Exxon Valdez Oil Spill Trustee Council

DRAFT Work Plan for Federal Fiscal Year 2012

Issued March 21, 2011
Revised September 13, 2011

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FISCAL YEAR 2012

DRAFT WORK PLAN

April March 21, 2011
Revised September 13, 2011

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Exxon Valdez Oil Spill Trustee Council

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Notice

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Project Number: **12120114-J**

Project Title: **LTM Program - The Seward Line: Marine Ecosystem monitoring in the Northern Gulf of Alaska.**

Principal Investigator: Russell Hopcroft

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$98,104.00	**FY13:**	$59,900.00	**FY14:**	$100,500.00
FY15:	$104,000.00	**FY16:**	$107,700.00	**FY17:**	$0.00

Total Funding Requested: $470,204.00

Abstract:
This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. The ocean undergoes year-to-year variability in the physical environment, superimposed on longerterm cycles, and potential long-term trends. These variations influence ocean chemistry, and propagate through the lower trophic levels, ultimately influencing fish, seabirds and marine mammals. Over the past 50 years the Northern Pacific appears to have undergone at least one clear “regime shift”, while the last 12 years have seen multi-years shifts of major atmospheric indices, leaving uncertainty about what regime the coastal Gulf of Alaska is currently in. Regime shifts are often expressed as fundamental shifts in ecosystem structure and function, such as the 1976 regime shift that resulted in a change from a shrimp dominated fisheries to one dominated by pollock, salmon and halibut. Long-term observations are also critical to describe the current state, and natural variability inherent in an ecosystem at risk of significant anthropogenic impact. Given the potential for such profound impacts, this proposal seeks to continue multidisciplinary observations which began in 1997 along the Seward Line and in PWS that assess the current state of the Northern Gulf of Alaska, during 2012-2017. Such observations form critical indices of ecosystems status that help us understand some key aspects of the stability or change in upper ecosystems components for both the short and longerterm. By analogy, the weather has been for more than a hundred years, yet regular observations are still needed to know what is happening and what can be expected in the near future.

Science Panel Comments:
Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:
Not Available

Science Coordinator 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: Pending

Project Number: **12120114-K**

Project Title: **LTM Program - Continuing the Legacy: Prince William Sound Marine Bird Population Trends**

Principal Investigator: David Irons

Affiliation: Not Available

Co-PIs/Personnel: Kathy Kuletz

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$206,300.00	**FY13:**	$24,200.00	**FY14:**	$211,100.00
FY15:	$24,200.00	**FY16:**	$215,700.00	**FY17:**	$0.00

Total Funding Requested: $681,500.00

Abstract:
We propose to conduct small boat surveys to monitor abundance of marine birds in Prince William Sound, Alaska, during July 2012, 2014, and 2016. Eleven previous surveys have monitored population trends for marine birds and mammals in Prince William Sound after the Exxon Valdez oil spill. We will use data collected to examine trends from summer to determine whether populations in the oiled zone are increasing, decreasing, or stable. We will also examine overall population trends for the Sound. 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 2010 indicated that pigeor guillemots (Cepphus columba) and marbled murrelets (Brachyramphus marmoratus)) are declining in the oiled areas of Prince William Sound. We have found high inter-annual variation in numbers of some bird species and therefore recommend continuing to conduct surveys every two years. These surveys are the only ongoing means to evaluate the recovery of most of these injured marine bird species. Surveys would also benefit the benthic monitoring and forage fish monitoring aspects of the Long-term Monitoring Project as well as the Herring Project.

Science Panel Comments:
Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:
Not Available

Science Coordinator 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: Pending

Project Number: **11100112-A**

Project Title: **Lingering Oil on Boulder-Armored Beaches in the Gulf of Alaska 22 Years after the Exxon Valdez Oil Spill**

Principal Investigator: Gail Irvine

Affiliation: USGS

Co-PIs/Personnel: Mark Carls, Dan Mann

Project Location: Gulf of Alaska

Funding Requested by Fiscal Year:

FY12:	$61,700.00	**FY13:**	$0.00	**FY14:**	$0.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $61,700.00

Abstract:

This FY12 amendment to Project 11100112 solely requests funding to complete sampling that was detailed in the original proposal, but which could not be accomplished in 2011 because of extremely bad weather. Costs, primarily in logistics (contracts) and personnel time, were incurred in the attempted sampling and form the main part of our request. In 2011 we were on a vessel in Cook Inlet/Shelikof Strait for 7 days and were only able to sample on 2 low tides. After five days of bad weather, when it became clear that we could not sample our suite of sites, we concentrated on accomplishing Objective 2 (determining if oil is leaking out of the sites), which involved placing passive samplers at just 2 sites and nearby controls. Since these samplers are extremely sensitive to waterborne hydrocarbons, finishing Objective 2 reduces the conflict between that sampling and some of our traditional sampling that can disrupt the oil at a site (e.g., taking oiled sediment samples, and assessing the depth of subsurface oil via dip stones). Thus, even though we visited two sites – and visually observed appreciable persistent oil at both, we could not do those disruptive forms of sampling which are extremely important components of the long-term monitoring. This amendment to our proposal will allow the complete re-sampling of our 6 Gulf of Alaska long-term monitoring sites in 2012. Our overall objectives have not changed, but we have modified the due dates for this study and have provided a budget that addresses the additional costs required.

Science Panel Comments:

Not Applicable

Science Panel Recommendation: Not Reviewed

Science Coordinator Comments:

Not Available

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:

Not Applicable

Public Advisory Committee Recommendation: Not Reviewed

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Pending

Project Number: **12120112**

Project Title: **PWS Harbor Cleanup Project**

Principal Investigator: Laurel Jennings

Affiliation: NOAA

Co-PIs/Personnel: Erika Ammann

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$79,570.00	**FY13:**	$355,340.00	**FY14:**	$303,565.00
FY15:	$330,815.00	**FY16:**	$20,710.00	**FY17:**	$0.00

Total Funding Requested: $1,090,000.00

Abstract:

The National Oceanic and Atmospheric Administration (NOAA) Restoration Center (RC) proposes to establish a new funding opportunity for Prince William Sound coastal communities to help them prevent small but damaging toxic releases originating from harbors and marinas. This opportunity will build upon existing resources and knowledge and provide communities with a long serving set of methods for handling small spills and re-engage an already informed group of concerned citizens to help run the program after the five years of EVOS funding is completed. This effort will review past EVOS assistance to harbors ensuring that past EVOS expenditures for equipment are utilized to the maximum efficiency, identify technology advancements that can improve current activities in the marinas, and create a local investment and ownership in the success of chosen projects. The purpose of this project will be to protect marine resources negatively affected in EVOS from future aggravation and pollution.

Science Panel Comments:

April 2011 comments below. In response, the Proposer has reduced their budget to $1 million and has indicated funding from NOAA in the final proposal.

The panel has several key concerns regarding the proposed program. First, a significant portion of the funding requested will be spent in administrative and travel costs for the Seattle, WA and Anchorage, AK based team. Second, the narrative does not provide enough information to determine the potential effectiveness of the program. Finally, there is no established plan for outreach and education that would be critical for this type of effort.

There are only general descriptions of types of activities that might be included in community-specific plans. There are references other Best Management Practices (BMP) but does not commit to following any particular BMP. There seems to be overlap in scoping and assessment phases with an already existing Alaska Clean Harbor project funded for $282,615 by CIAP grant (see CIAP approved state plan, http://dnr.alaska.gov/coastal/CIAP/ciap_Fall.htm). Unless coordination is required, there may be duplication of effort with the Clean Harbor program at significantly higher expense in this project. Travel costs seem high, especially in the implementation phases that do not involve public outreach. Most of the staff is coming from Seattle which increases the cost, but there is not much justification in the proposal other than relationship building with communities. The listed project managers do not seem to have much experience with harbor operations, so technical assistance may be limited.

Science Panel Recommendation: Do Not Fund

Science Coordinator Comments:

The team has reduced their budget as requested by the Council. I continue to be concerned that the first projects will not even be selected until June 2013 leaving only three field seasons available for the actual work. Also, the current timeline would not allow the Council (who will only be meeting annually in Aug/Sep) the opportunity to review the projects

prior to their selection and implementation.

Science Coordinator Recommendation: Do Not Fund

Public Advisory Committee Comments:

A revised proposal with funds leveraged has reduced the cost of this effort, which will be managed by NOAA staff. While there are merits to the cleanup of harbors, the Trustee Council should proceed with caution, as there are few details at this time explaining what this project will accomplish.

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

The proposer has responded to SP and TC concerns and submitted a reduced-budget proposal that mitigates issues identified prior. However, the PAC has identified concerns with funding an largely administrative process and I agree with the Science Coordinator's concerns. This is an important focus area, as also discussed by the PAC, but due to those issues, my "fund" recommendation is fairly soft.

Executive Director Recommendation: Fund

Trustee Council Comments:

Below are the April 2011 comments from the Council after review of the draft proposal. A revised proposal has been submitted in response to their concerns.

The Council requests the proposer review the Science Panel comments and strengthen it's proposal and adjust the budget to $1 million dollars.

Trustee Council Decision: Pending

Project Number: **12120120**

Project Title: **Collaborative Data Management and Holistic Synthesis of Impacts and Recovery Status Associated with the Exxon Valdez Oil Spill**

Principal Investigator: Matthew Jones

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location:

Funding Requested by Fiscal Year:

FY12:	$444,061.00	**FY13:**	$464,709.00	**FY14:**	$372,123.00
FY15:	$379,153.00	**FY16:**	$73,865.00	**FY17:**	$0.00

Total Funding Requested: $1,733,911.00

Abstract:

The AOOS-led Long-Term Monitoring (LTM) and the PWSSC-led Herring Research and Monitoring (HRM) programs propose an ambitious monitoring and research agenda over the next five years. These efforts could facilitate a more thorough understanding of the effects of the oil spill if the new data and information on the spill-affected ecosystems are effectively managed and collated along with historical data on these systems, and then used in a comprehensive synthesis effort. We propose a collaboration among NCEAS and the AOOS LTM and HRM teams to help build an effective data management cyberinfrastructure for proposed monitoring efforts and organize these data with historical data, including previous EVOSTC-funded efforts, to prepare for synthesis and ensure all data are organized, documented and available to be used by a wide array of technical and non-technical users. Building on the LTM and HRM syntheses and modeling efforts and the 20-year historical data from EVOSTC projects and any available current data, NCEAS would convene two cross-cutting synthesis working groups to do a full-systems analysis of the effects of the 1989 oil spill on Prince William Sound and the state of recovery of the affected ecosystems.

Science Panel Comments:

These comments are from the two science panel members that have been tasked by the panel to with work with the EVOSTC staff on the data management and synthesis topic.

The Panel does not believe that Axiom currently has the capacity to conduct the most effective management of the data. The biological investigations produced by the suite of projects included in this proposal package generate data that are challenging to code in ways that facilitate their combination with other data such as physical or chemical variables. The discipline that handles these challenges is known as informatics. The Science Panel views the inexperience of Axiom personnel as a critical problem. This concern does not imply inadequate capability of the key staff of Axiom. It is a reflection of their limited experience. Consequently, establishing a partnership between Axiom and NCEAS makes sense because Matt Jones and NCEAS are willing to share their cutting-edge expertise. NCEAS is the "National" Center for Ecological Analysis and Synthesis and the principals of the NCEAS proposal are leaders in this field. Pairing NCEAS with Axiom, would promote information sharing of NCEAS' expertise, such emerging data standards as DateOne and on a suite of data manipulation and synthesis tools, such as meta-analysis methods. This information transfer represents critical capacity building within Alaska that would greatly benefit EVOSTC, AOOS, NPRB, and other important research and monitoring enterprises.

The willingness of NCEAS to collaborate with Axiom is evident from their proposals and discussions with Rob Bochenek, Elise, Molly, and others. Nevertheless, the most creative and appealing aspect of the proposal provided by NCEAS, and which builds on technical metadata processing that NCEAS excels in, relates to the second phase of work – the synthesis activities. Some syntheses have indeed been supported by the EVOS Trustee Council over the years. These include very important outputs of the program – a synthesis of novel oil toxicity mechanisms in pink salmon by Rice et al. 2003; a book edited by Spies that placed the oil and natural resources of coastal Alaska in a context of changing climate;

reviews of the delayed and indirect mechanisms by which EVOS oil caused ecological injuries by Peterson et al. (2003); and reviews of multi-year EVOS oil persistence on Alaskan beaches by Short and colleagues. Despite these valuable legacies, more synthesis is needed into the future, including on herring, where numerous potential explanations for its lack of recovery exist and a growing body of diverse data requires synthesis to extract now cryptic insights.

Phase II of the NCEAS proposal promises facilitation of just such synthesis outputs. This activity is extremely important for both the Herring and especially the Long-term Monitoring programs. The Panel recommends funding of this Phase II, under conditions that reflect engagement of the PIs from these two programs to develop the questions to be addressed and help select the experts who will participate in the study groups and synthesis efforts.

The Panel notes that failure to solve the problem of creating an enduring depository for EVOS-Trustee funded data is a long-standing problem. At least 10 year ago, the EVOS Trustee Council and staff endorsed the responsible and ethically necessary principle that each study funded by the Council must deliver all resulting data in electronic form to the council staff as part of their final reporting obligations. Despite this mandate, there exists now no data base of the historically-funded projects. This issue has great capacity to embarrass the Council and the memory of the past failures motivates the Panel to recommend finally solving this problem by engaging the undeniable expertise and pre-eminence of NCEAS to collaborate in this venture.

Science Panel Recommendation: Fund

Science Coordinator Comments:

I concur with the science panel and strongly recommend that this proposal be funded. Data may be the single largest legacy of these programs and it is critical that the work starts on the strongest foundation possible.

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:

Not Applicable

Public Advisory Committee Recommendation: Not Reviewed

Executive Director Comments:

I also strongly concur with the science panel and science coordinator. The PAC was also strongly in favor of this very important collaboration, historical data recovery and the synthesis work.

Executive Director Recommendation: Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Pending

Project Number: **12120111-L**

Project Title: **PWS Herring Program - Herring Condition Monitoring**

Principal Investigator: Thomas Kline

Affiliation: Not Available

Co-PIs/Personnel: Ron Heintz

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$0.00	**FY13:**	$230,000.00	**FY14:**	$238,700.00
FY15:	$251,500.00	**FY16:**	$253,900.00	**FY17:**	$0.00

Total Funding Requested: $974,100.00

Abstract:

Outlined here is a single herring monitoring project that is a part of an integrative program that will enhance the current herring monitoring efforts and examine aspects of particular life stages to allow better modeling of Prince William Sound herring populations. The long-term goal of the program is to improve predictive models of herring stocks through observations and research.

This project will be furthering the development of a herring overwintering mortality model that began with an ongoing monitoring project that began in 2007 and incorporates results from Prince William Sound herring research dating as far back as the 1990's. The model runs by applying herring condition observations made before and after winter. Accordingly, herring are sampled in November and the following March. Present sampling will end in March 2012. Proposed sampling will commence in November 2012 and end in March 2016. A future project is expected to continue the time series beginning in November 2016. The purpose of the time series is to relate overwinter mortality to herring recruitment.

This project will be furthering the development of a herring overwintering mortality model with additional data types as well energy levels per se. The goal is use physiological indicators to realistically modify the daily energy loss rate in the overwintering model. The results of model improvement will be tested using the March data model validation approach begun during the project that began in 2007.

Additionally, we will be assessing effects of competition of other juvenile fishes on condition of age-0 herring using stable isotope analysis on an opportunistic basis.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120111-M**

Project Title: **PWS Herring Program - A high temporal and spatial resolution study to validate the separate herring condition monitoring program.**

Principal Investigator: Thomas Kline

Affiliation: Not Available

Co-PIs/Personnel: Ron Heintz

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$207,000.00	**FY13:**	$77,300.00	**FY14:**	$20,400.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $304,700.00

Abstract:

Described here is a single process study project that is a part of an integrative program that will enhance the current monitoring efforts, and examine aspects of particular life stages to allow better modeling of Prince William Sound herring populations. The long-term goal of the program is to improve predictive models of herring stocks through observations and research. The herring monitoring program is necessarily of coarse temporal and spatial resolution with just two observations per year at narrowly defined sampling sites spread around the large area comprising Prince William Sound. Data interpretation requires a greater context to impart greater meaning. In the case of temporal variation of herring condition it would be useful to know (1) how sensitive the herring overwinter mortality model is to starting time, and (2) the timing of recovery from winter starvation. In the case of spatial variation of herring condition it would be useful to know how sensitive the herring overwinter mortality model is to immigration and emigration from areas immediately adjacent to where herring are sampled at the time of our November and March surveys.

Fine-scale temporal and spatial variability at designated herring monitoring sites has never been characterized and therefore remains a data gap with potential ramifications for interpreting observed variation of herring condition that is part of the herring monitoring program as well as the aforementioned modeling. This will be addressed by sampling at Simpson Bay, which has been a key monitoring site for juvenile herring since the 1990's. Energy content and RNA/DNA will be measured monthly from September 2011 until June 2012 to assess fine-scale temporal variability. Fine-scale spatial variability will be assessed by sampling in November and March five separate sub-areas of a more extensive Simpson Bay than what is typically done during surveys. The results of the analysis will be contributed to the herring synthesis effort that will take place in FY14.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120114-L**

Project Title: **LTM Program - Long-term monitoring of Ecological Communities in Kachemak Bay: a comparison and control for Prince William Sound.**

Principal Investigator: Brenda Konar

Affiliation: Not Available

Co-PIs/Personnel: Katrin Iken

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$48,100.00	**FY13:**	$48,200.00	**FY14:**	$48,100.00
FY15:	$48,100.00	**FY16:**	$47,400.00	**FY17:**	$0.00

Total Funding Requested: $239,900.00

Abstract:
This project will evaluate ecological communities in Kachemak Bay. Following protocols established for Prince William Sound, we will monitor sea otter abundance, diet and carcasses, seabird carcasses, marine debris, abundance and distribution of rocky intertidal plants and invertebrates, abundance and size frequency of clams and mussels on gravel beaches, and selected environmental parameters in Kachemak Bay. All protocols have been established and are described for Prince William Sound. These same protocols as will be used in this study. These Kachemak Bay data will be compared with those being collected in Prince William Sound and may be able to act as a control if an oil spill were to occur in the Sound again. The data will also be comparable to data being collected in Kenai and Katmai National Parks (National Park Service SWAN Nearshore Monitoring Program) using the same methods as used in Prince William Sound.

Science Panel Comments:
Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:
Not Available

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:
Not Available

Executive Director Recommendation: Fund

compliant with the Knowledge Network for Biocomplexity metadata compliant with Ecological Metadata Language. In addition, there should be a plan from the outset as to how to incorporate this data into NPRB's GOAIERP program at the end of the first five-year contract cycle.

Therefore, we strongly recommend that the Council provide assistance from an organization such as the National Center for Ecological Analysis and Synthesis (NCEAS) for peer review and technical assistance to the data management team.

With regard to the separate lingering oil monitoring proposal included within the Program proposal, the Panel has no objection to the funding of this additional project.

June 2011 Individual panel member comments:
Seabird monitoring costs double in year 3 – The explanation is clear, although the basis for why two surveys may be needed in year 3 and what is lost when only 1 is done is unclear.

Cost breakdown for Coordination, data management, outreach, and administration – The suite of activities included under this heading is now explicit as are the total costs associated with each one in the budgets provided. I wish to note, however, the "conceptual modeling" project of Hollmen does not fall into any of these categories – it is a scientific study, not an administrative service, outreach activity, coordination, or data management task, and should be reviewed as such. In that context, I examined the Hollmen proposal and have some concerns. Although intended to be "conceptual modeling", I find no mention of any concepts in the proposal. I cannot find indication of the methodological approaches to be used and why they were chosen. For example, will this be a Bayesian process? Will modeling be ecosystem based? Will ECOPATH of something analogous be employed? There are no literature cotations in this proposal. For 395K over 5 years, more detail would seem to be called for. I cannot find a CV included for the PI, Hollmen. Does she have modeling experience, and, if so, in what types of models?

Synthesis concerns – the PIs provide a thoughtful and compelling response to this issue, providing an excellent overview and demonstrating potential for meaningful syntheses.

Data management – The PIs make a strong case for the cost efficiencies associated with leveraging that lower the costs of the data management for EVOS Trustee projects by joining with AOOS in a coordinated effort with a single consultant-provider. The response also makes a justifiable case for why teaming up with AOOS makes sense – because of their presumed permanence as compared to other science programs. I am impressed that Phil Mundy chairs the AOOS external advisory committee and concur that he has the experience and wisdom to provide rational advice and guidance. Nevertheless, the bottom line after all is said and done is – Does Axiom deliver the data products that are acceptable to the scientists it is serving. This response document appears to argue that the scientists that participate in the Monitoring Program are indeed satisfied. So that helps me side with continuing the relationship with Axiom. Nevertheless, this document implies a willingness to interact with NCEAS and to discuss their recommendations for improvements in all aspects of Axiom's data management services and I think that facilitating that set of interactions in a meaningful way (meaning to sufficient depth and not just superficial) is important for piece-of-mind given delays in delivery of reports from Axiom on past EVOS Trustee contracts. I am also curious to know of the outstanding final reports have indeed been completed successfully at this time. I see argued in this response document that the past scientist clients of AXIOM are satisfied with the company's services, which addresses one major issue raised by the science Panel.

I am pleased by the acceptance of specific suggestions by the science panel.

Science Panel Recommendation: Fund

Science Coordinator Comments:

I agree with the science panel and Executive Director. I also have serious concerns regarding the data program and would encourage the Council to assist the team by providing funding for a collaborator to assist the data team in their development of the data program. My concerns regarding the proposed contractor are based on a poor past performance with meeting deadlines and producing deliverables. I also believe that the final product would greatly benefi if Axiom was given assistance from a group that has experience working with large heterogeneous data sets.

The PI's that are included in this program proposal have extensive experience gathering data in PWS and have contributed to several long-term data sets that will be the foundation of this program. The team's quick response to our

data set questions demonstrates their ability to work together and to openly share information with their fellow researchers.

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

There was strong concern about the program's data manager serving the entire program. Since April, the data manager's work has been favorably reviewed, has submitted late deliverables to the Council and several data management options have been produced by this program and outside entities. These options presented are in conjunction with leaders in the field of heterogeneous scientific database management and are excellent options. I recommend the Council pursue one of these options to ensure successful management of the data produced by this and past Council-funded efforts.

Executive Director Recommendation: Fund

Trustee Council Comments:

April 2011 comments:
This team is selected as a preferred proposer.

Trustee Council Decision: Pending

Project Number: **12120111-N**

Project Title: **PWS Herring Program - Scales as growth history records for Pacific herring**

Principal Investigator: Steven Moffitt

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$86,150.00	**FY13:**	$43,240.00	**FY14:**	$0.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $129,390.00

Abstract:

Robust Pacific herring (Clupea pallasii) populations, suitable for exploitation by commercial fisheries, are typically sustained by periodic recruitment of strong year classes into the adult spawning population. However, the Prince William Sound (PWS) herring population has not had a strong recruitment class since 1989, when the Exxon Valdez Oil Spill (EVOS) occurred. Identification of conditions limiting herring recovery requires a series of focused process studies combined with monitoring of the natural conditions that affect herring survival.

Fish grow in response to the extrinsic influences of their environment constrained by the intrinsic influences of genetic predisposition for growth and of size already attained. Understanding how these intrinsic and extrinsic sources of variability influence growth is important for several reasons. Variation in growth has a strong affect on the selection of appropriate harvest policies that are based on demographic models that reflect the natural processes.

Analysis of growth increments between annular patterns on scales can provide a means to reconstruct past growth changes that can assist in determining the possible environmental and density-dependent causes of growth variation. Growth increment information incorporates a longitudinal history of growth that increases the effective degrees of freedom and can be used in modeling changes in growth in relationship to environmental and population indices Determining the underlying distribution of individual growth patterns can provide improved inputs into population dynamics models that are used to establish harvest guidelines.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120114-N**

Project Title: **LTM Program - Long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound**

Principal Investigator: John Moran

Affiliation: Not Available

Co-PIs/Personnel: Jan Straley

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$127,400.00	**FY13:**	$128,800.00	**FY14:**	$139,600.00
FY15:	$141,600.00	**FY16:**	$54,400.00	**FY17:**	$0.00

Total Funding Requested: $591,800.00

Abstract:

?We will evaluate the impact by humpback whales on Pacific herring populations in Prince William Sound. Following protocols established during the winters of 2007/08 and 2008/09(EVOSTC project PJ090804). We will continue to monitor the seasonal trends and abundance of humpback whales in Prince William Sound. Prey selection by humpback whales will be determined through acoustic surveys, visual observation scat analysis and prey = sampling. Chemical analysis of blubber samples (stable isotopes and fatty acid analysis) will provide a longer term perspective on whale diet and shifts in prey type. These data will be combined in a bioenergetic model to determine numbers of herring consumed by whales, with the long term goal of enhancing the age structure modeling of population with better estimates of predation mortality. □

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120117**

Project Title: **Spatial synthesis of lingering oil distribution modeling with population and biomarker data for recovering species**

Principal Investigator: Zachary Nixon

Affiliation: Research Planning, Inc.

Co-PIs/Personnel: Brenda Ballachey, Jim Bodkin, Dan Esler, Jacqui Michel

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$177,400.00	**FY13:**	$0.00	**FY14:**	$0.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $177,400.00

Abstract:

Much recent work has been carried out in Prince William Sound (PWS) to characterize the distribution and ongoing impacts of lingering subsurface oil from the Exxon Valdez Oil Spill (EVOS). The ongoing work of Bodkin et al., Esler et al., and Monson et al., (1994, 1999, 2000, 2002, 2010, in press) have provided an unprecedented understanding of the ongoing recovery status of certain recovering species via detailed population dynamics and measures of individual health: biomarker expression, contaminant concentrations, and pathological effects. In parallel, Michel et al.,(2009) and Boufadel et al., (2010) have successfully characterized, synoptically, and in spatial detail, the distribution of and factors contributing to the ongoing presence of lingering oil reservoirs within PWS and the wider EVOS impact area. We propose to synthesize these two bodies of work by rigorously examining the strength of spatial correlations between measures of recent and ongoing impact to recovering species, at both the individual and population level, and where lingering subsurface oil is specifically estimated to persist. Presence or absence of such links will provide insight into the recent and potentially ongoing nature of the impact of this oil, and could guide proposed remediation efforts with specificity not previously possible.

Science Panel Comments:

The science panel recommends this proposal for funding.

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120116**

Project Title: **Marine Debris Removal**

Principal Investigator: Chris Pallister

Affiliation: Gulf of Alaska Keeper

Co-PIs/Personnel: None

Project Location: Gulf of Alaska

Funding Requested by Fiscal Year:

FY12:	$384,400.00	**FY13:**	$411,300.00	**FY14:**	$310,700.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $1,106,400.00

Abstract:

GoAK is submitting a comprehensive 3-part marine debris cleanup program. We understand that the call of this grant is to provide $1,000,000 of funding for marine debris removal over a 2-year period. Immediately following are two proposed cleanup projects for 2012 and 2013 that request a total EVOSTC funding level of $730,000. The proposed projects for 2012 and 2013 have also been included as part of the marine debris proposal submitted to EVOSTC by the NOAA team. However, at the urging of Peter Murphy, NOAA's MD Regional Coordinator (see attached letter from Peter Murphy, NOAA MD Regional Coordinator, pg.54), and after consultation with EVOSTC staff, GoAK is also submitting an alternative proposal. This alternative proposal includes the proposed 2012 and 2013 removal projects, plus a request for a third year of funding for a project in 2014. We hope this proposal is considered carefully. These three projects in total request $1,015,000 in EVOSTC funding. Over a three year period, GoAK can match EVOSTC funding at more than a 1 to 1 level. Stretching the funding over three years allows GoAK to raise more matching funds to help clean another 20 miles of horribly fouled coast and remove an additional 80 to 100 tons of plastic marine debris. We submit these projects with the intention that if EVOSTC decides not to fund a third year project, then it would consider the 2012 and 2013 projects as the complete proposal. For that reason, we have submitted complete project budgets and descriptions for each individual cleanup season.

GoAK solicited project proposals from five separate organizations with past experience in marine debris work and community outreach. The Center for Alaskan Coastal Studies, the Chugach National Forest and Alaska Geographic jointly submitted Proposal 1. The Marine
Conservation Alliance Foundation submitted Proposals 2 and 3. The Alaska Sea Life Center submitted Proposal 4. Each of the proposed outreach projects are stand-alone programs. As such, the Council can select any combination of the projects to satisfy the public outreach objective. All projects selected by the Council will coordinate in such than components of each project do not overlap. Projects will also use the same educational data, such as miles cleaned, the amount of marine debris removed per mile up in the cleanup area, the types and quantities of marine debris, habitat and animals impacted, etc., in their individual projects so that a consistent message is delivered.

Outreach Proposal 1: The Center for Alaskan Coastal Studies, Chugach Forest Service and Alaska Geographic "Youth Action on Marine Debris: from the field to the classroom". Total Cost: $151,946

Outreach Proposal 2: Marine Conservation Alliance Foundation "EVOSTC Marine Debris Cleanup Documentation Film". Total Cost: $30,584

Outreach Proposal 3: Marine Conservation Alliance Foundation "EVOSTC Outreach Marine Debris Prevention Tide Book Project". Total cost: $26,090

Outreach Proposal 4: Alaska SeaLife Center "Marine Debris Exhibit at the Alaska SeaLife Center". Total Cost: $166,051

Science Panel Comments:

This long term marine debris removal program has been ongoing for the past 10 years. The costs seem to be reasonable considering the logistics, although it was unclear if they are relying on the NOAA grant to complete the work. The PI's are experienced but outreach efforts are weak and the project lead is in Anchorage. The team leader should speak with Village of Eyak team to see if there might be an opportunity for partnership.

Science Panel Recommendation: Fund

Science Coordinator Comments:

I concur with the science panel and the Executive Director.

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

I concur with the Science Panel's recommendations. The proposal is extremely detailed and the PIs are already achieving a high level of debris survey and removal. Their familiarity with and effectiveness in this area is impressive.

Gulf of Alaska Keeper has worked to strengthen their public outreach and determine whether Council funds would be eligible for fed match. In between debris cleanup trips this summer, they have are collaborating with the Chugach Children's Forest.org project, Alaska Geographic, and the Chugach School District to involve students from Chenega and Tatitlek, and the Alaska Sealife Center regarding an interactive marine debris exhibit. They have made excellent inroads to expand their outreach.

As requested by the Council, GoAK has submitted an addendum with a menu of four public outreach proposals. My preliminary recommendation is in favor of funding Proposal 1, Youth Action on Marine Debris, with the Center for Alaskan Coastal Studies, Chugach Forest Service and Alaska Geographic. This proposal is diversified, highly leveraged and well-designed.

Executive Director Recommendation: Fund

Trustee Council Comments:

The Council recommends this proposal's outreach component be strengthened. In particular, the Council encourages the Proposer to consult with Village of Eyak with regard to enhancing GoAK outreach in that community and to pursue additional involvement from other spill communities and organizations that reach youth involvement, such as the Alaska Geographic program and the USFS Chugach Childrens' Group. Please consult with NOAA as to whether Council funds would be eligible for matching fund programs, as noted in your proposal, and provide this information to us and as part of your final proposal. If this proposal is funded by the Council, Council staff will request that NOAA be the project manager, which may lend additional, NOAA expertise to the project.

Trustee Council Decision: Pending

Project Number: **12120111**

Project Title: **PWS Herring Research and Monitoring Program**

Principal Investigator: William Pegau

Affiliation: Prince William Sound Science Center

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$990,500.00	**FY13:**	$1,074,100.00	**FY14:**	$1,364,100.00
FY15:	$1,194,400.00	**FY16:**	$1,136,400.00	**FY17:**	$0.00

Total Funding Requested: $5,759,500.00

Abstract:

Robust Pacific herring (Clupea pallasii) populations, suitable for exploitation by commercial fisheries, are typically sustained by periodic recruitment of strong year classes into the adult spawning population. However, the Prince William Sound (PWS) herring population has not had a strong recruitment class since 1989, when the Exxon Valdez Oil Spill (EVOS) occurred. In the EVOS settlement herring were identified as an injured resource and they remain listed as an unrecovered species by the EVOS Trustee Council (EVOSTC). Understanding why herring have not recovered in Prince William Sound requires understanding potential bottlenecks in the herring life cycle. The identification of the limiting conditions to herring recovery requires a series of focused process studies combined with monitoring of the natural conditions that affect herring survival.

Described here are projects for a program that will enhance the current monitoring efforts of the Alaska Department of Fish and Game (ADF&G), and examine aspects of particular life stages to allow better modeling of herring populations. The long-term goal of the program is to improve predictive models of herring stocks through observations and research. While we do not anticipate that there will be a major change in our modeling ability in the next five years, we expect that the combination of monitoring and focused process studies will provide incremental changes over the next twenty years and result in a much better understanding of herring populations by the end of the program.

Science Panel Comments:

April 2011 comments:
This program seeks to add to the existing body of knowledge that began under the PWS Herring Survey program in FY10. The proposed projects will provide both new and continuing information regarding the current status of herring in PWS. The data collected under this program will be made available to researchers and the public and will provide critical information for resource managers. The continuation of current outreach and education strategies from the PWS Herring Survey projects and the additional strategies in the proposal have the potential to provide effective means to disseminate information and engage the fishing community and other community members in understanding the results of the integrated monitoring program.

The Panel recommends funding most components of this proposal, but reiterates the same serious concern about the data management components. Again the science panel strongly recommends that the Council provide assistance from an organization such as the National Center for Ecological Analysis and Synthesis (NCEAS) for peer review and technical assistance to the data management team.

The success of this proposal will depend on the reliability of herring spawn surveys which are not part of the present groups of proposals. Herring assessments in PWS, and everywhere else in the eastern Pacific, use spawn surveys as an essential part of the assessment. The approach currently used in PWS differs from all others in the use of mile-days, whereas all other jurisdictions use a static measure of spawn, once spawning is completed. Also, the completeness of the spawn surveys has been questioned. (Note: these comments should not be construed as criticism of ADFG or their

staff because the panel recognizes the effort and dedication made by such staff. On the contrary, the comments and recommendations related to spawn surveys should be seen as an initiative to provide assistance to field staff associated with herring assessment. The benefits of such assistance will accrue both to the science and management of PWS herring). Nearly all of the proposals are predicated on the availability of reliable herring spawning biomass assessments that are, in turn, dependent on accurate spawn surveys. To provide credible support for these proposals and for management advice future estimation of spawn must be made with a level of accuracy that consistent with that used in other jurisdictions. To provide credible management advice future estimation of spawn must be made with a level of accuracy that is required to support the assessments. There are concerns that substantial amounts of spawn may have gone undetected in some years and that some of the past spawn estimates may have been made inaccurately through error in the estimated width and density of spawn. Such concerns may not be valid but there is no way to determine this without additional work. Therefore to evaluate whether the accuracy and reliability of present and past estimation of herring spawn in PWS is accurate, we recommend developing diver-assisted surveys. The science panel noted that diver surveys, yielded different results in the past (details provided in Recommendations to Team Leader). This would also include an assessment model and biological sampling review.

Herring Stock Assessment Modeling: A Science Panel Recommendation for Review
Success of the herring program will depend on the reliability of ADF&G herring spawn surveys. Nearly all of the proposals are predicated on the availability of reliable herring spawning biomass assessments that are, in turn, dependent on accurate herring assessments.

Herring assessments in PWS, like everywhere else in the eastern Pacific, use spawn surveys as an essential part of the assessment. The approach used in PWS, however, differs from all others in that PWS uses mile-days, whereas all other jurisdictions use a static measure of spawn, once spawning is completed. Herring assessments also rely on accurate bio-sampling for estimates of size and age of herring. Recently, the completeness of the spawn surveys has been questioned and many have questioned the reliability of the present assessments. Additional effort may be required for all aspects of herring assessments to ensure that they are done well and are well-regarded. These comments above should not be construed as criticism of ADFG or their staff, as their present staff are clearly dedicated and hard-working.

To provide credible support for these proposals and for management advice future estimation of spawn must be made with a level of accuracy that consistent with that used in other jurisdictions. To provide credible management advice future estimation of spawn must be made with a level of accuracy that is required to support the assessments.

June 2011 Individual panel member comments:
Linkages among the projects is done in a thoughtful and detailed fashion. I see huge progress in how well the leaders of the herring program are viewing this Program as a whole and integrating its pieces. I commend the PIs. Specifically, the logistic coordination is compelling and achieves cost efficiencies as well as intellectual linkages. The temporal staging of various research efforts is likewise logical and well conceived. And I concur that the acoustics studies do involve three different efforts with different gear, sampling methods, and targets, so that any synergies are limited, largely to whether adult herring are encountered during sampling targeting juveniles and this is addressed.

Science Panel Recommendation: Fund

Science Coordinator Comments:

I concur with the science panel. I also have serious concerns regarding the data program and would encourage the Council to assist the team by providing funding for a comprehensive review of the data program.

I also concur with the science panel that the fundamental data that will be utilized by the program should be rigorously reviewed to ensure the best possible platform for the herring projects. I do believe that the data that has been gathered by ADF&G for PWS herring has been carefully gathered and reviewed. I would like to continue working with staff at ADF&G to determine what actions would have the greatest benefit to both the herring program and ADF&G managers. The possible addition of a staff position at ADF&G that would work closely with herring program would be of tremendous value to both the program and the management agency.

Science Coordinator Recommendation: Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Fund

Executive Director Comments:

April 2011 Comments
There has been strong concern about the program's data manager serving the entire program. Since April, the data manager's work has been favorably reviewed, has submitted late deliverables to the Council and several data management options have been produced by this program and outside entities. These options presented are in conjunction with leaders in the field of heterogeneous scientific database management and are excellent options. I recommend the Council pursue one of these options to ensure successful management of the data produced by this and past Council-funded efforts.

In addition, the program and ADF&G have discussed what actions would enhance the program's value to the management of herring. Both entities recommend the Council fund 70% of a ADF&G biometrician III or a fisheries scientist I to coordinate with the herring program and to also focus on a modeling effort. This is included in our draft administrative budget and has the strong support of individual Science Panel members. We have continued to decrease our admin budget, but are also positioning our staff and agency staff to support the long-term programs.

Executive Director Recommendation: Fund

Trustee Council Comments:

This team is selected as a preferred proposer.

Trustee Council Decision: Pending

Project Number: **12120111-H**

Project Title: **PWS Herring Program - Outreach and Education Program**

Principal Investigator: William Pegau

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$16,500.00	**FY13:**	$30,500.00	**FY14:**	$32,700.00
FY15:	$35,900.00	**FY16:**	$38,300.00	**FY17:**	$0.00

Total Funding Requested: $153,900.00

Abstract:

The Outreach & Education project is designed to enhance the PWS Herring Program research activities by showcasing their relevancy, broadening their applicability and extending their impact to people in the community. PWSSC educators will work with PWS Herring Research and Monitoring principal investigators (PI) and project collaborators to prepare public education materials that communicate the purpose, goals and results of the research program to “non-scientist” audiences and stakeholders in communities in and beyond the spill affected area.
Outreach and education products will extend and transfer Pacific herring and marine ecosystem information to inform the public of local research activities and improve their ecological and ocean science literacy.

The specific objectives of this proposal, which includes the outreach and education components of the PWS Herring Research and Monitoring Program, are to:

1) Disseminate PWS herring research information and lessons learned in this program to individuals, groups, policy makers, resource managers and institutions in PWS, including the effected fishing community.

2) Extend and transfer PWS herring research-based outreach and education products to general audiences in and beyond the spill affected areas of PWS.

3) Integrate community involvement into the planning and sampling programs through citizen science opportunities and public workshops

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120111-O**

Project Title: **PWS Herring Program - Coordination and Logistics**

Principal Investigator: William Pegau

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$327,200.00	**FY13:**	$349,300.00	**FY14:**	$364,200.00
FY15:	$238,600.00	**FY16:**	$233,700.00	**FY17:**	$0.00

Total Funding Requested: $1,513,000.00

Abstract:
This project is for the coordination and logistics aspects of the proposed program titled, “PWS Herring Research and Monitoring”. The objectives of the program are 1) Provide information to improve input to the age-structure-analysis (ASA) model, or test assumptions within the ASA model, 2) Inform the required synthesis effort, 3) Address assumptions in the current measurements, and 4) Develop new approaches to monitoring. The Coordination and Logistics program objectives are to 1) ensure coordination between projects to achieve the program objectives, 2) Provide a synthesis from existing results, and 3) provide logistical support to the various projects.

Coordination includes scheduling of projects to ensure the maximum sharing of vessel time and so that projects dependent on results or samples from another project are in the correct order. Coordination will be primarily through email and teleconference, but each year all the investigators are required to meet in person. Coordination is also taking place with the existing Herring Survey program, the Long-Term monitoring program, and ADF&G herring sampling.

Logistics is primarily in providing vessel time although a remotely operated vehicle is requested in this budget to support non-lethal fish identification and being able to search under the ice.
The synthesis to be provided by this project is leveraging the required synthesis of the existing Herring Survey program. We intend to update that effort with new results and add a section on how environmental conditions affect herring growth

Science Panel Comments:
Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:
Not Available

Science Coordinator 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: Pending

Project Number: **12120113**

Project Title: **EVOS twenty five years later: Lessons learned and implications to future spill response**

Principal Investigator: William Pegau

Affiliation: Prince William Sound Science Center

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$528,868.00	**FY13:**	$233,805.00	**FY14:**	$0.00
FY15:	$0.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $762,673.00

Abstract:

The Exxon Valdez oil spill created fundamental changes to our approach to oil spill response and recovery. It led to sweeping federal and state legislation, such as the Oil Pollution Act of 1990 and Alaska State House Bill 567. It also led to sweeping changes in our approach to spill response. Some of the lessons learned have become standard practice, such as not using high-pressure hot water washes on natural beaches, while others appear not to have become ingrained in modern spill response. Now that nearly 25 years have passed we have the opportunity to look back at the decisions that were made and see the full impact of those choices to ensure we pass on the important lessons learned from the Exxon Valdez oil spill.

It is far from the first time that we have stopped to examine the impact of the oil spill. The amount of reports, conference presentations, books, and journal articles about the Exxon Valdez oil spill is staggering. Lessons learned documents start while the spill was still being cleaned up [Skinner and Reilly, 1989]. With more published within a year of the spill [Alaska Oil Spill Commission, 1990; Steiner and Byers, 1990]. There was the Exxon Valdez Oil Spill Symposium [1993a] that examined the damages caused by the spill. Conference proceedings examining the fate and effects [1995]. There have been conferences and reviews associated with the fifth, tenth, and twentieth anniversaries [1994a; 1999; 2009]. The early reviews of the science being conducted spawned the annual Alaska Marine Science Symposium. The main body of the existing work is focused on the ecological impacts and recovery. The fifth anniversary document has the most focus on response and damage assessment aspects and even then it focuses on what occurred or programs implemented rather than the lessons learned. It remains important to document the lessons learned in response, assessment, and restoration phases for future generations. At this point much of the existing knowledge is being lost as people with experience begin to retire.

Science Panel Comments:

This proposal is motivated by a legitimate concern that management agencies have the opportunity to benefit from the experience of the responders following EVOS. A specific goal is to ensure publication of information about a summary of response actions following EVOS with regard to effectiveness and collateral injury caused unintentionally by from clean-up responses or restoration actions.

The science panel endorsed the rationale for this specific proposal but retain a number of serious concerns about a number of aspects of the proposal.

First, it is unclear that sufficient scientific analysis has been done on all the questions identified in the proposal to support a valid, rigorous analysis of benefits and costs of each. Second, NOAA HAZMAT program has extensive experience in the arena and should be consulted in the planning. Third, related data are needed from other spills in other countries, such as Norway, to provide other independent sources of data that should be incorporated into each chapter. Fourth, the authors are not identified for the chapters so it is not clear who knows the data sufficiently well to address the questions. Fifth, the science panel expressed concern about whether the PI has sufficient time available to effective

conduct this work. Sixth, we have concerns about the appropriateness of a book as opposed to publications in the literature of technical reports. Specifically books can be expensive and have limited circulation. Finally, the US Coast Guard has responsibility for oil spill response and their guidance documents need to be discussed and used to guide the project.

Science Panel Recommendation: Do Not Fund

Science Coordinator Comments:

I concur with the science panel.

Science Coordinator Recommendation: Do Not Fund

Public Advisory Committee Comments:

Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:

I concur with the science panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:

Not Available

Trustee Council Decision: Pending

Project Number: **12120114-O**

Project Title: **LTM Program - Monitoring long-term changes in forage fish distribution, abundance, and body condition in Prince William Sound.**

Principal Investigator: John Piatt

Affiliation: Not Available

Co-PIs/Personnel: Mayumi Arimitsu

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$209,900.00	**FY13:**	$202,500.00	**FY14:**	$202,500.00
FY15:	$202,500.00	**FY16:**	$150,300.00	**FY17:**	$0.00

Total Funding Requested: $967,700.00

Abstract:
In response to a lack of recovery of wildlife populations following the Exxon Valdez Oil Spill (EVOS), and evidence of natural background changes in forage fish abundance, there was a significant effort to document forage fish distribution, abundance, and variability in Prince William Sound (PWS) in the 1990's. We propose to adopt some of these earlier sampling schemes and protocols to continue monitoring forage fish in Prince William Sound with fishing and acoustic surveys of forage fish, and to measure indices of forage fish condition and foraging success.

Science Panel Comments:
Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:
Not Available

Science Coordinator 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: Pending

Project Number: **12120114-P**

Project Title: **LTM Program - Long-term Monitoring of Oceanographic Conditions in the Alaska Coastal Current from Hydrographic Station GAK 1.**

Principal Investigator: Thomas Weingartner

Affiliation: Not Available

Co-PIs/Personnel: None

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$109,500.00	**FY13:**	$112,500.00	**FY14:**	$115,700.00
FY15:	$119,100.00	**FY16:**	$122,500.00	**FY17:**	$0.00

Total Funding Requested: $579,300.00

Abstract:

This program continues a 40-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 four important Alaska Coastal Current ecosystem parameters that will quantify and help 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

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:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending

Project Number: **12120119**

Project Title: **Maine Debris Program**

Principal Investigator: John Whissel

Affiliation: Native Village of Eyak

Co-PIs/Personnel: Keith Van den Broek

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12: $1,082,830.00	**FY13:** $0.00	**FY14:** $0.00
FY15: $0.00	**FY16:** $0.00	**FY17:** $0.00

Total Funding Requested: $1,082,830.00

Abstract:

Marine Debris (MD) is of great concern to the Native Village of Eyak's (NVE) tribal membership, and the commercial fishing community of Cordova, Alaska where NVE is based. Cordova is located in the southeast corner of Prince William Sounds where the tanker Exxon Valdez ran aground in 1989 spilling oil into Prince William Sound (PWS) at Bligh Reef. The Exxon Valdez Oil Spill (EVOS) contaminated the western half of PWS and continued into the Gulf of Alaska (GOA) past the Alaska Peninsula impacting a huge area where recovery efforts are still underway.

Just as these currents from the east pushed EVOS oil out of PWS and into GOA to the west, the recovery area is populated with water that passes the shores of the GOA to the southeast of PWS. This area is known to NVE, its partners and the National Oceanic and Atmospheric Association (NOAA) to have high accumulation rates of MD, with plastic debris being the most prevalent. A 2010 cleanup effort on Egg Island showed that the dominant type of MD was plastic, and this finding was repeated in NOAA surveys conducted in 2008 where plastic was prevalent in the MD surveyed on Kayak and Middleton Island.

The beaches of Kayak Island, Kanak Island, Egg Island, Katalla and Okalee Spit are in this area immediately "upstream" of the EVOS recovery zone, and have all been observed to hold large amounts of MD, and several reefs in the area around the Copper River Delta are known to have derelict fishing gear. This area, therefore, is a source of MD that winter storms could easily wash off the beaches and reefs and into the GOA where dominant currents would bring the MD directly into the EVOS recovery zone

There are significant challenges in addressing MD in this part of the GOA, which is largely why MD cleanup efforts here have been minimal compared to other more accessible areas.

Science Panel Comments:

This proposal an attractive program based on its focus on local community involvement, cost matching ability, and suite of ongoing projects that the funds would serve. However, the activities suggested and current level of involvement do not suggest that this proposal will be highly effective in the removal of marine debris.

The costs of the program appear reasonable, but without a detailed breakdown it was hard to tell if the various components of the project were cost effective (e.g. how much they are spending assessing, cleaning up, or doing the recycling program). Although the proposal gives a scientific review committee, it lacks process engineer. Also, it mentions that the US Coast Guard will sling load the debris out, but this could be very costly and could significantly influence how much gets done. A single fiscal year seems tight for all the activities including planning, MD analysis, data collection, cleanup and disposal as well as recycling and public outreach events.

Science Panel Recommendation: Do Not Fund

Science Coordinator Comments:
I concur with the science panel.

Science Coordinator Recommendation: Do Not Fund

Public Advisory Committee Comments:
Not Available

Public Advisory Committee Recommendation: Do Not Fund

Executive Director Comments:
I concur with the science panel.

Executive Director Recommendation: Do Not Fund

Trustee Council Comments:
Not Available

Trustee Council Decision: Pending

Project Number: **12120111-P**

Project Title: **PWS Herring Program - Herring Genetics**

Principal Investigator: Sharon Wildes

Affiliation: Not Available

Co-PIs/Personnel: Jeff Guyon

Project Location: Prince William Sound

Funding Requested by Fiscal Year:

FY12:	$0.00	**FY13:**	$0.00	**FY14:**	$50,500.00
FY15:	$53,100.00	**FY16:**	$0.00	**FY17:**	$0.00

Total Funding Requested: $103,600.00

Abstract:

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. The purpose of this proposal is to determine the genetic stock structure of Pacific herring in Prince William Sound using available microsatellite markers. Samples will be collected and their genetic characteristics compared between locations, spawning times and years. In addition, year classes within spawning stocks will also be analyzed for genetic differences. Herring will be collected from two geographical disparate locations within Prince William Sound, one from the east and one from the west. Each location will be extensively sampled such that at least 200 samples from each group (for a specific location, year, spawn time, and age class) will be available for analysis. As a control, a small group of 200 Pacific herring will also be collected from Lynn Canal. Lynn Canal herring are (1) easily accessible from Auke Bay Laboratories, (2) of high priority to the National Marine Fisheries Service and the Alaska Department of Fish and Game, and (3) have been part of our herring program for the last 2 years. DNA will be isolated from each collection of 200 herring and the samples genotyped using a group of microsatellite markers, many of which have already been standardized in our laboratory for Pacific herring (Wildes et al., accepted Fish Bull). To date, over 40 herring microsatellite markers have been described and each loci contains multiple alleles making them ideal genetic markers for analyzing migratory fish like herring with limited stock structure. Resulting genotypes will be compared to determine the genetic uniqueness of each collection using standard analyses (FST and G test). Principle component analyses will be performed to illustrate stock separations. Chord distances will be calculated and a phlyogenetic tree constructed to illustrate genetic relationships. Finally, genetic results will be summarized to communicate their biological significance, as well as their significance to management and restoration.

Science Panel Comments:

Not Available

Science Panel Recommendation: Fund

Science Coordinator Comments:

Not Available

Science Coordinator 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: Pending