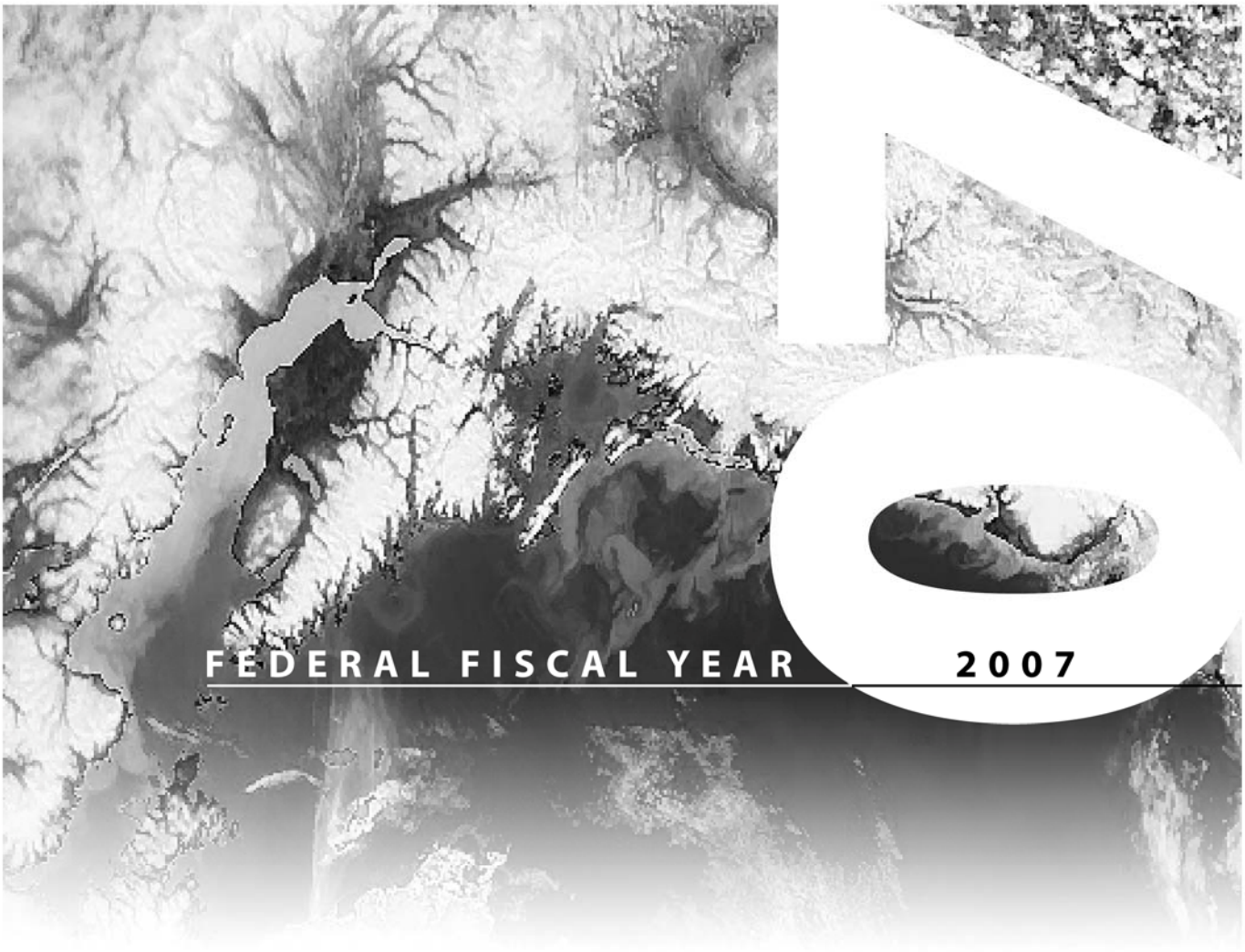
***EXXON VALDEZ* OIL SPILL TRUSTEE COUNCIL**



DRAFT WORK PLAN

Issued October 2, 2006
Revised February 28, 2007

Exxon Valdez Oil Spill Trustee Council
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FISCAL YEAR 2007

DRAFT WORK PLAN

October 2, 2006
Revised February 28, 2007

Prepared by:
Exxon Valdez Oil Spill Trustee Council

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Notice

The abstract of each proposal submitted in response to the FY07 Invitation for Proposals was written by the authors of the proposals to describe their projects. To the extent that the abstracts express opinions about the status of injured resources they do not represent the views of the Executive Director, the Science Director or other staff of the *Exxon Valdez* Oil Spill Trustee Council, nor do they reflect policies or positions of the Trustee Council.

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Dear Reviewer,

Each year, the *Exxon Valdez* Oil Spill Trustee Council funds activities to restore the resources and services injured by the 1989 *Exxon Valdez* oil spill. Public input is critical to the Council's decision making process and this draft work plan has been prepared to solicit your comments on which projects to fund in Fiscal Year 2007.

In 2006, the Council recognized that a tremendous amount of work had been accomplished over 12 years of research, monitoring and specific activities directed at addressing the restoration and rehabilitation goals of the 1994 Restoration Plan (www.evostc.state.ak.us/Policies/restplan.htm). However, the Council determined that results of previous efforts needed synthesis in order to better understand the effects of lingering oil and to evaluate the status of injured resources and services. They decided to realign priorities and restorative activities, placing focus on critical work required to reach closure in areas of restoration related to lingering oil and injured resources. The Council's priorities are outlined in the Interim Guidance Document (IGD), www.evostc.state.ak.us/Policies/igd.htm.

In this Draft Work Plan, the Trustee Council has endorsed a comprehensive, balanced approach to the restoration of injured resources and services which is reflected in this draft work plan. This approach recognizes the importance of research to determine why resources are not recovering, or are recovering slowly, and recognizes the need for monitoring to track the status of recovery. It provides for cost effective general restoration activities, especially those that help the resources upon which communities and industries depend.

Several resources in the Sound continue to be affected by the spill and have been monitored closely by the Council. While the 1994 Restoration Plan establishes a plan for the restoration of all injured resources and services in the Sound, the current critical status of the Pacific herring requires immediate attention. The Council has identified the need for a comprehensive herring restoration program that will help re-establish the declining herring population in Prince William Sound for use by both the commercial fisheries and local subsistence communities.

Herring are an important component of the Sound ecosystem, both ecologically and commercially. Herring were initially impacted by the oil spill, and the Council has continued to classify them as a non-recovering injured resource. Pacific herring are an essential part of the marine food web in the Sound and provide food for birds, marine mammals and invertebrates. Moreover, herring have been fished commercially for food, bait, sac-roe and spawn-on-kelp. The fishery in the Sound collapsed in 1993, four years after the spill, and since then a consistent fishery has not been sustainable. Because herring are a forage fish for many other species, it is speculated that the decline of herring has also had deleterious effects on other animals that depend on them for food. The Council appreciates the dire situation of PWS herring and the ecological and human impact caused by their decline. Therefore, the Council has committed to develop a long-term Herring Recovery Plan and implement enhancement activities with the ultimate goal of assisting herring recovery in the Sound. A restoration planning effort will begin in late 2006. This collaborative planning process will include subsistence-resource users, government agency representatives, non-governmental organizations (NGO), commercial

fishermen, scientists and other stakeholders. The Recovery Plan will define critical decision pathways needed to make progress in herring recovery and provide a structure for evaluating and assessing decisions and actions as the recovery effort progresses.

Also, the Trustee Council's commitment to community involvement in the restoration process remains strong. Projects that involve local youth in ongoing restoration and monitoring activities and projects that proposed to enhance subsistence resources injured by the spill were recommended for continued funding. An Environmental Education/Committee Outreach Committee has been formed to develop an inclusive educational outreach plan that will help bring together the EVOSTC scientists and the effected communities in the Oil Spill Region. The Committee consists of EVOSTC Public Advisory Committee (PAC) members, community outreach specialists, teachers, and administrators.

The goal of the committee is to craft an educational outreach program that compliments the science curriculum of schools in the Oil Spill Region and allows students of all ages to participate in ongoing research being conducted by EVOSTC researchers or to engage in their own projects relevant the injured resources and services of the EVOS Restoration program. Allowing students to participate in the research projects will strengthen their sense stewardship, scientific and ecological knowledge of their communities and give them the opportunity to see first hand how their daily decisions make an impact on their environment.

The following draft work plan contains proposal information and funding recommendations for proposal received in response to the Trustee Council's FY07 Invitation for Proposals. I am interested in your thoughts and ideas in regard to this draft work plan, as well as our restoration plan in general. Comments on this draft work plan need to be received at the Trustee Council office by COB **February 13, 2007**. Please see the "Please Comment" section prior to the Table of Contents for more information regarding how to submit comments.

Sincerely,

Michael Baffrey
Executive Director

PLEASE COMMENT

You can help the Trustee Council by reviewing this draft work plan and letting us know your priorities for Fiscal Year 2007. To be most useful, your comments should be received by the Council on or before October 31, 2006. You can comment by:

Mail:	Exxon Valdez Oil Spill Trustee Council 441 W. 5th Avenue, Suite 500 Anchorage, AK 99501 Attn: Draft Fiscal Year 2007 Work Plan
Telephone:	1-800-478-7745 (within Alaska) 1-800-283-7745 (outside of Alaska) Collect calls will be accepted from fishers and boaters who call through the marine operator.
Fax:	907-276-7178
E-mail:	projects@evostc.state.ak.us

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Acknowledgements

We are pleased to acknowledge Trustee Council staff members Carrie Holba, Michael Schlei, Cherri Womac, Barbara Hannah, Catherine Boerner, and Shane St. Clair whose hard work and dedication made this Draft Work Plan possible. Special thanks to the anonymous scientists who peer reviewed the proposals received this year and thanks also to the principal investigators and their collaborators for giving us so many fine proposals from which to choose in building our program. Many thanks to those scientists from Trustee Council agencies that provided help, and in particular we offer special thanks to Dede Bohn, Carol Fries, Pete Hagen, Hans Neidig, Heather Brandon, Jenifer Kohout, Jennifer Thomson, Larry Dietrick, and Steve Zemke. We also owe our thanks for their expert program guidance and peer review efforts to the members of the Science Panel (Steve Braund, Ron O'Dor, Gary Cherr, Tom Dean, Robert Spies, Charles (Pete) Peterson and Leslie Holland-Bartels).

Michael Baffrey, Executive Director

Kimberly A. Trust, Science Director

Overview of the FY07 Work Plan

The Draft Work Plan comprises multi-year projects submitted in previous years which have received continuous funding by the Trustee Council and new proposals received in response to the FY07 Invitation for Proposals. This document allows the Council to review the projects proposed for fiscal year 2007, and the funding requested to implement the proposed work. The Draft Work Plan contains basic information about an individual proposal and its complete record of funding recommendations during the review process. The Draft Work Plan will be continually updated to include more funding recommendations as they become available.

Information on 52 proposals is contained in this FY07 Draft Work Plan. Additional proposals were deferred for review at a later date and information on these proposals will be contained in an addendum to this Draft Work Plan.

The total requested FY07 funding for the 52 proposals contained in this Draft Work Plan is $100,603,827 and the total funding approved by the Trustee Council for FY07 only is $7,819,922. An additional $2,2665,900 was approved for FY08-FY11 for several multi-year projects. These projects will be reviewed on an annual basis and funding will be released only upon receipt of an annual report and a scientific review of project objectives.

The Trustee Council has an open, competitive contracting process that is designed to allow proposals from any source to be considered for funding as an external project. The system works well for this purpose as demonstrated by the fairly even distribution of funding across the home institutions of the principal investigators of external projects.

Continuing Projects in FY07

Project #	PI Name	Project Title (abbr.)	FY07 Funding	First Year Funded
040699	Cokelet	AK Marine Highway System Ferries	$36,475.00	FY04
050743	Baird	Connecting with Coastwalk	$11,900.00	FY05
050749	Hoover-Miller	Harbor Seal Monitoring	$82,300.00	FY05
050742	Matkin	Killer Whales in PWS/Kenai Fjords	$23,800.00	FY05
050769	Otis	Temporal Stability of Fatty Acids	$25,100.00	FY05
050763	Short	Monitoring of Anthropogenic Hydrocarbons	$58,900.00	FY05
050765	Willette	Salmon Smolt Monitoring	$67,000.00	FY05
FY07 Continuing Project Funding Total			**$305,475.00**	

New Projects in FY07

Project Number	Principal Investigator	Project Title (abbr.)	FY07 Funding	FY08 Funding	FY09 Funding	FY10 Funding	FY11 Funding	FY12 Funding
070808	Ballachey	Sea Otter Recovery and Nearshore Synthesis	$154,000.00	$97,700.00	$0.00	$0.00	$0.00	$0.00
070624	Batten	Acquisition of Continuous Plankton Recorder data	$135,400.00	$0.00	$0.00	$0.00	$0.00	$0.00
070782	Bickford	Herring Restoration: Identifying Natal and Nursery Habitats	$122,700.00	$134,600.00	$77,700.00	$0.00	$0.00	$0.00
070814	Bishop	Seabird Predation on Juvenile Herring in PWS	$197,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
070750	Bodkin	Database Development for Long Term Monitoring of Nearshore Resources	$135,300.00	$0.00	$0.00	$0.00	$0.00	$0.00
070816	Esler	Evaluating Harlequin Duck Population Recovery	$177,800.00	$23,900.00	$0.00	$0.00	$0.00	$0.00
070100	EVOS Administration	EVOS Administration	$2,204,747.00	$0.00	$0.00	$0.00	$0.00	$0.00
070817	Gay	Factors Affecting Productivity in Juvenile Pacific Herring Nursery Habitats	$71,400.00	$0.00	$0.00	$0.00	$0.00	$0.00
070819	Hershberger	PWS Herring Disease Program	$246,500.00	$257,100.00	$258,600.00	$272,800.00	$0.00	$0.00
070751	Irons	PWS Marine Bird Surveys, Synthesis and Restoration	$191,200.00	$0.00	$0.00	$0.00	$0.00	$0.00
070810	Kiefer	Ecosystem Model of PWS Herring	$250,800.00	$250,800.00	$250,800.00	$0.00	$0.00	$0.00
070811	Kline	PWS Herring Forage Contingency	$262,000.00	$0.00	$0.00	$0.00	$0.00	$0.00
070805	Lindeberg	ShoreZone Mapping for PWS	$237,900.00	$322,300.00	$0.00	$0.00	$0.00	$0.00
070821	Linley	Culture Technology to Support Restoration of Herring in PWS	$92,700.00	$0.00	$0.00	$0.00	$0.00	$0.00
070742	Matkin	Killer Whales in PWS/Kenai Fjords	$99,400.00	$0.00	$0.00	$0.00	$0.00	$0.00
070834	Meuret-Woody	Identification of Essential Habitat for Pacific Herring	$166,400.00	$0.00	$0.00	$0.00	$0.00	$0.00
070801	Michel	Assessment of the Areal Distribution and Amount of Lingering Oil in PWS & GoA	$1,465,500.00	$128,600.00	$0.00	$0.00	$0.00	$0.00
070822	Moffitt	Herring Data and Information Portal	$132,100.00	$0.00	$0.00	$0.00	$0.00	$0.00
070290	Nelson	Hydrocarbon Database	$30,100.00	$0.00	$0.00	$0.00	$0.00	$0.00
070769	Otis	Using Otolith Chemistry to Discriminate Pacific Herring Stocks in AK	$66,400.00	$0.00	$0.00	$0.00	$0.00	$0.00
070804	Rice	Significance of Whale Predation	$197,700.00	$0.00	$0.00	$0.00	$0.00	$0.00

Project Number	Principal Investigator	Project Title (abbr.)	FY07 Funding	FY08 Funding	FY09 Funding	FY10 Funding	FY11 Funding	FY12 Funding
070759	Rosenberg	Harlequin Duck Population Dynamics in PWS	$86,700.00	$0.00	$0.00	$0.00	$0.00	$0.00
070210	Salasky	Youth Area Watch	$104,500.00	$0.00	$0.00	$0.00	$0.00	$0.00
070610	Schneider	Kodiak Archipelago Youth Area Watch	$75,600.00	$0.00	$0.00	$0.00	$0.00	$0.00
070829	Shigenaka	Bioavailability and Effects of Lingering Oil to Littleneck Clams	$239,900.00	$0.00	$0.00	$0.00	$0.00	$0.00
070830	Thorne	Trends in Adult and Juvenile Herring Distribution and Abundance in PWS	$103,400.00	$103,400.00	$226,800.00	$0.00	$0.00	$0.00
070806	Vollenweider	Are Herring Energetics a Limiting Factor	$139,100.00	$0.00	$0.00	$0.00	$0.00	$0.00
070340	Weingartner	Alaska Coastal Current Monitoring	$128,200.00	$131,300.00	$129,500.00	$0.00	$0.00	$0.00
FY07 New Project Funding Totals			**$7,514,447.00**	**$1,449,700.00**	**$943,400.00**	**$272,800.00**	**$0.00**	**$0.00**

Total Approved Funding for Continuing Projects in FY07: $305,475.00

Total Approved Funding for New Projects in FY07: $7,514,447.00

Total Approved Funding in FY07: $7,819,922.00

FY07 Proposal Funding Recommendations and Decisions

Project Number	Principal Investigator	Project Title (abbr.)	Funding Requested	Funding Approved	Science Panel	Science Director	PAC	Executive Director	Trustee Council
070812	Adams	Pacific Herring-Coordination, Compliance, and Rapid Integration Aid	$252,900.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070807	Allee	Herring Restoration in PWS: Enhancement Workshop	$193,100.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070808	Ballachey	Sea Otter Recovery and Nearshore Synthesis	$251,700.00	$251,700.00	Fund	Fund	Fund	Fund	**Fund**
070624	Batten	Acquisition of Continuous Plankton Recorder data	$135,400.00	$135,400.00	Fund	Do Not Fund	Fund	Fund	**Fund**
070782	Bickford	Herring Restoration: Identifying Natal and Nursery Habitats	$335,000.00	$335,000.00	Fund	Fund	Fund	Fund	**Fund**
070813	Bickford	Herring Restoration: Marking Pacific Herring Otoliths	$158,300.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070814	Bishop	Seabird Predation on Juvenile Herring in PWS	$609,200.00	$197,000.00	Fund	Not Reviewed	Do Not Fund	Do Not Fund	**Fund**
070750	Bodkin	Database Development for Long Term Monitoring of Nearshore Resources	$135,300.00	$135,300.00	Fund	Fund	Fund	Fund	**Fund**
070131	Brown-Schwalenberg	Subsistence Clam Enhancement	$79,900.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070828	Brown-Schwalenberg	Quantifying Subsistence Recovery in EVOS Affected Native Alaska	$184,400.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070809	Carls	The Risk of Buried Oil to Fauna	$376,100.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070803	Castellini	Herring Restoration in PWS: Condition Indices	$540,300.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070699	Cokelet	AK Marine Highway System Ferries	$498,800.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070815	Crawford	Characterization of Pacific Herring Nursery Habitat in PWS	$580,600.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070816	Esler	Evaluating Harlequin Duck Population Recovery	$201,700.00	$201,700.00	Fund	Fund	Fund	Fund	**Fund**
070100	EVOS Administration	EVOS Administration	$2,204,747.00	$2,204,747.00	Not Reviewed	Not Reviewed	Not Reviewed	Not Reviewed	**Fund**
070703	Finney	Marine-terrestrial Linkages	$1,442,600.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070817	Gay	Factors Affecting Productivity in Juvenile Pacific Herring Nursery Habitats	$152,700.00	$71,400.00	Fund	Fund	Fund	Fund	**Fund**
070639	Goldman	Monitoring Ecosystem Parameters	$288,100.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070819	Hershberger	PWS Herring Disease Program	$1,035,000.00	$1,035,000.00	Fund	Fund	Fund	Fund	**Fund**
070751	Irons	PWS Marine Bird Surveys, Synthesis and Restoration	$191,200.00	$191,200.00	Do Not Fund	Not Reviewed	Fund	Fund	**Fund**

Project Number	Principal Investigator	Project Title (abbr.)	Funding Requested	Funding Approved	Science Panel	Science Director	PAC	Executive Director	Trustee Council
070708	Irvine	Lingering Oil and the Dynamics of Boulder Armors	$744,000.00	$0.00	Fund Contingent	Do Not Fund	Fund Contingent	Not Reviewed	**Do Not Fund**
070709	Jack	Population Monitoring of Sea Otters in the Exxon Valdez Spill Area	$329,600.00	$0.00	Do Not Fund	Not Reviewed	Do Not Fund	Do Not Fund	**Do Not Fund**
070800	Joyce	Cordova Center	$9,550,800.00	$0.00	Not Reviewed	Not Reviewed	Do Not Fund	Do Not Fund	**Defer**
070810	Kiefer	Ecosystem Model of PWS Herring	$752,400.00	$752,400.00	Fund	Fund	Do Not Fund	Do Not Fund	**Fund**
070811	Kline	PWS Herring Forage Contingency	$773,400.00	$262,000.00	Fund	Fund	Do Not Fund	Do Not Fund	**Fund**
070820	Lauenstein	Assessment of PAHs and Heavy Metals in Subsistence Mollusks	$121,600.00	$0.00	Fund	Fund	Fund	Fund	**Defer**
070805	Lindeberg	ShoreZone Mapping for PWS	$560,200.00	$560,200.00	Fund	Fund	Fund	Fund Contingent	**Fund**
070821	Linley	Culture Technology to Support Restoration of Herring in PWS	$1,400,200.00	$92,700.00	Fund Reduced	Do Not Fund	Do Not Fund	Do Not Fund	**Fund Reduced**
070802	Lohmann	Predicting and Validating the Bioavailability of PAHs from EVOS	$335,500.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070742	Matkin	Killer Whales in PWS/Kenai Fjords	$99,400.00	$99,400.00	Fund	Fund	Fund	Fund	**Fund**
070834	Meuret-Woody	Identification of Essential Habitat for Pacific Herring	$166,400.00	$166,400.00	Fund	Fund	Fund	Fund	**Fund**
070801	Michel	Assessment of the Areal Distribution and Amount of Lingering Oil in PWS & GoA	$1,594,100.00	$1,594,100.00	Fund	Fund	Fund	Fund Contingent	**Fund**
070822	Moffitt	Herring Data and Information Portal	$132,100.00	$132,100.00	Fund	Fund	Fund	Fund	**Fund**
070823	Mullins	Herring Restoration Activity	$3,001,900.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070290	Nelson	Hydrocarbon Database	$30,100.00	$30,100.00	Fund	Fund	Fund	Fund Contingent	**Fund**
070769	Otis	Using Otolith Chemistry to Discriminate Pacific Herring Stocks in AK	$66,400.00	$66,400.00	Fund	Fund	Fund	Fund	**Fund**
070824	Patrick-Riley	Restoration of Beaches with Lingering Oil	$16,416,200.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070825	Pawlowski	Monitoring Lingering Oil and Resources at Risk	$258,800.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070804	Rice	Significance of Whale Predation	$513,500.00	$197,700.00	Fund	Fund	Do Not Fund	Do Not Fund	**Fund**
070759	Rosenberg	Harlequin Duck Population Dynamics in PWS	$86,700.00	$86,700.00	Fund	Fund	Fund	Fund	**Fund**
070827	Rosenberg	Harlequin Duck Oil Exposure	$89,200.00	$0.00	Defer	Defer	Do Not Fund	Do Not Fund	**Do Not Fund**
070210	Salasky	Youth Area Watch	$104,500.00	$104,500.00	Fund Reduced	Fund Reduced	Do Not Fund	Do Not Fund	**Fund**
070610	Schneider	Kodiak Archipelago Youth Area Watch	$75,600.00	$75,600.00	Fund Reduced	Fund Reduced	Do Not Fund	Do Not Fund	**Fund**

Project Number	Principal Investigator	Project Title (abbr.)	Funding Requested	Funding Approved	Science Panel	Science Director	PAC	Executive Director	Trustee Council
070829	Shigenaka	Bioavailability and Effects of Lingering Oil to Littleneck Clams	$239,900.00	$239,900.00	Do Not Fund	Fund	Fund	Fund	**Fund**
070830	Thorne	Trends in Adult and Juvenile Herring Distribution and Abundance in PWS	$433,600.00	$433,600.00	Fund	Fund	Fund	Fund	**Fund**
070831	Thorne	The PWS Herring Ecosystem	$68,100.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070832	Thorne	Modeling Ecological Interactions between Steller Sea Lions and Pacific Herring	$149,200.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070806	Vollenweider	Are Herring Energetics a Limiting Factor	$139,100.00	$139,100.00	Fund	Fund	Fund	Fund	**Fund**
070833	Wang	Herring Restoration in PWS: Modeling Circulation and Larval Transport	$311,580.00	$0.00	Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
070340	Weingartner	Alaska Coastal Current Monitoring	$389,000.00	$389,000.00	Fund	Fund	Fund	Fund	**Fund**
070835	Wright	Salmon Sharks Preying on Aggregated Herring and Salmon in PWS	$439,700.00	$0.00	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund	**Do Not Fund**
Total Funds Requested and Approved			**$100,603,827.00**	**$10,180,347.00**					

Descriptions of FY07 Projects/Proposals

Project Number: 040699

Project Title: **Biophysical Observation Aboard Alaska Marine Highway Systems Ferries**

Principal Investigator: Edward Cokelet

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Alaska Coastal Current, Prince William Sound

Project Type: Continuing

Funding Approved by Fiscal Year:

FY04: $171,500.00	**FY05:** $185,900.00	**FY06:** $145,900.00
FY07: $36,475.00	**FY08:** $0.00	**FY09:** $0.00

Total Funding Approved: $539,775.00

Abstract:

The Alaska Coastal Current flows counterclockwise along the edge of the Gulf of Alaska carrying the river runoff, nutrients and plankton that fuel the productive coastal-marine ecosystem. As seen in satellite images, a strong "chlorophyll front" develops in summer between the nutrient-poor region to seaward and a productive region around Kodiak Island that extends northward to the Kenai Peninsula. Conventional wisdom predicts that the Gulf ecosystem should not be productive because the average wind pattern favors downwelling oceanic conditions that fail to restore nutrients to the sunlit upper layers. The chlorophyll front presents a natural study area over which low and high productivity regions lie in close proximity. The Alaska Marine Highway System ferry M/V Tustumena crosses this front over 280 times each year. We propose to instrument the Tustumena to measure physical and biological oceanographic parameters across the Alaska Coastal Current and in Prince William Sound. This will begin a GEM oceanographic monitoring program in the Gulf that will lead to understanding nutrient replenishment and document ecosystem trends for years to come.

STAC Comments:

This is an excellent response to the GEM request for proposals to use State of Alaska ferries as platforms for collecting environmental observations. It requests a major commitment of funds; however the returns are commensurate with the costs. It should generate a working, robust system and a suite of data from tracks of maximum interest in the GEM target region, the oil spill trajectory. The M/V Tustamena is selected because it makes the maximum number of crossings each year of the ACC. The routes (mostly Kodiak-Homer and Kodiak-Seward) will cross the coastal to oceanic chlorophyll front and salinity gradient. It is proposed to follow, by and large, the recommendations of the PICES 2002 report on engine room instrumentation for VOS. A rather full installation is proposed for the ship's April yard period in 2004. A thermosalinograph to sample at the ship's sea chest is to be purchased and installed and backed up by hull conductance thermometry. Cokelet et al. propose to loan the project fluorometry, transmissometery, colored dissolved matter spectrometry (CDOM) and automated nitrate analysis facilities in the first year, replacing them with project-purchased sensors in later years. Cokelet et al. give evidence of experience dealing with ship operators concerning such installations, a key aspect of such projects worldwide. The STAC recommends that the investigators must accommodate the needs of the AMHS regarding in-ship communication. The proposers need to investigate the status of the meteorologic observations collected by the vessel. A wireless remote system is needed to collect these data. Two revisions are required; the real-time communication and costs should be eliminated from the proposal. The ADCP should be eliminated from this proposal because the information received is not proportional to the cost required. Fund contingent upon revised proposal with reduced instrumentation described above.

STAC Recommendation: Fund Contingent

Science Director Comments:
Not Available

Science Director Recommendation: Not Available

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Not Available

Executive Director Comments:
Agreement in principle has been reached with the AMHS engineering and operations staff concerned and a memorandum of agreement on the specifics of the project is in process. This agreement and project are historic milestones that provide for highly cost effective monitoring of the coastal environment of Alaska. Revised proposal addressed STAC recommendations.

Executive Director Recommendation: Fund

Trustee Council Comments:
Approved at November 10, 2003 TC meeting.

Trustee Council Decision: Fund

Project Number: 050743

Project Title: **Connecting with Coastwalk: Linking Shoreline Mapping with Community-based Monitoring**

Principal Investigator: Steve Baird

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Kachemak Bay

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05:	$28,900.00	**FY06:**	$20,300.00	**FY07:**	$11,900.00
FY08:	$0.00	**FY09:**	$0.00	**FY10:**	$0.00

Total Funding Approved: $61,100.00**STAC**

Abstract:

The project will evaluate and merge citizen-generated biological and human impact data collected over 20 years of an annual Kachemak Bay CoastWalk shoreline survey with high-resolution mapping of the physical structure of the nearshore environment in Kachemak Bay that nests geographically within ShoreZone mapping. Evaluation of data and data collection protocols and the geographic alignment of CoastWalk zones with ShoreZone units and KBRR's shoreline segments will occur during Year 1. Citizen-based data collection efforts aligned with GEM nearshore monitoring SOPs and methods will be pilot-tested in Kachemak Bay. During Year 2, a Kachemak Bay community/scientist workshop will be held to further integrate and synthesize local information into the Kachemak Bay Research Reserve GIS and to apply the GIS results to the selection of nearshore monitoring sites for community-based monitoring. Piloting will continue, with emphasis on involvement of K-12 teachers and students. During Year 3, nearshore monitoring data collection and data management will be further refined and a website and data entry interface developed. This project will advance the development of a community-based nearshore monitoring program for the GEM program.

STAC Comments:

The proposal is recommended for funding. The proposal is responsive to the invitation (shore zone mapping of the nearshore target area, integrate community involvement) and is consistent with GEM strategies (incorporate community involvement and local knowledge) and goals (detect change, provide information to facilitate understanding of causes of change). The project provides a link between nearshore community-based information and long-term monitoring applicable to GEM. The project will build on an existing (19 year) citizen-based, volunteer monitoring program (that is presumably responsive to community concerns) and combine it with a GEM-funded GIS mapping project to assess the utility of this method for future GEM monitoring.

STAC Recommendation: Fund

Science Director Comments:

Concur with the STAC recommendation.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Concur with the STAC and Executive Director recommendations.

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Concur with STAC recommendation. The project is exemplary of exploring cost effective approaches to collecting baseline data in environments that are vulnerable to oil spills.

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 050749

Project Title: **Harbor Seal Monitoring in Southern Kenai Peninsula Fjords**

Principal Investigator: Anne Hoover-Miller

Affiliation: Private Enterprise

Disbursing Agency: ADFG

Project Location: Kenai Penninsula

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05: $97,200.00	**FY06:** $130,300.00	**FY07:** $82,300.00
FY08: $0.00	**FY09:** $0.00	**FY10:** $0.00

Total Funding Approved: $309,800.00

Abstract:

This proposal supports an existing remote video monitoring system in Aialik Bay, a tidewater glacial fjord. This system is used to observe harbor seals in glacial ice habitats and the impacts of vessels on seals. Haulout activity, numbers of seals, vessel impacts on seals, ambient behaviors of undisturbed seals, glacial activity, ice conditions, weather, and other events affecting seals are recorded daily. Seed funding is requested to test prototype digital still cameras at land-based haulouts in Day Harbor for documenting seals in a fjord lacking tidewater glaciers. Integrations of the remote monitoring into GEM; provides ecological measures of conditions at the heads of fjords that will complement long-term oceanographic monitoring in adjacent waters. This study is augmented by ancillary studies and support from the ASLC and National Park Service through a partnership in the Oceans Alaska Science and Learning Center, the University of Alaska, Fairbanks, Alaska National Maritime Wildlife Refuge System, and Port Graham Corporation.

STAC Comments:

The proposal is recommended for funding. The proposal is a good fit with two areas of the Invitation in that it is 1) responsive to Nearshore in developing techniques and SOP for nearshore monitoring in the area of human effects, and 2) it responds directly to needs in lingering oil by linking an injured species to development of the nearshore monitoring program. The proposal also is a good match to the Science Plan, because it addresses an identified gap, measuring the effect of human activities on the nearshore environment. It also proposes to add an important set of physical habitats as yet unaddressed within the Nearshore program, fjords with and without tidewater glaciers. Arguments for the possibility of low cost long-term nearshore monitoring of harbor seal haul out sites and human activities into the GEM program are compelling; however, only testing and experience will provide proof of concept. Technical methods and statistical approaches are straight forward, although the proposed remote still cameras are admittedly experimental. There is very good potential for management application through identifying steps that can be taken to further reduce the impact of vessels on wildlife in the fjords. That the proposal addresses management concerns of the National Park Service and the Port Graham Corporation is evidenced by their collaboration in this work. Community involvement is strong. The proposal speaks to the first two of GEM's five major goals (detect and understand) in that it offers to identify the degree and longevity of perturbations caused by humans on harbor seals within the context of natural variation. It proposes to do so by taking observations on harbor seals and human activities that can be combined with long-standing (i.e. GAK1) and newly developing (i.e. Chiswell mooring, GLOBEC LTOP, NSF (mesoscale) studies and Tustumena ferry box) physical time series in the region. The proposal is strong in that it leverages funds for ongoing monitoring work and personnel and it involves a substantial number of other entities. The personnel are highly qualified local scientists. The STAC expects the data management plan for this project to address digitization of the data, reduction of the data and long-term archiving of the data.

STAC Recommendation: Fund

Science Director Comments:
Concur with the STAC recommendation.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Concur with the STAC recommendation.

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with the STAC recommendation.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 050742

Project Title: **Monitoring of Killer Whales in PWS/Kenai Fjords in 2005-2007**

Principal Investigator: Craig Matkin

Affiliation: Private Enterprise

Disbursing Agency: NOAA

Project Location: PWS, Kenai Fjord

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05: $20,500.00	**FY06:** $22,300.00	**FY07:** $23,800.00
FY08: $0.00	**FY09:** $0.00	**FY10:** $0.00

Total Funding Approved: $66,600.00

Abstract:

This project continues monitoring of the damaged resident AB pod and other resident pods and the petitioned as depleted AT1 transient population into a cooperative program with additional collaborative support from the Alaska Sea Life Center, NMFS and various foundations. Monitoring has occurred on a yearly basis since 1984 and was crucial in evaluating the continuing effects from the oil spill. In addition, the role of killer whales in the nearshore ecosystem and possible effects on sea otters will be examined. Community based initiatives such as Youth Area Watch and tour operator educational programs will be integrated. New techniques such as lipid fatty acid analysis for food habit study and radio tagging will be explored and contaminant monitoring will continue. The proposed work will augment current research directed at transient killer whales (ASLC) and provide for annual monitoring of the AB pod and other resident pods. The project will be integrated with oceanographic monitoring as possible.

STAC Comments:

This proposal is not recommended for funding. It is premature with respect to the development of GEM monitoring programs in the ACC and the nearshore, since it has not been determined how monitoring of higher vertebrates will be accomplished. Other agencies, and particularly National Marine Fisheries Service, appear to have management responsibility for this species. It therefore appears appropriate to other funding sources such as activities associated with implementation of the Marine Mammal Protection Act. This proposal was not recommended for funding by the STAC last year for the same reasons.

STAC Recommendation: Do Not Fund

Science Director Comments:

The GEM Program was structured around four habitat types (Watersheds, Nearshore, Alaska Coastal Current and Offshore) in part in order to avoid conflicts and competitions for funds among geographic localities and among advocates for individual species. Funding work on killer whales is not consistent with the lack of Council funding for abundance surveys on other injured species, such as harbor seals. The EVOSTC has the guiding principles of avoiding duplication of effort and not taking over the responsibilities of other government institutions. As a number of different government entities have mandates and budgets devoted to measuring abundances of charismatic megafauna, as well as economically important species, Council funding for continued work on killer whales is not a priority.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Members of the PAC expressed a split view with support for both the STAC and the Executive Director recommendations.

Public Advisory Committee Recommendation: No Consensus

Executive Director Comments:

Although the STAC and Science Director rationales are correct, they fall short by not taking into account the continuing strong public interest in killer whales as a species injured by the Exxon Valdez Oil Spill. In addition, the proposed work is already highly leveraged by funding from the appropriate management agencies and other federal sources, so the STAC recommendation of alternate funding sources already has been accomplished by the project. As also noted last year, the modest cost of this project is a small price to pay for continuing a long-time series on an oil-injured species.

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 050769

Project Title: **Temporal Stability of Fatty Acids used to Discriminate Pacific Herring in Alaska**

Principal Investigator: Edward (Ted) Otis

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Gulf of Alaska and Bering Sea

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05: $67,700.00	**FY06:** $89,400.00	**FY07:** $25,100.00
FY08: $0.00	**FY09:** $0.00	**FY10:** $0.00

Total Funding Approved: $182,200.00

Abstract:

This project follows up on a promising pilot study that demonstrated the ability to discriminate Alaska herring stocks at relatively fine spatial scales (> 100 km) based on the fatty acid composition of their heart tissue. The investigators propose to assess the temporal stability and biological variability of stock discrimination criteria derived from fatty acid analysis of herring cardiac tissues. Samples will be collected during the spring and fall/winter of 2005 and 2006 from putative herring stocks from Sitka, PWS, Kamishak, Kodiak, Dutch Harbor, Togiak, and Kuskokwim Bay. Results should allow managers to better define ecologically significant stock boundaries, which would likely affect how commercially exploited herring populations are assessed and managed. Results will be published in a peer-reviewed report and may lead to revision of fishery management plans for affected areas. Keywords: Pacific herring, stock identification, fatty acid analysis, Gulf of Alaska

STAC Comments:

If this project were successful, the results would be highly advantageous to management of herring stocks in Alaska. The proposal is highly leveraged as it depends heavily on ADF&G platforms and existing data collection programs and thus is quite cost effective. Nonetheless, a positive recommendation can not be given until there is scientific peer validation of the method. Other methods such as molecular genetics may work as well and should be addressed as alternatives in any subsequent proposal.

STAC Recommendation: Do Not Fund

Science Director Comments:

Concur with the STAC recommendation.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Concur with the STAC recommendation; however herring are important to investigate. Encourage the PI to respond to reviewer comments and resubmit the project as a pilot next year. The Trustee Council should encourage herring proposals since this is still an injured species.

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Concur with the STAC recommendation and support PAC recommendation by calling for herring workshop as part of re-examining injured species list in FY 2005.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 050763

Project Title: **Long-term Monitoring of Anthropogenic Hydrocarbons in EVOS Region**

Principal Investigator: Jeffrey Short

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: PWS, Kodiak, Kenai Peninsula

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05:	$58,900.00	**FY06:**	$58,900.00	**FY07:**	$58,900.00
FY08:	$0.00	**FY09:**	$0.00	**FY10:**	$0.00

Total Funding Approved: $176,700.00

Abstract:

This proposal seeks support to expand the Long Term Environmental Monitoring (LTEMP) of the Prince William Sound Regional Citizens' Advisory Council (PWSRAC) in a manner that will make it substantially more powerful in its ability to detect environmental changes induced by petroleum contamination, and possibly other contaminants that have recently been identified as potential insults to the region. This expansion is designed to address the needs of both the PWSRCAC and the GEM programs, in part by combining resources of both organizations. The proposed design incorporates and integrates the existing NOAA and LTEMP monitoring datasets, and proposes a modest enlargement of effort to monitor at a substantially larger spatial scale. Most of the expansion is intended to implement a random-sampling based design that is currently being developed under an FY2004 Trustee Council funded project (Trustee Project 040724: Short - FY04 - Monitoring Exxon Valdez Oil).

STAC Comments:

The proposal is recommended for funding. It is a good fit to the Invitation under Lingering Oil and Nearshore development of standard operating procedures (SOP). It also complements and would directly utilize the results of current GEM Lingering Oil study: Short - FY04 - Monitoring Exxon Valdez Oil (040724). The FY 04 study is designed to provide recommendations on how to integrate monitoring for the lingering effects of the Exxon Valdez oil spill into GEM Nearshore monitoring programs. The proposal responds directly to the Science Plan (Establish a strategy for monitoring persistence of Exxon Valdez oil, and its relationship to other sources of contamination in PWS) by establishing a background hydrocarbon reference station at Hinchinbrook Entrance and by developing a random sampling approach that would serve as a proxy measure for human development pressure on the nearshore environment. The random sampling approach would simultaneously track the persistence of lingering oil from the EVOS, and serve as a large geographic scale monitoring "station" reflecting human development pressure over a long time scale. The technical merit of the sampling protocols and laboratory analyses is established by adopting the methods of the long-established Long Term Environmental Monitoring Program (LTEMP).

STAC Recommendation: Fund

Science Director Comments:

Concur with the STAC recommendation. This proposal makes the lingering oil investigations an integral part of the GEM Nearshore Program.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Concur with STAC and Science Director recommendations.

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with STAC and Science Director recommendations.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 050765

Project Title: **Management Applications: Improving Preseason Forecasts of Kenai River Sockeye Salmon Runs through Smolt Monitoring - Technology Development**

Principal Investigator: T. Mark Willette

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Cook Inlet

Project Type: Continuing

Funding Approved by Fiscal Year:

FY05:	$68,800.00	**FY06:**	$65,900.00	**FY07:**	$67,000.00
FY08:	$0.00	**FY09:**	$0.00	**FY10:**	$0.00

Total Funding Approved: $201,700.00

Abstract:

This project will develop and implement a smolt-monitoring program for Kenai River sockeye salmon as a tool for managing one of the largest and most accessible salmon stocks in Upper Cook Inlet. Sockeye salmon smolt population estimates will be used to develop preseason forecasts of run size for this stock. The Alaska Board of Fisheries has specified that the Kenai River sockeye salmon run will be managed based upon preseason and inseason forecasts of run strength, and inriver escapement goals for this system vary as a function of these forecasts. This management structure causes relative uses of the resource by recreational, personal use, and commercial fishers to be strongly dependent on the accuracy of forecasts. The project will use two independent methods to estimate the population size of sockeye salmon smolt emigrating from the Kenai River watershed. GEM funding is requested to support estimation of smolt population size using mark-recapture methods. ADF&G funding will support estimation of smolt population size using side-looking sonar. During the first two years of the project, we will evaluate the accuracy and precision of our estimates and identify the methodology that provides the best estimate at the lowest cost. In the third year, we will implement this new method to estimate smolt population size. The project will also estimate the proportion of marine-derived elements in smolts, beginning a database needed to evaluate the effect of marine nutrient contributions on salmon production in this and other systems.

STAC Comments:

The proposal is recommended for funding. The proposal responds to the management application section of the invitation call to “utilize or augment existing biological monitoring programs to develop a new application or enhance an existing application to management, while building the basic data to implement the GEM ecosystem model.” It is responsive to the science plan call to, “identify and demonstrate statistically rigorous sampling strategies for detecting marine signals and proxies from plants and animals in the marine watersheds …” Technical merit of this proposal is very high, as it adequately copes with the formidable difficulties of estimating smolt abundance in the Kenai River; as the proposal notes, estimation of smolt abundance in the Kenai has failed in the past. The proposal demonstrates a thorough understanding of the challenges, and it proposes an adaptive and innovative strategy for meeting the challenges, using a variety of sampling techniques at a number of different locales in the watershed. Potential management applications are substantial and include 1) predictors of future adult salmon returns allowing more responsive management to assure sustainable escapements while optimizing harvest opportunities, 2) using juvenile production as an indicator of freshwater ecosystem health, 3) identification and control of factors that influence salmon population trends, 4) use of marine survival information to further explain causes and variability in salmon population trends, and 5) recovery of tagged adult Chinook and coho salmon during their ocean migration to provide location and interception information to aid in interpretation of the effect of ocean and climate on marine survival of salmon and related species. Community involvement strategies are apparent but not well explained. The proposal is responsive to

all five of GEM's major goals, providing data and analysis relevant to detecting and understanding change in watersheds, informing managers and other interested parties about impending changes in natural resources, solving resource management problems with appropriate information, and predicting future states of natural resources. The proposal is also particularly responsive to two of the six "implementation" goals of GEM, because it leverages application of EVOSTC funds to augment ongoing monitoring work funded by ADF&G, and it would facilitate application of GEM research and monitoring results to benefit conservation and management of marine resources, as explained under management applications above. The budget is highly leveraged by funds from ADF&G sources and it is reasonable for the proposed objectives. The PIs are exceptionally well qualified to do this type of work, and their salaries are not charged for in the budget, which includes only extra seasonal personnel costs. The proposal was exceptionally well written and the methods and limitations of the sampling gears were carefully explained.

STAC Recommendation: Fund

Science Director Comments:

Concur with the STAC recommendation. This proposal is a strong response to the management applications section of the invitation.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Concur with the STAC and the Science Director recommendations; however the proposal needs to make better connections with the communities it serves. In particular the ADF&G Regional Planning Team and the regional aquaculture associations have relevant information to share and interests in the outcome of the work and they should be consulted.

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070812

Project Title: **Pacific Herring - From Familiar Inquiry to Uncharted Restoration A Project to Aid Coordination, Compliance, and Rapid Integration**

Principal Investigator: Kenneth Adams

Affiliation: Private Enterprise

Disbursing Agency: N/A

Project Location: Cordova Alaska and Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:
The year 2006 may well be remembered as the year that restoration of Pacific herring moved from inquiry to intervention. Whether the year will be a success technically will depend less on what we know now than on how we use what is know. This project provides three parts of a larger collection that together enable first trial interventions to be conducted in April 2007. This project provides a means for independently prepared proposals to coordinate efforts and improve outcomes. It provides assistance to collaborators who need the models developed over the past 12 years of Restoration to be able to reliably and efficiently carry out interventions and track the outcomes.

Science Panel Comments:
The strength of this proposal is the involvement from the residents of Cordova that have been affected by the spill. It is hoped that the PIs will remain active participants in the process of a developing herring restoration program. However, this proposal is poorly written and not well organized. The project fails to demonstrate links to herring restoration because the objectives are not clear and methods are vague. The Panel does not recommend funding this proposal because the ultimate outcome and/or products of this project are unknown.

Science Panel Recommendation: Do Not Fund

Science Director Comments:
Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
This propoosal requests funding to coordinate a workshop in November of collaborating herring-research, monitoring,

and general restoration proposals funded previously or through the FY07 Work Plan. The proposal also will support the collaborators with their modeling expertise. Besided being poorly written and difficult to understand, this proposal offers no more than a brief discussion of intent without details--while requesting $242,700 of Trustee Council funding with no other funding identified.

Turning the coordination of a collective (volunteer) herring restoration effort over to a third-party contractor who has a vested interest in the outcome lacks justification. Due to the regulatory and statutory obligation of state and federal agencies, such coordination needs to be as objective as possible.

I can not recommend this proposal be funded and do not suggest it be submited for peer review and further consideration.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070807

Project Title: **Herring Restoration in PWS: Enhancement Workshop**

Principal Investigator: Brian Allee

Affiliation: Alaskan University

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

In response to the decline of herring in PWS, the EVOS Council has committed to develop a long-term Herring Restoration Plan, and to implement enhancement activities with the ultimate goal of assisting herring recovery in the Sound. This plan calls for the identification and evaluation of national and international efforts related to herring enhancement. We propose to hold an international workshop on herring enhancement. Leading authorities on enhancement of herring and related species will be invited, and a call for papers will yield additional presentations on research, techniques and existing enhancement programs. Immediately following the workshop, which will be held in Anchorage, Alaska, the Steering Committee will compose an Executive Summary for the EVOSTC and compile all of the Power Point presentations given at the workshop. In the following fiscal year, Alaska Sea Grant College Program will produce a fully peer-reviewed proceedings of the papers submitted for this workshop.

Science Panel Comments:

The proposal is well-written, concise and responds to the Invitation. The PI's are well-qualified. However, costs seem high for a two-day conference. No clear explanation is given of how the products will benefit the herring restoration process. The main deliverables are an executive summary produced immediately after the conference and a peer reviewed workshop Proceedings document. The Proceedings, produced several years after the meeting will not meet the immediate needs of a developing herring restoration program.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel. The Alaska SeaGrant program has experience organizing these types of events and would likely do an excellent job in presenting a workshop. However, the costs seem high and input from the international community into a herring recovery program needs to be expedited. Final deliverables from the proposed workshop will not be available for two years. The Trustee Council needs information on enhancement/ restoration options for herring sooner than that.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Do not fund. The Trustee Council has approved funding for both an international herring restoration workshop and a herring restoration plan/team in the FY07 Administrative Budget. It is hopeful the PI's will participate in the planning and implementation of these activities.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070808

Project Title: **Sea Otter Recovery and Nearshore Synthesis**

Principal Investigator: Brenda Ballachey

Affiliation: DOI

Disbursing Agency: USGS

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$154,000.00	**FY08:**	$97,700.00	**FY09:**	$0.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $251,700.00

Abstract:

Sea otters, and other nearshore birds and mammals were severely impacted by the 1989 Exxon Valdez oil spill. In areas where acute effects were greatest and lingering oil persists longest, recovery for some of those nearshore birds and mammals remains incomplete through 2005. We present three objectives in this proposal: (1) Evaluate progress toward sea otter recovery through surveys of abundance and carcass deposition. (2) Evaluate factors contributing to the status of sea otter populations through the synthesis of long-term data sets on individual exposure to oil, health, condition, behavior, and home range in the context of long-term survival. (3) Conduct spatial synthesis of elevated biomarkers in mammals, birds, and fishes. Anticipated outcomes will identify shorelines where lingering oil most likely persists and which may be candidates for restoration or remediation.

Science Panel Comments:

The proposed project will extend long-term data sets on the population abundance and survival that are critical to the continued evaluation of injury and recovery of sea otters. In addition, the project will provide important syntheses of past data on population dynamics of sea otters and exposure of sea otters and other injured nearshore resources to oil. These syntheses will allow further assessment of the relative importance of continued oil exposure to sea otter recovery, provide information that will help in evaluation of the efficacy of potential restoration activities, and help to guide decisions regarding locations where clean up of oiled shorelines might be considered. The panel recognizes the excellent publication record of the Principal Investigators, but urges them to publish results of biomarker work that has yet to be fully addressed in peer reviewed publications.

Science Panel Recommendation: Fund

Science Director Comments:

Objectives in the Study: 1) Evaluate sea otter population dynamics through carcass recovery and surveys 2) Integrate exisiting data to evaluate constraints to otter recovery 3) Identify areas where otters are exposed to oil and overlap with other injured resources still being exposed to oil. This proposal is directly responsive to the 07 Invitation. The modeling component will address the question regarding the temporal need for sea otter recovery. It will address how the spatial overlap of animals with elevated CYPIA are related. It's cost effective.

Concur with Science Panel. It is necessary to continue the carcass surveys in order to determine age-specific mortality which can be used in a population model. To be useful this information needs to be collected every year. The spatial synthesis of elevated biomarkers in a suite of nearshore species may allow them to identify ‘hot spots’ of oil exposure which could be beneficial in prioritizing areas of lingering oil.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel and Science Directors comments and recommend funding.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070624

Project Title: **Acquisition of Continuous Plankton Recorder Data**

Principal Investigator: Sonia Batten

Affiliation: NGO

Disbursing Agency: NOAA

Project Location: Cook Inlet, Alaskan Shelf, Gulf of Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $135,400.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $135,400.00

Abstract:

This project will use a Continuous Plankton Recorder to collect plankton samples from the Alaskan shelf and Gulf of Alaska to determine variability in abundance and distribution of herring prey. Understanding variability in their food source is one requirement for understanding variability in Prince William Sound herring populations. Recent CPR data have shown large differences in mesozooplankton biomass on the Alaskan shelf in 2004 and 2005. This project will increase the time series of data collected with previous EVOS TC funding and improve our understanding of how the food chain supporting Alaskan fisheries is regulated.

Science Panel Comments:

This project has been funded for several years by the Trustee Council and funds are being requested for an additional year. This project provides the only long term record of plankton abundance and species composition important to understanding the inter-annual variation in herring food from the Gulf of Alaska. This information is necessary to understand herring mortality and long term trends in herring abundance. This project is cost effective because the PI is utilizing ships of opportunity transecting the entire Gulf of Alaska thus funding for a vessel is not required.

Science Panel Recommendation: Fund

Science Director Comments:

This project collects important long-term plankton trend data across the Gulf of Alaska and is very cost effective because the instruments are located on ships of opportunity and vessel costs are not needed. However, the vessel routes have recently changed and the ships no longer move through Prince William Sound: they go into Cook Inlet. Although the link between these data and Prince William Sound herring likely exist, the tie is not clear in the proposal. This project is scientifically solid, and the data are important, but the connection to Trustee Council concerns is not strong.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070782

Project Title: **Herring Restoration in PWS: Identifying Natal and Nursery Habitats**

Principal Investigator: Nate Bickford

Affiliation: Alaskan University

Disbursing Agency: ADFG

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$122,700.00	**FY08:**	$134,600.00	**FY09:**	$77,700.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $335,000.00

Abstract:

More information is required to understand the life history of Pacific herring and thus success of future enhancement experiments designed to improve the survival rate of juveniles into adulthood. Chemical analysis of trace element concentrations in otoliths can be used to identify geographic signatures of natal habitats used by fishes captured either as juveniles or adults. Because survival of the population is dependent on successful spawning, it is imperative to understand if distinct groups of herring are contributing to the success of the population. If most of spawning success comes from a distinct groups of herring we need to know which population survived and why. This will allow us to protect the most important populations and also identify those environmental variables needed to enhance other populations. With the information gained from this project, we will be able to identify other habitats that may be suitable for herring recolonization projects.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Director Comments:

This project will result in the identification of bays used as natal habitat by individual herring. Upon determining where fish are raised, specific characteristics of these bays can be measured. This will then help decide where enhancement activities such as as larval or egg transport would best succeed. Reduce funding by the amount needed for meeting travel other than the annual EVOS meeting.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070813

Project Title: **Herring Restoration in PWS: Marking Pacific Herring (Clupea Pallasii) Otoliths in Prince William Sound**

Principal Investigator: Nate Bickford

Affiliation: Alaskan University

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

The success of relocating of Pacific herring to more suitable habitats will need to be monitored by mass marking groups of herring. We need to know if it is feasible to use otoliths to mass mark herring using Sr and Ba with low mortality and low cost. Once we know that it is possible to artificially mark herring otoliths in a controlled environment we will mark herring in natural habitats found in PWS. We will then collect the marked herring from PWS. If artificial mass marking of otoliths is successful, then we will have a tool that manages and researchers will be able to use to monitor the success of relocating Pacific herring to more suitable habitats in PWS.

Science Panel Comments:

While this proposal is responsive to the Invitation and entails good project management, it did not demonstrate that the planned methods would provide a cost effective mass marking tool for herring. Other methods (e.g. fluorescent dye technologies) are currently being used commercially and have a wider range of application. The proposed method only provides the ability to distinguish between two marked cohorts of fish. Moreover, it is unclear if the PI's considered disease and mortality factors in their field work. Finally, even if the proposed tools could be developed, it is uncertain that a sufficient number of marked fish could be recaptured to provide meaningful estimates of survival.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070814

Project Title: **Seabird Predation on Juvenile Herring in Prince William Sound**

Principal Investigator: Mary Anne Bishop

Affiliation: DOI

Disbursing Agency: USGS

Project Location: PWS & NE PWS (Sheep Bay, Simpson Bay, Port Gravina)

Project Type: New

Funding Approved by Fiscal Year:

FY07: $197,000.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $197,000.00

Abstract:

Based on population trends, the Prince William Sound (PWS) Pacific herring population does not show signs of recovering. Predation pressure on juvenile herring may be an important factor in preventing recovery. Here we propose a large-scale, three-year study to investigate seabird predation on juvenile herring during winter months (October-March), a season about which relatively little is known. Juvenile herring are heavily predated by multiple species of seabirds including five species injured by the Exxon Valdez Oil Spill, one recovering species, and one recovered species. We will examine the spatial and temporal abundance of seabird predators in and around juvenile herring schools, as well as the physical and biological characteristics of the schools they feed on. Our project relies on seabird surveys being performed onboard vessels associated with three other projects (2 proposed EVOS studies, 1 PWSSC study) conducting hydroacoustic surveys for juvenile herring schools. Our estimates of juvenile herring consumption will aid in planning future restoration efforts as well as in assessing the role of seabird predation on herring recruitment by providing data to both herring and ecosystem modeling efforts.

Science Panel Comments:

This proposal fills an important gap in our knowledge of herring predators and their impacts on herring populations. Therefore, the proposal is being recommended for funding with revisions. The authors need to specifically identify how the project will provide an estimate of the number and sizes of herring being eaten by birds in the winter. Also, it is unclear how this data is to be used in a comprehensive life history model of herring and how they will extrapolate their information to all of PWS. The panel suggests the PI's consider aerial surveys to provide a Sound-wide estimate of abundance and distribution of seabirds feeding on herring.

Science Panel Recommendation: Fund

Science Director Comments:

The Science Director is on a detail from the FWS and must recuse herself from making recommendations on proposals that involve FWS personnel. The co-PI on this project is an employee of the FWS.

Science Director Recommendation: Not Reviewed

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Concur with Science Panel but would require aerial surveys to provide a Sound-wide estimate of abundance and distribution of seabirds feeding on herring.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070750

Project Title: **Database Development and Implementation of Long-Term Monitoring for Evaluation of Recovery of Nearshore Resources**

Principal Investigator: James Bodkin

Affiliation: DOI

Disbursing Agency: USGS

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $135,300.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $135,300.00

Abstract:

The proposed project is designed to assist in the evaluation of recovery and restoration of injured nearshore resources in Prince William Sound. The project has two tasks. The first is to develop a database management system for nearshore data. The database management system will be developed using a web-based user interface and an underlying relational geodatabase. This database management system will ensure the preservation of existing nearshore monitoring data, allow for more integrated assessments of recovery and restoration of nearshore resources, and provide a structure for data gathered as part of future restoration monitoring. The second task is to initiate long-term recovery and restoration monitoring in the nearshore in Prince William Sound. Many of the data sets used to asses recovery of injured resources in Prince William Sound (e.g. population abundance and survival of sea otters, population abundance of harlequin ducks and other nearshore birds, abundance estimates for mussels, clams, and other intertidal organisms) are also a critical part of a comprehensive nearshore monitoring plan developed by Dean and Bodkin (2006) that is currently being implemented by the National Park Service along the Katmai coast. Funds for conducting most of these studies in Prince William Sound (e.g. aerial surveys of sea otter abundance, bird and mammal surveys, and shore-zone mapping) are being sought by several other proposals submitted to the Trustee Council and are not addressed herein. Our purpose is to fill in missing gaps in the long-term monitoring program in Prince William Sound and to make it comparable to the program being carried out at Katmai. This proposed nearshore sampling in PWS, the similar sampling being conducted on the Katmai coast, and the proposed development of a comprehensive nearshore database management system will provide the backbone of a long-term restoration monitoring program. The goal of this program is to detect and identify sources of change in the nearshore and to foster recovery of nearshore resources by ameliorating adverse effects of human-induced impacts.

Science Panel Comments:

This proposal provides a logical next step in development of a program to determine long-term health of the intertidal community and associated resources that were clearly impacted by the spill. It specifically addresses recovery status of injured intertidal communities for which little current information is available. The proposal builds on work funded by other agencies to provide an important gulf-wide perspective. Also, proposed database development will facilitate future integration and syntheses regarding nearshore resources including intertidal communities, sea otters, oyster catchers, and other nearshore birds.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel. This project takes a phased approach to developing a systematic way of assessing the nearshore environment in which the Trustees have previously invested. Collectively, the overall status of the intertidal environment has not been consistently evaluated. This project will build upon earlier work that developed the methods for assessing the nearshore and more fully implement the program on the ground. It is being done in conjunction with the National Park Service which is a partner in this program. Finally, it will provide a relational database for storing this information, which will allow for a wide range of uses of the data.

Data Manager Comments: Fund The PIs propose to develop a nearshore monitoring system, and to bring on a database developer to assist the National Park Service and the EVOS staff in development of this system. They also propose to initiate long-term recovery and restoration monitoring in the nearshore environment of Prince William Sound.

The nearshore monitoring aspects of this proposal are responsive to the invitation and it appears to address the status of many of the species injured by the spill. The Trustee Council has expressed its desire to see the nearshore data management system developed. Though some initial work on this system has been completed, as documented in the proposal, substantial progress has been delayed due to a lack of resources and staff turnover in the EVOS office. This project will provide the resources necessary to ensure the project's completion and address the need for data management personnel to work closely with the PIs to complete the implementation of standard operating procedures (SOPs). The budget seems reasonable for the work to be done.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Concur with Science Panel and Science Director.

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070131

Project Title: **Plan Development for Establishing a Program for Subsistence Clam Enhancement and Rehabiliation of Clam Populations Injured by the Exxon Valdez Oil Spill**

Principal Investigator: Patty Brown-Schwalenberg

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Western PWS and the outer Kenai Peninsula

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

This project will produce a plan for establishing subsistence clam sites near the villages of Tatitlek, Chenega Bay, Port Graham and Nanwalek and for rehabiliating clam populations in western Prince William Sound and the outer Kenai Peninsula that were injured by the oil spill. The program that this plan would create would use enhancement for subsistence resource that was severely diminished by the spill. The program resulting from this plan would also initiate a rehabilitation effort of clam populations injured by the spill.

Science Panel Comments:

The proposal addresses restoration of an important injured resource, subsistence usage of clams. However, the proposal does not provide convincing evidence that plan provided will lead to effective restoration of clams. The Trustees have provided substantial funding for similar work in the past, but an update of the status of this work, a discussion of its accomplishments and failures (especially with respect to littleneck clam nurseries), and a recognition and summary of procedures that have proven successful in clam culture elsewhere are not provided. The proposed work will produce a set of how-to manuals, but it is unclear how this will lead to effective restoration. A substantial portion of the budget is related to culture of butter calms, but these are recognized as poor candidates for subsistence harvest restoration because of risk to PSP that is common in these clams. Also, what the panel sees as a disproportionate portion of the budget is related to coordination and not to more critical aspects of on-site restoration in areas of subsistence use. The panel urges the investigators to focus future proposed work on culture and grow out of littleneck clams and cockles, and direct this work more toward on-site restoration activities. RECOMMENDATION: DO NOT FUND

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Spill-affected communities have continued to express concerns about the use of clams as a subsistence resource for a variety of reasons (eg, PSP, reduced abundance etc), and subsistence continues to be a service considered injured as a result of the spill. Thus, it is important to consider ways of addressing clam restoration. This project proposes to develop a set of manuals that could possibly be used to facilitate enhancement of clams in some areas of the spill zone. However, it is unclear from this proposal how this project will lead to actual clam enhancement, because no work is proposed for implementation of the program proposed in the manuals. This proposal was developed from previous TC-funded projects, and it would be useful to understand how “lessons-learned” from historical work would be implemented in a new program.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel comments and recommend not funding.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070828

Project Title: **Quantifying Subsistence Recovery in EVOS Affected Native Alaska Communities Using Community-based Knowledge**

Principal Investigator: Patty Brown-Schwalenberg

Affiliation: NGO

Disbursing Agency: N/A

Project Location: The EVOS coverage area

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

In 1989, the Exxon Valdez oil spill (EVOS) impacted intertidal habitat, affecting important subsistence organisms. The EVOS Trustee Council has supported scientific studies that encourage the recovery of intertidal species and subsistence through the integration of western science and, traditional and local knowledge. Many studies have been conducted, before and after EVOS, to document traditional and local ecological knowledge (TEK and LEK) for intertidal species. The Chugach Regional Resources Commission (CRRC) and the National Oceanic and Atmospheric Administration (NOAA) have worked together to develop two models that organize TEK and LEK in a format that is easily accessible to managers and scientists, while allowing the community to control the content of the model. The community-based approach, which utilizes - traditional and local knowledge, will be used to organize previously documented or concurrently collected community based knowledge from areas impacted by EVOS. The major focus of the study will be to create a spatial GIs database that will be used to temporally assess: lingering oil distribution, traditional use areas, subsistence resource usage and perceived contamination to quantify changes. Information gathered will be used to evaluate the relationship between subsistence resources, lingering oil and perceived contamination in a study area and incorporated into community resource management plans. These plans are used to drive
scientific research in the region, influence resource management at the state and national levels, and encourage relationships between community members, scientists and resource managers. The resulting information from this study will be used to quantify subsistence recovery and focus ongoing recovery efforts.

Science Panel Comments:

The panel agreed that the effects or lingering oil on subsistence use of marine resources is an important topic, and saw value in obtaining maps of oiled beaches, and subsistence use; especially in areas historically used for subsistence that are now avoided. The panel also saw value in obtaining input from local residents in developing these datasets. However, the methods used to meet the proposed objectives were not well described and it was unclear whether the spatial resolution at which the data bases were to be developed would be sufficient to aid in restoration planning. It was also unclear as to how the project was to be managed and who was responsible for various aspects of the project. The panel concluded that the proposal lacked sufficient information to ensure that objectives could be met.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Subsistence Use is considered an injured service still recovering from the effects of the oil spill and in this context, the

relationships among subsistence use, lingering oil and community perceptions of food safety are important. This proposal also engages local communities at all levels of the project which is important for consensus-building and to ensure that the results of the project are trusted among all stakeholders. However, many relevant details of the proposal are vague: It is unclear who would be the project manager and how the objectives would be met. The methods and data analysis sections do not provide enough information to evaluate how the data will be collected or analyzed. Competing "models" for incorporating TEK/LEK are discussed but it is unclear how they will be integrated. The ideas behind this proposal are sound; however the details of how to accomplish the objectives are incomplete and cannot be evaluated thoroughly.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

This proposal seeks funding to do a GIS project of the Exxon Valdez Oil, areas of perceived contamination, and subsistence use areas. A similar compent is itemized in Proposal 070818 and shold not be duplicated through Trustee Council funding.

The key data collection component of this propsal ins through a literature search and the previous subsistence harvest data studies conducted by ADF&G were not referenced.

The information collected wil be use to develop community resource management plans which apparently will serve as a clearinghouse for scientific research, and federal and state resource management in the area of the communities.

The propsal indicates the subsistence recovery will be quatified without providing details.

The propsal would increase community participation but focuses only on the 7 villages under the Chugach Alaska Corporation--proposal 070818 addreeses the entire spill-affected area.

This proposal is to limited in scope, the methodology is not adequately detailed, and benefit the Chugach Alaska Corporation. I recommend any funding would result from their linking with the proposal 070818.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070809

Project Title: **The Risk of Buried Oil to Fauna: A Pre-Remediation Assessment**

Principal Investigator: Mark Carls

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Prince William Sound; northern Knight Island archipelago

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

To inform the decision whether or not to further remediate Prince William Sound (PWS) shorelines, we propose a study of intertidal infauna, a biological community possibly still exposed to and impacted by buried oil and plausibly (along with oiled sediment) the conduit whereby vertebrate predators continue to be exposed to Exxon Valdez oil. We pose several questions: are intertidal infauna still being exposed to oil? Is this oil affecting survival, growth, reproduction, and community structure? Are there plausible secondary effects on predators? These issues are of critical relevance for deciding whether to remediate oiled shoreline. If oil has become progressively isolated from surrounding areas, and thus relatively unavailable to organisms, including infauna, then removal disturbance may cause more harm than good. Conversely, if oil still adversely affects a significant fraction of infauna and their predators, oil removal may be prudent. We propose an integrated study to detail oil transportation, bioavailability, and effects on invertebrate communities in the intertidal zone to determine if the ecosystem is currently affected by remaining oil. The goal is to determine the significance, if any, of local patches of oil to the invertebrate community. Bioavailability will be determined at the surface and at depth, and biological impacts to community structure will be determined at the surface and at depth. The target area will be northern Knight Island archipelago, remains in beaches and exposure continues to harlequin ducks and sea otters. Worst-case heavily oiled patches will be sampled along with matched reference areas. We believe that information on oil bioavailability at the surface and depth and assessment of biological impacts is critical information needed by managers to determine the scope of possible future clean-up and remediation.

Science Panel Comments:

The proposal addresses two issues: 1) The extent of injury to intertidal communities associated with isolated patches of oil, and 2) The distribution of oil patches and its availability to higher trophic levels. The proposal did not clearly distinguish how each of the proposed tasks would be used to address these issues, but it is the panel's evaluation that infaunal community analysis would address injury while other tasks (passive samplers, tissue and sediment PAH, egg abnormalities, amphipod assays) would address oil patch distribution and bioavailability. The analysis of infaunal community structure is costly and notorious for providing relatively little power to detect effects. The panel did not feel that the costs were justified given the limited benefit of these analyses. Also, infaunal invertebrate experts were not identified. The panel also had concerns regarding amphipod assays and tissue PAH analysis. Amphipod assays are often heavily influenced by environmental factors other than contaminants of interest, and unexplained instances of poor survival are common. Given the often messy nature of amphipod assay data, the panel does not see this as an extremely useful tool. Also, the tissue PAH analysis seems to focus on epibenthic animals that are less likely to have PAHs in tissue than infaunal organisms. The panel was intrigued with the potential for using passive samplers to evaluate potential for exposure to remaining oil, but thought that several design changes might be advisable including the inclusion of winter sampling when release of oil from sediment is most likely. RECOMMENDATION: DO NOT FUND

Science Panel Recommendation: Do Not Fund

Science Director Comments:
Concur with Science Panel

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070803

Project Title: **Herring Restoration in PWS: Condition Indices**

Principal Investigator: Michael Castellini

Affiliation: Alaskan University

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

UAF is proposing a suite of integrated proposals to better understand PWS herring and address future enhancement experiments to improve the survival rate of juvenile fish. This project collects information on the condition of herring collected at various nurseries by the field components (Bickford/Norcross). We measure herring energy content and use recently enhanced chemical methods for the analysis of feeding history of the fish. These data are used in a multi-factorial herring condition index that is correlated to morphometric values easily measured in the field. This condition index, by itself, is a major product from this work. The herring condition will then be input into the survivorship and distribution models for different herring nurseries in PWS organized by Norcross. The ultimate goal will be to provide the data necessary to evaluate the recovery of PWS herring and the possibility of population enhancement methods.

Science Panel Comments:

The PI for this project is well known as an expert in this type of analysis. The proposal responds to the Invitation and is well written. However, the condition index described for the project already exists and the project seems redundant to work completed under the SEA project. It is unclear whether refinement of this technique will provide incrementally significant understanding of the importance of energy reserves on herring survival. Moreover, the index would be most useful if there was a comparison between a healthy herring population and the one in PWS. This is not proposed.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070699

Project Title: **Biophysical Observations Aboard Alaska Marine Highway Systam Ferries**

Principal Investigator: Edward Cokelet

Affiliation: NOAA

Disbursing Agency: N/A

Project Location: Prince William Sound and Alaska Coastal Current

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Oceanographic monitoring is essential to deliver real-time ecosystem information for public and advisory use, to provide boundary conditions for numerical models and to put the marine ecosystem into an historical perspective that can reveal long-term developmental, climatic and anthropogenic changes. For example, in Prince William Sound (PWS) it is important to monitor water temperature because it affects the Pacific herring fishery through alterations in spawning timing, metabolic rate and feeding, and wintertime resistance to disease. Salinity affects circulation, therefore herring larval dispersal. Circulation models used to predict herring larval drift require periodic calibration to actual temperature and salinity observations to give realistic results.

In September 2004, we installed an EVOS-funded monitoring system aboard the Alaskan ferry M/V Tustumena that operated in two oil-spill areas, PWS and the Alaska Coastal Current (ACC). The monitoring system measures water temperature, salinity, and indicators of essential nutrients, phytoplankton biomass, freshwater influence and sediment load. The system operated successfully in PWS until May 2005 when the ferry was reassigned to ACC routes only. We propose to add a similar oceanographic monitoring system in PWS to the Alaskan ferry M/V Aurora, a volunteer observing ship that transits the sound daily. These observations will complement the present data set. Furthermore, we propose to continue Tustumena's ACC measurements at marginal cost to monitor essential biophysical variables in the coastal Gulf of Alaska.

Science Panel Comments:

This project is a continuation of an existing project that collects chemical/physical measurements of the water in Prince William Sound. The PI was responsive to the Invitation and is qualified to continue the research. However, this project is expensive and is conducted from a potentially unreliable ship of opportunity (Alaska Marine Ferry System). Also, the direct link to herring restoration is not made, and it was difficult to determine if the timing and geographic coverage of this project would provide information towards enhancing herring recovery.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070815

Project Title: **Characterization of Pacific Herring Nursery Habitat in Prince William Sound, submitted under the BAA**

Principal Investigator: Richard Crawford

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

A method for identifying the location of Pacific herring nursery grounds in Prince William Sound is needed as a basis for restoration. The SEA study established that juvenile herring prefer bays and fjords but smaller-scale resolution of nursery habitat remains to be elucidated. This study will collect high resolution information on the distribution of juvenile herring and their prey, and concomitant descriptors of extant hydrographic conditions, in three areas known to contain herring spawning and nursery habitat. A statistical model will be developed that delineates nursery habitat within a water body to provide managers with a tool for locating nursery habitat elsewhere in the Sound. Field work involves collecting detailed hydrographic information (undulating profiler operated between surface and up to 50 m; horizontal profiler measuring ~ 1 m surface layer) while hydroacoustic measurements of water column biomass are being made. Trawl nets (fish and plankton) will groundtruth hydroacoustic data sets.

Science Panel Comments:

This is one of the few projects that provide important environmental information on physical/chemical characteristics of herring nursery habitat at a fine scale (i.e., nursery bays). The panel suggests that the PI work with Gay to provide these types of data on a greater number of sites in PWS at multiple scales. The project is responsive to the Invitation, Appendix A. It is well-written and technically strong. While it provides for interesting scientific investigations, the small scale of the investigations (within several bays near Cordova), and problems with making broader geographic inferences from these, makes the project of limited use to restoration efforts. The panel recommends that this project not be funded.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel. This project is a continuation of some aspects of the SEA program but at a smaller geographic scale. The proposal is technically strong and will use novel methods to define optimal habitat for juvenile herring.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070816

Project Title: **Evaluating Harlequin Duck Population Recovery: CYP1A Monitoring and a Demographic Population Model**

Principal Investigator: Dan Esler

Affiliation: Non AK University

Disbursing Agency: USGS

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$177,800.00	**FY08:**	$23,900.00	**FY09:**	$0.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $201,700.00

Abstract:

Harlequin ducks are one of the few species defined as “not recovered” from the 1989 Exxon Valdez oil spill. In this document, we propose 2 areas of inquiry to (1) evaluate the status of population recovery, specifically the degree of exposure to lingering oil, and (2) more fully understand the demographic processes underlying population recovery, through application of a quantitative population model.

Cytochrome P4501A (CYP1A) has proven to be an extremely useful tool for documenting the spatial and temporal degree of exposure to lingering oil, and there is a large body of historical CYP1A data (1998 to 2005) for harlequin ducks. The most recent data from March 2005 irrefutably demonstrated that harlequin ducks continued to be exposed to lingering oil. Because population recovery requires cessation of exposure to oil, we propose to resample harlequin ducks from throughout the oiled area of Prince William Sound, along with nearby unoiled areas, to determine whether they continue to be exposed to lingering oil.

A considerable volume of demographic data on harlequin ducks has been collected during research and monitoring efforts since the spill. We propose to assemble these data in a population model, which will be valuable for: (1) identifying the timing and magnitude of oil spill injury, (2) identifying the mechanisms by which injury occurred and population recovery was constrained, (3) evaluating the current status of recovery, including predictions for timing of full recovery, and (4) recommending future restoration activities.

Science Panel Comments:

The proposed project will extend long-term data sets on potential exposure of Harlequin ducks to oil that is critical to the continued evaluation of injury and recovery of harlequin ducks. In addition, the project will provide important syntheses of past data on population dynamics of harlequin ducks. These syntheses will allow further assessment of the relative importance of continued oil exposure to harlequin recovery and provide information that will help in evaluation of the efficacy of potential restoration activities.

Science Panel Recommendation: Fund

Science Director Comments:

This proposal will tie together years of harlequin duck data from the spill area that prior to now has not been synthesized in such a way that leads to a comprehensive understanding of harlequin population dynamics that have occurred as a result of the spill. This project will provide a predictive tool for understanding initial population impacts of

the spill and possible population recovery scenarios.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel and Science Directors comments and recommend funding.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070100

Project Title: **Annual Program Development and Implementation**

Principal Investigator: EVOS Administration

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Trustee Council Office

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$2,204,747.00	**FY08:**	$0.00	**FY09:**	$0.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $2,204,747.00

Abstract:

The Council adopted a new budget structure in FY 2006 in order to more clearly identify the allocation of funds supporting Trustee Council activities. The presentation of the initial Annual Program Development and Implementation Budget instituted in FY 2006 is being mirrored within the submittal of this funding request for FY 2007. The intent is to continue emphasizing the estimated costs associated with the current activities and directives of the Trustee Council.

This budget has been developed with the focus on completing the Trustee Council's planned activities detailed within the "Interim Guidance Document" implemented in August of 2005 and effective through December 2006, as well as initiating any restoration planning efforts resulting from the determinations regarding the fate and impact of lingering oil in the spill area and the status of injured resources and services identified in the updated list.

In addition, this budget expands upon activities started in FY 2006 toward developing a plan for herring recovery; and includes estimates of the direct and indirect costs of the Trustee Council's agencies and administrative office, in providing services for the Trustee Council's programs and approved projects of FY 07.

The "Program Development and Implementation Budget" includes the following components:

•Administration Management
•Data Management
•Science Management
•Community Involvement
•Public Advisory Committee (PAC)
•Small Parcel Program
•Trustee Council Member Direct Expenses
•Program Support/Project Management by Agencies
•Alaska Resource Library & Information Services

Various aspects of the italicized components are undertaken by Trustee Council agencies providing program development and administrative support.

Although funding for liaisons, project managers, and other support staff is included in the Program Support and Project Management component, the final budget for this component cannot be accurately determined until the Trustee Council takes action on the FY 07 Work Plan. This component is an initial funding request. Upon adoption of the FY 07 Work Plan, additional project management funds for each agency will be requested in proportion to the number and complexity of funded projects assigned to each agency for management. At that time the budget will be revised to

reflect this additional expense.

The Trustee Council Office is administratively located within the Alaska Department of Fish and Game. Allocation of funds by agency is detailed within the Budget Summary.

Science Panel Comments:
Not Applicable

Science Panel Recommendation: Not Reviewed

Science Director Comments:
Not Applicable

Science Director Recommendation: Not Reviewed

Public Advisory Committee Comments:
Not Applicable

Public Advisory Committee Recommendation: Not Reviewed

Executive Director Comments:
Not Applicable

Executive Director Recommendation: Not Reviewed

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070703

Project Title: **Marine-Terrestrial Linkages in Northern Gulf of Alaska Watersheds: Monitoring the Effects of Anadromous Marine-Derived Nutrients on Biological Production in Sockeye Salmon Systems**

Principal Investigator: Bruce Finney

Affiliation: Alaskan University

Disbursing Agency: N/A

Project Location: Kodiak Island, Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

We propose continuing our project examining roles of MDN in sockeye salmon nursery ecosystem productivity through studies of nutrient cycling, primary productivity, zooplankton and juvenile sockeye dynamics, and stable isotope abundance. We utilize detailed vertical and temporal sampling of the water column and contemporaneous sampling in a well-matched pair of salmon and control lakes. We will determine the extent to which the functioning and productivity of watersheds depends on MDN and how this marine-terrestrial linkage can be effectively monitored. Results to date demonstrate project feasibility, and novel findings document rates and mechanisms of MDN cycling and subsequent impacts to juvenile sockeye. Continued funding is required to develop time-series long enough to establish robust quantitative relationships and validate our monitoring protocols. Timely detection of these changes will assist fisheries managers by providing information several years in advance of potential impacts to adult salmon production.

Science Panel Comments:

This proposal is for continuation of a previously funded project that evaluates influences of sockeye salmon and associated marine derived nutrients on lake productivity. While the panel and reviewers concluded that the scientific questions were important, and the design to address these was sound. However, the proposal was not responsive to specific questions raised in the invitation, and has no clear link to injured resources or their restoration.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

This is a scientifically valid proposal but the link to the Invitation was tenuous.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel and Science Directors comments and recommend not funding.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070817

Project Title: **Physical Oceanographic Factors Affecting Productivity in Juvenile Pacific Herring Nursery Habitats, submitted under the BAA**

Principal Investigator: Shelton Gay

Affiliation: NGO

Disbursing Agency: NOAA

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $71,400.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $71,400.00

Abstract:

Past research of juvenile Pacific herring in PWS has shown that recruitment is highly influenced by conditions within nursery sites affecting survival within the first year. Studies of the physical oceanography of nursery fjords has indicated that each site has a unique set of hydrographic conditions that are influenced by both local processes and water exchange between the GOA and PWS. These factors vary significantly depending on geographic location. The proposed study will build upon past research by continuing a hydrographic time series within nursery fjords and collect high resolution data on currents and hydrography to determine the dominant mechanisms of water exchange and circulation within two experimental fjords; one located in a highly productive sub-region (Simpson Bay) and one located in less productive sub-region influenced by tidewater glacial outflow (Whale Bay). Also, this project will provide a physical context for a suite of biological sampling proposed for these sites.

Science Panel Comments:

This proposal is responsive to the Invitation and the PI is qualified to complete the work. This project is an expansion of a four bay study initiated under the Sound Ecosystem Assessment (SEA) program to examine hydrographic and circulation patterns in PWS. It will share a platform and information with projects collecting plankton data (Kline) and distribution and abundance measurements of herring (Thorne). Gay should work closely with Crawford to combine similar data collections on multiple geographic scales. The Panel also recommends that at least two addition CDT units be deployed in PWS and additional funding be provided to the PI for these units.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with the Science Panel, and strongly recommend the additional CDT's are funded and deployed.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Fund and require additional CDT's be deployed.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070639

Project Title: **Monitoring Ecosystem Parameters in the Northern Gulf of Alaska**

Principal Investigator: Kenneth Goldman

Affiliation: State Of Alaska

Disbursing Agency: N/A

Project Location: Kachemak Bay, Lower Cook Inlet, Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Ecosystem structure in the northern Gulf of Alaska, as indicated by the dominant fish and invertebrate populations, exhibited dramatic shifts in the late 1970s and early 1980s. Abundance of many apex species, particularly piscivores, declined from the 1970s through the 1990s. These changes are believed to be related to a decadal shift in climate as warming waters likely resulted in a transition from crustacean-dominated forage populations to fish dominated population, particularly gadid species (e.g. pollock and cod). Standardized small-mesh trawl surveys, conducted by the Alaska Department of Fish and Game (ADF&G) in Kachemak Bay in lower Cook Inlet since 1971 have provided data that documents these changes. Coupling trawl survey and oceanographic data will allow ADF&G to better identify ecosystem links to population and biomass changes with the ultimate goals of: (1) monitoring of ecosystem changes; (2) identifying of species that are at risk; and (3) fostering better management of Alaska's marine resources.

Science Panel Comments:

The proposed project provides for continuation of a small mesh trawl surveys that will extend a long-term data set that is potentially very valuable in assessing environmental change. However, potential links to injured resources and restoration are tenuous and not well spelled out in the proposal. The panel can not recommend funding for this reason. Also, it is unclear as to what extent agency funds will be used to support future surveys and at what frequency. The principal investigator is urged to synthesize existing small mesh trawl survey data (including the Kachemak Bay and Anderson surveys), to relate findings from these surveys to other physical/biological data sets that are available (e.g. GAK1 data and plankton data from Batten), and to asses potential causes for changes. The panel suggests that funding for publication of such an effort might be a project worth future consideration by the Trustees, and that trawl surveys might be a valuable part of future long-term monitoring.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Although this project has been funded by the TC in response to previous requests for proposals, it is unclear how it relates to the current Invitation or links to restoration.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel and Science Directors comments and recommend not funding.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070819

Project Title: **Prince William Sound Herring Disease Program**

Principal Investigator: Paul Hershberger

Affiliation: DOI

Disbursing Agency: USGS

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$246,500.00	**FY08:**	$257,100.00	**FY09:**	$258,600.00
FY10:	$272,800.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $1,035,000.00

Abstract:

A leading hypothesis accounting for the decline and failed recovery of the herring population in Prince William Sound involves epizootic mortality resulting from infectious and parasitic diseases. Ongoing and past surveillance of herring diseases in PWS, initiated by Dr. Gary Marty and continued by ADF&G through the herring disease index, is extremely valuable and necessary to document changes in disease prevalence, but field surveys are unable to unequivocally demonstrate epidemiological relationships that modulate disease cycles. This proposed multi-year Herring Disease Program (HDP) consists of three components intended to provide predictive metrics that forecast future disease epidemics and offer empirical relationships useful in developing adaptive management policies to mitigate the effects of epizootic and chronic diseases. The first component involves laboratory validation of the ongoing PWS herring disease index. Long-term continuation of the herring disease index, paired with laboratory validation, is necessary to confirm the efficacy of future adaptive disease management strategies. The second component involves empirical studies intended to determine the basic epidemiological relationships between environmental and biological factors influencing infection / disease prevalence. The final component involves development of immunological and molecular tools that will be useful in predicting the potential for future disease epidemics. Combined, this three-tiered approach will provide the basic epidemiological information necessary to develop and validate adaptive management techniques intended to mitigate the effects of future herring disease outbreaks in PWS.

Science Panel Comments:

Disease is an important consideration in the development of a comprehensive herring restoration program, and this is the only project that proposes to take an in-depth look at disease factors. The PIs are experts in the field and qualified to conduct the work. The panel recommends removing the immune gene expression objective, which is not well conceived or detailed in the proposal. Also, the PI should expedite the development of lab methods, so they can be used as tools to assess disease status in the field while captive work continues. A field component should also be added in Year 2 with concentration on Sitka (healthy stock) population for field validation.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with the Science Panel. No other disease proposals were submitted to the Trustees, and disease plays an important role in the current state of PWS herring. However, disease is not fully understood in the PWS herring population. Understanding disease is vital to any direct intervention activity, so that the spread and expansion of disease problems can be prevented.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070751

Project Title: **Prince William Sound Marine Bird Surveys, Synthesis and Restoration**

Principal Investigator: David Irons

Affiliation: DOI

Disbursing Agency: USGS

Project Location: Prince William Sound, Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $191,200.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $191,200.00

Abstract:

We propose to conduct small boat surveys to monitor abundance of marine birds in Prince William Sound, Alaska during March and July 2007-2011. Eight previous surveys have monitored population trends for >65 bird and 8 marine mammal species in Prince William Sound after the Exxon Valdez oil spill. We will use data collected in 2007-2011 to examine trends from summer and from winter to determine whether populations in the oiled zone are increasing, decreasing, or stable. We will also examine overall population trends for the Sound. To help determine when recovery has occurred we will examine population trends in other areas outside of Prince William Sound, and conduct population modeling for the non-recovered species. Continued monitoring of marine birds and synthesis of the data are needed to determine whether populations injured by the spill are recovering. Data collected from 1989 to 2005 in the oiled area indicated that bald eagles (Haliaeetus leucocephalus), common loons (Gavia immer), and cormorants (Phalacrocorax spp) are increasing in winter. Numbers of all other injured species are either not changing or are declining in the oiled area. Populations of harlequin ducks (Histrionicus histrionicus), black oystercatchers (Haematopus bachmani) and common murres (Uria aalgae) are showing no trend in the oiled area; pigeon guillemots (Cepphus columba), marbled murrelets (Brachyramphus marmoratus), and Kittlitz's murrelets (Brachyramphus brevirostris) are declining in the oiled areas of Prince William Sound. Results of all surveys have been summarized in reports and results through 1998 have been published by Irons et al. (2000) and Lance et al. (2001). Analyses and synthesis of these survey data are the only ongoing means to evaluate the recovery of most of these injured species. A final report will be written upon completion of the project that will address population status of injured species, additionally, results will be published in a peer reviewed journal.

Science Panel Comments:

The proposal provides for the extension of an important long-term data set that is critical to the evaluation of recovery of injured bird resources. However, the survey work is costly and previously presented power analyses have suggested that surveys conducted at a frequency of once every three years may be sufficient to detect reasonable levels of change in seabird abundance. Thus, the panel felt that annual surveys as proposed are not warranted, and that postponing the start of less-frequently conducted potential future surveys would not be of great issue. The panel also found that methods and justification with respect to synthesis and modeling objectives were not sufficiently detailed or developed. The panel suggests that the proposal be reduced in scope (i.e. less frequent survey intervals, possible reduced modeling effort) and submitted for consideration in future funding cycles.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

The Science Director is on a long-term detail from the FWS and must therefore, recuse herself from making recommendations on FWS proposals. The PI on this proposal is employed by the FWS.

Science Director Recommendation: Not Reviewed

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070708

Project Title: **Lingering Oil and the Dynamics of Boulder Armors**

Principal Investigator: Gail Irvine

Affiliation: DOI

Disbursing Agency: N/A

Project Location: Gulf of Alaska (Katmai National Park and Preserve, Kenai Fjords NP&P) and Prince William S

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

We propose to investigate the relationships between the dynamics of boulder-armored shorelines and the persistence of Exxon Valdez oil on shorelines in the Gulf of Alaska and Prince William Sound. We hypothesize that much of the lingering oil in the spill region is sequestered beneath boulder armors and that this oil poses risks to biota as well as challenges to future remediation. We propose to: 1) continue our long-term monitoring of the lingering oil and the boulder armors at our GOA sites, and 2) investigate, through a field-based experimental approach, how boulder armored shorelines function in terms of natural disturbance rates and the factors contributing to oil persistence within them. As part of our study, we will test the effects and effectiveness of manual boulder removal as a cleanup method. By studying the dynamics of this little understood shoreline type, we will contribute new data that are useful in predicting the distribution of lingering oil and designing methods for its remediation.

Science Panel Comments:

Fund pending re-submittal and resolution of several key issues. The study will provide information important to restoration, is well designed, and is to be conducted by qualified investigators with a strong track record at a reasonable cost. However, there were several concerns with the proposal that the panel felt should be addressed before approval for funding. Most importantly, the proposed work could potentially cause the release of sequestered oil that may impact local biota. The proposal did not address: 1) proposed means of remediating these potential impacts such as placement of booms, 2) Biological or chemical sampling to evaluate the potential effects of release of sequestered oil, 3) Obtaining of permits that may be required for the work, especially given that much of it is to be conducted in National Parks. These issues should be resolved prior to approval of funding. Also, the proposal (and others submitted by the same investigators) gives no indication of the extent oiled armored shoreline in Prince William Sound or elsewhere in the GOA that may be of concern and does not provide a means of identifying the universe of such shorelines. This should be resolved in either this or other proposals submitted by the investigators.

Science Panel Recommendation: Fund Contingent

Science Director Comments:

The PIs propose to continue their long-term monitoring of boulder armor beaches that have remnant lingering oil and conduct manipulation experiments to evaluate the efficacy of altering boulder structure on the removal of oil from these beaches. The PIs adequately were asked to address four areas of concern raised by the Science Director and the Science Panel: 1) Possible long-term consequences to biota that may occur due to alteration of habitat (i.e. changing the structure of the armored beaches by moving the boulders) 2) Toxicological impacts to biota by the re-release of oil (i.e. unclear what measures were being taken to collect any oil that is released) 3) Clarification of the statistical

model/methods that will be used to analyze the data, plus CVs from the statisticians/modelers that are participating in the project and 4) Regulatory requirements for doing this type of manipulations in National Parks.

The PIs provided thoughtful answers to the questions posed to them. Their response to question one resulted in the submission of an amended project summary. In the altered project, the Pis would use the field season in 2007 to do reconnaissance trips in PWS to find beaches that are armored, have residual oil and have clam populations in close proximity. If these types of
beaches exist than the boulder manipulation studies could be focused on these shorelines in 2008. Addressing the potential impacts to biota is a crucial addition to this project.

I acknowledge that the PIs were very responsive to the request of the Science Director and Science Panel. However, I still can not recommend funding for the project at this time for the following reasons: 1) the geographic extent of armored oiled shorelines in the spill area is unknown, thus we cannot predict the magnitude of the potential problem on these beaches. The question of what to do about remediation on these types of shorelines might be better addressed after the extent of the problem is identified. The results of a project evaluating the distribution
and amount of lingering oil would assist in scoping this project 2) in answering the above questions, the PIs speculated that less than 10% of the oil in the sediments would be mobilized by their boulder manipulation. The expense of the project may not be justified if it is anticipated that such a small amount of oil will be removed. Again, understanding the scale of the problem will help with a cost-benefit analysis.

That said, several components of the study should be reconsidered or deferred for future funding: 1) the long-term monitoring of the oil on the boulder armor beaches should continue. Given the slow degradation rate of oil in these types of beaches, it may be beneficial for the PIs to conduct a power analysis to determine how frequently monitoring should occur in order to detect change in oil degradation. 2005 was the last time these beaches were surveyed, so it is probable that these beaches should be resurveyed in 2008 or 2009; 2) disturbing boulder armor habitats may have long-term consequences to biota. It has been hypothesized that the inability of clam
populations to recover in areas that were high pressure washed may be due to the physical alteration of the armor and the fact that this armor has not restructured itself. However, this theory has not been tested. Therefore, the amended version of the proposal, whereby the PI have a reconnaissance year to identify overlap of armor, oil and biota and then proposed manipulations of these habitats should be incorporated into future projects.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

The PAC recommends that only the mussel collection portion of the project receive funding.

Public Advisory Committee Recommendation: Fund Contingent

Executive Director Comments:

Not Applicable

Executive Director Recommendation: Not Reviewed

Trustee Council Comments:

The questions related to the potential biological effects of boulder armor disruption have not been adequately addressed. Will bolder armor disruption do more harm than good? The PIs do not expect to see that much oil released from bolder armor disruption—approximately 10% of the underlying oil. If so, then why remove the bolder armor? Until a comprehensive survey of lingering oil is completed to determine where bolder armored beaches overlap, this project is pre-mature.

Trustee Council Decision: Do Not Fund

Project Number: 070709

Project Title: **Population Monitoring of Sea Otters in the Exxon Valdez Spill Area**

Principal Investigator: Lianna Jack

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Kachemak Bay, Kodiak Archipelago, and the Alaska Peninsula

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

One of the many marine mammal species that was contaminated by the Exxon Valdez Oil Spill was the northern sea otter (Enhydra lutris kenyoni). While sea otter recovery in oil spill areas is improving, sea otter populations are not at their prespill levels or distribution. To better understand the recovery of these populations of sea otter, it is important to continue population monitoring and surveys. The Alaska Sea Otter and Steller Sea Lion Commission (TASSC) proposes to annually monitor five areas located within the Exxon Valdez oil spill area through implementation of skiff surveys. TASSC will coordinate with local tribes and communities to implement the surveys. These surveys will be completed in an effort to monitor and gain a better understanding of the recovery of these populations of sea otter.

Science Panel Comments:

The strength of this proposal is the direct involvement of members of communities impacted by the spill in restoration activities. However, the proposed skiff surveys of sea otter abundance are not well suited for use in the Spill area and provide relatively poor estimates of sea otter abundance compared to aerial surveys being conducted in parts of the same region. Therefore, the panel can not recommend this project for funding. The panel recognizes that the investigators and members of spill-impacted communities can make valuable contributions to the restoration of sea otters (e.g. by providing information of pup to adult ratios, collecting sea otter skulls for survival analysis) as well as other resources (e.g. providing boat-based survey data on oystercatcher and other nearshore bird abundance and time of onset of seasonal activities), and encourages the prospers to develop and seek funding these or other projects.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

The Science Director is on a long-term detail from FWS, and must recuse herself from making recommendations on proposal that involved the FWS. The work proposed in this project is a collaboration between the AK Sea Otter and Stellar Sea Lion Commission and the FWS.

Science Director Recommendation: Not Reviewed

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070800

Project Title: **EVOSTC Outreach and Information Sharing Venue - Cordova Center**

Principal Investigator: Timothy Joyce

Affiliation: Local Government

Disbursing Agency: N/A

Project Location: Cordova

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

The Cordova Center will be a 34,000 square foot, ADA accessible multi-use facility designed to address the following EVOSTC, community, and regional needs:
• Public outreach and information sharing center for EVOS Trustee Council
• Research sharing venue for Gulf of Alaska Ecosystem Monitoring and Research Program
• Restoration of Cordova's injured fishing and tourism-based economy
• Economic revitalization locally and regionally
Upon completion of construction the Center will provide
• Venue to host symposia, workshops, classes
• Library supporting scientific research and offering online access to EVOS program reports
• Repository for local EVOS documents
• Science Discovery Room and Science of the Sound Education Program Home
• Museum exhibit on oil spill history and advances in science, technology and industry stimulated by the spill
• Oil Spill Response Emergency and Communications Center
• EVOS research, SEA, and GEM research findings educational displays, restoration effort results, art representing Delta and Sound ecosystems
• Visitor Center promoting PWS tourism, outdoor recreation, seafood marketing

Science Panel Comments:

Not Applicable

Science Panel Recommendation: Not Reviewed

Science Director Comments:

Not Applicable

Science Director Recommendation: Not Reviewed

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

The City of Cordova is requesting the Council fund approximately 45% of the design and construction of a new City Hall for Cordova. The City has stated that 14,655 of the total 34,000 square feet are directly related to the Council's restoration program. The proposal contains several references to the GEM program, which is not currently being pursued by the Trustees. Many other historic science programs are contained in the archives of Trustee Council documents (e.g., NRD, SEA, NVP). All of our programmatic documents are available to the public through ARLIS and the Council's website.

The schedule for fund-raising and the bid process seems ambitious, with construction to begin 14 to 17 months from now. The City does not have complete funding for the project. It is possible that the Trustees could fund the requested portion of the project, yet the remaining funds never be acquired. It would not be possible to construct only that portion of the building that the City claims has relevance to EVOS. Moreover, the history of the Alaska SeaLife Center has demonstrated the importance of researching anticipated annual operating costs of a facility and identifying how they will be paid.

The proposed library services described in this proposal duplicate existing services available at ARLIS and the Council's website. The proposal states the library will share resources for research needs among Prince William Sound Science Center, Native Village of Eyak, and Prince William Sound Community College; however, the PWS Science Center and OSRI are currently ARLIS partners, receiving desktop access to databases and electronic journals. EVOS related materials and other ARLIS research materials are also available to everyone in Alaska via interlibrary loan from their local library. The proposal still contains a reference to archival materials, which will remain at the Alaska State Archives by statutory mandate.

The Alaska SeaLife Center which was partially funded with Restoration funds provides educational and research opportunities to the public, so they can learn about the effects of the oil spill. This activity seems duplicative of the Discovery program (room and educational events).

The Restoration Fund cannot be used to fund Oil Spill Response activities. Thus, a Response emergency center does not qualify for funds.

The City of Cordova has stated that unless they receive Trustee Council funding this proposed project will not happen. However, according to the distribution plan for Case N. A89-095-CV (punitive damage claim), approved by Judge Holland on April 22, 1997, plaintiffs' attorneys expect the 11 municipalities to get a total of $112,008,000. Cordova's final percent share is 21.054% of this judgment. This would be a more appropriate funding source for the City because the current proposal does not meet the criteria established for the intended use associated with the Settlement Fund.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Defer

Project Number: 070810

Project Title: **An Ecosystem Model of Prince William Sound Herring: A Management & Restoration Tool**

Principal Investigator: Dale Kiefer

Affiliation: Non AK University

Disbursing Agency: NOAA

Project Location: Analysis/Modeling of data from Prince William Sound & Gulf of Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$250,800.00	**FY08:**	$250,800.00	**FY09:**	$250,800.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $752,400.00

Abstract:

Over a three-year period, we propose to develop a life-stage specific, ecosystem based model of the Prince William Sound (PWS) herring that will aid in the integration of ecological data that has been gathered on herring over the last 2 decades, evaluation of proposed restoration activities, and attempt to simulation of the processes that cause the chronic decrease in herring stocks since the 1989 spill. More specifically, it will be used to test the unresolved hypotheses of why the herring have not recovered to pre-spill densities. The model and associated data will be housed in a geographic information system that we have developed specifically for marine applications. The geo-spatial information from field surveys and simulations with the model will available for interactive viewing and downloading of files over the Internet.

The model will provide a mathematical description of the population dynamics of annual herring cohorts as they mature through their life stages. In particular we will focus on arrival of larvae to the Bays of PWS, the maturation and survival of juveniles in these bays, and the survival and reproductive success of adults as they move seasonally from spawning grounds, feeding grounds and wintering grounds. The system of coupled differential equations that describe these processes will be tuned to prove a best fit between model calculations and field and laboratory measurements. In its final form the model will consist of 3 sets of such equations that will simulate the unique conditions found in herring habitats of the eastern, northern and southwestern regions of PWS. Most importantly, the model will be formulated according to the principals of the trophic trap in which 2 metastable states for herring exist, low-density and high-density. We propose that a sequence of events following the spill drove the herring from high-density to low-density and a trophic trap prevents stocks from recovering. Thus, we will tune our model to both high-density and low-density states and then run the tuned models in the forward or backward direction to identify both the most probable causes of the injury and the most promising approaches to restoration.

Our team has the scientific and technical experience to succeed, and we will work closely with researchers from the other herring projects, especially those working on larval drift, disease, otolith marking, and intervention. Our web-based system will promote such collaboration particularly with such groups as PWSFRAP and with the PWS Science Center.

Science Panel Comments:

This proposal is one of the most original and synthetic of the proposals reviewed. The predictive capability of the proposed model makes it a valuable tool for examining population dynamics of herring. This project could provide a central data gathering point for several of the other, more detailed, modeling proposals. The Panel suggests that the PIs accelerate the model development, such that it would be useable to assess efficacy of various potential restoration methods. The Panel was concerned that the model is inextricably linked with the patented EZ software system and wants to ensure that the model could stand alone as a predictive tool.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel. The PI will need to work directly with the data management staff at the Trustee Council office to create a web-based product that is user-friendly and available to the public. The life-stage model will be useful in understanding how different stressors affect the PWS herring population, which until now has not been developed.

Data Systems Manager Comments: Defer: This project proposes to develop a comprehensive herring model for PWS based upon the previous work of Evelyn Brown and others. The PIs also propose to work with Vince Patrick to enhance the accuracy of the model by applying concepts learned at PWSFRAP when implementing the pink salmon model. They propose to house and run the model using the EASy GIS software system and to install this product on the EVOS server.

Though I am not a mathematical modeler, and thus cannot evaluate the proposal at that level, I do think that the conceptual modeling approach is responsive to the invitation and potentially valuable. However, I think this proposal may be a case of "too much too soon" for several reasons. First, a final report has not been received or peer reviewed for project 060784 (Adams FY06), which involved implementation of the pink salmon survival model. It would be good to evaluate the results of this project before embarking on a new modeling effort partially based upon it. Secondly, I like the idea proposed in the Moffitt proposal of building a centralized data portal for housing herring research data. I feel that first bringing together herring research data into a centralized electronic system will improve the availability of herring data and result in the building of better models and GIS systems. Thirdly, I recently met with Vardis Tsontos to install the GIS system software produced in project 040710. The product showed promise, but we encountered some technical problems with the software. These issues appeared to be due mostly to slight differences between the server configurations here at EVOS and the environment under which the software was developed. Thought I am confident the technical issues will be worked out (currently waiting on their database manager for a resolution), I would like to get the opinion of other scientists who might use the completed EASy GIS product as to its usefulness before we commit substantial resources towards development of additional products based upon it. The budget for this project is rather large, and I would also like to explore the question of GIS software standardization in the EVOS office before we commit to development of this system.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Fund but require the PIs accelerate model development as suggested by the Science Panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070811

Project Title: **Prince William Sound Herring Forage Contingency, Submitted Under the BAA**

Principal Investigator: Thomas Kline

Affiliation: NGO

Disbursing Agency: NOAA

Project Location: Prince William Sound and Adjacent Gulf of Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $262,000.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $262,000.00

Abstract:

Prince William Sound (PWS) herring recruitment is hypothesized to be contingent on young of the year herring attaining from zooplankton sufficient whole body energy content (WBEC) to survive their first winter. PWS recruitment is presently variable, having changed since the Trustee Council funded Sound Ecosystem Assessment (SEA) project ended. Juvenile herring will be sampled and analyzed for WBEC and natural stable isotope abundance (SIA) for comparison with SEA data. The PI has direct familiarity with WBEC and SIA done during SEA enabling duplication. Oceanic subsidies (detected with SIA) are hypothesized to augment zooplankton energy density, which varies in time and locations. High zooplankton energy density is hypothesized to enable herring to acquire high WBEC in certain areas at certain times. To test these hypotheses, herring forage will be assessed in terms species composition and density, SIA, and energy density, which will be related to herring WBEC by location and time.

Science Panel Comments:

Re-evaluate labor costs

Science Panel Recommendation: Fund

Science Director Comments:

Reduce funding by cost of LTOP cruises and International meeting costs.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070820

Project Title: **Assessment of PAHs and Heavy Metals in Subsistence Mollusks from the Prince William Sound's Traditional Use Areas**

Principal Investigator: Gunnar Lauenstein

Affiliation: NOAA

Disbursing Agency: N/A

Project Location: Prince William Sound, AK.

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Following the Exxon Valdez oil spill (EVOS), which affected Prince William Sound, most monitoring projects have analyzed hydrocarbons (PAHs) contamination in mussels as a measure of oil bioavailability. However, other oil related contaminants such as metals (Cd, Cr, Ni, Pb, Se, Hg, Ag, Cu, and Zn) may be elevated and affecting subsistence mollusks. This project will analyze mussels, cockles, razor and littleneck clams, and bidarkies for PAHS and heavy metal tissue burdens. Moreover, this project will establish interspecies contaminant factors (ICF) among the subsistence mollusks so that data collected on mussels by NOAA's Mussel Watch Project (MWP) can be used to estimate contamination in these mollusks. The ICF will thus provide cost effective indirect monitoring of subsistence resources based on subsequent MWP monitoring data. This study will be performed in partnership with the Chugach communities who have expressed interest in knowing levels of contaminant concentrations in their subsistence harvests.

Science Panel Comments:

The proposal addresses a potentially important human health issue, the contamination of subsistence foods with oil or heavy metals. Previous studies have addressed potential hydrocarbon contamination of subsistence bivalves but there have been few if any examinations of potential contamination by metals. The panel views this proposal as one that will provide important screening information with respect to potential contamination of subsistence foods, especially contamination by metals, and recommends this proposal for funding. However, several design modifications are suggested. First, if possible, community members should be trained to collect samples and be largely responsible for routine collection of samples. Second, there should be a specific plan for presenting the results to the community. Third, while the sites indicated are of interest because there are historical data on hydrocarbons in mussels from these sites, alternative sites that are more often used for subsistence might be preferred. Fourth, the design calls for testing of multiple species, but not all of these species are likely to occur at the sites they have indicated, and only mussels are likely to occur in large numbers at all sites. Either sampling should be restricted to only a few species, or the sites to be sampled reconsidered to include those where other resources are present. Consultation with community members and researchers that are familiar with these sites (e.g. members of the Tatitlek and Chenega villages, researchers associated with the NOAA Auke Bay Laboratory) should prove helpful. Finally, results should be clearly related to concentrations of concern with respect to human health so that that risk can be better evaluated.

Science Panel Recommendation: Fund

Science Director Comments:

Residents in spill-affected communities are still apprehensive about the safety of certain subsistence resources. This reasonably-priced proposal will measure the amounts of metals in intertidal species used for subsistence, which has not been done previously under the EVOS program. The modifications suggested by the Science Panel would focus the sampling in those areas that are used by the community as opposed to specifically going only to those areas where lingering oil has been found.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Defer

Project Number: 070805

Project Title: **ShoreZone Mapping for Prince William Sound**

Principal Investigator: Mandy Lindeberg

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$237,900.00	**FY08:**	$322,300.00	**FY09:**	$0.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $560,200.00

Abstract:

This proposal will continue ShoreZone mapping in Prince William Sound (PWS), Alaska. Approximately 8,400 km of shoreline has been mapped in the central Gulf of Alaska, including 1,600 km of shoreline in western PWS in 2004. The majority of the spill area inside PWS, including Knight island area and all of northern and eastern PWS have not been mapped. To support both future oil remediation efforts as well as restoration activities, such as possible herring intervention programs like moving spawn to rearing areas, would be supported by a single mapping protocol that included geomorphology, substrate type, as well as the biological substrate on all beaches. Completing PWS would fill the gap by providing a contiguous data set from across the entire spill area using a standard protocol. Most importantly, this data set will be useful to managers, as it combines photographs of the entire beach area, as well as having a data set that can be sorted by location, substrate type, and other factors. The ShoreZone data set is recognized as a significant tool for oil spill response planning, identifying essential fish and wildlife habitat, and for monitoring long-term changes in coastal habitat that may result from development, restoration, or even global climate change. Three 6-day aerial video imagery surveys (about 4,000 km of shoreline), mapping, ground-truthing, and nearshore fish sampling are proposed. Aerial video imagery would be completed in the first summer, mapping in the following winter, with ground truthing/fish sampling at a limited selection of sites the following summer.

Science Panel Comments:

This proposal provides Sound-wide data on important physical and biological characteristics of the environment that would be applicable to herring restoration, as well as lingering oil issues and injured resource recovery. The Panel did not see the value in the fish sampling effort and suggested its removal, along with a reduction in the amount of ground-truthing proposed. A great deal of information is already known about the PWS, and the field effort should be enough to validate the aerial surveys. However, it is not necessary to cover such a large proportion of the area. The cost seemed high, but with a reduction in the field effort this project should be more cost effective.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel. The information derived from this project will be applicable to most injured resources and services, especially those reliant on the nearshore environment. The fish collections should be removed, the number of ground-truthing events reduced and costs trimmed accordingly.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund Contingent

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070821

Project Title: **Development of Culture Technology to Support Restoration of Herring in Prince William Sound: Use of In Vitro Studies to Validate and Optimize Restoration Actions**

Principal Investigator: Timothy Linley

Affiliation: Private Enterprise

Disbursing Agency: ADFG

Project Location: Prince William Sound, Resurrection Bay

Project Type: New

Funding Approved by Fiscal Year:

FY07: $92,700.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $92,700.00

Abstract:

Intervention in the form of artificial propagation may be needed to restore Prince William Sound (PWS) herring to levels capable of supporting a healthy ecosystem as well as sustainable fisheries. We propose to test and refine propagation methods through laboratory and field studies over a three year period to evaluate the likely benefits and costs of stock restoration. The overall objective is to obtain biological and economic benchmarks of stock enhancement strategies by integrating established techniques for laboratory rearing of herring with state of the art methods used in the culture of multiple marine species. Our specific efforts will focus on the role of calcium sensing receptor proteins in herring osmoregulation, nutrition and immune function. The results will provide PWS stakeholders and other researchers with improved understanding of the optimal husbandry and nursery conditions for herring stock enhancement, and the potential effects of such restoration on PWS herring.

Science Panel Comments:

If direct enhancement or other types of intervention is a likely direction that a herring restoration program will pursue, then captive rearing and propagation of herring will be needed. This proposal is the only project that seeks to develop culture techniques suitable for herring in Alaska. The PIs have a great deal of experience with fish culture (mostly salmon), but it is unclear how much experience they have with herring. Herring culture techniques have been successfully implemented in Japan, and the panel believes that the PIs would benefit from learning how those methods that can be used in Alaska. Therefore, they recommend a reduction in the first year of funding to $60,000 for the PI's to collaborate with the Japanese on herring culture techniques. In the second year, the PI's should submit a reworked proposal. They should remove the calcium receptor gene objective, because it is unclear how that relates to herring. They should consider a larger range of environmental factors in their culture methods and analyze their effects on growth and survival. The PIs also need to define a source for their captive fish, describe how they will consider the role of disease in their work and resolve permitting issues.

Science Panel Recommendation: Fund Reduced

Science Director Comments:

Concur with Science Panel. If direct intervention or enhancement activities are eventually recommended for PWS herring, an understanding of culture techniques and large-scale production will be necessary. The PIs have experience in fish culture, (although their experience with herring is not clear in the proposal), and the Alaska SeaLife Center will provide an excellent facility to establish this program. The Japanese have a great deal of experience with commercial scale herring production, and their experience would benefit any program initiated in Alaska. Therefore, the PIs should

take advantage of one-year seed funding to present a proposal that incorporates established techniques.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

Concur with Science Panel recommendation and suggest a collaborative effort with other established hatcheries in the PWS area.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund Reduced

Project Number: 070802

Project Title: **Predicting and Validating the Bioavailability of PAHs from the Exxon Valdez Oil Spill**

Principal Investigator: Rainer Lohmann

Affiliation: Non AK University

Disbursing Agency: N/A

Project Location: Prince William Sound, especially w/in embayments of Knight Island

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Our proposal addresses the physical and chemical processes that affect lingering oil in Prince William Sound. In particular, we will focus on the bioavailability of polycyclic aromatic hydrocarbons (PAHs), arguably the most toxic compounds of oil mixtures. Our proposed research will rely on using novel, passive polyethylene (PE) samplers. PE samplers will enable us to identify the major processes governing the availability of sediment-bound lingering oil, and identify the pathways (ingestion versus respiration) by which PAHs become available to the benthic food-chain. Model development involves the derivation of partitioning models for predicting dissolved and bioavailable concentrations of PAHs.

In more detail, we propose to

(i)Study and parameterize the distribution of remaining PAHs from EVOS in-between sediments and water (i.e., their sorption);

(ii)predict and validate the bioaccumulation of PAHs by benthic invertebrates; and

(iii)predict the risk posed to wildlife feeding upon contaminated benthic biota.

Science Panel Comments:

The proposal examines the bioavailability of polycyclic aromatic hydrocarbons (PAHs) through use of passive samplers. However, the investigators failed to review other pertinent literature on the subject of PAHs in sediments in PWS, including past work using passive sampling devices. Furthermore, the proposers failed to demonstrate that the specific methods and models that they have employed in east coast estuaries will be applicable to the PWS environment where sediments are not well sorted, often contain a large proportion of coarser fractions, and can sequester pools of relatively unweathered oil. Finally, specific methods, including the number and location of sampling sites, have not been provided. The panel does not recommend that this proposal be funded.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel comments.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070742

Project Title: **Monitoring, Tagging, Feeding Studies, and Restoration of Killer Whales in Prince William Sound/Kenai Fjords in 2007**

Principal Investigator: Craig Matkin

Affiliation: NGO

Disbursing Agency: NOAA

Project Location: Prince William Sound/Kenai Fjords

Project Type: New

Funding Approved by Fiscal Year:

FY07: $99,400.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $99,400.00

Abstract:

The proposed project is an amendment to the previously funded project that addresses lingering effects of the Exxon Valdez oil spill by continuation of the monitoring of AB pod and the AT1 population killer whale populations in Prince William Sound. These groups of whales suffered serious losses at the time of the spill and have not recovered at projected rates. This proposal seeks to extend the scope of work to include an innovative satellite tagging program to examine habitat preference and to aid in a more extensive examination of feeding habits using observational and chemical techniques. Results will allow us to more closely examine the potential for restoration. The project will more clearly delineate the role of killer whales in the nearshore ecosystem and possible effects on the restoration recovery of harbor seals and sea otters. Community based initiatives such as Youth Area Watch and educational programs for tour boat operators educational programs will continue to be integrated into the work to help foster restoration improving public understanding and reducing harassment of the whales.

Science Panel Comments:

The proposal asks for additional funds to employ a new method for tagging killer whales. The panel found this to be a very exciting opportunity that is likely to greatly enhance our ability to evaluate recovery status of killer whales and recommends funding. The panel's only additional recommendation is that the use of tags might afford opportunities to conduct winter observations of feeding, and that these might be considered for inclusion as the methods are more fully developed.

Science Panel Recommendation: Fund

Science Director Comments:

Currently, identifying and tracking killer whales in and around the spill area is based on observational methods. Tracking whales over large areas and understanding where and how they spend the majority of their time is measured by how frequently the investigators encounter whales and how long they are able to watch them. The proposed technique would allow the principal investigator to remotely track whales throughout their home range, which includes a much bigger area than can be reasonably covered by small boat. This will provide much needed life-history information on an injured resource.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070834

Project Title: **Identification of Essential Habitat for Pacific Herring (Clupea Pallasi) in Sitka Sound for Comparison to Prince William Sound i.e. Source vs. Sink Habitat– Submitted under the BAA**

Principal Investigator: Heather Meuret-Woody

Affiliation: NGO

Disbursing Agency: ADFG

Project Location: Sitka Sound, Sitka Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $166,400.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $166,400.00

Abstract:

Once herring hatch and the larvae drift to retention areas, they begin metamorphosis. As juveniles, herring forage in productive waters of the North Pacific. Adult herring then return to natal beaches to spawn. What is unknown is where the herring go and if certain regions contribute more to the spawning population. Once we know which population contributes more to the spawning groups, we can then identify those variables that enhance the life histories of the source population. We can identify these groups and track their movements using otolith chemistry. The adult herring that return to spawn are the survivors. If most of the survivors come from a distinct population, then we need to know which population survive and why. This will allow managers to protect the most important populations and also identify those environmental variables needed to enhance other populations.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Director Comments:

Similar to BickfordNorcross study in PWS. This study may be needed in the future to compare with PWS, but methodology should be strengthened first and this is the goal of the NB study, plus it's being done directly on PWS herring.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070801

Project Title: **Assessment of the Areal Distribution and Amount of Lingering Oil in Prince William Sound and the Gulf of Alaska**

Principal Investigator: Jacqueline Michel

Affiliation: Private Enterprise

Disbursing Agency: Pending

Project Location: Prince William Sound and the Gulf of Alaska (Kenai Peninsula and Kodiak Strait)

Project Type: New

Funding Approved by Fiscal Year:

FY07: $1,465,500.00	**FY08:** $128,600.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $1,594,100.00

Abstract:

The proposed study is to develop and implement a statistically rigorous field study and spatial modeling analysis to produce maps showing the probability of lingering oil in areas of Prince William Sound and the Gulf of Alaska that were affected by the Exxon Valdez oil spill. We will also estimate the area and volume of oiled sediments in these areas as of 2007. Sediment samples will be analyzed to fingerprint the source of the oil residues, characterize them as to the degree of weathering and risk to exposed biota, and determine treatability using bioremediation. The results will provide key data for use in developing more detailed remediation plans and priority areas for remediation. The probability maps will allow researchers to identify locations where oil persists with much greater precision, leading to more sensitive studies of the long-term effects of the lingering oil on biota in the spill-impact regions.

Science Panel Comments:

The study will provide information critical to restoration, is well designed, and is to be conducted by qualified investigators with a strong track record at a reasonable cost. The panel recommends that the work be funded. The panel did have some questions regarding the qualifications of persons responsible for the modeling and statistical analyses. These should be explicitly identified and a resume provided for Dr. Pella who it appears will play a key role with respect to these aspects of the project. Also, it is unclear as to if or how the extent of oil on armored beaches will be evaluated. As described, the methods described do not appear applicable to sampling in these potentially important habitats. If necessary, the design should be modified to incorporate these.

Science Panel Recommendation: Fund

Science Director Comments:

The location, distribution and amount of lingering oil remaining in the spill area are key questions that may influence all future activities related to the restoration program. The PIs have excellent qualifications and the expertise to conduct this project.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

In comparing of this proposal with the PI's FY05 Trustee Council funded project, the stated overhead rate has increased from 120% to 170%; and this proposal also includes a 6% profit. In the FY05 project, the requested overhead was 15%, with a 120% in-kind contribution from Research Planning, Inc--this is not offered in this proposal. While I believe this proposal is scientifically sound and would provide valuable information for Trustee Council deliberations, funding should be contingent on the PI providing a current copy
of the indirect rate reference in Research Planning, Inc current accounting practices and the inconsistencies referenced above are addressed.

Executive Director Recommendation: Fund Contingent

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070822

Project Title: **Herring Data and Information Portal**

Principal Investigator: Steven Moffitt

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $132,100.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $132,100.00

Abstract:

This project will consolidate, document, and enter data sets, metadata, and other electronic resources into a web portal. The web portal will provide public assess to information, data, and GIS visualizations. Scientist and researchers will utilize the web portal as a resource to assist in consolidating, accessing and synthesizing herring data. This project will also develop an ArcPad application for collecting herring aerial survey data directly into a GIS format. The project was conceived during an EVOS sponsored workshop in April 2006 that was tasked to identify Prince William Sound herring data gaps and develop restoration or research projects to help herring recovery. Participants indicated that knowledge of the spatial and temporal aspects of herring related data sets, e.g., herring spawn, was necessary to understand how restoration activities might affect herring abundance trajectories. Currently there are many herring related data sets that are not easily accessible to restoration researchers and managers. Several restoration projects proposed at the April 2006 meeting would require spatial and temporal knowledge of herring data as input to a model or as a measure of the success of a restoration project. This project would provide easier access and visualization of selected herring data sets and other electronic resources.

Science Panel Comments:

This is a strong proposal that is well written and responsive to the Invitation. The web portal could be used by managers, researchers and the public, and it would provide a central location for historical data. The panel recommends that the PI coordinate his efforts with work proposed by Kiefer (if funded), and determine how the database should be populated. As submitted, the proposal only identifies funds for an IT professional and a graphic designer. For this project to be useful the database needs to be populated and managed, however no funds are requested for data gathering or management of the system. The Panel recommends that additional budget items should include funds for populating the database after the structure is created and management of the system. The PI should also explain how this project can be incorporated into the larger EVOS database.

Science Panel Recommendation: Fund

Science Director Comments:

Fund Contingent. The PI must work closely with the EVOS data management staff to ensure a product that is user friendly and available to the public. Additionally, two specific areas should be addressed prior to funding commitments: 1) Population of the data base with historic information and 2) Long-term maintenance of the database (i.e, not the system but the data). This project will only be useful if it data is incorporated into the system, such that it is available to managers, researchers and the public. Also, the data needs to be updated periodically, so it does not become obsolete. This will be a valuable tool as the Trustees move forward with herring recovery, but only if it is maintained

with current information.

Data Manager Comments: Modify and fund portal portion. Defer GIS component The PIs propose to develop a web-based portal for storage of herring data and metadata. They also propose to develop GIS visualizations of stored data, and to develop an application using ArcPad for collecting herring data in a GIS compatible format.

This project responds well to the invitation in that it brings together herring data from multiple sources and makes it available for further additional research, modeling, and GIS development. While I support the development of the herring data portal, I feel that this data system should be housed on EVOS database and web servers. This will ensure its continued availability after FY07 regardless of the Trustee Council's future funding priorities and decisions. I also recommend that the GIS component of the proposal be deferred until decisions can be made regarding standardization of GIS systems for EVOS.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Concur with Science Panel and Science Director recommendations.

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070823

Project Title: **Herring Restoration Activity Involving Herring Egg Translocation, Marking and Rearing Larvae To Various Stages & Incorporating Community and Commercial Stakeholders**

Principal Investigator: Ross Mullins

Affiliation: Private Enterprise

Disbursing Agency: N/A

Project Location: Cordova, Ak and the PWS Region

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Population restoration for herring is generally approached by: 1) protecting the diminished stock from exploitation; 2) restoring near-shore spawning habitats – principally intertidal vegetation; and 3) supplementing the damaged stock through ocean ranching involving hatcheries (Japan). We propose an additional supplementing activity to directly enhance the survival of each year-class during the vulnerable larval/early juvenile stage. Our approach will be to short-term rear larvae emerging from eggs collected in natal areas, for later release in nurseries determined to be optimal for growth and survival. Our understanding of optimal rearing habitat originates from work undertaken on juvenile herring by the Sound Ecosystem Assessment (SEA) program, 1994-99. By protecting a significant fraction of the most vulnerable early stages (post-hatch larvae), and relocating them in optimal rearing areas, our "intervention" will partially by-pass the risky period of larval drift where most believe the bulk of the mortality of a year-class occurs.

Science Panel Comments:

Several major concerns caused the Panel to not recommend this proposal for funding. The spill area communities are strongly supportive of an active herring restoration program; however, there are too many uncertainties regarding the success of egg translocation and the proposed larval culture techniques to recommend this project. Issues include evidence that suggests translocating herring eggs causes the death of all harvested eggs; disease implications which are not addressed, and permitting issues. Additionally, it is unclear if the PI's have experience with herring culture techniques or have examined alternatives to translocation. Finally, the methods are not detailed enough to allow the Panel to understand how the PIs will accomplish their objectives or determine success.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel. The PIs are obviously knowledgeable about the issue and have proposed a project they believe will jump-start herring recovery in PWS. They are understandably concerned about the condition of herring and have put much thought into direct intervention activities. However, much more preliminary information should be collected prior to actively altering herring habitat or translocating herring within PWS. Disease containment was not discussed in the proposal, and given the devastating effects diseases are currently inflicting upon PWS herring, this issue needs to be thoroughly discussed in the context of translocating herring eggs and releasing young reared in captivity. Moreover, the proposal does not present supporting evidence that these techniques have worked in other places, and the PIs do not address State and/or Federal permit requirements for their project. The proposal should be reworked, such that it includes the topics of concern in these comments and those of the Science Panel. These

activities should also be discussed as part of a bigger, long-term herring recovery program.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070290

Project Title: **The Exxon Valdez Trustee Hydrocarbon Database**

Principal Investigator: Bonita Nelson

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Project: Auke Bay Lab JNU,AK. Service: entire spill area via internet

Project Type: New

Funding Approved by Fiscal Year:

FY07: $30,100.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $30,100.00

Abstract:

This project is an on-going service project providing data and sample archiving services for all samples collected for hydrocarbon analysis in support of Exxon Valdez Oil Spill Trustee Council projects. These data represent samples collected since the oil spill in 1989 to the present and include environmental and laboratory Response (National Resource Damage Assessment - NRDA) and Restoration data. Additionally, we provide interpretive services for the hydrocarbon analysis, provide public releases of the database (including FOIA requests) and maintain the hydrocarbon sample archives.

Science Panel Comments:

This proposal provides ongoing support for maintaining, updating, and serving hydrocarbon data that are critical to future evaluations of recovery and restoration. We recommend funding. The only recommendation of the panel was that the web interface be updated in consultation with EVOS Trustee Staff to ensure that it is compatible and non-duplicative with other ongoing web server tasks.

Science Panel Recommendation: Fund

Science Director Comments:

This database is a long-term project that has been funded by the TC. It provides a storage and archival repository for hydrocarbon data generated from projects centered in the spill-affected area.

Data Manager Comments: Fund This proposal provides for the continued sample archiving and maintenance of the hydrocarbon database at the Auke Bay Lab in Juneau. This proposal represents the continuation of an effort that has been ongoing since 1993. The PIs also propose to improve the accessibility of the data through the web.

This proposal provides the Trustee Council a good cost sharing opportunity, and the cost is quite reasonable for services provided. I look forward to providing a link to this hydrocarbon database from our website when the upgrade is completed.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund Contingent

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070769

Project Title: **Using Otolith Chemistry to Discriminate Pacific Herring Stocks in AK**

Principal Investigator: Edward (Ted) Otis

Affiliation: State Of Alaska

Disbursing Agency: ADFG

Project Location: Gulf of Alaska

Project Type: New

Funding Approved by Fiscal Year:

FY07: $66,400.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $66,400.00

Abstract:

This proposal is an extension of EVOS Project 050769, which is currently assessing the temporal stability of stock discrimination criteria derived from fatty acid analysis (FAA) of herring cardiac tissues. In 2006, Otis (050769) collected heads from fish sampled for FAA so chemical analysis of the otoliths could be conducted to evaluate which technique was most effective for determining herring stock structure at fine spatial scales. In this study, Dr. Nate Bickford (EVOS Project 060782) will process those samples using laser ablation-inductively coupled plasma-mass spectrometry (LA-ICP-MS) to determine whether otolith chemistry can be used to corroborate FAA techniques for determining fine scale structuring within and among Alaska's herring stocks (e.g., Sitka, PWS, Kamishak, Kodiak, Dutch Harbor, Togiak, and Kuskokwim Bay). Results will be published and should allow researchers to better define ecologically significant stock boundaries, likely affecting how commercially exploited herring populations are assessed and managed.

Science Panel Comments:

This project proposes to analyze otoliths from fish collected from a previous TC-funded study. Therefore, the samples are already 'in-hand' and the project would be very cost-effective. The method provides a corroborating technique (along with fatty acid analysis) that will assist managers in identifying herring stock boundaries, thus the direct management applications are strong.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070824

Project Title: **Assessment and Restoration of Beaches with Lingering Oil**

Principal Investigator: Kent Patrick-Riley

Affiliation: State Of Alaska

Disbursing Agency: N/A

Project Location: Knight, Green, Seal, Smith, Elrington, La Touche, and Eleanor Islands

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

In 1994, the State of Alaska, with concurrence from EPA, identified the inertial zone of 23 beaches as impaired from petroleum remaining from the Exxon Valdez spill. These are the ONLY waters currently designated by State and Federal agencies as impaired from the Exxon Valdez spill. No studies have addressed their current status. Recent changes in EPA policy require that impaired waters either have a Total Maximum Daily Load (TMDL) or that a rationale be developed that shows a TMDL is not needed. Neither TMDLs nor the rationale that demonstrates TMDLs are unnecessary have been prepared for the EVOS impaired beaches. The 1994 Spill Restoration plan lacks many critical elements needed to satisfy Clean Water Act (CWA) restoration rationale requirements. This project is necessary to determine if impairments remain and to develop plan to restore any beaches that are still impaired in accordance with CWA requirements and State laws.

Science Panel Comments:

The panel did not recommend funding this project for the following reasons: 1) The focus of the project is on water quality, yet water quality has not been identified as an injured resource. Sampling has indicated that EVOS related hydrocarbons are below detection limits in water, and clearly below federal standards set for impaired water bodies, 2) Even if water quality was impaired, the TDML approach (which is generally used for evaluating impacts to surface waters with multiple and chronic inputs of pollutants) seems inappropriate, 3)
It is unclear as to how this is related to restoration or the mandates of the Trustee Council, 4) the methods were not well described, and 5) the costs for the project were not justified.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

This project collects data to determine if impairment remains, develops tools to manage impaired water bodies, evaluates treatment alternatives, and develops a restoration plan. All this is called for under sections 303(d), 305(b), and 314 of the Clean Water Act and are the administrative responsibilities of ADEC and EPA. Under the Clean Water Act,preparation of the TMDL or alternative rationale is a state responsibility but the cost for EVOS waters exceeds ADEC's normal agency management resources. DEC states that Trustee Council funds were established for this purpose. I received a different perspective from Martha Turvey (EPA office of Water and Watersheds, Region 10).

Martha stated the 23 impaired waterbodies referred to in this proposal are on the Clean Water Act section 303(d) list in categoty 4(b) which requires the state to track water quality--these are not category 5 which require TMDL or alternative rationale be prepared by the state as stated in this proposal. At some point the state will need to sample water quality and make a determination whether to delist these water bodies.

The bottom line is the timing does not seem to be critical and the question remains whether this is a normal agency function that is not eligible for Trustee Council funding. Until I receive a legal opinion in support of DEC's statement, I believe this project falls entirely within State and Federal responsibility under normal agency function and not a proposal eligible for Trusutee Council funding consideration.

The question of whether Trustee Council funds can be used to fund regulatory agency staff salary also needs to be addressed.

A major portion of the literature review was to be requested through ARLIS--the ADEC should be required to contribute to ARLIS as a founder.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070825

Project Title: **Monitoring Lingering Oil and Resources at Risk with Time-Lapse Digital Photography**

Principal Investigator: Robert Pawlowski

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Deployment of time lapse digital cameras to known areas of lingering oil will document persistence of lingering oil and potential exposure to marine birds and mammals over time. A data base for assessing population density and risk of exposure with multiple images on a daily basis will be built in year 1 with year 2-5 options. Imagery with passage of meteorological events will document re-suspension of oils, distribution of marine fauna in the area, or other specific components of interest to the EVOSTC. A DMR Plan will identify deployment sites for 30 cameras on high and low energy shores in Prince William Sound and Knight Island. Cameras for year 1 will be deployed in August 2007, serviced in November 2007 and recovered in July 2008.

Time lapse imagery will be collected to the QA/QC Plan, archived and distributed to researchers and EVOSTC Agencies. Files will be maintained by AFDF.

Science Panel Comments:

The proposal will provide time-lapse images of oiled shorelines to help evaluate the distribution of lingering oil and potential utilization of oiled sites by animals. While time-lapse photography has been shown to be an effective tool in monitoring other wildlife such as sea lions, it is unproven, and in our estimation, unlikely to be a reliable method for evaluating lingering oil. Oil sheens are probably extremely patchy and might be difficult to detect in intertidal habitats where there is wave action and obstruction by algae and other things on the shore. The proposal does not provide detail on where or how cameras will be deployed, or the scale of coverage and resolution of images to be provided. Furthermore, the proposal does not provide any clear objectives with respect to restoration and promises only to provide images for others to analyze without suggesting the sorts of information that may be obtained from those images

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Time-lapsed photography is a well-established technique for remote monitoring of certain wildlife resources. However, it is unclear in this proposal how these techniques can be used to facilitate restoration of injured resources or services or quantify distribution and abundance of lingering oil. To reiterate the science panels concerns, the spatial coverage, scale and resolution of the images is not discussed, nor do they provide an end-use for the images collected. It is possible that this method could be a useful tool in the context of a relevant question and the PIs should consider expanding upon it's applicability in response to restoration objectives.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel and Science Director.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070804

Project Title: **Significance of Whale Predation On Natural Mortality Rate of Pacific Herring in Prince William Sound**

Principal Investigator: Stanley (Jeep) Rice

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Prince William Sound, Sitka Sound, and southern Lynn Canal

Project Type: New

Funding Approved by Fiscal Year:

FY07: $197,700.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $197,700.00

Abstract:

Pacific herring (Clupea pallasi) in Prince William Sound (PWS) have been classified as “not-recovered” by the Exxon Valdez Oil Spill Trustee Council. Predation by marine mammals has been cited as a factor in the failure of this population to rebound. We will assess the significance of humpback whale predation on herring in PWS, particularly in winter. Specifically we will estimate the number of whales foraging in winter, determine when and if there is a prey switch to herring, and how long whales focus on herring as prey. Year one, is stand alone, small in scale with an intense monitoring strategy; year 2 would expand the scale up in area significantly.

These data will be combined in a bioenergetic model to determine numbers of herring consumed (and energy content consumed). Lastly, the estimated numbers of herring consumed would be included in an age-structured model so that the significance of whale predation on herring recovery can be evaluated.

Science Panel Comments:

This proposal is responsive to the Invitation and the PIs are well qualified. Predator impacts on herring, especially in winter, are poorly understood and need to be quantified. The number of whales over-wintering in PWS is growing each year, and it is important to understand their contribution to the population dynamics of herring as part of a successful restoration program. This proposal also incorporates comparisons in whale predation among multiple sites (southeast vs PWS) with both depressed and healthy populations of herring.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070759

Project Title: **Harlequin Duck Population Dynamics in Prince William Sound: Measuring Recovery from the Exxon Valdez Oil Spill**

Principal Investigator: Dan Rosenberg

Affiliation: State Of Alaska

Disbursing Agency: Pending

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $86,700.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $86,700.00

Abstract:

This project will monitor the recovery of harlequin ducks and is directly linked to recovery objectives in the EVOS Restoration Plan. The outlook for recovery is improving, however, oil remains in the intertidal, ducks are exposed to oil, populations in oiled areas while no longer declining have not increased more than those in unoiled areas, and proportions of females in oiled areas remain lower than reference areas. This suggests a lack of full recovery. We will conduct winter boat surveys to test if harlequin ducks have recovered from the EVOS by comparing population structure and trends between oiled and unoiled treatments in four areas (2 oiled, 2 unoiled) of PWS. Similar structure and increasing trends in oiled areas, when interpreted with complimentary data, will indicate recovery status. Work will be complimentary to studies addressing lingering oil, cytochrome P450 induction, and population modeling to provide a more comprehensive assessment of recovery.

Science Panel Comments:

The proposed project will extend long-term data sets on winter abundance of seabirds that is especially critical to the continued evaluation of injury and recovery of harlequin ducks. We recommend this project be funded. However, the panel recommends that funding beyond FY07 be dependent upon several conditions. First, the investigator should provide data on species other than harlequin ducks that are presumably counted in the surveys. These may provide very valuable information on other nearshore species such as goldeneye which have recently demonstrated indications of oil exposure. Also, there should be a concerted effort to collaborate with others conducting bird surveys, such that there is a sharing of data and lack of duplicative survey efforts.

Science Panel Recommendation: Fund

Science Director Comments:

A continuation of this project will provide information on the demographics of harlequin duck populations in oiled and unoiled areas of the Sound. It will also funnel data into projects that propose to synthesize existing harlequin information into a comprehensive population dynamics model. If the investigator collects data on seabirds other than harlequin ducks, those data should be presented to the TC at the end of this project…historical data on seaduck counts that have been generated from previously funded projects should also be analyzed and presented to the Trustees.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070827

Project Title: **Assessing Potential Oil Exposure to Harlequin Duck Populations in Prince William Sound**

Principal Investigator: Dan Rosenberg

Affiliation: State Of Alaska

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Harlequin duck (Histrionicus histrionicus) populations in Prince William Sound (PWS) have not recovered from the effects of 1989 Exxon Valdez Oil Spill. Studies suggest full recovery is constrained by oil exposure through ingestion of contaminated prey or through direct contact with sediments. The geographic extent of potential oil exposure (where concentrations of harlequin ducks overlap with lingering oil) throughout the spill region of western PWS has not been quantified. Passive sampling devices will act as surrogates for plumage oiling and potential ingestion of contaminated prey and serve as indicators of oil exposure to harlequin ducks. Sampling will occur in late-winter/early spring (mid-March to mid-April) before birds migrate to breeding areas. This study will expand the geographic area sampled for bioavailable oil by other researchers and improve our ability to detect lingering oil and assess recovery in harlequin ducks and other intertidal predators.

Science Panel Comments:

The proposal provides a potentially useful tool (SPMDs and LDPEs) in evaluating the potential exposure of harlequin ducks and other animals that feed and/or live in the intertidal to lingering oil. However, the panel sees several potential problems with the design. The most problematic is the distribution of sampling devices that may be too widely dispersed to detect patchy distribution of lingering oil and may provide negative results (no PAHs) that could lead to the erroneous conclusion that ducks are not being exposed to lingering oil. The panel recommends that the distribution of sampling devices be more closely linked to Esler's sampling locations (where P450 data indicate exposure) and to sites where Short et al. have shown there to be lingering oil and that sampling at lightly oiled sites eliminated or reduced. This would allow spacing between sampling devices to be reduced to increase the likelihood of detecting lingering oil. The design might also be combined with efforts using passive sampling devices as proposed by Carls and Rice to maximize efficiency. The panel also suggests that the cell line work is inadequately described, and should either be more fully explored or dropped from future submittals. We recommend that the funding of this project be deferred and that future funding be dependent on a redesign of the sampling scheme and the outcome of Esler's P450 work in FY07.

Science Panel Recommendation: Defer

Science Director Comments:

Harlequin ducks, as well as several other intertidal species are still showing ongoing exposure from oil as indicated from elevated biomarker responses (i.e., cytochrome P450) in animals from the oiled areas. This project would use passive sampling devices to sample bioavailable oil in areas where harlequin ducks forage, which may provide initial data on possible exposure pathways. I have the same concerns as the Science Panel with regard to study design and

recommend that the investigators address the issues outlined above, and the study be deferred until after the results of Eslers 06/07 P450 work is completed. This will provide information on whether harlequins are still being exposed to oil.

Science Director Recommendation: Defer

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070210

Project Title: **Youth Area Watch - PWS**

Principal Investigator: Sheryl Salasky

Affiliation: NGO

Disbursing Agency: ADFG

Project Location: Prince William Sound; Resurrection Bay

Project Type: New

Funding Approved by Fiscal Year:

FY07: $104,500.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $104,500.00

Abstract:

Youth Area Watch (YAW) is designed to involve students in working with scientists while making a meaningful contribution to research &/or restoration in oil spill affected communities. Youth are trained by scientists to design and conduct long term monitoring projects. In addition to learning current scientific sampling and research techniques (as mandated by Alaska State & National Science Standards), they return to their villages and survey community members for input toward designing a local environmental monitoring and/or restoration project.
Youth Area Watch fosters long-term commitment to the goals set out in the Restoration Plan of 1994 and offers a positive community investment in that process. Participating communities in FY 07-09 will be Chenega Bay, Cordova, Tatitlek, Valdez, Whittier, Anchorage and Wasilla.

Science Panel Comments:

The proposal provides important educational opportunities in spill affected communities and is important for restoring injured resources. This is an ongoing program and we recommend continued funding. However, the panel was concerned that much of the funding was being directed toward coordinators that are located outside of the spill area and not toward resources within spill affected communities. Also, the panel felt that there had not been adequate review of results from previously funded projects. While the panel understands the concerns regarding budgeting based on a single year's funding, they recommend that the project be funded for one additional year, and that future funding be contingent on a thorough review of past project performance.

Science Panel Recommendation: Fund Reduced

Science Director Comments:

Educational opportunities in the communities are an important way for the TC to promote awareness, understanding and participation in restoration activities of injured resources and services. Thus, the TC should continue funding projects of this type. However, it is also necessary to evaluate the priorities, goals and direction of such programs after they have been in operation for several years to ensure they are in alignment with TC restoration goals. This project should be funded for the upcoming fiscal year and during that time, a review and assessment of the program should be conducted between the YAW Directors and the Executive Director of EVOS TC office. This review should summarize past performance of the program, but should focus on future direction of YAW and the integration of EVOS science/restoration projects and the YAW program.

Science Director Recommendation: Fund Reduced

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

There are 16 spill-affected native communities and I would rather this program target youth participation in these communities--not just Chenega Bay, Tatitlek, Cordova, Valdez, Whittier, Anchorage, Wasilla, and Talkeetna. The co-Pis reside in Talkeetna and Anchorage, respectively. Focusing the program on the spill-affected communities would also bring into play the socio-cultural dynamics within the villages and link directly with the subsistence way of life apparewntly missing in this propsal. By focusing on the village, there would also be the interaction of both western science and traditional knowledge and between youth and elders--again missing in the proposal. An example is the Mineral Creek Star Park Recreation Site which reads more like a field trip--I do not want this proposal to continue with projects that have been developed and "lesson plans" in place. There are new proposals with subsistence and food safety issues identified and this propsal needs to link with these efforts at the village level.

This project makes good use of other funding sources. The proposal does not detail the contributions of the program to science or the decision-making process--the projects lack any detail allowing an assessment of their usefulness. This proposal initially states the project participants are junior and senior high school students but later reference middle and high school students--which is it? My preference is for the braoder range of student participation. The GEM reference is outdated. I do not agree with EPA facilitation and want this changed to Trustee Council agency facilitation.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070610

Project Title: **Kodiak Archipelago Youth Area Watch**

Principal Investigator: Teri Schneider

Affiliation: NGO

Disbursing Agency: ADFG

Project Location: Kodiak Archipelago

Project Type: New

Funding Approved by Fiscal Year:

FY07: $75,600.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $75,600.00

Abstract:

The Kodiak Archipelago Youth Area Watch is an ongoing community involvement project designed to engage students in projects with goals aligned with the general restoration efforts of the Trustee Council. Students and site coordinators will conduct interviews with local experts and document TEK, while taking part in locally relevant research projects. Participation of KAYAW adults and students in the annual Academy of Elders/Science Camp will be strongly encouraged. Participants will share their research during regional gatherings and within District publications. Such participation will serve as another avenue for more tribal members to learn about restoration efforts, scientific monitoring techniques, and occupations related to such work. Students will explore local knowledge as it relates to marine mammal populations, inter-tidal environment, and the impact of humans on the coastal environment, human use overtime and intergenerational changes and cultural beliefs and practices that may provide insight in scientific studies. Student interns will be hired during the summer months to work directly with archaeologists and anthropologists in a community archeological dig in coordination with the Alutiiq Museum. The value and implications of TEK will be strongly emphasized throughout the implementation of the KAYAW project.

Science Panel Comments:

The proposal provides important educational opportunities in spill affected communities and is important for restoring injured resources. This is an ongoing program and we recommend continued funding. However, the panel was concerned regarding the lack of linkages between the youth area watch program and EVOS scientists or programs. While this may not be the fault of the Kodiak YAW program, these linkages should be fostered. Also, the panel felt that there had not been adequate review of results from previously funded projects. While the panel understands the concerns regarding budgeting based on a single year's funding, they recommend that the project be funded for one additional year, and that future funding be contingent on a thorough review of past project performance.

Science Panel Recommendation: Fund Reduced

Science Director Comments:

Educational opportunities in the communities are an important way for the TC to promote awareness, understanding and participation in restoration activities of injured resources and services. Thus, the TC should continue funding projects of this type. However, it is also necessary to evaluate the priorities, goals and direction of such programs after they have been in operation for several years to ensure they are in alignment with TC restoration goals. This project should be funded for the upcoming fiscal year and during that time, a review and assessment of the program should be conducted between the YAW directors and the Executive Director of EVOS TC office. This review should summarize past performance of the program, but should focus on future direction of YAW and the integration of EVOS

science/restoration projects and the YAW program.

Science Director Recommendation: Fund Reduced

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

This youth area watch proposal addresses my concerns for native village youth-elder participation but lack projects. The projects are workshops, training, elder interviews… The proposal states if opportunists research project occurs, then the effort will be made to coordinate interactions. I believe this and the Salaski-youth area watch proposal have both become to expecting of Trustee Council funding.

I believe both efforts should be combined and specific youth-oriented restoration-related projects be proposed. Until then, I do not recommend funding for either proposal.

This proposal does focus on the youth within select spill-area communities. Again, I sense the activities have become routine. One of the other components is nearshore monitoring and the results of this activity are not linked to restoration.

The specifics are lacking and from the propsal text, it is clear the respective PI's (Shneider and Salaski) worked together and should have linked their efforts more directly. Both should be linked at a minimum with subsistence proposals--onging and proposed.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070829

Project Title: **Bioavailability and Effects of Lingering Oil to Littleneck Clams (Protothaca Staminea) and Population Recovery Status in Prince William Sound**

Principal Investigator: Gary Shigenaka

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Prince William Sound, AK and Kasitsna Bay, AK

Project Type: New

Funding Approved by Fiscal Year:

FY07: $239,900.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $239,900.00

Abstract:

We will determine the biological availability and effect of Exxon Valdez lingering oil to littleneck clams, Protothaca staminea. Results of laboratory exposures of P. staminea to oiled sediment collected in Prince William Sound will be compared to results from individuals collected in situ at known oiled and unoiled sites. Molecular biomarker assays and tissue histology will be used to determine effects of lingering oil to growth, reproduction, and other physiological endpoints in the exposed clams. This information will be paired with a field assessment of clam abundance at sites surveyed in the 1990-2000 NOAA long-term monitoring program in Prince William Sound to determine if recovery endpoints that had not been met in the year 2000 have been attained in 2007.

Science Panel Comments:

The proposal seeks to conduct sampling of littleneck clams at sites previously sampled by NOAA and includes evaluation of a variety of metrics including abundance, size, age, PAH in tissue, histopathology, and various biomarkers. The panel sees potential utility in examining abundance and size distributions, but much of the funding is directed toward other metrics that we see as having less value. Previous studies conducted shortly after the spill by Trowbridge failed to demonstrate any effects of oiling on histopathology. Also, little evidence exists that PAHs occur in clam tissues. Biomarkers have not been examined in the past, and there no compelling reasons to initiate this work so long after the spill. Given the high cost of the project and the concerns about many of the metrics to be examined, we recommend that the project not be funded

Science Panel Recommendation: Do Not Fund

Science Director Comments:

It has been five years, since any sampling of abundance and distribution of littleneck clams has been conducted. The abundance and distribution information was collected by NOAA for many years and the sampling was stopped in 2000. In 2000, the data appeared to show convergence between oiled and treated and reference sites. However, one data point does not make a trend. Moreover, in 2002 abundance data was collected by a different researcher and although a subset of the NOAA sites were sampled, the project was not inclusive of all the sites. This data demonstrated a continued difference in the abundance of clams in areas that were oiled and treated with hot water washing and reference sites. True consensus on the recovery status of clams is lacking because of differences in data interpretation, differences in study design among projects and because recent information is not available. It would be helpful in understanding the current status of clams if additional information on abundance and distribution were collected from historically sampled areas. Therefore, I recommend that the section of the proposal that sample

abundance and distribution of clams be conducted. Additionally, I recommend that the investigators include a broader range of sites, since there is evidence that differences may occur in sites other than the ones historically sampled by NOAA.

I also recommend that the investigators analyze the clams collected from the abundance and distribution sampling for PAHs. However, I agree the Science Panels recommendations regarding the ancillary tests, such as histopathology and do not recommend that they be funded.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Fund

Project Number: 070830

Project Title: **Trends in Adult and Juvenile Herring Distribution and Abundance in Prince William Sound, submitted under the BAA**

Principal Investigator: Richard Thorne

Affiliation: NGO

Disbursing Agency: NOAA

Project Location: Prince William Sound (PWS)

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$103,400.00	**FY08:**	$103,400.00	**FY09:**	$226,800.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $433,600.00

Abstract:

Information on abundance, distribution and condition of key herring life stages is needed as a basis for restoration. Critical barometers of the PWS herring population are the adult abundance and condition, as monitored in March, and the juvenile abundance and condition going into and coming out of the long winter period (October to March). Some of this information is currently provided through a program at PWSSC that focuses on herring as a critical food source for Steller sea lions. We propose to fill data gaps in this program with juvenile herring surveys in March of 2007 and 2008 and three additional surveys in FY 2009. These surveys can be conducted in a very cost efficient manner because of the much larger concurrent program that will conduct two surveys each year in FY 2007 and 2008. In addition, the direct capture effort associated with all surveys will be expanded, and biological samples will be available for other uses including disease, marking and stable isotope research. Several collaborations have been established in this regard with investigators at the University of Alaska, Fairbanks, Auke Bay and PWSSC.

Science Panel Comments:

This proposal describes the “backbone” project for many of the other herring proposals submitted to the TC this year. It is a core field project for gaining information about abundance and distribution of herring in PWS, and other management and restoration activities will rely on this data. The project design yields a broader coverage of PWS, and because of matching funds the costs are reasonable. The PI is qualified and has many years of experience. This proposal received strong support from the Science Panel.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel. This is a keystone project that will provide status and trend data on herring (juvenile and adult) abundance and distribution throughout PWS across multiple seasons.

Science Director Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070831

Project Title: **The Prince William Sound Herring Ecosystem: Reconciling Divergent Interpretations for Effective Restoration and Management Applications – An International Scientific Workshop, submitted under the BAA**

Principal Investigator: Richard Thorne

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Prince William Sound (PWS)

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Prince William Sound's (PWS) Pacific herring population is classified by the EVOS Trustee Council as "non-recovered". The population prior to the Exxon Valdez Oil Spill was above 100,000 mt; the current population is estimated at 20,000-25,000 mt. This proposal's purpose is to follow on the intentions of the April 2006 PWS herring workshop sponsored by EVOS TC. In that workshop, local herring experts began scoping PWS herring research needs (EVOS FY 07 Invitation, Appendix A) but did not resolve competing hypotheses for the lack of recovery. We propose to assemble a PWS Herring Science Workshop in November 2007. This will include the broadest possible array of scientific expertise on herring to 1) review and synthesize available information on PWS herring, 2) incorporate outside expertise from regional and international clupeid experts, and 3) recommend future PWS herring research and management. Funds will be used for planning and implementing the workshop.

Science Panel Comments:

The proposal was well-organized and the PIs qualified to initiate the project. However, it is unclear how the workshop suggested in this proposal would advance herring restoration. Available herring information has been synthesized in recently funded TC projects, and the April 2006 TC funded workshop brought together experts and community members to exchange information on the current state of herring in the Sound. It is unlikely that another workshop of this type will result in consensus regarding the original cause of the herring collapse, nor does the Panel believe it is necessary to come to such a resolution before implementing a recovery program.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070832

Project Title: **Modeling Ecological Interactions Between Steller Sea Lions and Pacific Herring , submitted under the BAA**

Principal Investigator: Richard Thorne

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

The herring population of Prince William Sound is suppressed by predation from Steller sea lions (SSLs) and other predators, including humpback whales and harbor seals. Simultaneously, the abundance and distribution of Pacific herring appear to strongly influence energy gain by SSLs, which are listed as threatened under the Endangered Species Act. Thus, efforts towards restoring herring and SSL populations should consider ecological games in which both species simultaneously respond to the behavior of each other. Previously we used Dynamic State Variable Modeling to investigate interactions between harbor seals and herring in PWS. We are currently using this technique to seek insight into how the abundance and distribution of herring affect the behavior and fitness of SSLs. Our proposed work would complement that research by 1) developing a comparable model of herring decisions on use of space (e.g. aggregate in bays vs. disperse in main basin) in response to resource distributions and predation pressure from SSLs, and 2) using game theoretic equations to link the SSL and herring models. The second objective will be used to predict the simultaneous response of SSLs and herring to each other's behavior under different conditions, and the ensuing consequences to the survival and reproduction of individuals.

Science Panel Comments:

Predation is a concern for PWS herring and the PIs are qualified to conduct this project. Although the budget is reasonable for the type of work proposed, it is unclear whether or not this project is redundant with work ongoing at the Prince William Sound Science Center. This project would be useful as part of an integrated herring restoration program, but is not an immediate need for herring recovery.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070806

Project Title: **Are Herring (Clupea Pallasi) Energetics in PWS a Limiting Factor in Successful Recruitment of Juveniles and Reproduction Investment of Adults?**

Principal Investigator: Johanna Vollenweider

Affiliation: NOAA

Disbursing Agency: NOAA

Project Location: Prince William Sound, Sitka Sound, Lynn Canal

Project Type: New

Funding Approved by Fiscal Year:

FY07: $139,100.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $139,100.00

Abstract:

The causes underlying the depressed recruitment rates among Prince William Sound (PWS) herring are unknown, but are likely to include reduced survival of offspring to maturity. Potential agents for depressed recruitment include chronic exposure to pathogens and increased numbers of predators. While identification of the causative agents remains elusive, it is likely that their combined effects are reflected in herring energy dynamics. Previous work in PWS demonstrated the need for juvenile herring to acquire and store energy prior to winter to ensure survival when prey resources were scarce. Juveniles facing increased predation risk or immune response may have less surplus energy available to allocate to storage at the onset winter. In addition, continuing disease and predation stress may increase the rate at which individuals lose energy during winter. Thus decreased offspring survival may result from increased energetic demand over winter. Similarly, adults facing increased energy demand as a result of environmental stress are likely to have decreased energy available for reproduction with consequent effects on offspring survival rates. Therefore, we propose to examine the energy dynamics of herring in PWS and other locations to test the hypothesis that PWS herring stocks have higher energy consumption rates than healthier stocks in other parts of Alaska.

Science Panel Comments:

Whole body energy content is measured in herring from three areas in Alaska, and energy consumption rates are compared among healthy (southeast) and depressed (PWS) populations. The strength of this project is the comparison of the depressed PWS population with other, healthy populations. Understanding how the environments differ between areas with healthy fish and those with a stressed population of herring will enhance our knowledge of factors potentially contributing to the continued decline of herring in PWS.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel. Understanding the state of herring in PWS can only be enhanced by comparing similar attributes (e.g., habitat characteristics, body condition, age and size distribution and abundance, etc) between areas with depressed population and areas with healthy populations. This proposal is one of the few that suggests making these comparisons.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070833

Project Title: **Herring Restoration in PWS: Modeling Circulation and Larval Transport**

Principal Investigator: Jia Wang

Affiliation: Alaskan University

Disbursing Agency: N/A

Project Location: Prince William Sound

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

We propose to investigate the effects of 3-D ocean circulation and zooplanktion on the successful transport of larval herring from spawning to nursery grounds. We will combine a 3-D coupled Physical-Ecosystem Model (PhEcoM) and a 1-D Larval Herring Growth (LHG) model to investigate the effect of circulation on transport of larval Pacific herring in PWS. This 100 m resolution, coupled 3-D PhEcoM is forced by tides, freshwater discharge, heat flux, and wind stress derived from NCEP, station data or high-resolution wind products by a regional model. The LGH model is affected by the amount of food and the vertical distribution of the food and the larvae. Larval herring drift will be simulated by combining the PhEcoM-LHG model and the historical hydrographical conditions and herring spawning locations in PWS to investigate the effect of (1) spawninglocation and (2) ocean circulation on the potential for a successful year class of juveniles.

Science Panel Comments:

The design and approach of this proposal were well described, and the PI is very well qualified to complete this work. The project is relevant to herring enhancement activities: It predicts how water circulates within the Sound, which is important to understanding how certain life stages (e.g., larvae) get distributed and the location of their deposition. Similar work was initiated under the SEA program, but additional information will be added to refine and 'ground truth' the model.

Science Panel Recommendation: Fund

Science Director Comments:

Data Manager Comments: Fund The PIs propose to investigate 3D ocean circulation and to develop a herring drift model, based upon the PHECOM and LHG models, to study nutrient dynamics, phytoplankton, zooplankton, and herring larvae.

Though I am not a mathematical modeler, and thus cannot evaluate the proposal at that level, this proposal is highly responsive to the invitation and to the interest in updating and validating the herring larval drift models. The results obtained from this study may be quite useful in developing a recovery plan for herring.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Do not fund due to the uncertainty of need for interacting models and applicability to herring restoration.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund

Project Number: 070340

Project Title: **Long-Term Oceanographic Monitoring of the Alaska Coastal Current**

Principal Investigator: Thomas Weingartner

Affiliation: Alaskan University

Disbursing Agency: ADFG

Project Location: Hydrographic Station GAK 1, Entrance to Resurrection Bay,

Project Type: New

Funding Approved by Fiscal Year:

FY07:	$128,200.00	**FY08:**	$131,300.00	**FY09:**	$129,500.00
FY10:	$0.00	**FY11:**	$0.00	**FY12:**	$0.00

Total Funding Approved: $389,000.00

Abstract:

This program continues a 36-year time series of temperature and salinity measurements at hydrographic station GAK 1. The data set, which began in 1970, now consists of monthly CTDs and a mooring with 6 temperature/conductivity recorders throughout the water column, a fluorometer and nitrate sensor at 20 m depth and a nitrate sensor at 150 m depth. The project monitors five important Alaska Coastal Current ecosystem parameters and to quantify and understand interannual and longer period variability in:

1. Temperature and salinity throughout the 250 m deep water column,
2. Near surface stratification,
3. Near and subsurface nitrate supply on the inner shelf,
4. Fluorescence as an index of phytoplankton biomass, and
5. Atmosphere-ocean heat fluxes.

In aggregate these variables are basic descriptors of the Alaska Coastal Current, an important habitat and migratory corridor for organisms inhabiting the northern Gulf of Alaska, including Prince William Sound.

Science Panel Comments:

This proposal, which is an extension of an existing TC funded project is well-written and clear in its design. The project measures physical/chemical data from one point in the Alaska Coastal Current that has been measured continuously for over 36 years. The ACC flushes PWS with water, thereby bringing nutrients and food into the system from the Gulf of Alaska. The project would provide basic, environmental measurements of constituents that affect all organisms inhabiting PWS including herring.

Science Panel Recommendation: Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Fund

Project Number: 070835

Project Title: **Salmon Sharks Preying on Aggregated Herring and Salmon in Prince William Sound.**

Principal Investigator: Bruce Wright

Affiliation: NGO

Disbursing Agency: N/A

Project Location: Prince William Sound.

Project Type: New

Funding Approved by Fiscal Year:

FY07: $0.00	**FY08:** $0.00	**FY09:** $0.00
FY10: $0.00	**FY11:** $0.00	**FY12:** $0.00

Total Funding Approved: $0.00

Abstract:

Pacific herring populations found in Prince William Sound (PWS) have experienced an extended period of depressed numbers. During this same period the salmon shark (Lamna ditropis) population has increased in PWS. Salmon sharks have been observed at PWS spring herring spawning events. Our work on salmon sharks at salmon spawning locations reveals the sharks consuming large numbers of salmon. This project will investigate if salmon sharks are also taking large numbers of Pacific herring in PWS. We propose to investigate the diets of salmon sharks to determine if they feed on herring, track salmon sharks as they move from herring spawning to salmon spawning events and examine stomach contents to identify the primary energy sources consumed by sharks and confirm these conclusions through fatty acid analysis of shark triacylglycerols.

Science Panel Comments:

This panel recognizes that sharks may be important predators of herring. However, the proposal as designed provides little of the information necessary to make needed quantitative evaluations of these effects. The project does not provide data on the number of sharks or on the number of herring eaten by a shark. Given this, the panel does not feel that information gained will substantively help in evaluation of herring restoration and recovery. While the project would provide meaningful data with respect to shark feeding and energetics, these are not data critical to herring restoration.

Science Panel Recommendation: Do Not Fund

Science Director Comments:

Concur with Science Panel.

Science Director Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
Concur with Science Panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Do Not Fund