council

Cost of Project: FY 95 \$50.0 FY96 \$50.0

Project Start-up/completion dates: January 1995 through September 1995

Duration of Project: Funding for this project should continue until subsistence resources in the harvest areas of Chenega Bay have been restored to pre-EVOS levels.

Geographic Area: This grant will support the community's subsistence gathering activities in Prince William Sound.

Contact Person:

Gail Evanoff Chenega Corporation P.O. Box 8060 Chenega Bay, AK 99574

Introduction:

Since the oil spill, declining subsistence resources in Prince William Sound have impacted the community of Chenega's harvesting efforts. The decline in resources requires the residents to travel further and stay out longer, which increases the cost and risk associated with subsistence activities. Funds provided by this grant will directly support the service of subsistence harvesting by reducing costs and risks currently associated with subsistence activities. The cost and risk to individual community members participating in subsistence gathering will be reduced by providing funds to hire larger local boats for the purpose of transporting hunters on a specified number of trips. By using larger, diesel powered boats, hunters will have the ability to cover a larger area more efficiently and with greater safety. This program may also benefit the community by increasing the variety of subsistence resources being harvested. Resources obtained on these trips will be shared with the entire community.

The Dept. of Community and Regional Affairs provided Chenega Bay with a similar grant in 1989/90. Funds for the grant were provided through the Oil Spill Community Assistance Grant Program.

Need For This Project:

Household surveys completed by the Dept. of Fish and Game, Subsistence Division for the years 1985, 1986, 1989, 1990, 1991, and 1992 document subsistence activities in Chenega Bay. The surveys show that the lingering impact to subsistence is not just to the total amount of resources being harvested but also to the types of resources being harvested. The following summarizes the results of the surveys.

The estimated subsistence harvest at Chenega Bay from April 1992 through March 1993 totaled 412.5 pounds per person, which exceeds documented pre-spill harvest levels. The 1992/93 data shows an increase in harvest rates over the preceding year and also exceeded harvest levels

documented several years before the oil spill. The pre-spill data was collected in 1984/85 and 1985/86 and shows harvests of 340.5 pounds per person. When looking at harvest data from Chenega Bay there are two factors that must be considered. The first is that Chenega Bay had just been reestablished when the 1984/85 and 1985/86 surveys were completed. Unfamiliarity with the area and younger, less experienced individuals attempting a subsistence life style for the first time since their childhood may have influenced harvest levels in the community. The second factor is that data is not available from Chenega Bay for the period immediately before the spill. Without this data it can only be assumed that harvest levels continued to increase from 1986 to March of 1989. This assumption is supported by data gathered in Tatitlek during 1988/89. The average subsistence harvest in Tatitlek in the two years immediately before the spill was close to 500 pounds per person. It is likely that harvest levels in Chenega Bay approached this level by the late 1980's.

Although harvest levels have been rebounding, obvious changes to the composition of the harvest have occurred since the oil spill. One of the more notable changes is the decline in the harvesting of marine mammals. In 1991/92, marine mammals contributed only six percent of the harvest, compared to 49 percent in 1984/85. Marine mammals also contributed at a similarly low level in 1992/93. An increase in the harvesting of fish indicates that fish are being substituted for marine mammals and other resources that have declined since the oil spill. In 1992/93, fish were 71 percent of the harvest, compared to 29 percent in 1984/85. Other changes to the composition of the harvest include:

• The herring harvest declined to less than half the average taken before the spill and was used and harvested by fewer households.

• In 1992/93 the harvest of rockfish exceeded all previous use levels and was used by more households than in pre-spill years.

• Although in 1992/93 the harvest of marine invertebrates was twice as high as pre-spill harvest rates, the number of families using clams declined from a pre-spill level of 87.5 per cent to 65.2 per cent in 1992/93. Families have travelled to beaches along Cook Inlet to harvest clams because of their scarcity near the village and the fear of oil contamination. The increase in marine invertebrate harvest is also in part a result of harvesting larger octopus from boats in deep water, rather than smaller ones from dens along the beach. These smaller octopus are preferred, but have been scarce since the spill.

• The shrimp harvest as well as the use of shrimp has declined to below pre-spill levels.

• The per person harvest of birds and eggs remains below pre-spill levels. The number of ducks harvested by the community is also below pre-spill levels.

• In 1992/93 the per capita harvest of black bear and deer was below 1985 levels. The number of families participating in the harvesting of deer was also lower than any time since 1985.

• In 1985/86, 43.8 percent of the households tried to harvest sea lions. In 1992/93, the number of households that tried to harvest sea lions decreased to 17.4 per cent.

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• The number of families attempting to harvest harbor seals declined from 56.3 per cent in 1985/86 to 26.1 between 1991 and 1993.

In addition to gathering data through the survey process, Fish and Game staff also interviewed individuals involved in subsistence harvesting. Comments made during these interviews provided personal insights on how subsistence has changed in Chenega. The following presents some of the comments provided by Chenega Bay residents during the 1992/93 survey.

- The clams in the area I'm afraid to use. We went to Port Ashton to get as far away from oil as possible, and not go too far away. We're not gonna eat clams from the oiled areas. I still hunger for clams, shrimp, crab, octopus, gumboots. Nothing in this world will replace them. To finally be living in my ancestors' area and be able to teach my kids, but now it's all gone.
- We're not getting them [gumboots or chitons] here. We get more in English Bay and Port Graham.
- We were out six hours. [We] saw not one [bird] at Cape Elrington. [The] oil spill killed them all. I have been here [in Prince William Sound] 17 years. Now you can run all day and count all the birds on you see on one hand.
- The further you get from the North end of the island [which were oiled] the better the bird hunting.
- There are fewer deer now. Deer are way down since I moved here in '83. [You] used to see them frequently. I didn't even get my limit last year. You have to walk miles and miles before you see them.
- I went around Evans Island and Latouche and Elrington Island saw one mink and eight land otters on Elrington. [About Elrington Island] The animals are fewer than before.
- I went around the island [Evans Island] for seals. [I] didn't see any.
- [I] keep watching for seals. I don't see them any more...I traveled from Esther Island to Chenega Bay and saw one seal. I also went around Knight Island and never saw any.
- One elder discussing seal hunting reported that after the oil spill, they had to go about 32 miles to Icy Bay where there's a glacier. Sometimes they can't make it into the glacier because of the ice. He also added, "it gets expensive."
- We used to go hunting from Chenega Bay, to Bettles Island, about two miles from here. After the oil spill I never saw any seals out here. I've had to go 20 miles with a boat at times to get a seal.

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Project Design:

<u>Objectives</u>: Reduce the cost and risk associated with having to travel further to find subsistence resources. Also increase the variety of subsistence foods vailable in the community. Resources harvested during these trips will be shared with the residents of Chenega Bay.

<u>Method</u>: Funds provided will permit the community to hire larger local boats to transport hunters to more distant locations. Funds will be used to hire and fuel the larger boats, hire and fuel skiffs, and hire a skiff operator. To be eligible to participate in this project all boat operators will be required to provide proof of insurance. The hunting trips funded through this grant will be shared by the residents that own boats capable of satisfying any requirements established.

<u>Schedule</u>: Funds provided by this grant will fund trips for one year. The number of trips will be determined by the amount of funds provided. Trips will begin shortly after a grant agreement is signed.

Location: The trips funded by this grant will be used for travel in Prince William Sound.

Project Implementation:

It will be the responsibility of the Chenega Bay IRA Council to implement and administer this grant.

Public Process:

The need for this project was identified by Chenega Bay representatives during a public meeting held in the community in June 1994. The community also submitted a similar request to the Oil Spill Trustee's during an earlier request for project proposals.

Personnel Qualifications:

Gail Evanoff is the vice-president of Chenega Corporation. She has worked extensively with state and federal agencies on oil spill projects. She was involved with the management of the oil spill shoreline treatment in the Chenega Bay area, as well as the management of the earlier grant received from DCRA to allow travel to other areas. She is familiar with the requirements vessels and vessel operators must meet to participate in government funded projects, and is also a highly qualified subsistence user.

Budget:

PERSONNEL	3.0
TRAVEL	1.5
CONTRACTUAL	40.0
COMMODITIES	3.4
EQUIPMENT	0
CAPITAL OUTLAYS	0
GENERAL ADMINISTRATION	2.1
TOTAL	50.0

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95136

Project Title: Skin Sewing Crafts Restoration Project Project Leaders: Monica Riedel Lead Agency: Subsistence Divisions of ADF&G and NPS. Cost of Project: FY 95 \$29.9 FY 96 \$29.9 Start/Completion Dates: 10/95 - 9/97 Project Duration: Two Years Geographic Area: Chenega Bay, Tatitlek, Port Graham, Nanwalek, Cordova and Valdez. Contact Person: Don Callaway National Park Service, Subsistence Division

2525 Gambell, Suite 102 Anchorage, AK (907) 257-2408

B. Introduction - Project Overview:

This project proposes to have Monica Riedel, a member of the Native Village of Eyak and owner of Dineega Specialty Furs in Cordova, conduct skin sewing workshops in the communities of Chenega Bay, Tatitlek, Port Graham, Nanwalek, Cordova and Valdez.

C. Need for the Project.

Subsistence resources have been traditionally used by these communities as items for clothing and are currently used by artists in these communities as a basis for small crafts production. The EVOS has limited access to these resources and has inhibited the growth of this self sustaining craft activity. In addition to helping sustain the continuity of this subsistence related service this project will help substitute an enhanced craft activity for economic activities current reduced as a consequence of the EVOS, e.g., commercial fishing.

D. Project Design.

1. Objectives:

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To provide continuity in the opportunity to use subsistence related services damaged by the EVOS.

To provide an alternate resource for economic activities damaged by the EVOS.

2. Methods:

This project will conduct two workshops in each of the project communities during the next two years.

All crafts will be made from local resources (i.e., within Prince William Sound and/or Cook Inlet) purchased from Native subsistence hunters.

Existing space (e.g., in community or recreation halls) and materials (e.g., sewing machines) are available to conduct the workshops, although long term production of these crafts will require the construction of additional space and the purchase of additional technology.

3. Schedule:

The workshops will be scheduled to avoid conflict with existing subsistence activities and to maximize community membersA availability.

4. Technical Support:

There is no anticipation of the need for technical support.

5. Location:

The workshops will be conducted in existing community centers.

E. Project Implementation.

The project should be implemented through a cooperative agreement between the Native Village of Eyak (of which Monica Riedel is a member), the National Park Service (NPS) with a subsidiary cooperative agreement between the NPS and the subsistence division of the ADF&G. Section 809 under Title VIII of ANILCA empowers the Secretary to enter into cooperative agreements with other Federal agencies, the State, Native Corporations and other persons and organizations to oeffectuate the purposes and policies of this title.

F. Coordination of Integrated Research Effort.

This project is part of the Subsistence Restoration Planning and Implementation Project (94428), and would further the goal of restoring subsistence services damaged by the EVOS.

G. Public Process.

The Subsistence Restoration Planning and Implementation Project composed of state representatives from the Subsistence Division of ADF&G and the Municipal and Regional Assistance Division of DCRA, along with representatives of the Forest Service and NPS have met in public meetings with the communities of Chenega Bay, Tatitlek, Port Graham, Cordova (including members of the Native Village of Eyak), and Valdez (including the Valdez Native Association) to solicit their recommendations for oil spill restoration projects. This project description is a product of those public meetings. The public at large will have an opportunity to comment during the public process associated with dissemination of FY 95 Draft Work Plan.

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H. Personnel Qualifications.

Ms. Riedel is an award winning Native craftsperson.

I. Budget.

PERSONNEL	9.7
TRAVEL	15.1
CONTRACTUAL	0
COMMODITIES	12.1
EQUIPMENT	0
CAPITAL OUTLAYS	0
GENERAL ADMINISTRATION	5.0
TOTAL	29.9
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95138

- 1. Project Title: Elders/Youth Conference on Subsistence and the Oil Spill
- 2. Project Leader: To be determined
- 3. Lead Agency: Alaska Department of Fish and Game, or to be determined
- 4. Cost of Project: \$77,700
- 5. Project Start-up and Completion Dates: October 1, 1994 September 30, 1995
- 6. Project Duration: one year

7. Geographic Area: Prince William Sound, Iower Cook Inlet, Kodiak Island Borough, Alaska Peninsula

8. Contact Person

James Fall Division of Subsistence Alaska Department of Fish and Game 333 Raspberry Road Anchorage, Alaska 99518

B. Introduction

The goal of this project is to promote the recovery of subsistence uses of natural resources of the oil spill area through a conference that would involve elders, youth, and other representatives of spill area communities. Conference goals would focus on identifying the common experiences of communities and the subsistence skills which have been affected and need to be strengthened. The role of traditional knowledge in informing people about the spill's effects will be explored. An additional goal will be to discuss experiences with past crises and identify ways to prepare for the future. Through a contract, a facilitator would be responsible for organizing the conference, including designing an agenda and a structure for the conference. The conference would be videotaped. Conference proceedings would be published and a video produced. Both of these products would serve as educational tools to further the recovery of subsistence uses through the reintegration of subsistence uses, knowledge, and values into community life.

C. Need for the Project.

Subsistence uses of natural resources are essential to the economies and ways of life of communities of the oil spill area. After the spill, these uses were severely disrupted due to natural resource injuries and concerns about the safety of using subsistence foods that may have been contaminated by oil. Because of these reduced subsistence uses, opportunities to teach subsistence skills and traditional knowledge have also been diminished. As noted in the draft Oil Spill Restoration Plan, "the more time users spend away from subsistence activities, the less likely they will return to it" (p 32). The restoration strategy for subsistence, as presented in the draft plan (pp. 32-33), has four parts, including an objective "to accelerate recovery of subsistence resources and services." One means to achieve this goal is "through increasing availability, reliability, or quality of subsistence resources, or increasing the confidence of subsistence users."

Increasing the confidence of subsistence users may be achieved by a gathering of knowledgeable individuals (including elders) and young people in order to identify the issues and problems raised by the spill and the means to address these issues. The conference would draw upon traditional knowledge and the experience of community residents in facing past crises. It could result in a list of subsistence skills that need re-invigorating in light of the disruptions since the oil spill. Another goal would be to share observations about natural resources in the spill area and recommend activities that could assist people in understanding the present conditions

of these resources. Also, the conference could identify ways for communities to use their collective traditional knowledge and experiences to prepare for future environmental disasters. There has been no similar opportunity for the communities of the spill area which depend upon the natural resources for subsistence to discuss their common experiences, concerns, and plans as proposed for this conference.

The Draft Exxon Valdez Oil Spill Restoration Plan (p. 33) states that, regarding subsistence, "one indication that recovery has occurred is when the cultural values provided by gathering, preparing, and sharing food are reintegrated into community life" (p. 33). The conference will contribute to this goal through the discussion and dissemination of traditional knowledge about subsistence uses and about the common experiences shared by subsistence users since the spill. Additionally, this project will assist with the restoration of subsistence through monitoring of the recovery of subsistence uses. The information discussed at the conference will provide a picture of the present status of subsistence, which may in turn be used to direct future restoration actions.

D. Project Design

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1. Objectives. Objectives include a conference with participation by representatives of communities of the oil spill area, written conference proceedings, and a video.

2. Methods. A professional services contract will be awarded to design the conference agenda and serve as the conference moderator. The contractor will consult with spill area communities as appropriate to set the agenda. The contractor will also be responsible for preparing the conference proceedings. A separate contract will be awarded to video tape the conference and produce a video presentation of the conference (see below)

Among the potential topics for discussion are:

-- What has been the common experience of subsistence users of spill-area communities since the oil spill? What has been lost? What has been gained? Are there differences between regions?

-- What actions need to be taken by communities to re-invigorate subsistence uses?

- Are there subsistence skills which need to be emphasized? How can this be accomplished?

-- Is there traditional knowledge available to inform subsistence users about the spill's effects on natural resources and the safety of subsistence foods?

-- How have people of the spill area dealt with disasters in the past? What can we learn , from those experiences?

- Given what we have learned, how can communities prepare for the possibility of future disasters and threats to subsistence?

The conference will be video-taped and audio-taped. A proceedings volume will be prepared. A 1 to 2 hour video will also be produced to present the conference highlights and recommendations. It is intended that the proceedings and video be used as educational tools to promote an exchange of information and to strengthen subsistence traditions that have been weakened since the spill.

The conference would last one or two days. Each community of the spill area (approximately 20 communities) would nominate one elder, two students (high school or college aged), and one additional representative. The exact format for the conference would need to be determined by the contractor after consultation with the communities. It would likely entail several formats, including but not limited to formal presentations, panel discussions, round tables, and question/answer periods.

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3. Schedule.

October 1, 1994:project approvalOctober, 1994develop contract guidelines, evaluate bids, award contractNovember - January 1995conference planningFebruary 1995conferenceMarch - Juneproduction of conference proceedings and videosJuly - Augustdistribution of materialsSeptember, 1995complete project final report

4. Technical Support. none required

5. Location. The proposed conference will take place in Anchorage, primarily because of its centralized location. If feasible in terms of cost and facilities, an alternative location can be considered.

E. Project Implementation. The Division of Subsistence of the Alaska Department of Fish and Game could coordinate the implementation of this project. This would entail preparing contract proposals for competitive bids, evaluating proposals, and monitoring the performance of the contractors. The division would also handle the logistics of the conference, including meeting facilities and participants' travel and accommodations. An alternative is to contract these coordination functions to a regional organization or coalition of communities with appropriate administrative resources. In either case, professional services contracts (or subcontracts) would be awarded to design the conference, prepare the proceedings, video tape the conference, and produce an informational video which summarizes the conference findings.

F. Coordination of Integrated Research Effort. Information about the status of injured natural resources can be integrated into the conference. Conference findings, including observations by subsistence harvesters of natural resource populations, will be available for use by other researchers. Other proposed subsistence restoration projects (e.g. 95244, "Seal and Sea Otter Cooperative Harvest Assistance; 95428, "Subsistence Planning") also have public information components that will benefit from the information which is shared through the conference and its resultant products.

G. Public Process. The need for this project was identified during a series of public meetings on subsistence restoration in June 1994 (Project 94428). The public will be directly involved in the project as participants in the conference. Conference proceedings will be available to the public in written format and in a video tape.

H. Personnel Qualifications

James Fall. Dr. Fall is the regional program manager for the Division of Subsistence, ADF&G, for southcentral and southwest Alaska. Since 1989, he has supervised the division's oil spill response and research program.

Rita Miraglia. Ms Miraglia has served as the oil spill coordinator for the Division of Subsistence since 1990. As such, she has organized and participated in the subsistence resource collection and testing program of 1990, 1991, and 1993. She has also been the lead communicator of study findings to communities through organizing community meetings and writing newsletters.

Other Division of Subsistence personnel with experience in working with particular communities would also assist with the conference as appropriate.

I. Budget

Line 100:	Personnel	\$12.1
Line 200.	Travel	44.4
Line 300.	Contractual	21.0
Line 400.	Commodities	0.2
Line 500.	Capital Outlay	0.0

\$77.7

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Total · . <u>-</u>..

95140

Project Title: Subsistence Skills Program

Project Leaders: Helmer Olson

Lead Agency: Valdez Native Association

Cost of Project: FY 95 \$36.7 FY 96 \$36.7 Start/Completion Dates: 1/95 through 9/95

1

Project Duration: 3 years

Geographic Area: Valdez, Alaska

Contact Person: Helmer Olson, President Valdez Native Association P.O. Box 1108 Valdez, AK 99686 (907) 835-4951

B. Introduction - Project Overview:

This project would provide funding for programs to support the passing on of subsistence skills, communication between the generations and to promote community healing. Classes would be provided in various activites, including survival skills, carving, beading, and Native drumming and dancing. Support would also be provided for community gatherings, such as potlaches, as well as storytelling by elders.

C. Need for the Project.

In the summer of 1989, the Exxon Valdez oil spill all but turned the community of Valdez on its head. In addition to concerns about the possible effects of the oil on the safety of subsistence resources, there was economic and social upheaval as The population of the City of Valdez swelled from 4,300 to well. over 12,000 in a matter of weeks. This massive influx of transients overwhelmed the town, and disrupted the normal social, cultural and subsistence activities of the residents. This disruption was keenly felt by the Native community in Valdez. The additional population created pressure on existing facilities in the city, and as a result, food prices and rents skyrocketed. Many community residents found it necessary to take the higher paying oil spill jobs in order to keep up with the increased cost of living in the community. These jobs were usually 60 hours per week, and required employees to be away from home. Subsistence hunting and commercial fishing were abandoned, both because of contamination fears, and because all the activity aimed at cleaning up the oil would make such activities difficult, if not impossible to carry out. Traditional ways of coping with disaster were insufficient to deal with the situation.

Some people responded to the combination of the disruption of their normal lives and the high salaries they received as oil spill workers, by reverting to substance abuse. The result was a dramatic increase in domestic violence, family breakups, and mental health problems. This, in turn, meant the disruption of the social, cultural and subsistence activities continued beyond the departure of the oil spill workers.

The Board of Directors of the Valdez Native Association sees a need to reinforce the traditional heritage of the Native community in Valdez in order to repair the damage to subsistence activities and the transmission of traditional knowledge caused by the EVOS.

Cultural activities normally enjoyed by the Valdez Natives range from fur sewing, beading, ivory carving and various forms of traditional dancing. The individuals who possess these skills are often quiet craftsmen who, left to themselves in a semi-urban setting, overlook the need to pass on their skills. This program would provide the opportunity for these people to display their skills and crafts, and teach them to others.

The traditional Native potlach meal has long been a source of community spirit that permits friends and relatives to get together to eat and share events with each other. A potlach also serves as an opportunity to allow leaders to recognize the accomplisments of young people, acknowledge the importance of elders, to seek testimonials of conflict resolution, adversity and personal growth. These all help to engage a community and create a spirit of togetherness, family and purpose.

This project will help restore pride in Native accomplishment, and help to restore the subsistence services that have been disrupted by the Exxon Valdez oil spill and its aftermath.

D. Project Design.

1. Objectives:

To restore subsistence services, the transmission of traditional skills and knowledge, and community cohesion, damaged by the EVOS.

2. Methods:

This will be done by providing classes to teach skills, traditions and crafts, and by holding traditional community getherings and potlaches. This will help to restore subsistence activities, and will also help foster communication between community elders and young people.

Schedule: 3.

> Community gatherings Beadworking classes Native drumming and dancing Life coping skills Ivory carving classes Russian Christmas Native language workshop Basketry classes Survival skills training Women's group meetings Youth leadership meetings Elders memories (storytelling) 1 time each month Traditional cooking/baking 8 times each year

1 time each year 4 times each month 2 times each month 1 time each month 2 times each month 1 time each year 1 time each week 6 times each year 2 times each year 1 time each month 1 time each month

4. Technical Support:

This project will not require technical support as defined in the Invitation to Submit Restoration Projects for Fiscal Year 1995.

5. Location:

The classes and gatherings will take place in Valdez. When possible, the offices of the Valdez Native Association will be used, but for some of the larger gatherings, it will be necessary to rent a hall in the community.

E. Project Implementation. The project should be carried out by the Valdez Native Association.

F. Coordination of Integrated Research Effort.

This project is part of the Subsistence Restoration Planning and Implementation Project (94428), and would further the goal of restoring subsistence services damaged by the EVOS.

The Valdez Native Association already has a program in place to facilitate the disribution of native foods from local hunters to elders. VNA also has a scholarship program which is funded by proceeds from weekly bingo games.

G. Public Process.

The Subsistence Restoration Planning and Implementation Project composed of state representatives from the Subsistence Division of ADF&G and the Municipal and Regional Assistance Division of DCRA, along with representatives of the Forest Service and NPS have met in public meetings with the communities of Chenega Bay, Tatitlek, Port Graham, Cordova (including members of the Native Village of Eyak), and Valdez (including the Valdez Native Association) to solicit their recommendations for oil spill restoration projects. This project description is a product of those public meetings. The public at large will have an opportunity to comment during the public process associated with dissemination of FY 95 Draft Work Plan.

H. Personnel Qualifications.

Helmer Olson is the President of the Valdez Native Association. He has a demonstrated track record of running state and federally funded programs. Since 1990, he has guided VNA in assuming responsibility for several grant programs previously run by the regional Native association.

I. Budget.

PERSONNEL	2.0
TRAVEL	1.5
CONTRACTUAL	28.2
COMMODITIES	1
EQUIPMENT	0
CAPITAL OUTLAYS	0
GENERAL ADMINISTRATION	<u>5.0</u>
TOTAL	36.7

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Afognak Island State Park Interim Support

Project Number:	95141
Restoration Category:	General Restoration
Proposed By:	Neil Johannsen, Director Alaska Division of Parks & Outdoor Recreation
Lead Trustee Agency:	Alaska Department of Natural Resources
Cost FY 95:	 \$21,500 plus additional funds to revegetate road surfaces and develop a plan for conversion of certain roads to trails (Objectives c and d). Cost estimates will be reflected in Draft 1995 Work Plan.
Cost FY 96:	\$21,500
Total Cost:	\$107,500
Duration:	5 years
Geographic Area:	Afognak Island
Injured Resource or Service:	Marbled murrelet, harlequin duck, black oystercatchers, river otters, harbor seals, sea otters, anadromous fish, bald eagle nests, and recreation.
Contact Person:	Neil Johannsen, Director Alaska Division of Parks & Outdoor Recreation Alaska Department of Natural Resources 3601 C Street, Suite 1200 Anchorage AK 99510 762-2600

Introduction

In November 1993, the Trustee Council purchased 41 million acres of land adjacent to Seal Bay, Afognak Island. In its resolution accepting the seller's offer, the Council found that these lands "include important habitat for several species of wildlife for which significant injury resulting from the oil spill has been documented." The resolution cited important nesting areas for marbled murrelet; nesting and foraging areas for harlequin ducks; adjacent shore used by black oystercatchers and river otters; harbor seal haulouts along the shoreline; concentrations of sea otters off Tolstoi Point; eight documented anadromous streams; ten documented bald eagle nests; and high value wilderness-based recreation such as hunting, boating and fishing.

In May 1994, the Alaska State Legislature designated the land and water around Seal Bay as Afognak Island State Park. A letter of intent accompanying the act stated, in part:

It is the intent of the legislature that sources of funding other than state general funds be sought for the management of Afognak Island State Park. It is also the intent of the legislature that at least five public use cabins be built within Afognak Island State Park. A primary source for these purposes is moneys managed by the Exxon Valdez Trustees Council.

This proposal requests funds necessary to manage and protect Afognak Island State Park until such time as the State can generate moneys for that purpose.

Need for the Project

Until reliable sources of funding for operations and maintenance of the new state park are secured, the most that can be expected is periodic visitation from park rangers out of Kodiak. Interim support for operations will enable field staff and volunteers to monitor use of the new park and discourage resource degradation, as well as inspect actions taken to comply with the road closure plan and reforestation requirements. Compliance with the road closure plan and reforestation requirements is the responsibility of the seller.

The logging roads in the park were created by removing overburden to bedrock and then grading the bedrock. It will take many years for the road beds to revegetate. The statutory road closure requirements, with which sellers must comply, will stabilize the road surfaces but not lead to revegetation. This project will move the overburden back onto the road surfaces leading to revegetation of the road surfaces.

Revegetation of the road surfaces will restore, to some extent, habitat values diminished by roadbuilding. In addition, some roads in the park should be converted to trails provided they serve restoration objectives. For example, they could channel public use away from sensitive habitats or enhance recreational experience.

Project Design

- 1. Objectives
 - a. Assurance that public use of Afognak Island State Park is consistent with restoration objectives.
 - b. Compliance with the road closure plan and reforestation requirements, which are the responsibilities of the seller.
 - c. Restoration of habitat through revegetation of road surfaces.
 - d. Conversion of certain roads to trails to meet restoration objectives.

2. Methods

a. Permanent seasonal staff will make occasional visits to the park.

- b. Volunteers in Parks (VIPs) will monitor public use of the park and develop a resource inventory for use by staff in forming a master plan for the park.
- c. Overburden will be moved onto remainder of roadbeds so they can revert to natural vegetation. This effort will be completed during FY 95.
- d. A plan will be developed to convert some existing roads to trails. The plan will be completed in FY 95.

3. Schedule

Recruitment of volunteers would begin in December 1994. Permanent seasonal staff and volunteers would be onsite from late May through August. The trail conversion plan and revegetation efforts will be completed in FY 95.

4. Technical Support

None.

5. Location

Afognak Island State Park.

Project Implementation

Afognak Island State Park will be operated and managed by the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation, through permanent seasonal staff and Volunteer in Parks (VIPs).

Coordination of Integrated Research Effort

The Division of Parks and Outdoor Recreation will coordinate its actions with other Trustee Council actions on Kodiak, Afognak, and Shuyak Islands.

Public Process

Extensive public review of the decision to acquire lands adjacent to Seal Bay occurred, primarily at Trustee Council meetings. Public debate over the establishment of the Afognak Island State Park took place in legislative hearings and various media. The public will be involved in review of plans for road closures and reforestation, the siting of public use cabins, and other major land management decisions.

FY 95 Budget

100	Personnel	10.0
200	Travel	8.0
300	Contractual Services	TBD ¹
400	Commodities	2.0
500	Equipment	0.0
600	Capital Outlay	0.0
	Subtotal	20.0
Genera	al Administration	1.5
Total Cost		21.5 ¹

¹ Additional funds will be needed to revegetate of road surfaces and develop a plan for conversion of certain roads to trails (Objectives c* and d*). Cost estimates will be reflected in Draft 1995 Work Plan.

* The logging roads in the park were created by removing overburden to bedrock and then grading the bedrock. It will take many years for the road beds to revegetate. The statutory road closure requirements, with which sellers must comply, will stabilize the road surfaces but not lead to revegetation. This project will move the overburden back onto the road surfaces leading to revegetation of the road surfaces. Revegetation of the road surfaces will restore, to some extent, habitat values diminished by roadbuilding. In addition, some roads in the park should be converted to trails provided they serve restoration objectives. For example, they could channel public use away from sensitive habitats or enhance recreational experience. The trail conversion plan and revegetation efforts will be completed in FY 95.

July 30, 1994

EVOS Trustee Council 645 G Street Anchorage, AK 99501



Trustee Council Members,

Prince William Sound Aquaculture Corporation (PWSAC) is a non-profit regional corporation representing users and communities of the Prince William Sound-Copper River area in their efforts to rehabilitate, enhance and stabilize salmon resources and associated services. Following the *Exxon Valdez* oil spill (EVOS), salmon in PWS experienced productivity decreases, and stocks have been recognized as injured and not recovering.

PWSAC has pursued many avenues to continue its services to area residents through ongoing enhancement operations and supporting ecosystem based research, restoration and monitoring of salmon resources. The Trustee Council has been supportive through their funding of very important research towards understanding oil spill impacts to the resources and improving our understanding of the PWS-Gulf of Alaska ecosystem. It is now time to take significant restorative actions to aid the recovery process of the Sound's salmon.

In being <u>responsive</u> to concerns voiced by Trustee Council members and staff, PWSAC is submitting this new proposal which is an evolution of the proposal to fund hatchery operations to replace lost resources and services with hatchery salmon. PWSAC, guided by the voice of its constituents and as directed by its Board, proposes restoration of salmon resources in PWS through a program of professional/agency and local resident collaboration, and integration of research, restoration and monitoring objectives.

The proposal delineates a multidisciplinary program for investigating salmon resources, enumerating stocks, and assessing stock condition and genetic identity. The program further intends to take restorative action using methods among those described in the <u>EVOS Restoration Plan Draft Environmental Impact Statement (DEIS)</u> such as hatchery rearing of wild stock eggs, netpen rearing of wild stocks, and relocation of hatchery runs. The program involves a collaboration with University of Alaska Fairbanks School of Fisheries and Ocean Sciences, Alaska Department of Fish and Game, PWSAC and local residents including members of the native community.

Program objectives include:

- A. Restore wild stock salmon resources and services in PWS to pre-spill conditions.
- B. Maximize fitness (both biologic and economic) of injured wild stocks through application of knowledge of salmon population biology, genetics and disease.

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- C. Reduce harvest of injured wild stocks by more specific management of wild and hatchery stocks.
- D. Develop, integrate and coordinate collaborative participants in research, restoration and monitoring.
- E. Develop, train and use resident expertise to establish the capability for continuing conservation and protection of PWS salmon resources.

Although actions proposed focus on an FY95 timeline, the program described is planned to run through the year 2002. This length of time is crucial to restore and monitor two generations of both even and odd year pink salmon including returning adults.

In perspective, the program is collaborative and designed to integrate with current knowledge, existing and proposed projects, and provide a framework for involving local people in the restoration process. PWSAC fish culture expertise will contribute to restoration activities, and provide training to local residents who will serve as field technicians. Existing aquaculture facilities and technologies will be utilized to implement restoration methods recommended in the <u>Restoration Plan Draft Environmental Impact Statement</u>.

It is time to begin active restoration of the salmon resources of the oil impacted area. The path is provided for the collaboration and integration of program partners and objectives. The result will provide us more than knowledge and teams of developed local expertise in salmon restoration and conservation, but will also provide for a sustainable service for people and communities of Prince William Sound.

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Sincerely.

Bob Roys President

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EXXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Title:	Restoration of PWS Wild Stock Salmon Resources and Services: An Integrated Approach
Project Leader:	Howard Ferren, Special Projects Manager
Lead Agency:	AK. Dept. of Fish and Game (ADF&G)
Cost of Project	FY95: \$1,690,331; FY96 \$1,704,434
Start/Completion:	January, 1995 - September, 1995
Project Duration:	0.75 yr.
Geographic Area:	Prince William Sound
Contact Person:	Howard Ferren, Special Projects Manager PWSAC, P.O. Box 1110, Cordova, AK 99574 (907) 424-7511

II. Introduction

Prince William Sound Aquaculture Corporation (PWSAC) is the regional association for salmon enhancement in the PWS area. The corporation is authorized (Section 1 ch 111 SLA 1974) for the purpose of "contributing to the rehabilitation of the state's depleted and depressed salmon fishery", and is responsible (AS 29.03.020) for "providing salmon enhancement services."

Due to the Exxon Valdez Oil Spill (EVOS), wild stocks of salmon in PWS are recognized as injured. Pink salmon in particular are identified as injured and not recovering (EVOS Trustee Council). As a result of these injured resources, individuals and communities of PWS have suffered lost or reduced services.

The purpose of this project is to rehabilitate injured wild salmon stocks and restore services to subsistence, commercial, recreational and other users and communities of the PWS area. This will be accomplished by an integration of collaborative professional and local resident partners, and integration of objectives to actively rehabilitate injured stocks; relocate hatchery production to locations which will reduce harvest pressures on injured wild stocks; research and develop stock baseline genetic databases; determine stream escapements, and monitor both gene pools and returning adults.

This project will result in stock identification, enumeration, rehabilitation, monitoring, development and use of local expertise and evolvement in the restoration and monitoring process, and utilization of the restored and replacement resources.

This project will contribute to the **EVOS Trustee Council** mission to "efficiently restore the environment injured by the *Exxon Valdez* oil spill to a healthy, productive ecosystem while taking into account the importance of quality of life and the need for viable opportunities to establish and sustain a reasonable standard of living." The restoration will be accomplished through natural recovery, resource and service restoration and enhancement, replacement of resources, research and monitoring. The project falls under **EVOS** TC Draft Guiding Principles including:

- "occur within the spill area";
- "support services necessary for the people who live in the area";
- include "meaningful public participation process";
- reflect "a reasonable balance between costs and benefits";
- provide a "cost-sharing opportunity";
- "have a sufficient relationship to an injured resource"; and,
- "state a clear, measurable and achievable endpoint".

III. Need for Project

Restoration funds must be used "...for the purposes of restoring, replacing, enhancing or acquiring the equivalent of natural resources injured as a result of the oil spill or the reduced or lost services provided by such resources". This project is needed to: restore and replace <u>injured resources</u> by increasing the rate and degree of recovery of wild pink salmon stocks; and, to restore/replace <u>injured or lost services</u> by wild stock enhancement and relocation of hatchery stocks which have "sufficient relationship to the injured resource...and will benefit the same user group(s) that was (were) injured."

IV. Objectives

- A. Restore wild stock salmon resources and services in PWS to pre-spill conditions.
- B. Maximize fitness (both biologic and economic) of injured wild stocks through application of knowledge of salmon population biology, genetics and disease.
- C. Reduce harvest of injured wild stocks by more specific management of wild and hatchery stocks.
- D. Develop, integrate and coordinate collaborative participants in research, restoration and monitoring.
- E. Develop, train and use resident expertise to establish the capability for continuing conservation and protection of PWS salmon resources.

V. Methods

Four methods will be used to accomplish the immediate objectives of salmon stock restoration; a fifth will serve the longer-term objective of establishing expertise to practice sustained efforts in stock restoration. The restoration methods include direct restoration through use of available fish cultural facilities and talent in PWS; research into biological interactions, **particularly genetic** effects of cultured salmon on wild salmon; integrated monitoring of the fitness of salmon stocks and their progress toward restoration; and, collaboration of partners to restore the Sound by integrating and coordinating activities. These methods, particularly the research and monitoring aspects, follow in concept a model for monitoring interactions of wild and hatchery salmon recently set forth by an international panel of salmon geneticists and conservation scientists convened by NINA (Norweg. Instit. Nature Res.). They emphasize the necessity of monitoring a baseline of genetic and fitness (phenotypic) data, of understanding the extent of gene flow between stocks, and of studying the biological effect of gene flow through quantitative genetic analysis.

The proposed methods anticipate the integrated cooperation of projects independently proposed by other agencies and groups; some of those projects are referenced here. Because of the schedule with which this revision has been undertaken there has not been formal communication and coordination with those agencies and groups. However, no impediments to integration of those projects into the restoration of wild stock resources are anticipated. A workshop is proposed to bring collaborators together to integrate and plan activities.

The work proposed will be carried out in part through the cooperation of several agencies active in salmon resource management in PWS (PWSAC, ADF&G). Portions of the genetic-interaction research will be carried out by the University of Alaska Fairbanks School of Fisheries and Ocean Sciences (SFOS) and will provide opportunity for graduate thesis research and professional development for junior biologists in PWS. PWS residents will participate in field restoration and monitoring activities.

A. Directly restore injured stocks.

- 1. Assess and inventory hatchery capabilities: water regimes, incubation capacity, stock isolation capability, etc. This will be completed to help match hatchery constraints or opportunities with specific injured or depleted wild salmon stocks identified as candidates for restoration which may benefit from hatchery/fish culture intervention.
- 2. Incubate eggs taken from injured stocks, returning them as fry to the native site via net pen culture (cf Draft EIS, Proposed Action, Comprehensive Restoration of Impacts on Fish, Action 3, Ch. 4, p. 124).
- 3. Rear and release hatchery fish to divert harvest from injured wild stocks (cf Draft EIS, Proposed Action, Comprehensive Restoration of Impacts on Fish, Action 4, Ch. 4, p. 124; See C.1. below).

B. Maximize fitness of wild stocks.

 Mark or tag hatchery stocks: a research and monitoring tool.
 <u>a.</u> Coded micro wire tagging: Refer to Project Proposal 95137, 95320: Stock ID and Monitoring Studies.

b. Thermal manipulation of otolith microstructure Contained in Project Proposal 95320C, Otolith thermal mass marking.

2. Monitor stock baselines: a reference for assessment of progress; a basis for setting policy for restoration decisions.

<u>a.</u> <u>Census:</u> enumerate stocks of wild salmon by ground surveys in five districts of PWS to contribute to stock baseline information including species, stocks and stock size in oiled and unoiled areas.

<u>b.</u> <u>Demography:</u> fitness and life history traits of stocks: sample age, size, sex, timing, meristic/morphologic information from stocks. This information will aid in identifying injured and depleted stocks which will be targeted for further research, monitoring and possible restoration.

<u>c.</u> <u>Gene frequencies:</u> representative samples of tissues from stocks; contained in Project Proposal 95320D by Seeb & Seeb.

<u>d.</u> Pathogens and parasites: representative samples of tissues, fluids from stocks.

e. Marks and tags: recover marks and tags from representative samples of stocks.

3.

Research genetic interactions of wild with wild stocks; hatchery with wild stocks

<u>a.</u> Straying/gene flow field experiment: (SFOS Division of Fisheries) This research is modelled on earlier work on pink salmon at Auke Creek in Juneau by A.J. Gharrett and colleagues. Straying may be estimated by observing physically marked or tagged salmon; however, straying is only one component of gene flow--strays may well not breed successfully to contribute genetically. Our proposed protocol is to screen male returning salmon at a weir, allowing about 20%, those bearing a relatively rare presumably neutral gene, to spawn naturally. This procedure genetically tags the stock; applied with different marker genes to two stocks in the same region, a precise estimate of actual gene flow can be obtained by simple monitoring of the stocks over several generations. Integrates with Project Proposal 95076 by Wertheimer, et al.

<u>b.</u> Fitness phenotype laboratory experiment: quantitative genetic analysis of life history and fitness traits. (SFOS Division of Fisheries) This research is developed from earlier work on pink salmon at Auke Creek and at Gastineau Hatchery by W.W. Smoker, P.A. Crandell, and colleagues. Gametes sampled from known parents in stocks under restoration will be taken to the incubation laboratory at Juneau and observed under a standard quantitative genetic experimental design. Analysis of observations of fitness-related developmental traits (rates of development, salinity tolerance, etc.) and developmental stability

(fluctuating asymmetry of meristic and morphologic traits) will provide estimates of genetic parameters, and from observations of hybrid families, direct estimates of the fitness effects of gene introgression.

c. Analysis of fitness effects on wild stocks of interactions with cultured fish based on observed PWS data. (SFOS Division of Fisheries) Recent biometrical simulations of hypothetical salmon production systems, modelled on PWS pink salmon, by AJ Gharrett have demonstrated a relationship between ecological productivity (carrying capacity) and the overall fitness benefit of homing or straying. These models will provide a basis for analyzing with biometrical rigor the straying, gene flow, population genetic structure, and quantitative fitness variation data collected by other components of this integrated project.

d. Incorporate genetic interaction insights in rehabilitation activities.

C. Reduce harvest of injured wild stocks by more specific management of wild and hatchery stocks.

1. Relocate hatchery runs in space or season(cf Draft EIS, Proposed Action, Comprehensive Restoration of Impacts on Fish, Action 4, 6 Ch. 4, p. 124)

a. Use appropriate remote releases (cf Phase Three Comprehensive Salmon Plan for Prince William Sound/Copper River). Based on site selection criteria and site evaluation, imprint and remote release hatchery fish to reduce possible harvest pressures on injured wild stocks which might migrate through fisheries conducted near hatcheries or targeting enhanced salmon migrating to the hatchery of incubation and rearing. For example, hatchery salmon could be released in the Eastern, Southeastern and/or Montague Districts, thereby distributing the commercial fleet and reducing harvest pressures on injured stocks in the Northwestern and Southwestern Districts.

b. Develop new hatchery stocks with inherent run timing different. from injured wild stocks (cf Phase Three Comprehensive Salmon Plan for Prince William Sound/Copper River). Identify and select from the salmon stock census, stocks which have adult return run time different from that of injured or depleted wild stocks which may be currently harvested in fisheries targeting returning hatchery salmon. By culturing temporally isolated salmon stocks, fisheries can be managed without placing additional pressure on injured stocks. Consideration must be given to species in addition to pink salmon if those species provide the temporal and spatial isolation necessary to reduce pressures on injured pink stocks. Of particular potential are early run time chum and sockeye salmon.
- 2. Identify hatchery stocks in season and manage harvests accordingly. Otolith marking and CWT tag recovery and assessment (B.1. above).
- D. Project collaboration and activity integration.
 - 1. Convene working group of research and restoration collaborators. Agencies, organizations and groups which are identified by PWSAC as required within a collaborative network for salmon restoration to complete the objectives outlined within this proposal, will convene in Cordova to integrate objectives and activities including and in addition to those outlined within this proposal.
 - 2. Integrate projects while formulating strategies and agreements towards implementation of activities. Establish project manager and management team, communication and decision making protocols, priorities and implementation plans.
- E. Employ resident sector-specific technical teams (5 sectors corresponding to major fishing districts, see Figure 1). Teams responsible for surveys, sampling, egg takes, pen rearing, etc. Communications have been initiated with Eyak Tribal Council on project potentials and participation.
 - 1. Contract five vessels and crew for field work including stream surveys, escapement enumeration, stock sampling, egg take, netpen and fry rearing support or other salmon restoration activities identified as appropriate. PWSAC will exercise standard contract procedures and employment options.
 - 2. Provide technical training to crews in salmon escapement enumeration, and working with technical, academic and professional staff in genetic, disease and marked salmon recovery sampling, fish culture techniques, restoration methods and stock monitoring. Training will be provided survey, monitoring, sampling and fish culture crews by PWSAC, ADF&G and University of Alaska SFOS as required.
 - 3. Deploy vessels and teams for stream surveying, stock assessment, sampling, restoration activities and monitoring. Historic observations indicate that early returning salmon stocks spawn in the Eastern and Southeastern Districts. Therefore, two vessels and technical teams are to be deployed to those sectors from June 23 to August 15. Beginning August 15, five vessels and crews are to be deployed, one to each sector of PWS, and remain in the field until September 25. The project leader and field technicians trained and assigned to each vessel and sector will survey, sample, monitor, compile data and report as required. Additional assignments may include, based on restoration requirements, taking eggs, managing net pens, rearing fry for imprinting, or other enhancement or rehabilitation activities.

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V. Schedule for FY-95

NOTE:

The schedule is presented for FY-95. Specific objectives and activities are intended to occur annually to encompass two (2) life cycles for both odd year and even year pink salmon. A schedule will be presented in the <u>detailed project description</u> (DPD) which delineates the workplan through the year 2002. A generalized listing of the extended workplan and timeline is presented in **Figure 2**.

Activity	Begin	End
Convene workshop	с	
Contact all collaborators	1/95	1/95
Convene workshop	2/95	2/95
Integrate objectives/activities	2/95	2/95
Finalize workplans	2/95	3/95
Evaluate hatchery capabilities		
Analyze facility temp and water flows	1/95	2/95
Review incubation and facility floor plans	2/95	3/95
Compute species/stock limitations	2/95	3/95
Report on recommendations	3/95	4/95
Develop five sector technical teams		
Contract vessels and crews	1/95	4/95
Contract technicians	3/95	4/95
Train field crews	4/95	5/95
Monitor stock baselines		
Stock surveys	6/95	10/95
Census/demographics	6/95	10/95
Marks/tags/tissue samples	6/95	10/95
Direct restoration		
Incubate injured-stock eggs	7/95	12/95
Survey injured stocks	6/95	10/95
Collect injured stock eggs	6/95	10/95
Incubate embryos	8/95	12/95
Pen rear & release fry	1996	<i>.</i> *
Evaluate & revise plan	1996	
Recover marks/tags	1997	
Plan next cycle	1997	
Realign hatchery stock releases		
Remote release hatchery fish	4/95	6/95
Survey sites	4/95	5/95

Activity	Begin	End
Pilot scale releases	4/95	5/95
Evaluate releases/returns	1996	
Production releases	(decision point)	
Develop new broodstocks	7/95	12/95
Survey stocks	7/95	10/95
Remote egg takes	7/95	10/95
Incubate and release	8/95	1996
Geneflow field experiment		ل ب
Establish genetic tag (2 camps/screen males)	7/95	9/95
Sample returns	1997	
Analyze gene flow	1997	
Report	1998	
Quantitative genetic analysis of fitness traits		
Sample gametes in field	7/95	10/95
Incubate embryos in lab and gather data	10/95	1996
Analyze	1996	
Report	1997	•
Model fitness effects of genetic interactions: develop simulation models for:	•	
Gene flow and drift	2/95	11/95
Single locus selection	7/95	1996
Quantitative/fitness trait	12/95	1997
population dynamics	1996	1997
Incorporate PWS data	1998	

Report

VI. Technical support

Technical support will include the services of:

- PWSAC planning, project management and fish culture staff
- ADF&G biologists and technicians
- University of Alaska geneticists and other experts in this field
- ADF&G pathologist
- permitting agencies including ADF&G, Department of Army, Corps of Engineers, Department of Natural Resources

- ADF&G otolith mark analysis lab

VII. Location

This project will take place in Prince William Sound. Field crew activities will take place within districts of PWS as divided into five sectors (Figure 1) including the Southeastern, Eastern, Northern-Coghill-Northwestern, Southwestern and Montague Districts. Hatchery incubation and rearing of wild stock salmon will occur at PWSAC hatchery facilities; specific facilities selected will be based on evaluation of site capabilities and wild stock biological requirements. PWSAC facilities include the Armin F Koernig Hatchery on Evans Island, the Main Bay Hatchery near Crafton Island, the Wally Noerenberg Hatchery on Esther Island, and the Cannery Creek Hatchery in Unakwik Inlet.

VIII. Project Implementation

PWSAC will implement the project in conjunction with ADF&G as the lead agency and other collaborating organizations. Restoration management will be based within PWSAC and PWSAC will be responsible for coordinating activities under this proposal including research, restoration and monitoring.

IX. Coordination of Integrated Research Effort

Activities of the salmon restoration program will be integrated with ongoing genetic investigations, stream analysis, stock identification and monitoring studies, and otolith marking (Figure 3).

X. Public Process

PWSAC is a regional association which by law (AS 16.05.380.) must include on their boards representatives of sport fishermen, municipalities, and Native organizations, in addition to commercial fishermen and processors. It is PWSAC's mission to optimally produce salmon for the benefit of all user groups.

As a mechanism to restore PWS salmon resources and services, the PWSAC salmon restoration project will incorporate existing research results achieved through projects previously and currently funded by the EVOS Trustee Council' process. In addition, specific stock and stream restoration options may be recommended by users and villages within PWS. Local vessels, skippers and crews will be solicited from interested public and contracted for training and field work.

XI. Personnel Qualifications

Personnel: PWSAC

H.J. Ferren

Special Project Manager, Planner

M.S. Biological Oceanography, University of Alaska

Corporate strategic and tactical planning, regional salmon planning, team facilitation and project management.

Personnel: University of Alaska, SFOS

W.W. Smoker

Professor of Fisheries, SFOS. PhD Fisheries, Oregon State Univ. Research in salmon ocean ranching, quantitative genetics of Pacific salmon.

A.J. Gharrett

Professor of Genetics, SFOS

PhD Genetics, Oregon State Univ

Research on molecular genetics, population genetics of Pacific salmon.

Recognized expert on population genetics of Pacific salmon, Genetic Stock Identification, genetic tagging

Patricia A. Crandell

Postdoctoral Fellow and Research Associate, SFOS PhD Aquaculture Genetics, Biometrics Univ. of Calif Davis Research on quantitative genetics of pink salmon, ploidy manipulation in Pacific salmon Expertise in experimental design and statistical analysis.

Andrew Gray

Research Associate, SFOS MS Genetics, Washington State University Molecular genetics techniques, Electrophoretic analysis of allozymes, DNA analysis

Budget FY95

PWSAC		
100	Personnel	\$135,120
200	Travel	\$30,700
300	Contractual Services	\$747,000
	Administration	\$161,895
. 400	Commodities	\$32,480
500	Equipment/capital	<u>\$134,000</u>
	SUBTOTAL	\$1,241,195
UAF SFOS (partner in genetics)	
UAF SFOS (100	partner in genetics) Personnel	\$231,080
UAF SFOS (100 200	partner in genetics) Personnel Travel	\$231,080 \$7,200
UAF SFOS (100 200 300	partner in genetics) Personnel Travel Contractual Services	\$231,080 \$7,200 \$16,000
UAF SFOS (100 200 300	partner in genetics) Personnel Travel Contractual Services Administration	\$231,080 \$7,200 \$16,000 \$74,856
UAF SFOS (100 200 300 400	partner in genetics) Personnel Travel Contractual Services Administration Commodities	\$231,080 \$7,200 \$16,000 \$74,856 \$20,000
UAF SFOS (100 200 300 400 500	partner in genetics) Personnel Travel Contractual Services Administration Commodities Equipment/capital	\$231,080 \$7,200 \$16,000 \$74,856 \$20,000 <u>\$100,000</u>

TOTAL PROJECT BUDGET

\$1,690,331.

Figure 1

Prince William Sound

Sectors for Research, Restoration and Monitoring



Sectors

- 1: Southeastern District
- 2: Eastern District
- 3: Northern-Northwestern-Coghill Districts
- 4: Southwestern-Eshamy Districts
- 5: Montague District

Hatcheries

Solomon Gulch

Cannery Creek Wally Noerenberg

Main Bay Armin F. Koernig

EVOS Trustee Council: Project Description Restoration of PWS Wild Stock Salmon Resources and Services

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Figure 2: Time-line and activities

(\pwsac\evos\tig95-2) 19	95		1997		1999
(odd year pink salmon)	L - - - - - - - - - - - - - - - - - - -	evaluate hatchery capabilities assess existing stream research contract vessels and crew train field crew contract technicians conduct stream/stock surveys evaluate remote release sites collect gene & disease samples analyze samples collect & transport BY95 eggs incubate BY95 eggs otolith mark embryos	 transport and rear BY95 fry release BY95 fry conduct stream/stock surveys evaluate remote release sites collect gene & disease samples analyze samples collect & transport BY96 eggs incubate BY96 eggs 	 transport and rear BY96 fry release BY96 fry conduct stream/stock surveys collect gene & disease samples analyze samples analyze gene flow remote release hatchery fish sample BY95 adults for marks analyze for otolith marks collect & transport BY97 eggs incubate BY97 eggs otolith mark embryos 	 transport and rear BY96 fry release BY96 fry conduct stream/stock surveys collect gene & disease samples analyze samples remote release hatchery fish sample BY95 adults for marks analyze for otolith marks collect & transport BY98 eggs incubate BY98 eggs
		(even year pink salmon) 1996	- otolith mark embryos	1998	- otolith mark embryos
19	99 9	[2001	ł	
		 transport and rear BY98 fry release BY98 fry conduct stream/stock surveys collect gene samples analyze samples remote release hatchery fish sample BY96 adults for marks analyze for otolith marks 	·.	 conduct stream/stock surveys collect gene samples analyze samples remote release hatchery fish 	•
•		- analyze for otomar marks	 conduct stream/stock surveys collect gene samples analyze samples remote release hatchery fish sample BY98 adults for marks analyze for otolith marks 		 conduct stream/stock surveys collect gene samples analyze samples temote release hatchery fish
		200	1)	2002	I

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COMPONENT ACTIVITY INTEGRATION Research Stream - stock identification ADF&G USFS PWS resource users Research Stream - stock surveys **PWSAC** and escapement enumeration ADF&G Trained technicians and vessel crews Research Genetic and disease sampling Technicians ADF&G Research Gene analysis; gene flow simulation ADF&G University of Alaska, SFOS NMFS: Auke Bay Lab Research Disease analysis ADF&G Research Evaluate remote release sites **PWSAC** for hatchery fish ADF&G Egg-take from wild stock system(s) Restoration **PWSAC** ADF&G technicians Vessel crews Restoration Incubation and rearing wild stock **PWSAC** Imprint and release wild stock Restoration **PWSAC** Vessel crews Restoration Remote release hatchery fish **PWSAC** ADF&G Research Otolith marking ADF&G **PWSAC** Research and monitoring Adult-return, enumeration and PWSAC ADF&G technicians otolith mark sampling Vessel crews Research and monitoring Otolith analysis ADF&G

Figure 3: Integration of Research, Restoration and Monitoring

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Exxon Valdez Oil Spill Trustee Council

Restoration Office 645 G Street, Suite 401, Anchorage, Alaska 99501-3451 Phone: (907) 278-8012 Fax: (907) 276-7178



DECEIVED

Dear Reviewer:

Enclosed are nine revised project descriptions for your review and consideration. You should consider the original project descriptionss in your packets as obsolete, and replace them with these revised versions.

Revised projects include:

95080	Fleming Spit Recreation Area
95115	Sound Waste Management Plan
95124A	Tatitlek Mariculture Development Project
95127	Tatitlek Coho Salmon Release Program EXXON VALDEZ OIL SPILL
95129	Tatitlek Fish and Game Storage and Processing CenterUSTEE COUNCIL
95131	Nanwalek/Port Graham/Tatitlek Clam Restoration Project
95133	English Bay River Sockeye Salmon Subsistence Project
95134	Chenega Bay Mariculture Development Project
95138	Elders/Youth Conference on Subsistence and the Oil Spill

The Trustee Council will be meeting in Anchorage on November 2-3 to take action on the FY95 Work Plan. A public hearing will be held on the work plan on Wednesday, September 28 at 7 p.m. This hearing will be teleconferenced to Anchorage, Juneau, Fairbanks and to communities throughout the spill area. The Trustees will also have a public comment period on November 2, although the exact time has not yet been set.

If you have any questions on these or any other projects in the Draft FY95 Work Plan, please don't hesitate to contact the Anchorage Restoration Office at 278-8012.

Sincerely,

Molly McCam

Molly McCammon Director of Operations

Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation United States: National Oceanic and Atmospheric Administration, Departments of Agriculture and Interior

Fleming Spit Recreation Area

Project Number:	95080 (Revised, 9/15/94)
Restoration Category:	General Restoration
Proposed By:	The Cordova Sporting Club
Lead Trustee Agency:	Alaska Department of Natural Resources
Cooperating Agencies:	Alaska Department of Fish and Game
Cost FY 95:	\$815,800
Cost FY 96:	\$0
Total Cost:	\$815,800
Duration:	2-3 years
Geographic Area:	Prince William Sound
Injured Resource/Service:	Recreation and pink salmon

INTRODUCTION

Fleming Spit is located on Orca Inlet within the city limits of Cordova. It is at the mouth of Fleming Creek, which has small native runs of coho, pink, and chum salmon. Fleming Spit is also the site of a strong terminal coho sport fishery and a fledgling king salmon fishery. The area is accessible when weather prohibits boating.

The proposed project would replace sport fishing opportunities lost due to the oil spill; improve the habitat of native fish stocks in Fleming Creek; and repair damage to Fleming Spit resulting from illegal camping by cleanup workers. It proposes the following improvements:

- acquisition of a parcel of land at the mouth of Fleming Creek;
- enlargement and improvement of smolt release ponds;
- the construction of permanent net pens;
- the construction of a parking area, a fishing boardwalk, public restrooms, and two fishcleaning stations; and
- general cleanup of the area, including the removal of a derelict barge.

Proposed improvements in the Fleming Spit Recreation Area were supported by resolution of the Cordova City Council in July 1991. It also has strong support from recreation users in Prince William Sound. Initially proposed as part of the Prince William Sound Recreation

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Project (Project #93065 and #94217), it was evaluated at a public participation workshop in November 1993 and ranked eighth among 30 projects.

NEED FOR THE PROJECT

The proposed project would replace sport fishing opportunities lost due to the oil spill and improve the and habitat of native fish stocks in Fleming Creek. It would also repair damage to Fleming Spit from illegal camping by cleanup workers.

There was a significant decline in sport fishing in the oil spill area following the spill. The loss to sport anglers in 1989 is estimated to be \$31 million. In 1992, cutthroat trout sport fishing in western Prince William Sound was closed due to reduced growth and survival. Many residents of Cordova are hesitant and concerned about sport fishing in oiled areas

By acquiring a parcel of private land at the mouth of Fleming Creek and managing them primarily for conservation, the proposed project would help protect the riparian habitat that supports native stocks, including pink salmon. Pink salmon were injured by the spill and have not yet recovered. The parcel is also needed for facilities such as off-street parking, bathrooms, and fish cleaning stations. However, the placement and design of these facilities will be sensitive to the habitat requirements of the native fish stocks in Fleming Creek. (The parcel is zoned Conservation in the Cordova Coastal Management Plan.)

Two of the proposed improvements — a dredge and fill project and the construction of permanent net pens — would directly benefit the terminal fisheries. Existing smolt release ponds are shallow, exposing smolts to bird predation and causing net pens to ground. Net pens should be kept floating to maintain proper circulation. The dredge and fill project would deepen smolt release ponds and allow net pens to float at all tide stages, thereby decreasing mortality among young salmon. The existing fishery operates with two mobile net pens temporarily on loan from the Prince William Sound Aquaculture Corporation. Continuation of the terminal fisheries requires replacement of the mobile net pens with permanent net pens.

The four facilities proposed in this project would provide for safe access and improve sanitation. At present, cars park on the road; people access the fishing area via a steep, rocky slope; and there are no visitor facilities. Off-street parking and a 1,000-foot fishing boardwalk parallel to the road would make access to the fishing area safer. Public restrooms and two fish-cleaning stations would improve sanitation.

The Fleming Spit camp area was injured in 1989 and 1990 by cleanup workers responding to the *Exxon Valdez* oil spill. Sanitation problems and resource degradation resulted from illegal camping (*Draft Restoration Plan*, Nov. 1993, p. B-32.). The project proposes to clean up the trash in the area, especially that left behind by oil spill cleanup workers, and to remove a derelict barge.

PROJECT DESIGN

A. Objectives

- 1. Replacement of sport fishing opportunities lost because of the oil spill.
- 2. Protection of riparian habitat along Fleming Creek.
- 3. Repair of damage to Fleming Spit from illegal camping by cleanup workers.

B. Methods

- 1. Acquire parcel of land (USS 252) at the mouth of Fleming Creek.
- 2. Dredge and fill the existing smolt ponds.
- 3. Construct permanent net pens.
- 4. Construct off-street parking, a fishing boardwalk, toilet facilities, and two fish cleaning stations.
- 5. Clean up the area and remove a derelict barge.

C. Schedule

To be developed.

D. Technical Support

None.

E. Location

Fleming Spit is located within the city limits of Cordova. It is adjacent to the ferry dock and 1.5 miles from town.

PROJECT IMPLEMENTATION

The proposed project would be implemented through a contract with the City of Cordova. The city would negotiate acquisition land interests; hold title to the acquired land; obtain required permits; comply with the requirements of the National Environmental Policy Act (NEPA); and construct and maintain proposed facilities.

COORDINATION OF INTEGRATED RESEARCH EFFORT

Not applicable.

FY 95 BUDGET (\$K)

Personnel	0.0
Travel	0.0
Contractual	790.0*
Commodities	0.0
Equipment	0.0
Subtotal	790.0
Gen. Admin.	25.8
Total	815.8

* Proposed as a grant to the City of Cordova for the following activities

Acquire parcel	150.0
Dredge and fill operations	150.0
Permanent net pens	20.0
Flood plain management	50.0
Surveying	30.0
Off street parking	30.0
Fishing boardwalk	300.0
Toilet facilities	40.0
Fish cleaning stations	10.0
Barge removal	10.0

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Sound Waste Management Plan

Project Number:	95115 (revised) 9/15/94		
Restoration Category:	General Restoration (new)		
Proposed By:	Prince William Sound Economic Development Council		
Lead Trustee Agency:	ADEC		
Cost FY 95:	\$247,100 (This may increase by approximately \$50,000. We will know within a few days. See footnote at the end of the text.)		
Cost FY 96:	\$ 15,600 to complete Phase I. Additional funds may be needed for Phase II, see below for explanation.		
Total Cost:	Unknown		
Duration:	Unknown		
Geographic Area:	Prince William Sound		
Injured Resource/Service:	Intertidal and subtidal organisms, harlequin ducks, black oystercatchers, sea otters, harbor seals, and other seabirds, shorebirds and marine mammals. The services most likely to benefit are subsistence and recreation, both of which are affected by the visual recognition of pollution.		

INTRODUCTION and NEED FOR THE PROJECT

Abstract: The Sound Waste Management Plan (SWMP) is a comprehensive plan to identify and remove the major sources of marine pollution and solid waste in Prince William Sound that may be affecting recovery of resources and services injured by the *Exxon Valdez* Oil Spill. The first phase of the plan will identify the major sources of marine pollution and solid waste, identify their significance, and recommend solutions to reduce the effects that can be implemented by municipalities, state and federal governments, private industry, or trustee agencies. The following phases of the plan will be to implement these solutions. Only the first phase is proposed for FY 1995, and will be implemented using funds from the Alaska Department of Commerce and Economic Development as well as from *Exxon Valdez* Trustee Council.

In total, the plan will use funds from a variety of sources to effect a unified regional effort to permanently reduce the incremental damage being done to the environment of Prince William Sound from marine pollution. In this way, it will reduce stresses on recovering resources and

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services and protect their habitat.

Background: Despite the panoply of state and federal laws that govern the discharge of pollutants into the marine environment, there remain a number of important waste streams that still foul the environment of Prince William Sound. Complete restoration from the oil spill requires permanent protection from on-going chronic pollution sources that may be degrading the quality of marine habitat for injured resource and services, or may be stressing populations or sub-populations of resources and services.

In many cases, there is currently no easy or no feasible method of meeting state and federal laws designed to protect the Sound's environment. The communities of Prince William Sound, the Coast Guard, EPA, and ADEC are working on parts of these problems, but there is no regional approach. Currently, the lack of a coordinated, comprehensive approach may preclude effective, regional solutions, and may result in some important, regional problems not being addressed. The lack of a region approach may also preclude cost-effective solutions that are beyond the capacity of individual agencies or communities. As a result, there n#ay be increased stress on the resources and services injured by the spill, especially on local populations important for communities, recreation, and subsistence use.

The major waste types that appear to have the greatest potential to affect injured resources and services are below.

• Waste Oil. Engine oil and bilge water are sources of waste oil, much of which is discharged into the waters of Prince William Sound.

Engine Oil. Vessels and communities in Prince William Sound generate large quantities of used motor oil and other lubricants. Nationwide, regulatory and financial issues have discouraged people from properly disposing of waste oil; more often than not, waste oil was illegally dumped in landfills, sewer systems, or other open sites. In 1992, the U.S. Environmental Protection Agency estimated that 170 million of the 190 million gallons of waste oil generated in the nation found its way into the environment due to improper disposal; this represents approximately 16 times the amount of oil spilled by the *Exxon Valdez*. Most areas of the country have more, or more convenient facilities than does the spill area.

Cordova, Valdez, and Whittier all have at least one waste oil burner. The burners take waste oil and provide heat for community buildings or electricity for the municipality. In some cases, more capacity may be needed. These facilities have made it feasible for vessels and engine owners to conveniently dispose in a safe and non-polluting manner. For example, there are three waste-oil burners in Cordova, which is the site of a large fishing fleet. One burners, operated by Cordova Electric Cooperative, collected and burned 21,000 gallons of waste oil last year and used the heat for two buildings. Homer, though outside of Prince William Sound, typically serves 850 boats in the harbor at any one time, burned approximately 6,000 gallons per year of waste oil to heat two buildings.

Tatitlek and Chenega lack waste oil burners. These two communities are currently installing docks facilities for handling more boat traffic. The increased activity is likely to increase the potential for inappropriate disposal of waste oil near the communities. For that reason, federal law requires that public docks with significant traffic have solid waste and waste oil collection — a requirement that is frequently not met in small, rural communities because of the difficulty in disposing of the collected material.

Bilge Water. Bilge water includes grease and oil from engines and machinery. There is currently no feasible and convenient method in the Sound for fishing, commercial, or recreational vessels to legally dispose of bilge water. There is no community with facilities to conveniently accept bilge water, and as a result, much is probably dumped into Prince William Sound. Much of it is probably dumped in or near the small boat harbors.

- Stormwater Runoff. Stormwater runoff contains grease and oil from city streets, chemicals from laws and buildings, and other polluting residues. Cordova, Valdez, and Whittier all have stormwater systems that discharge directly into the bay, in some cases into habitats such as the Valdez Duck Flats that are essential for resources injured by the spill.
- Oily Waste. Oily waste is the residue of materials that contain oil. Oil filters, absorbent pads, and cleaning materials are examples of oily waste. In most communities there is no alternative but to place oily waste in the landfill. Valdez is working to acquire a crusher to press the oil out of old filters and material. This will reduce the amount of oil in other waste materials, but in most communities, the waste becomes part of the landfill. None of the landfills or dumps in Prince William Sound have an impermeable membrane, and some portions of the oil migrates to water sources.
- Sewage. Sources of sewage include the communities, vessels, and land-based and floating remote lodges. There is no feasible or convenient method for the fishing, commercial, or recreational vessels to legally dispose of the sewage. While some of the large vessels have sewage disposal systems on board, most dump the waste overboard with minimal if any treatment. There have been reports that some remote camps are out of compliance and causing local habitat problems due to improper sewage disposal. In some locations, the amount of sewage may be safely dispersed without significant effect on the local environment. In other locations, there is potential for significant effect.
- Solid Waste. Currently each community in Prince William Sound is out of compliance with federal regulations as it relates to permitting of waste sites. Improper solid waste disposal has the potential to affect water sources and upland habitat used by injured resources. Blowing garbage is a problem in the two communities without a sanitary landfill (Chenega and Tatitlek). Cordova's landfill currently includes diked off tideland areas and the lower portion of the landfill is inundated by the tide. As a result, landfill leachate may contaminate Orca Inlet. In addition, leachate from Valdez's landfill probably reaches Port Valdez.

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Sound Waste Management Plan

- Household Hazardous Waste. The three incorporated communities have methods of feasibly disposing of household hazardous waste, but collection is infrequent. The two unincorporated communities do not collect household hazardous waste. As a result, much hazardous waste is probably improperly dumped.
- Fish Wastes. Sources of fish waste include, shore-based processors, floating processors, and sports-fish cleaning stations (usually in small boat harbors).

Shore-based Processors. There appears to be problems with accumulation of offal from fish processors in Valdez and Cordova. The accumulation of many year's of processing wastes in the shallow inlet off Cordova appears to have created an anaerobic zone on the inlet's floor — unusable habitat to the fish, subtidal, and marine mammal resources of the area. There have been recent incidents in Valdez where an unusual stench may be traceable to an accumulation of offal near the processors. In both cases, there are activities by the cities, state, EPA, and fish processors to solve the problems, but no solution is as yet apparent.

Floating Processors. In some cases, there may be similar problems with floating processors accumulating wastes in one location. In other cases, the floating processors may distribute their fish wastes without significant harm to the local environment.

Sport-fish Cleaning Stations. The largest sports fishery in Prince William Sound is based out of Valdez, though significant fisheries exists from Cordova and Whittier. In each case, cleaning occurs at sports fish stations in the small boat harbor, and the wastes concentrate in the boat harbor beneath the station. This can overburden waters of the small boat harbor and reduce water quality below federal or state minimums.

Two examples show the potential effects of these problems. The first, Valdez Duck Flats, is adjacent to the Valdez Small-boat Harbor. It is an Area Meriting Special Attention in the Valdez Coastal Management Plan because of its important habitat value. It includes 450 acres of mud flats and 460 acres of saltwater marsh. It provides habitat for rearing salmon and has been recognized by state and federal agencies as providing essential waterfowl habitat for species injured by the spill. The habitat of the Duck Flats may be degraded by the storm water runoff which empties into the area, or by discharges from boats outside the harbor, landfill contamination flowing down Valdez Creek, or sewage disposal in the Port.

Orca Inlet, outside Cordova has the largest pupping concentration of sea otters in Prince William Sound, and is also important for sport fishing, hunting, and is seasonally used by large concentrations of seabirds and waterfowl, including many resources injured by the spill. It is a part of the largest contiguous wetland in the western hemisphere which, during migrations, hosts the largest concentration of shorebirds in the world. The Cordova waterfront hosts most of the problems referenced above. The shoreline includes the solid-waste landfill, which is built in part on tidelands and is inundated by the tide twice each day; storm-water and sewer outfalls, and outfalls for fish-processing offal which has created an anaerobic zone on the inlet floor.

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Sound Waste Management Plan

from each participating community and organization. The regional approach resulted in the development of this project, and is the overall approach of each phase of the project.

With each community independently combating some of the problems of marine pollution, by coming together as a region, ideas are shared and discussed in a manner that leads to more efficient and cost-effective solutions which is the theme of the proposal. The success of this regional approach by the regional committee is the impetus for this project and will be maintained.

- Phase I will use a request for proposals to solicit a contractor to undertake a comprehensive review of pollution sources, their significance, and provide alternative cost-effective solutions.
- Phase II will handle required ADEC/EPA permitting to implement solutions.
- Phase III is the implementation of the Sound Waste Management Plan implementing permanent solutions to the existing chronic problems. These solutions may take the form of a construction, such as a regional solid waste facility or facilities to accommodate bilge water, or they may take the form of programs to prevent pollution such as increased recycling.

Other Funding Sources. Many of the solutions proposed as a result of Phase I, are likely to be funded all or in part by municipalities, villages, private industry, the federal government, and the State of Alaska. Some solutions may be appropriate for funding from the civil settlement.

PROJECT DESIGN

A. Objectives. The development of the Sound Waste Management Plan originated with Prince William Sound Economic Development Council's regional Solid Waste Management Committee.

The following outlines the objectives to be accomplished as part of Phase I:

1. Identifying options.

a. Use existing information and where necessary gather new information to identify the major sources of marine pollution and solid waste, and evaluate which waste streams are priority for reduction.

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9/22/94

The table below summarizes problems in the communities of Prince William Sound.

<u>Key</u>

 \mathbf{E} = Some of waste stream likely enters marine waters.

ff = Facilities or community program available (though not necessarily adequate).

Waste Stream:	Core	lova	Val	dez	Tat	itlek	Chen	ega	Wh	ittier
Waste Oil Engine Oil Bilge Water	Þ	ff		ff	Þ		Þ		Þ	ff
Stormwater Runoff	Þ		Þ						Þ	
Oily Waste	Þ		Ð		Þ		Þ		Þ	
Sewage Community Vessels	Þ	ff	Þ	ff	Þ		Þ		Þ	¥ ff
Solid Waste	Þ	ff	Þ	ff	►	ff	Þ	ff		ff
Household Hazardous Waste	Þ	ff	Þ	ff			Þ		Þ	
Fish Wastes Processors Sport-fish cleaning	Þ		•						Þ	

The problems referenced above may be affecting resources and services injured by the spill, including disruption of important habitat. Any decrease in local pollution would have the effect of decreasing the stress on injured resources and services that rely on clean water. Those resources and services likely to benefit the most are those that feed in the intertidal or near-shore waters in the vicinity of community waterfronts and small boat harbors. These resources most likely to benefit include harlequin ducks, black oystercatchers, sea otters, harbor seals, and other seabirds, shorebirds and marine mammals. The services most likely to benefit are subsistence and recreation, both of which are affected by the visual recognition of pollution.

Project Description. A three phase approach is proposed. This project, however, includes funding for only the first phase. The project will be managed by the Prince William Sound Economic Development Council in conjunction with the Alaska Department of Environmental Conservation.

In continuing the efforts of the Prince William Sound Economic Development Commission, costs for the project are defrayed by shared transportation, teleconference and meeting costs

Sound Waste Management Plan

- b. Analyze waste management reduction, processing, transportation, and disposal alternatives appropriate for Prince William Sound. Information for some or all alternatives should include regulatory requirements, site information, cost estimates, transportation methods, and funding sources.
- c. Recommend solutions to reduce the effects that can be implemented by municipalities, state and federal governments, private industry, or trustee agencies. Many of these may involve regional coalitions of groups.
- 2. Community choice. This project is not solely technical; rather, communities and agencies must implement the technical solutions. For that reason, the project objectives include establishing a public participation program to understand and address community concerns and needs. The public participation needs not involve public meeting or other mass participation mechanisms. However, it should ensure that communities are involved, and understand the problems and possible solutions in order to build consensus for actions to reduce marine pollution and solid waste that will restore Prince William Sound. Accomplishing this objective requires communities and agencies to choose which options to implement.

B. Methods

- 1. Community Participation Component. As a regional project, local input and coordination is crucial to the long-term success of the SWMP project by creating local ownership. Agreeing on and implementing effective solutions to waste management problems requires the participation of the communities that will implement them. A comprehensive, coordinated, regional approach requires participation by all communities in Prince William Sound. This proposal was developed and intended to be coordinated by Prince William Sound Economic Development Council's Solid Waste Management Committee with representation from all of the Sound's communities. The project will be completed in cooperation with ADEC.
 - a. DEC will do the financial administration of the contract that is the major part of Phase I.
 - b. Prince William Sound Economic Development Council's Solid Waste Management Committee with participation from each of the Prince William Sound communities, DEC, and possibly with EPA and the US Coast Guard will manage the contract. This participation is important for the results of the project — that the recommended solutions will be agreed to and implemented by the appropriate communities and regulatory agencies.
- 2. Technical Component for Phase I. A Request for Proposals will solicit the most qualified firm to accomplish the objectives of Phase I.

C. Schedule (FY 95 - Plan of Work)

November 15, 1994	Begin writing RFP
February 1995	Advertise RFP
April 15, 1995	Award Contract
Fall 1995	Draft Report to the PWS Economic Development Council and ADEC
February 15, 1996	Final Report

D. Technical Support

All technical support will be provided by the Prince William Sound Economic Development Council's regional Solid Waste Management Committee, and by the Alaska Department of Environmental Conservation.

E. Location

Prince William Sound

PROJECT IMPLEMENTATION

For the most part, solutions to the identified problems will be implemented by communities and local groups. They must be the major part of the process to identify and choose these solutions. To maintain the direct link from development and implementation of the SWMP, Prince William Sound Economic Development Council's regional Solid Waste Management Committee in cooperation with DEC will implement this regional project in cooperation with ADEC.

The Contractor will be selected by competitive solicitation. PWS Economic Development Council will manage the contract under agreement to ADEC. The Economic Development Council is an Alaska Regional Development Organization (ARDOR) which under AS 36.30.850 may receive funds from the state without competitive solicitation. (The contractor will be selected using normal, State of Alaska competitive procedures.)

PUBLIC PROCESS

This project will be administered, in cooperation with DEC, by representatives of the affected communities. The Prince William Sound Economic Development Council includes representatives of each community, and industry representatives including the fishing, tourism, and petroleum industries. The process will continue with public review at local city council and village council meetings for comment as part of the SWMP. An integral part of the SWMP is community education.

DRAFT



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COORDINATION OF INTEGRATED RESEARCH EFFORT

This project is not research, and integration with other Trustee research activities is unnecessary.

FY 95 BUDGET (\$K)

Personnel	12.8
Travel	6.0
Contractual ¹	210.6
Commodities	1.0
Equipment	0.0
Capital Outlay	0.0
Subtotal	230.4
Gen. Admin.	16.7
Total ¹	247.1

Note: the contractual cost includes \$175,000 for a consultant to develop the regional waste management plan, and \$29,500 for Prince William Sound Development Council. Both contracts are expected to run through March 1996.

¹ There is still some discussion of the size of the consultant contract required to accomplish the objectives of this study, and the project cost may increase by approximately \$50,000. We are currently seeking some professional review, and will know the answer in the next few days. With or without the additional \$50,000, the amount requested is less than the original request published in the draft work plan.

1995 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET

October 1, 1994 - September 30, 1995

Project Description: This project will explore various options for regional management of waste oil, associated toxics and solid waste. This project is intended to reduce the pollutants introduced into the environment injured by the *Exxon Valdez* oil spill so that natural recovery may proceed as quickly as possible.

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Budget Category:	1994 Proje	ct No.	'94 Report/	Remaining				
			'95 Interim*	Cost**	Total			·····································
	Authorized	FFY 94	FFY 95	FFY 95	FFY 95	FFY 96	Comment	. 198
							FFY 96 expenses to complete Phase I.	
Personnel		\$0.0	\$0.0	\$12.8	\$12.8		\$7.0	
Travel		\$0.0	\$0.0	\$6.0	\$6.0		\$3.8	
Contractual		\$0.0	\$0.0	\$210.6	\$210.6		\$3.0	
Commodities		\$0.0	\$0.0	\$1.0	\$1.0		\$0.5	
Equipment		\$0.0	\$0.0	\$0.0	\$0.0		\$0.0	•
Capital Outlay		\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Subtot	al	\$0.0	\$0.0	\$230.4	\$230.4	\$0.0	\$14.3	
General Administration		\$0.0	\$0.0	\$16.7	\$16.7	\$0.0	\$1.3	
Project Tot	al	\$0.0	\$0.0	\$247.1	\$247.1	TBD	\$15.6	
Full-time Equivalents (FT	E)	0.0	0.0	0.2	0.2		0.1	
Dollar amounts are shown in thousands of dollars.								
Budget Year Proposed Personnel:		Reprt/Intrm	Reprt/Intrm	Remaining	Remaining	FFY 96 activities and costs for Phase II		
Position Description		Months	Cost	Months	Cost	(primarily permitting and preparation for imp	le-	
							mentation in Phase III) can only be determin	ed 📘
Restoration Specialist (F	-23)		0.0	\$0.0	1.0	\$6.9	following substantial completion of Phase I	
Restoration Specialist		0.0	\$0.0	1.0	\$5.9	which will identify regional and community		
						solutions for marine pollution affecting	27. 27. A	
						Prince William Sound.		
						16	NEPA Cost: \$0.0	
				×		NL.	*Oct 1, 1994 - Dec 31, 1994	
	Personn	el Total	0.0	\$0.0	2.0	\$12.8	**Jan 1, 1995 - Sep 30, 1995	1
06/01/94								
	. *	Proie	ect Number	: 95115			EODM 2	
Page 1 of 2			ot Titler S	ound Most	Managam		2	
1995 ^{' "ge} '					e managem	ent Plan		
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1995 EXXON VALDEZ TRUSTEE COUNCIL PROJECT BUDGET October 1, 1994 - September 30, 1995

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Travel:			***************************************	Reprt/Intrn	n Remaining
Juneau to Anchorage and PWS (\$450/trip + 2 days per diem @ \$150/day x 8 trips)					\$6.0
	*				
					,
			Travel Total	\$0.0	\$6.0
Contractual:					
Long di	stance phone and fax		х.	\$0.0	\$1.0
	a courier			\$0.0	\$0.8
Ereight	and cartage		•	\$0.0	\$0.2
Plane/h	elicopter charter to Prince William	n Sound communities		\$0.0	\$2.0
Film pro	cessing			\$0.0	\$0.1
Contrac	t for consultant to develop regio	nal waste Management Plan		\$0.0	\$175.0
RSA wi	th Prince William Sound Develop	ment Council to manage contract through March 1996		\$0.0	\$29.5
Proj	ject Manager 320 hours @ \$47/	hr \$15.0			
Tra	vel	\$12.5			
Tele	econference fees	\$2.0			
		Har.		,	
			Contractual Total	\$0.0	\$210.6
07/14/93					
		Project Number: 95115			FORM 2B
1995	Page 2 of 3	Project Title: Sound Waste Management Pla	n		PROJECT
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October 1, 1994 - September 30, 1995

| Commodities:                         |                                              | Reprt/Intrm    | Remaining      |
|--------------------------------------|----------------------------------------------|----------------|----------------|
| Office supplies<br>Computer supplies |                                              | \$0.0<br>\$0.0 | \$0.6<br>\$0.4 |
|                                      |                                              |                |                |
|                                      |                                              |                |                |
|                                      |                                              |                |                |
| Fouinment:                           | Commodities Total                            | \$0.0          | \$1,0          |
|                                      |                                              |                |                |
|                                      |                                              |                |                |
| ·                                    |                                              |                |                |
|                                      |                                              |                |                |
|                                      |                                              |                |                |
|                                      |                                              |                | ×              |
|                                      |                                              |                |                |
| ,                                    |                                              |                |                |
|                                      |                                              |                |                |
|                                      | Equipment Total                              | \$0.0          | \$0.0          |
| 07/14/93                             |                                              |                |                |
|                                      | Project Number: 95115                        | F              | ORM 2B         |
| 1995 Page 3 of                       | 3 Project litle: Sound Waste Management Plan | P              | ROJECT         |
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|                                      |                                              | - <b>L</b>     |                |

Project # 95124A (revised) 9/15

Project Title: <u>Tatitlek Mariculture Development Project</u>

Project Leader: <u>Gary Kompkoff</u>

Lead Agency: <u>Tatitlek IRA Council</u>

Cost of Project: <u>FY 95 - \$109.5K; FY 96 - \$122.0K; FY 97 - \$156.1</u>

Project Start-up/Completion Dates: October, 1994 to September, 1997

Project Duration: <u>3 years</u>

Geographic Area: Tatitlek, Prince William Sound

Contact Person: David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; phone 243-8544, fax 243-1183

# Introduction

This project is intended to provide a long term source of subsistence food for the residents of Tatitlek. Although oysters are not indigenous to Alaska and cannot reproduce in these cold waters, they grow well here under cultivation and have become an accepted subsistence food. There are several advantages to developing cultivated oyster operations for subsistence use. First, the operation can be located close to the village, making collecting this food a relatively easy operation. Second, the level of production can be adjusted to any size needed. Third, because it can be well located and adjusted to produce any volume needed, an oyster culture operation is an ideal mechanism for taking subsistence harvest pressure off of injured resources and give them a chance to recover. Fourth, an oyster culture operation has minimal impact on the environment.

The project has already gone through feasibility testing. This funding is being sought to help the mariculture project through the development stage and achieve self sufficiency. Self sufficiency will be achieved by using a portion of the production for cost recovery. The development stage will continue through the next three years and will consist of continued training of local mariculture workers, cost of operations and setting up the project management structure in the village.

# **Project Need**

This project is needed to replace lost subsistence resources and provide the village with a means to develop a local bivalve resource in a manner that provides some level of protection against future man-made disasters such as EVOS. The oil spill amply

Tatitlek Mariculture Project - Operational Budget Request

demonstrated how vulnerable the local marine resource is to disasters such as the oil spill. As well as being an efficient way of utilizing the local marine environment, the mariculture techniques that will be utilized in this project will allow steps to be taken to protect the shellfish that are under culture from the effects of disasters such as EVOS.

#### **Project Design**

#### **Objectives:**

By September 30, 1995 a village management structure will be in place that will provide total oversight and accountability for the mariculture project.

By September 30, 1996 the mariculture will be making a substantial contribution to the subsistence needs of the village.

By September 30, 1997 the Tatitlek Mariculture Project will become self sustaining through cost recovery.

#### Methods:

The project will continue under the guidance of a mariculture expert. A business development company will be contracted to set up the project management system in the village.

### Schedule:

The project will operate year round. Site health certification will take place in early summer, PSP sampling will be on a weekly basis, product will be available for subsistence use and sale year round, activity reports will be submitted quarterly.

#### Technical Support:

Mariculture expert, lab analysis for certification and PSP samples.

#### Location:

The project will take place near the village of Tatitlek.

#### **Project Implementation**

The Tatitlek IRA Council will be primarily responsible for the project with assistance from the Chugach Regional Resources Commission (CRRC).

#### **Coordination of Integrated Research**

This project is related to project 95124B Tatitlek Mariculture Development - Capital Outlay. However, this project will be able to continue even if 95124B is not funded.

# **Personnel Qualifications**

The Tatitlek IRA Council has been involved with the mariculture project since it began in 1991. CRRC has been providing administrative assistance. Jeff Hetrick of Alaska Aquafarms, Inc. will continue to provide training and technical guidance. Mr. Hetrick has extensive experience in mariculture development in Alaska.

# Budget

This project will fund only a portion of the total mariculture budget. The following are those items from the budget that will be funded by this project,

| Item           |       |          | t        |          |   |
|----------------|-------|----------|----------|----------|---|
|                |       | FY 95    | FY 96    | FY 97    |   |
| Personnel      |       | \$59.5   | \$59.5   | 81.1     | _ |
| Contractual    |       | \$15.0   | \$15.0   | \$15.0   |   |
| Commodities    |       | \$25.0   | \$37.5   | \$50.0   |   |
| Administration |       | \$10.0   | \$10.0   | \$10.0   |   |
|                | Total | \$ 109.5 | \$ 122.0 | \$ 156.1 |   |

Project # 95127 (revised)

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9/15

#### EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL SUBSISTENCE RESTORATION PROJECT DESCRIPTION

Project Title:Tatitlek Coho Salmon Release ProgramProject Leader:Tatitlek Village IRA CouncilLead Agency:Alaska Department of Fish & GameCost of Project:FY 95 \$39.0Start-Up/ Completion Dates:January, 1995 - June 1997Project Duration:OngoingGeographic Area:Prince William Sound, Tatitlek NarrowsContact Person:Gary P. Kompkoff, PresidentTatitlek Village IRA CouncilP.O. Box 171Tatitlek, AK.99677Phone:(907) 325-2311Fax:(907) 325-2298

#### EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL RESTORATION PROJECT DESCRIPTION

#### Project Title: Tatitlek Coho Salmon Release Program

#### **B. INTRODUCTION**

Subsistence as well as commercial and sport fisheries were severely disrupted by the oil spill. This project is intended to enhance subsistence resources by permitted releases of coho salmon at designated locations near the Native Village of Tatitlek in order to provide a long term subsistence resource for the residents of Tatitlek. Additionally, the coho salmon made available through this project can serve temporarily as a partial replacement for other subsistence resources, such as harbor seals, which were injured  $\frac{1}{2}$  y the spill. Valdez Fisheries Development Corporation presently maintains an enhancement project near the Village of Tatitlek, at Boulder Bay. This project would ensure the continuation of that project.

#### C. NEED FOR THE PROJECT

Subsistence harvests of all salmon resources have declined considerably since the oil spill, and continue to be affected by it. This project would enhance the recovery of the salmon resources and provide a means for lessening the impacts of continued harvests on other subsistence resources injured by the spill, such as harbor seals.

#### D. PROJECT DESIGN

#### I. Objectives:

-provide for the continued production of 50,000 coho salmon smolt at the Solomon Gulch Hatchery in Valdez for transport and release near the Native Village of Tatitlek (Boulder Bay). -hold and feed coho salmon smolt at net pens at the release site for two weeks prior to release. -harvest approximately 2,000 coho salmon annually upon their return to imprinting site.

#### II. Methods:

-Coho salmon will be taken from an ADF&G approved site for incubation and care and raised to smolt stage at the Solomon Gulch Hatchery in Valdez

-Smolt will be transported by boat in designated imprinting sites

-Smolt will be held and fed at net pens for approximately two weeks before releasing to improve survival rates and imprinting.

III. Schedule:

| January 1995 | Plans reviewed by the NEPA Process, salmon hatcheries      |
|--------------|------------------------------------------------------------|
| June, 1995   | Eggs taken from salmon near the Native Village of Tatitlek |
| June, 1995   | First salmon smolt transported, penned, fed and released   |
| June, 1996   | First adult salmon returns of coho salmon                  |
| June, 1997   | First complete complement of all coho salmon age groups.   |

Each year smolts will he released in late May or early June.

Tatitlek coho Salmon Release Program Page 3

#### IV. Technical Support:

Utilization of experience and technical support of Alaska Department of Fish & Fame is necessary for this project. Valdez Fisheries Development Corporation expertise will also be utilized.

#### V. Location:

The project will occur near the Native Village of Tatitlek. Salmon will be raised to smolt<sub>s</sub>stage at the Solomon Gulch Hatchery at Valdez and released, after imprinting at Boulder Bay.

#### E. PROJECT IMPLEMENTATION

Valdez Fisheries Development Corporation, who have extensive experience in salmon enhancement activities, will continue their present enhancement of coho salmon near the village. ADF&G expertise will also be utilized.

#### F. COORDINATION OF INTEGRATED RESEARCH EFFORT

This project is intended to provide funds for the continuance of a salmon enhancement project presently undertaken by Valdez Fisheries Development Corporation and could be accomplished in conjunction with a Sockeye Salmon Release Project being proposed by the Tatitlek Village IRA Council. Developing this subsistence resource will provide a partial replacement for other injured resources, such as harbor seals, until they recover. This supports the efforts of several other proposed projects, such as 95244 (Seal and Sea Otter Cooperative Harvest Assistance) and 95001 (Condition and Health of Harbor Seals).

#### G. PUBLIC PROCESS

Public meeting in the Native Village of Tatitlek have been held periodically by the Tatitlek Village IRA Council addressing the prioritizing of restoration work.

#### H. PERSONAL QUALIFICATIONS

Valdez Fisheries Development Corporation personnel leave much experience and expertise in this field, they would work in cooperation with ADF&G personnel in accomplishing the goals of this project.

Tatitlek Coho Salmon Release Program Page 4

I. Budget (\$K)

# ADF&G

| Personnel           | \$2.5  |
|---------------------|--------|
| Travel              | 0.0    |
| Contractual         | 21.5   |
| Capital Outlay      | 10,0   |
| SUB-TOTAL           | 34.0   |
| Gen. Administration | . 3.0  |
| NEPA Compliance     | 2.0    |
| PROJECT TOTAL       | \$39.0 |

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# Project # 95129 (revised) 9/15

# A. EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

- 1. Project Title: Tatitlek Fish and Game Storage and Processing Center
- 2. Project Leader: Gary Kompkoff, President, Tatitlek I.R.A. Council
- 3. Lead Agency: Alaska Department of Fish & Game
- 4. Total Cost: \$325,000

Requesting: \$310,000 for processing/freezer building

or \$325,000 for processing/freezer building with smokery

- 5. Project Start Up/Completion dates: Spring 1994 2000
- 6. Project Duration: Permanent Facility
- 7. Location: Tatitlek, AK
- 8. Contact Person: Gary Kompkoff, Tatitlek I.R.A. Council, PO BOX 171 Tatitlek, AK 99677 ph. (907) 325-2311

**B.** Introduction: Tatitlek proposes to build a fish and game processing/storage/smokery facility. This facility will increase the amount of subsistence food available to the community by making it possible for residents to store a larger number of fish for winter use. The increased ability to store fish for winter use will lessen the need for residents to harvest seals and sea lions.

There are two pieces to this proposed project. The first and most important piece is the subsistence food processing and storage building. Grant funds will be used to design, build, and equip the processing and freezer facility.

The second piece of this proposal, which is independent from the funding for the processing and freezer facility, involves adding a smokery to the facility. The smokery will be used for both subsistence and commercial uses. The commercial use of this facility will cover operation and maintenance costs.

C. Need for the Project: Tatitlek's traditional subsistence harvests have not yet recovered to the pre-oil spill levels. Subsistence activities take more time than they did before the spill because residents have to travel farther and wait longer to find subsistence resources. The residents have also had to use fish to compensate for the decline in shellfish and other subsistence resources. In 1988 54.2% of the subsistence harvest was fish and before the spill in 1989 52.2% of the harvest was fish. But in 1990, 61.3% of Tatitlek's subsistence harvest was fish.

Currently, residents personally own enough freezer space to store subsistence fish only until January or February. An improved processing and freezer facility will allow the residents to store sufficient amounts of fish and other non-marine subsistence resources to last through the entire winter.

The facility will also serve the purpose of lessening the pressure on the injured resources of seals and the scarce and possibly oiled resource of sea lions. This will be possible because the freezer will make fish and other stored resources available through the winter months when normally villagers harvest less fish and hunt seals and sea lions. According to Alaska Dept. of Fish and Game statistics, the primary time for hunting harbor seals in Tatitlek starts in October when fishing season ends and lasts through April. For sea lions, most are taken between December- February.

#### D. Project Design:

1. Objectives: The community will be able to clean, process, and store their subsistence food more efficiently than they are currently able.

2. Method: The project will be located in Tatitlek. The Tatitlek IRA council will select an architecture and engineering firm to design the facility this fall. Construction will begin in spring of 1995. A contractor will be selected using a bid type process. The council will hire someone to operate the facility. Once a year a technician from a refrigeration service will come to Tatitlek to check the facility and do preventative maintenance.

The facility design will be complete by early spring 1995 and will be submitted for community review. Construction will begin later that season. Local hire will be encouraged. After construction, the council will oversee the operation of the facility.

The major operations cost for the processing and freezer facility will be electricity, which will be donated by the council. Other operation and maintenance costs will be supported by user fees. The council will hire a staff person to operate, maintain and monitor the facility.

If the smokery portion of this proposal is funded, a marketing consultant will assist the council in selling the smoked salmon. Tatitlek already has the benefit of its Alutiiq Pride brand name, recognizable to Alaskan seafood buyers due to Tatitlek's quality oysters. Salmon Exchange in Valdez has expressed interest in selling smoked fish from Tatitlek to tourists. If the state ferry stops at Tatitlek, a strong possibility as an oil spill response/ferry dock is scheduled to be built there by the Dept. of Transportation in Fall 1994, smoked products can be sold to tourists right in the village.

Technical support will be available from the equipment supplier and the council will contract with a local refrigeration specialist to do
yearly inspections and preventative maintenance as well as repairs , as the need occurs.

**E. Project Implementation:** The village council will manage the construction and operation of the facility. They will hire staff to clean the facility, monitor the freezer temperature and check that sanitation regulations are followed. They will also contract with a refrigeration services specialist for preventative and emergency maintenance.

F. Coordination With Other Proposals: Tatitlek has also requested funds for two remote salmon release projects. This project complements the salmon release projects by making it possible for the residents to process and store the increased number of salmon that may be available to the community

**G. Public Process:** The idea for this facility was presented at a public meeting held June 15, 1994 in Tatitlek. The council will ask for ideas from the community on what amenities they would use in the facility. These suggestions would go to the designer.

**H.** Personnel Qualifications: Gary Kompkoff has been president of the Tatitlek Village IRA council for 15 years and works for the council as supervisor of capital projects. He is chair of the board of directors for the North Pacific Rim Housing Authority and is on the board of directors of the Prince William Sound Economic Development Council. He also fishes commercially and for subsistence.

I. Budget: Cost estimates are as follows:

| 1.             | Design:              | \$ | 15,000  |  |
|----------------|----------------------|----|---------|--|
| 2.             | Construction         | \$ | 180,000 |  |
| 3.             | Equipment\$          |    | 100,000 |  |
|                | smokery equipment    | \$ | 15,000  |  |
| 4.             | Grant Administration | \$ | 15,000  |  |
| TOTAL\$325,000 |                      |    |         |  |

Project#95131 (revised)

Project Title: Nanwalek/Port Graham/Tatitlek Clam Restoration Project

Project Leader: Chugach Regional Resources Commission

Lead Agency: <u>ADF&G in concert with the Chugach Regional Resources Commission and the</u> village councils in Nanwalek, Port Graham and Tatitlek.

Cost of Project: <u>FY 95 - \$208.3; FY 96 - \$244.8; FY 97 - \$252.7; FY 98 - \$261.3; FY 99 -</u> <u>\$269.8</u>

Project Start-up/Completion Dates: November, 1994 to October 1999

Project Duration: <u>5 Years</u>

Geographic Area: Port Graham/Nanwalek area; Tatitlek area

Contact Person: David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; Phone 243-855; Fax 243-1183

### Introduction

This project will establish the procedures and begin the process of restoring local clam populations for subsistence use in the Nanwalek/Port Graham area and in the Tatitlek area. Clams were once a major subsistence food in these communities, but the local clam populations have been decreasing to very low levels in recent years and their contribution to the subsistence harvest has been greatly reduced.

There are probably several reasons why local clam populations are currently at low levels. These include changes in current patterns and beach configurations resulting from the 1964 earthquake, increasingly heavy sea otter predation and the Exxon Valdez oil spill.

The oil spill impacted the wild clam populations and their importance as a subsistence food in two ways. First, many clam beds suffered from direct oiling. The impact of the oil on the clam beds in Windy Bay, for instance, destroyed one of the most productive clam beds in the lower Kenai Peninsula. Second, even though some shellfish weren't killed from the oil, they have a tendency to accumulate, concentrate and store the toxic contaminants from non-lethal amounts of oil. This has badly eroded the confidence of the villagers in the healthfulness of the remaining wild clam populations as a subsistence food.

One of the main problems with clam enhancement in Alaska has been the availability of a sufficient supply of seedstock. The Qutekcak Native Tribe of Seward is developing a shellfish hatchery that is currently focusing on providing Pacific oyster seed for the Alaskan aquatic farming industry. The hatchery has also been working to develop the technology for producing clam seedstock and is currently working on the Littleneck clam. This clam has never before

been produced in a hatchery. However, the hatchery staff has been able to bring small batches of Littleneck clams through the most critical stage of development and it seems certain that the techniques for successfully producing Littleneck clam seedstock in the hatchery can be developed. In addition to Littleneck clams the hatchery will soon will doing seedstock development work on Butter clams. A major part of this project will be enabling the Qutekcak hatchery to provide the needed quantities of seedstock for developing populations of clams near the Native villages.

### **Project Need**

This project will provide the villages of Nanwalek, Port Graham and Tatitlek with an easily accessible source of clams for subsistence use. These clams will also be afforded some measure of protection against sea otter predation. With the wild clam populations at a low ebb, the questionable safety as a food source of those that remain in addition to the heavy sea otter predation that these clams are now subjected to, the need to develop safe, protected sources of clams for the villages is greater than ever. If this project is successful it will enable the villages to develop their own supplies of this traditional subsistence food.

### **Project Design**

The goal of this project is to provide the villages of Nanwalek, Port Graham and Tatitlek with a reliable, local source of clams for subsistence use. It is felt that this goal can be achieved if the project objective of placing under cultivation a combined total of approximately two hectares of clams can be met.

There are two aspects to this project. One is producing clam seed in the hatchery and the other is placing the seed in grow-out systems in intertidal areas near the villages. The technology for both these aspects is well understood and can be readily applied to this project. However, in order to get the project up and running, it will be necessary to spend the first year working with state and federal agencies identifying and permitting acceptable grow-out sites and systems. Field crews will be needed from the villages for survey and inventory work on the proposed sites that will likely be required by the permitting agencies. In addition, procedures will need to be developed at the hatchery to produce around 250,000 six millimeter seed annually.

During the second through fifth years of the project village crews will be hired to install growout systems in permitted intertidal areas and seed them in. Grow-out systems will be installed and seeded on approximately 0.5 hectares each year. The following are the annual objectives for the project:

#### Year 1

Work with state and federal agencies to identify and get permitted a combined total of approximately 2 hectares of intertidal area near the villages of Port Graham, Nanwalek and Tatitlek for clam seeding.

# Nanwalek/Port Graham/Tatitlek Clam Restoration Project

Expand clam production at the Qutekcak Shellfish Hatchery to 250,000 six millimeter seed annually.

# Year 2 through 5

Install grow-out systems on a combined area for the Port Graham, Nanwalek and Tatitlek villages of approximately 0.5 hectares per year with a capacity of approximately 250,000 six millimeter seed.

Determine the growth rates and survival of clams in the grow-out areas.

Determine the efficacy of various types of passive predator control measures such as fabric and wire mesh covers, bird netting and rack and bag culture.

## Schedule

The hatchery work will run the year round. The field season will run from late April to the end of October. Reports will be done quarterly with the annual report issued in January.

# Technical Support

Technical assistance will be needed in the hatchery operations, collecting data on growout sites, setting up field trials and in testing clams for contamination.

#### **Location**

The Qutekcak shellfish hatchery is in Seward. Field work will take place in the Port Graham/Nanwalek area and in the Tatitlek area.

### **Project Implementation**

This project will be implemented by the Chugach Regional Resources Commission, a Native Consortium made up of the five villages and two Native associations in the Chugach region, concerned with natural resource conservation and development.

# Coordination

Technical assistance and services will be obtained from private contractors, the Chugach Regional Resources Commission (CRRC), the Alaska Department of Fish & Game (ADF&G), the Alaska Department of Natural Resources (DNR) and the Alaska Department of Environmental Conservation (DEC).

# Personnel

Technical assistance with project development and implementation will be primarily provided by David Daisy and Jeff Hetrick. Mr. Daisy, formally a program manager with the ADF&G fisheries enhancement program, has many years experience in Alaska with fisheries project development and implementation. Mr. Hetrick also has many years experience with fisheries enhancement projects in Alaska. He has been extensively involved with the development of the Native aquaculture farms in Prince William Sound and has been working with the Qutekcak shellfish hatchery staff in developing the clam culture techniques.

| Item                |                                      |             | Esti     | imated   | Cost            |          |
|---------------------|--------------------------------------|-------------|----------|----------|-----------------|----------|
|                     |                                      | FY 95       | FY 96    | FY 97    | FY 98           | FY 99    |
| Personnel           |                                      | \$21.5      | \$66.4   | \$68.7   | \$71.1          | \$73.6   |
| Travel              |                                      | \$4.2       | \$7.2    | \$7.4    | · <b>\$7.</b> 9 | \$8.0    |
| Contractual         |                                      | \$135.0     | \$103.0  | \$106.5  | \$110.3         | \$114.2  |
| Commodities         |                                      | \$5.5       | \$27.0   | \$28.0   | \$28.9          | \$30.0   |
| Equipment           |                                      | \$21.0      | \$15.0   | \$15.0   | \$15.0          | \$15.0   |
| Indirect            |                                      | \$21.1      | \$26.2   | \$27.1   | \$28.1          | \$29.0   |
|                     | Totals                               | \$ 208.3    | \$ 244.8 | \$ 252.7 | \$ 261.3        | \$ 269.8 |
|                     |                                      |             |          |          |                 |          |
| FY 95 Budget Detail |                                      |             |          |          |                 |          |
| Personnel           |                                      |             |          |          |                 |          |
| 9 mm @ \$13.        | 80/hr sa                             | lary & ber  | nefits   |          |                 | \$21.5   |
| Travel              |                                      | •           |          |          |                 |          |
| Village/CRRC        | C/Hatche                             | ery staff m | eeting   |          |                 | \$4.2    |
| Contractual         | Contractual                          |             |          |          |                 |          |
| Enabling hatc       | Enabling hatchery to produce 250,000 |             | \$8      | 5.0      |                 |          |
| clam seed           | clam seed                            |             |          |          |                 |          |
| Permitting/tec      | Permitting/technical assistance      |             |          | \$5      | 0.0             | \$135.0  |
| Commodities         | Commodities                          |             |          |          |                 |          |
| Field & safety      | gear fo                              | r 7 crew    |          | \$       | 3.5             | e.       |
| Sampling gear       | r                                    |             |          | \$       | 1.5             |          |
| Misc.               |                                      |             |          | \$       | 0.5             | \$5.5    |
| Equipment           |                                      | •           |          |          |                 |          |
| 2 workboats (a      | æ \$10.5                             |             |          |          |                 | \$21.0   |
| Indirect Costs      | -                                    |             |          |          |                 | \$21.1   |
|                     |                                      |             |          | То       | tal             | \$ 208.3 |

### Budget

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Project # 95133 (revised) 9/15

Project Title: English Bay River Sockeye Salmon Subsistence Project

Project Leader: Carol Kvasnikoff

Lead Agency: Nanwalek Traditional Council - Sockeye Development Team

Cost of Project: FY 95 - \$128.9; FY 96 - \$126.0; FY 97 - \$168.4

Project Start-up/Completion Dates: March, 1995 to November, 1997

Project Duration: <u>3 Years</u>

Geographic Area: English Bay Lake system

Contact Person: David Daisy; 3936 Westwood Drive, Anchorage, AK 99517; Phone 243-8544; Fax 243-1183

# Introduction

This project will assist in the effort to build the English Bay sockeye salmon run back to historic levels. The sockeye salmon return to the English Bay River near the villages of Nanwalek and Port Graham was once a primary source of subsistence and cash for the villagers. Over the past 12 years or so the returns have been dropping steadily from the 30,000 range to the current 5,000 range. This has resulted in a complete closure of both the subsistence and the commercial fishery.

The EVOS clean-up effort had a negative impact on the English Bay sockeye. Boom deployment during the early phases of the clean-up trapped a large number of outmigrating sockeye smolt in the boom curtain on the ebbing tides causing high levels of mortality. This, plus the negative impact on other subsistence resources in the area by the spill and the basic health concern that the villagers have with eating fish and marine plants from the spill area, has put emphasis on the need to build the English Bay sockeye return back up to a level that will support heavy subsistence use and a revived commercial fishery.

Studies were undertaken in 1990 by the Chugach Regional Resources Commission (CRRC) in cooperation with ADF&G to determine the best approach to increasing the English Bay sockeye return. In was determined that smolt production in the system was the bottleneck to increasing the returns. A BIA grant was obtained in 1991 to conduct a smolt production pilot project employing lake pen rearing techniques. Eggs were taken from the English Bay sockeye return, incubated to the fry stage at a state facility, returned to the English Bay system for rearing to presmolt in net pens and released into the system in the late fall for outmigration the following spring. The success of this effort lead to a five year grant from the Alaska Science & Technology Foundation to further develop and expand the project.

### English Bay River Sockeye Subsistence Restoration Project

Around 35 tags were recovered this year from returning adults from the 1991 pilot project. Although there isn't enough information available at this point to determine survival rates, the feasibility of the project has been established. If the project can be made successful over the long run it will be a cost effective method of providing a safe, reliable and badly needed supply of salmon to meet the subsistence and economic needs of the Nanwalek and Port Graham villages.

This project complies with all state policies governing salmon enhancement activities including disease and genetics. It is designed to become self-sustaining beyond the development stage which, if the project remains on schedule, will be completed at the end of the 1997 season. However, additional funds are needed to fully develop the project and keep it on schedule.

### **Project Need**

This project will provide the villages of Nanwalek and Port Graham with the means to increase the local sockeye run. In the past this run has been a vital part of the economic and social fabric of these communities. With the safety and availability of other fisheries resources in the area in doubt, the need to restore and enhance this sockeye run is more important than ever. This resource has the potential of providing these villages with a safe and reliable supply of a traditional subsistence food.

### **Project Design**

#### Project Goal:

The goal of this project is to develop a self sustaining enhancement program that will increase the annual English Bay sockeye salmon return to a level that will again support the subsistence and commercial fisheries.

#### Project Objective:

The project objective is the increase the sockeye run to the English Bay River system through a program of producing sockeye smolt from fry reared in pens in the English Bay River system.

#### Annual Objectives:

In 1995, 1996 and 1997 take 1.2 million English Bay sockeye eggs each year for incubation at the Port Graham Hatchery.

Transfer the resultant fry from the Port Graham hatchery to net pens in the English Bay lakes for rearing to at least eight grams and release into the system just before freeze-up.

Count the number of smolt leaving the system each year and the number of adults entering it. Collect pertinent information from any tagged fish.

Do an acoustic survey of the English Bay system, after the annual smolt outmigration is over, to determine the biomass of hold-over smolt.

# Schedule:

The field season runs from April to the end of November each year. The smolt outmigration takes place from early May through June; the pen rearing operation runs from early June to just before freeze-up; the eggtake occurs in August and the acoustical survey is done in late July. Reports are done quarterly with the annual report issued in January.

### Technical Support:

Technical assistance is needed in fish culture, tags analysis and the acoustical surveys.

#### Location:

The English Bay Lake system.

### **Project Implementation**

This project will be implemented by the Nanwalek Sockeye Development Team, an arm of the Nanwalek Traditional Council.

### Coordination

Technical assistance and services are being provided by the Chugach Regional Resources Commission (CRRC) and the Alaska Department of Fish & Game (ADF&G).

#### Personnel

Assistance with program development and implementation is being provided by David Daisy of CRRC. Mr. Daisy, formerly a program manager with the ADF&G fisheries enhancement program, has many years experience in Alaska with fisheries project development and implementation. Thomas Kohler is under contract to CRRC to provide technical training and general field oversight for the program. Mr. Kohler, formerly a fisheries biologist with the ADF&G fisheries enhancement program, has several years of varied experience in Alaska with fisheries enhancement program. ADF&G fisheries enhancement program, has several years of varied experience in Alaska with fisheries enhancement projects. CRRC is also providing the project with accounting services. ADF&G is providing technical assistance in fish culture, tag analysis and limnology work.

# Budget

This project will fund only a portion of the total English Bay Sockeye Salmon Enhancement Program budget. The following are those items from the total program budget that will be funded by this project.

| Item                   |          | Estimated Cost |          |
|------------------------|----------|----------------|----------|
|                        | FY 95    | FY 96          | FY 97    |
| Personnel              | \$37.3   | \$39.2         | \$41.1   |
| Travel                 | \$4.5    | \$4.7          | \$5.0    |
| Contractual            | \$37.0   | \$25.0         | \$27.0   |
| Commodities            | \$17.0   | \$18.0         | \$19.0   |
| Equipment              | \$7.5    | \$11.3         | \$47.0   |
| General Administration | \$26.5   | \$27.8         | \$29.3   |
| Totals                 | \$ 129.8 | \$ 126.0       | \$ 168.4 |

10 roject # 95134 (ravied) 9/15

Project Title: Chenega Bay Mariculture Development Project

Project Leader: Gail Evanoff

Lead Agency: Chenega Bay IRA Council

Cost of Project: FY 95 - \$184.3; FY 96 - \$77.5; FY 97 - \$75.5

Project Start-up/Completion Dates: October, 1994 to September, 1997

Project Duration: <u>3 years</u>

Geographic Area: Sawmill Bay, Prince William Sound

David Daisy, 3936 Westwood Drive, Anchorage, AK 99517; Contact Person: phone 243-8544, fax 243-1183

### Introduction

This project is intended to provide a long term source of subsistence food for the residents of Chenega Bay. It will provide a means for the villagers to maintain their traditional lifestyle in the face of increased and sometimes conflicting use of this area of the Chugach region. There are several advantages to developing shellfish culture operations for subsistence use. First, the operation can be located close to the village, making collecting this food a relatively easy operation. Second, the level of production can be adjusted to any size needed. Third, because it can be well located and adjusted to produce any volume needed, a shellfish culture operation is an ideal mechanism for taking subsistence harvest pressure off of injured resources giving them a chance to recover. Fourth, shellfish culture has minimal impact on the environment.

The project was initiated in 1992, has already gone through feasibility testing, and has now reached the point where a capital outlay and market development are needed to enable it to become self sufficient. Continued technical assistance with the project is also needed.

#### **Project Need**

This project is needed to replace lost subsistence resources and economic opportunities and provide the village with a means to develop a local bivalve resource in a manner that provides some level of protection against future man-made disasters such as EVOS. The oil spill amply demonstrated how vulnerable the local marine resource are to disasters such as the oil spill. As well as being an efficient way of utilizing the local marine environment, the mariculture techniques that will be utilized in this project will allow

#### Chenega Bay Mariculture Project

steps to be taken to protect the shellfish that are under culture from the effects of disasters such as EVOS.

# **Project Design**

### Objectives:

Obtain processing and culture equipment that will make the project more efficient and allow it to become self sustaining. This equipment includes a workboat, an efficient anchoring system, a processing facility and processing equipment.

Make the growing and processing operation more efficient.

Develop a marketing plan for the cultured oysters that will maximize the return so that the number of oysters needed for cost recovery is minimized.

#### Methods:

The shell of the processing facility is already in place. All that is needed is for the interior to be finished to meet health specifications and to be connected to water and electricity. The improved anchoring system design has been developed as have the specs for the processing equipment and workboat.

### Schedule:

The processing shed will be finished off as soon as funds are available and water and electricity connected as soon as the ground is thawed. The workboat and processing equipment specifications have already been developed and will be ordered as soon as funds are available. Making the project more efficient will continue through 1997 under the guidance of a mariculture expert. A marketing consultant will be contracted in the spring of 1995 to help develop the marketing plan.

#### **Technical Support:**

Mariculture expert, marketing expert.

#### Location:

The project will take place near the village of Chenega Bay.

### **Project Implementation**

The Chenega Bay IRA Council will be primarily responsible for the project with assistance from the Chugach Regional Resources Commission (CRRC).

# **Personnel Qualifications**

The Chenega Bay IRA Council has been involved with the mariculture project since it began in 1992. CRRC has been providing administrative assistance. Jeff Hetrick of Alaska Aquafarms, Inc. will continue to provide training and technical guidance. Mr. Hetrick has extensive experience in mariculture development in Alaska. A marketing expert has yet to be identified.

# Budget

This project will fund only a portion of the total mariculture budget. The following are those items from the budget that will be funded by this project,

| Item                   |          |         |              |
|------------------------|----------|---------|--------------|
|                        | FY 95    | FY 96   | FY 97        |
| Personnel              | \$37.5   | \$37.5  | \$37.5       |
| Travel                 | \$6.0    | \$6.0   | \$6.0        |
| Contractual            | \$23.3   | 12.0    | 10.0         |
| Commodities            | \$15.0   | \$15.0  | \$15.0       |
| Equipment              | \$85.5   | \$0.0   | \$0.0        |
| General Administration | \$17.0   | \$7.0   | <b>\$7.0</b> |
| –<br>Total             | \$ 184.3 | \$ 77.5 | \$ 75.5      |

Project # 95138 (revused) 9/15

# Elders/Youth Conference on Subsistence and the Oil Spill

| Project Number:          | 95138                                                                              |
|--------------------------|------------------------------------------------------------------------------------|
| Restoration Category:    | General Restoration (new)                                                          |
| Proposed by:             | ADFG                                                                               |
| Cost FY 95:              | \$0                                                                                |
| Cost FY 96:              | \$85,800                                                                           |
| Total Cost:              | \$85,800                                                                           |
| Duration:                | 1 year                                                                             |
| Geographic Area:         | Prince William Sound, Lower Cook Inlet, Kodiak Island Borough,<br>Alaska Peninsula |
| Injured Resource/Service | Subsistence                                                                        |

#### INTRODUCTION

The goal of this project is to promote the recovery of injured natural resources and subsistence uses of natural resources through a conference that would involve elders, youth, and other representatives of spill area communities as well as selected scientists involved in spill area research. Conference goals would focus on the role of traditional knowledge in informing people about the spill's effects on natural resources and subsistence uses, in order to contribute to the recovery of injured natural resources. Through a contract, a facilitator would be responsible for organizing the conference, including designing an agenda and a structure for the conference. The conference would be videotaped. Conference proceedings would be published and a video produced. Both of these products would serve as educational tools to further the recovery of natural resources and subsistence uses through the reintegration of subsistence uses, traditional knowledge, and values into community life.

### NEED FOR THE PROJECT

Subsistence uses of natural resources are essential to the economies and ways of life of communities of the oil spill area. After the spill, these uses were severely disrupted due to natural resource injuries and concerns about the safety of using subsistence foods that may have been contaminated by oil. Because of these reduced subsistence uses, opportunities to teach subsistence skills and traditional knowledge have also been diminished. As noted in the draft Oil Spill Restoration Plan, "the more time users spend away from subsistence activities, the less likely they will return to it" (p 32). The restoration strategy for subsistence, as presented in the draft plan (pp. 32-33), has four parts, including an objective "to accelerate recovery of subsistence resources and services." One means to achieve this goal is "through increasing availability, reliability, or quality of subsistence resources, or increasing the confidence of subsistence users."

Increasing the availability of subsistence resources and the confidence of subsistence users may be achieved by a gathering of knowledgeable individuals (including elders) and young people in order to identify the natural resource injuries and other problems raised by the spill and the means to address these issues. They could be joined by a limited number of scientists who are engaged in spill-related research. The conference would draw upon traditional knowledge and the experience of community residents in facing past crises. A goal would be to share

observations about natural resources in the spill area and recommend activities that could assist people in understanding the present conditions of these resources and in contributing to their recovery. There has been no similar opportunity for the communities of the spill area which depend upon the natural resources for subsistence to discuss their common experiences, concerns, knowledge, and plans as proposed for this conference.

The Draft *Exxon Valdez* Oil Spill Restoration Plan (p. 33) states that, regarding subsistence, "one indication that recovery has occurred is when the cultural values provided by gathering, preparing, and sharing food are reintegrated into community life" (p. 33). The conference will contribute to this goal through the discussion and dissemination of traditional knowledge about resource conservation and subsistence uses, and about the common experiences shared by subsistence users since the spill. This would compliment the work done under the Subsistence Foods Testing Projects (93017 and 94279), which has principally involved bringing scientific information to subsistence users. Additionally, this project will assist with the restoration of subsistence will provide a picture of the present status of subsistence and natural resources, which may in turn be used to direct future restoration actions.

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### **PROJECT DESIGN**

#### A. Objectives

Objectives include participation by representatives of communities of the oil spill area in a conference, during which injured natural resources and subsistence uses are identified and discussed. Means to assist in the recovery of these resources and uses will be identified. Written conference proceedings and a video which summarize the conference and its findings and recommendations will also be produced and distributed.

#### 2. Methods

A professional services contract will be awarded to design the conference agenda and serve as the conference moderator. The contractor will consult with spill area communities as appropriate to set the agenda. The contractor will also be responsible for preparing the conference proceedings. A separate contract will be awarded to video tape the conference and produce a video presentation of the conference (see below)

Among the potential topics for discussion are:

1. What has been the common experience of subsistence users of spill-area communities since the oil spill? What has been lost? What has been gained? Are there differences between regions?

2. Is there traditional knowledge available to inform subsistence users and others about the spill's effects on natural resources? How can traditional knowledge and skills be used to assist in the recovery of injured resources? Possible topics include identification of alternative resources, traditional conservation methods, and efficient harvest and processing techniques.

3. Is there traditional knowledge available to inform subsistence users about the spill's effects on the safety of subsistence foods?

4. What actions need to be taken by communities to re-invigorate subsistence uses? Are there particular skills and knowledge which need to be emphasized?

5. How have people of the spill area dealt with disasters in the past? What can we learn from those experiences?

6. Given what we have learned, how can communities prepare for the possibility of future disasters and threats to subsistence?

7. How can the exchange of information about injured resources between communities, agencies, and scientists be facilitated in the future?

The conference will be video-taped and audio-taped. A proceedings volume will be prepared. A summary video, approximately 30 minutes in length, will also be produced to present the conference highlights and recommendations. A full video of the conference could be made available for viewing upon request. It is intended that the proceedings and video be used as educational tools to promote an exchange of information and to strengthen subsistence traditions that have been weakened since the spill.

The conference would last one or two days. Each community of the spill area (approximately 20 communities) would nominate one elder, two students (high school or college aged), and one additional representative. The exact format for the conference would need to be determined by the contractor after consultation with the communities. It would likely entail several formats, including but not limited to formal presentations, panel discussions, round tables, and question/answer periods. Participants will be encouraged to report back to their communities about the conference. This could take form of school papers and oral presentations, and community meetings and contributions to newsletters.

#### C. Schedule

October 1994: November 1994 December - February 1995 March 1995 April- June July - August September 1995 project approval develop contract guidelines, evaluate bids, award contract conference planning conference production of conference proceedings and videos distribution of materials complete project final report

#### **D.** Technical Support

None required

#### E. Location

The proposed conference will take place in Anchorage, primarily because of its centralized location. If feasible in terms of cost and facilities, an alternative location can be considered.

#### **PROJECT IMPLEMENTATION**

The Division of Subsistence of the Alaska Department of Fish and Game could coordinate the implementation of this project. This would entail preparing contract proposals for competitive bids, evaluating proposals, and monitoring the performance of the contractors. The division would also handle the logistics of the conference, including meeting facilities and participants' travel and accommodations. An alternative is to contract these coordination functions to a regional organization or coalition of communities with appropriate administrative resources. In either case, professional services contracts (or subcontracts) would be awarded to design the conference, prepare the proceedings, video tape the conference, and produce an informational video which summarizes the conference findings.

### COORDINATION OF INTEGRATED RESEARCH EFFORT

Information about the status of injured natural resources and potential means towards recovery based upon scientific studies should be integrated into the conference. Conference findings, including observations by subsistence harvesters of natural resource populations, will be available for use by other researchers through written conference proceedings and video tapes. Other proposed subsistence restoration projects (e.g. 95244, "Seal and Sea Otter Cooperative Harvest Assistance; 95428, "Subsistence Planning") also have public information components that will benefit from the information which is shared through the conference and its resultant products. This project would compliment the work done under the Subsistence Foods Testing project (93017, 94279, and 95279).

### FY 95 BUDGET (\$K)

| \$16.3 |
|--------|
| 44.4   |
| 21.0   |
| 0.2    |
| 0.0    |
| 81.9   |
| 3.9    |
| \$85.8 |
|        |