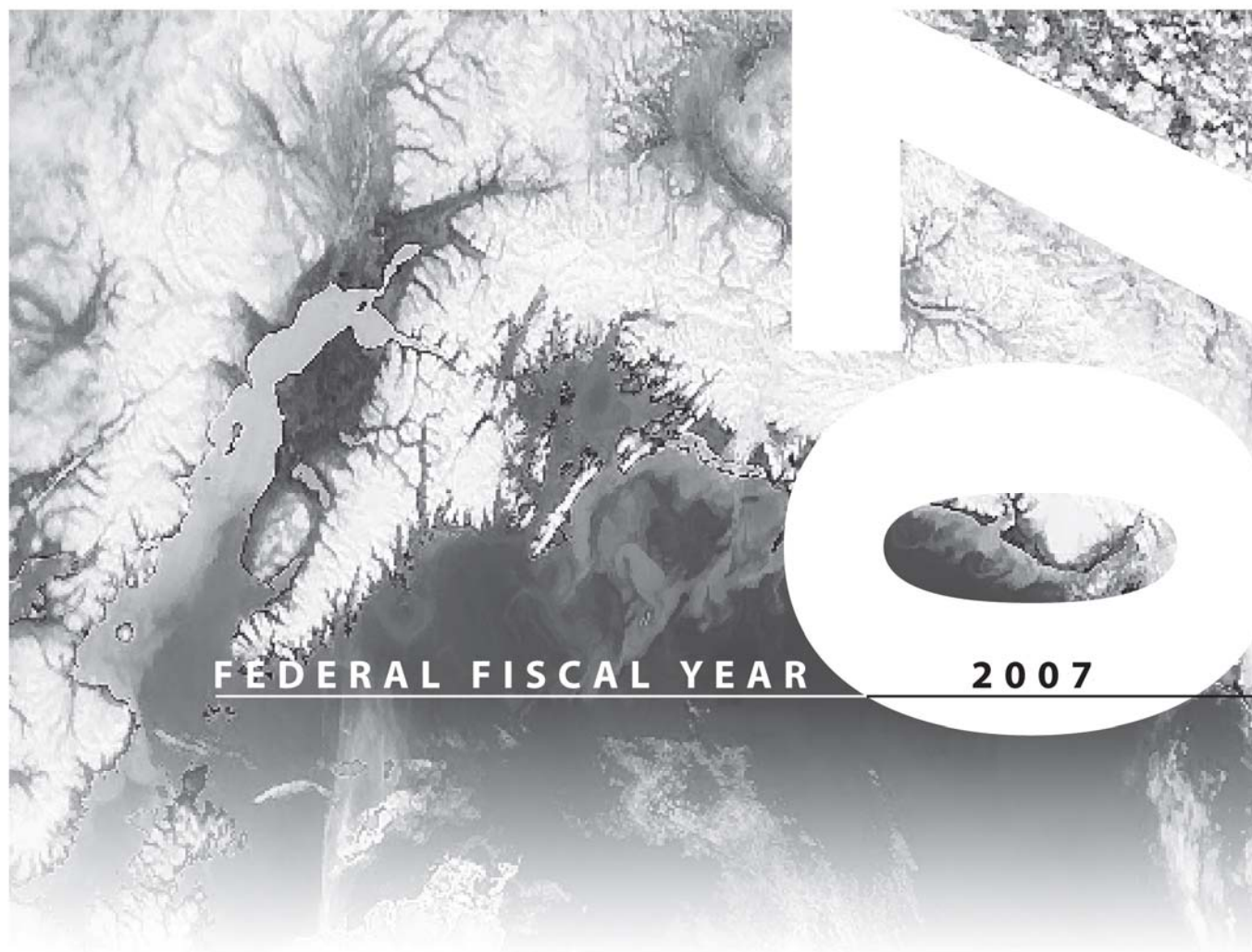


EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL



FEDERAL FISCAL YEAR

2007

DRAFT WORK PLAN PART 2: INJURED RESOURCES AND SERVICES

Issued October 27, 2006
Revised November 6, 2006



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FISCAL YEAR 2007

DRAFT WORK PLAN

PART 2: INJURED RESOURCES AND SERVICES

October 27, 2006
Revised November 6, 2006

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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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- ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526.
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- U.S. Fish and Wildlife Service, 4040 N. Fairfax Drive, Suite 300 Webb, Arlington, VA 22203
- Office of Equal Opportunity, U.S. Department of the Interior, Washington DC 20240.

Dear Reviewer,

The following draft work plan, entitled “**Draft Work Plan, FY07, Part 2: Injured Resources and Services**”, contains proposal information and funding recommendations for non-herring related projects only. The Trustee Council also received herring related proposals in response to the FY07 Invitation for Proposals, which were contained in Draft Work Plan, FY07, Part 1: Pacific Herring. Check our website, www.evostc.state.ak.us, periodically for updates.

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 15 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, Part 2: Injured Resources and Services, 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.

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.

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 November 10, 2006. Please see the “Please Comment” section prior to the Table of Contents for more information regarding how to submit comments.

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 November 10, 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 Colleen Keane 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). Finally, we appreciate the participation and comments on this plan provided to us by the Public Advisory Committee (PAC).

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. This year the Draft Work Plan is divided into two sections: **FY07 Draft Work Plan, Part 1: Pacific Herring** and **FY07 Draft Work Plan, Part 2: Injured Resources and Services**. Upon final funding decisions by the Trustee Council, these two sections will be condensed into one final Work Plan for 2007. Each section of the Draft Work Plan contains basic information about an individual proposal and its complete record of funding recommendations during the review process. Recommendations from the Science Panel and preliminary recommendations of the Science Director and Executive Director are included in this draft. The recommendations of the Public Advisory Committee (PAC) will be added prior to the Draft Work Plan's review by the Trustee Council.

Part 2 of the FY07 Draft Work Plan, enclosed here, presents those proposals that focus on the restoration and monitoring of injured resources and services. Nineteen proposals were reviewed by the Trustee Council that related to injured resources and services. The total requested funding for these projects in FY07 is \$3,441,000 and the total requested funding for injured resources and services projects over the next three years is an additional \$2,734,540.

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.

Projects Currently Funded Through FY07*

PI	Project #	Title	Funding to Date	FY07 Funding
Matkin	050742	Monitoring of Killer Whales in PWS/Kenai Fjords in 2005-2007	\$42,800	\$23,800
Baird	050743	Linking Shoreline Mapping with Community-Based Monitoring	\$49,200	\$11,900
Hoover/Miller	050749	Harbor Seal Monitoring in Southern Kenai Peninsula Fjords	\$223,000	\$82,300
Short	050763	Long-term Monitoring of Anthropogenic Hydrocarbons	\$117,800	\$58,900
Willette	050765	Improving Preseason Forecasts of Kenai River Sockeye Salmon Runs	\$134,700	\$67,000
Otis	050769	Temporal Stability of Fatty Acids used to Discriminate Pacific Herring	\$157,100	\$25,100

*The Trustee Council has already approved funding for these projects in FY07.

Summary of Funding Recommendations for FY07

Project Number	PI	Title	Total Funding Requested	Total FY07 Funding Recommended ^a	Priority Ranking ^b	Science Panel	PAC	Science Director	Executive Director
070808	Ballachey/Bodkin	Sea Otter Status & Nearshore Synthesis	\$251,700	\$154,000	2	Fund	Fund	Fund	Fund
070750	Bodkin/Dean	Database and Implementation of Evaluation of Recovery & Restoration of Nearshore	\$136,600	\$135,400	1	Fund	Fund	Fund	Fund
070131	Brown-Schwalenberg/ Brooks/Hetrick	Subsistence Clam Enhancement and Rehabilitation of Clam Populations in PWS	\$ 78,500		1	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070809	Carls/Rice	The Risk of Buried Oil to Fauna: A Pre-Remediation Assessment.	\$399,700		0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070816	Esler	Harlequin Duck Population: CYPIA Monitoring & A Demographic Population Model	\$201,700	\$177,800	1	Fund	Fund	Fund	Fund
070703	Honnold/Duesterloh/ Finney/Whitledge/ Stockwell	Effects of Anadromous Marine-Derived Nutrients on Biological Production in Sockeye Salmon	\$1,442,600		0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070639	Goldman	Monitoring Ecosystem Parameters in the Northern Gulf of Alaska	\$288,100		0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070751	Irons	PWS Marine Bird Surveys, Synthesis & Restoration	\$1,829,100	\$178,100	2	Do Not Fund	Fund	Abstain	Fund

EVOSTC FY 2007 Draft Work Plan, Part 2: Injured Resources and Services 10/27/2006

Project Number	PI	Title	Total Funding Requested	Total FY07 Funding Recommended ^a	Priority Ranking ^b	Science Panel	PAC	Science Director	Executive Director
070709	Jack	Population Monitoring of Sea Otters in PWS	\$329,600		0	Do Not Fund	Do Not Fund	Abstain	Do Not Fund
070820	Lauenstein/Apeti	Assessment of PAH's and Heavy Metals in Subsistence Mollusks from the PWS	\$121,600	\$121,600	3	Fund	Fund	Fund	Fund
070802	Lohmann/Burgess	Predicting & Validating the Bioavailability of PAH's from the EVOS	\$335,500		0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070742	Matkin	Monitoring, Tagging, Feeding Studies & Restoration of Killer Whales in PWS/Kenai	\$103,000	\$100,000	1	Fund	Fund	Fund	Fund
070290	Nelson/Short	The Exxon Valdez Trustee Hydrocarbon Database	\$30,100	\$30,100	1	Fund	Fund	Fund	Fund Contingent ^c
070825	Pawlowski/Simpson	Monitoring Lingering Oil and Resources at Risk with Time-Lapse Digital Photography	\$258,800		0	Do Not Fund	Do Not Fund	Do Not Fund	Do Not Fund
070759	Rosenberg	Harlequin Duck Population Dynamics in PWS: Measuring Recovery	\$86,700	\$86,700	2	Fund	Fund	Fund	Fund Contingent ^c
070827	Rosenberg/Springman	Assessing Potential Oil Exposure to Harlequin Duck Populations in PWS	\$89,200		0	Defer	Do Not Fund	Defer	Do Not Fund
070210	Salasky/Crumley	PWS Youth Area Watch	\$960,400		2	Fund (FY07 only)	Do Not Fund	Fund (FY07 only)	Do Not Fund
070610	Schneider	Kodiak Archipelago Youth Area Watch	\$287,600		2	Fund (FY07 only)	Do Not Fund	Fund (FY07 only)	Do Not Fund
070829	Shigenaka/Fukuyama/Downs/Holderied/Coats/Thompson	Bioavailability & Effects of Lingering Oil to Littleneck Clams	\$556,200	\$239,000	2	Do Not Fund	Fund	Fund	Fund

TOTAL FY07 FUNDING REQUESTED: \$3,417,000
TOTAL FY07 FUNDING RECOMMENDED: \$1,222,700
TOTAL FUNDING REQUESTED: \$7,786,700

^aThe Total Funding Recommended column reflects amended amounts being recommended to the Trustee Council for funding by the Executive Director. The changes occurred based on proposal revisions or recommended reduced funding.

^bPriority Ranking - Non-Herring Projects – The Science Panel, in collaboration with the Science Director, devised a four point (0,1,2,3) ranking system to provide guidance in determining which Injured Resources and Services projects to recommend. Those projects that are not recommended for funding were given a “0”. All projects given a 1, 2, or 3 were recommended for funding, but these projects were ranked in order of priority.

^cFund Contingent – Projects with a Fund Contingent are recommended for funding by the Executive Director, but the PI's have an outstanding final report due to the Trustee Council from a past project. Upon receipt of the report, any approved funds will be released.

Proposed Projects

Acronyms:

ADEC – Alaska Department of Environmental Conservation

ADFG – Alaska Department of Fish and Game

BAA – Broad Agency Announcement

DOI – US Department of Interior

EVOS – Exxon Valdez Oil Spill

FWS – US Fish and Wildlife Service

NOAA – National Oceanic and Atmospheric Administration

PWS – Prince William Sound

PWSFRAP- Prince William Sound Fisheries Research Application and Planning

PWSSC – Prince William Sound Science Center

UAF – University of Alaska, Fairbanks

USGS – US Geologic Survey

Project Number: 070808
Project: Ballachey/Bodkin-Sea Otter Status and Nearshore Synthesis
Project Title: Sea Otter Status and Nearshore Synthesis
Location: PWS
Principal Investigator: Brenda Ballachey, James Bodkin
Affiliation: DOI/USGS
Disbursing Agency: USGS
Funding Requested by Fiscal Year:
FY07: \$154,000 FY08: \$97,700 FY09: \$0 FY10: \$0

Total Funding Requested:

\$251,700

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. **RECOMMENDATION: FUND**

Public Advisory Council Comments: **RECOMMENDATION: FUND**

Science Director Comments: 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. **RECOMMENDATION: FUND**

Executive Director Comments: RECOMMENDATION: FUND

Project Number: 070750
Project: **Bodkin/Dean-Nearshore Resources Database**
Project Title: Database Development and Implementation of Long-Term Monitoring for Evaluation of Recovery and Restoration of Nearshore Resources
Location: PWS
Principal Investigator: James Bodkin, Thomas Dean
Affiliation: DOI/USGS
Disbursing Agency: USGS

Funding Requested by Fiscal Year:

FY07: \$136,600 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:

\$136,600

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 assess 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. RECOMMENDATION: FUND

Public Advisory Committee Comments: 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. RECOMMENDATION: FUND

Executive Director Comments: RECOMMENDATION: FUND

Project Number: 070131
Project: **Brown-Schwalenberg/Brooks/Hetrick –Subsistence Clam Enhancement**
Project Title: Plan Enhancement for Establishing a Program for Subsistence Clam Enhancement and Rehabilitation of Clam Populations Injured by the Exxon Valdez Oil Spill
Location: PWS and Outer Kenai Peninsula
Principal Investigator: Patricia Brown-Schwalenberg, Kenn Brooks, Jeff Hetrick
Affiliation: BAA
Disbursing Agency: TBD
Funding Requested by Fiscal Year:
FY07: \$78,500 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:
\$78,500

Abstract:

This project will produce a plan for establishing subsistence clam sites near the villages of Tatilek, Chenega Bay, Port Graham, and Nanwalek and for rehabilitating 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 techniques to establish subsistence clam sites near the villages as a replacement for subsistence resource that was severely damaged 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**

Public Advisory Committee Comments: **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. RECOMMENDATION: DO NOT FUND

Executive Director Comments: Concur with Science Panel comments and recommend not funding. Also agree with the PAC recommendation to not fund this proposal until the co-PIs submit final deliverables for a previous Trustee Council funded project (Project 030052). RECOMMENDATION: DO NOT FUND

Project Number: 070809
Project: Carls/Rice-Lingering Oil and Fauna
Project Title: The Risk of Buried Oil to Fauna: A Pre-Remediation Assessment.
Location: PWS
Principal Investigator: Mark Carls, Jeep Rice
Affiliation: NOAA
Disbursing Agency: NOAA
Funding Requested by Fiscal Year:
FY07: \$399,700 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:

\$399,700

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**

Public Advisory Committee Comments: **RECOMMENDATION: DO NOT FUND**

Science Director Comments: Concur with Science Panel. **RECOMMENDATION: DO NOT FUND**

Executive Director Comments: **RECOMMENDATION: DO NOT FUND**

Project Number: 070816
Project: **Esler-Harlequin Duck Population Recovery**
Project Title: Evaluating Harlequin Duck Population Recovery: CYP1A Monitoring and a Demographic Population Model
Location: PWS
Principal Investigator: Dan Esler
Affiliation: DOI/USGS
Disbursing Agency: USGS
Funding Requested by Fiscal Year:
FY07: \$177,800 FY08: \$23,900 FY09: \$0 FY10: \$0
Total Funding Requested:
\$201,700

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.

RECOMMENDATION: FUND

Public Advisory Committee Comments: 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. RECOMMENDATION: FUND

Executive Director Comments: RECOMMENDATION: FUND

Project Number: 070703
Project: **Finney/Honnold/Duesterloh/Whitledge/Stockwell - Sockeye Salmon**
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
Location: Kodiak Island
Principal Investigator: Steven Honnold, Switgard Duesterloh, Bruce Finney, Terry Whitledge, Dean Stockwell
Affiliation: UAF/ADFG
Disbursing Agency: TBD
Funding Requested by Fiscal Year:
FY07: \$278,200 FY08: \$291,500 FY09: \$299,100 FY10: \$311,500
FY11: \$262,300

Total Funding Requested:

\$1,442,600

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 lake impacts on juvenile salmon will assist fisheries managers by allowing assessment 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. **RECOMMENDATION: DO NOT FUND**

Public Advisory Committee Comments: **RECOMMENDATION: DO NOT FUND**

Science Director Comments: This is a scientifically valid proposal but the link to the Invitation was tenuous. RECOMMENDATION: DO NOT FUND

Executive Director Comments: RECOMMENDATION: DO NOT FUND

Project Number: 070639
Project: **Goldman-Monitoring Ecosystem Parameters**
Project Title: Monitoring Ecosystem Parameters in the Northern Gulf of Alaska
Location: Kachemak Bay
Principal Investigator: Kenneth Goldman
Affiliation: ADFG
Disbursing Agency: ADFG
Funding Requested by Fiscal Year:
FY07: \$102,100 FY08: \$88,300 FY09: \$97,700 FY10: \$0

Total Funding Requested:

\$288,100

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 assess 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.

RECOMMENDATION: DO NOT FUND

Public Advisory Committee Comments: 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. RECOMMENDATION: DO NOT FUND

Executive Director Comments: RECOMMENDATION: DO NOT FUND

Project Number: 070751
Project: Irons-Marine Bird Surveys
Project Title: Prince William Sound Marine Bird Surveys, Synthesis and Restoration
Location: PWS
Principal Investigator: David Irons
Affiliation: DOI/FWS
Disbursing Agency: DOI
Funding Requested by Fiscal Year:
FY07: \$459,200 FY08: \$336,900 FY09: \$318,900 FY10: \$340,700
FY11: \$373,400

Total Funding Requested:

\$1,829,100

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 murrelets (*Uria aalga*) are showing no trend in the oiled area; pigeon guillemots (*Cephus 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.

RECOMMENDATION: DO NOT FUND

Public Advisory Committee Comments: RECOMMENDATION: FUND (as modified in the Executive Director's comments below)

Science Director Comments: Not Reviewed. 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. RECOMMENDATION: ABSTAIN

Executive Director Comments: Several species of seabirds remain on the Injured Resources list as recovering, not recovering, or unknown. To maintain long-term population trend data to evaluate recovery on these species it is important to continue the population surveys. However, it is not necessary to complete them every year. The PI has not conducted the surveys since 2005, so I recommend that the Trustee Council support one year of surveys at \$178,000 which replicates the scope of the 2005 survey. RECOMMENDATIONS: FUND (\$178,000 in FY07, only)

Project Number: 070709
Project: **Jack-Sea Otter Monitoring**
Project Title: Population Monitoring of Sea Otters in the EVOS Area
Location: PWS, Kachemak Bay, Kodiak
Principal Investigator: Lianna Jack
Affiliation: BAA
Disbursing Agency: TBD
Funding Requested by Fiscal Year:
FY07: \$96,700 FY08: \$102,800 FY09: \$130,100 FY10: \$0

Total Funding Requested:

\$329,600

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 proposers to develop and seek funding these or other projects. **RECOMMENDATION: DO NOT FUND**

Public Advisory Committee Comments: **RECOMMENDATION: DO NOT FUND**

Science Director Comments: Not reviewed. The Science Director is on a long-term detail from FWS, and must recuse herself from making recommendations on proposal that involve FWS. **RECOMMENDATION: ABSTAIN**

Executive Director Comments: **RECOMMENDATION: DO NOT FUND**

Project Number: 070820
Project: **Lauenstein/Apeti-Heavy Metals in Mollusks in Sustainable Use Areas**
Project Title: Assessment of PAHs and Heavy Metals in Subsistence Mollusks from the Prince William Sound's Traditional Use Areas
Location: PWS
Principal Investigator: Gunnar Lauenstein, Dennis Apeti
Affiliation: NOAA
Disbursing Agency: NOAA
Funding Requested by Fiscal Year:
FY07: \$121,600 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:
\$121,600

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. RECOMMENDATION: FUND

Public Advisory Committee Comments: RECOMMENDATION: FUND

Science Director Comments: Concur. 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. RECOMMENDATION: FUND

Executive Director Comments: RECOMMENDATION: FUND

Project Number: 070802
Project: Lohmann/Burgess-Bioavailability of PAH's
Project Title: Predicting and Validating the Bioavailability of PAHs from the Exxon Valdez Oil Spill
Location: PWS
Principal Investigator: Rainer Lohmann, Robert Burgess
Affiliation: BAA
Disbursing Agency: TBD
Funding Requested by Fiscal Year:
FY07: \$81,000 FY08: \$133,700 FY09: \$120,800 FY10: \$0

Total Funding Requested:

\$335,500

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: Study and parameterize the distribution of remaining PAHs from EVOS in-between sediments and water (i.e., their sorption); predict and validate the bioaccumulation of PAHs by benthic invertebrates; and 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. **RECOMMENDATION: DO NOT FUND**

Public Advisory Committee Comments: **RECOMMENDATION: DO NOT FUND**

Science Director Comments: Concur with Science Panel comments. **RECOMMENDATION: DO NOT FUND**

Executive Director Comments: RECOMMENDATION: DO NOT FUND

Project Number: 070742
Project: **Matkin-Killer Whale Restoration**
Project Title: Monitoring, Tagging, Feeding Studies, and Restoration of Killer Whales in Prince William Sound/Kenai Fjords in 2007
Location: PWS
Principal Investigator: Craig Matkin
Affiliation: BAA
Disbursing Agency: TBD
Funding Requested by Fiscal Year:
FY07: \$103,000 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:
\$103,000

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 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. RECOMMENDATION: FUND

Public Advisory Committee Comments: 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.
RECOMMENDATION: FUND

Executive Director Comments: RECOMMENDATION: FUND

Project Number: 070290
Project: Nelson/Short-EVOSTC Hydrocarbon Database
Project Title: The Exxon Valdez Trustee Hydrocarbon Database
Location: PWS
Principal Investigator: Bonita Nelson, Jeffrey Short
Affiliation: NOAA
Disbursing Agency: NOAA
Funding Requested:
FY07: \$30,100 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:

\$30,100

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. RECOMMENDATION: FUND

Public Advisory Committee Comments: 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. RECOMMENDATION: FUND

Executive Director Comments: Recommend to not fund this proposal until the co-PI submit final deliverables for a previous Trustee Council funded project (Project 040740). RECOMMENDATION: FUND CONTINGENT

Project Number: 070825
Project: **Pawlowski/Simpson-Lingering Oil Using Time Lapse Photography**
Project Title: Monitoring Lingering Oil and Resources at Risk with Time-Lapse Digital Photography
Location: PWS, Knight Island
Principal Investigator: Robert Pawlowski, Patrick Simpson
Affiliation: BAA
Disbursing Agency: TBD

Funding Requested by Fiscal Year:

FY07: \$258,800 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:

\$258,800

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 resuspension 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. **RECOMMENDATION: DO NOT FUND**

Public Advisory Committee Comments: **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. RECOMMENDATION: DO NOT FUND

Executive Director Comments: RECOMMENDATION: DO NOT FUND

Project Number: 070759
Project: **Rosenberg-Harlequin Duck Population Dynamics**
Project Title: Harlequin Duck Population Dynamics in Prince William Sound:
Measuring Recovery from the Exxon Valdez Oil Spill
Location: PWS
Principal Investigator: Dan Rosenberg
Affiliation: ADFG
Disbursing Agency: ADFG
Funding Requested by Fiscal Year:
FY07: \$86,700 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:
\$86,700

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. 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 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. RECOMMENDATION: FUND

Public Advisory Committee Comments: 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. RECOMMENDATION: FUND

Executive Director Comments: Until the PI submits the final report for a previously Trustee Council funded project (Project 00273), it is recommended to not fund this proposal.
RECOMMENDATION: FUND CONTINGENT

Project Number: 070827
Project: Rosenberg/Springman-Harlequin Duck Oil Exposure
Project Title: Assessing Potential Oil Exposure to Harlequin Duck Populations in Prince William Sound
Location: PWS
Principal Investigator: Dan Rosenberg, Katherine Springman
Affiliation: ADFG
Disbursing Agency: ADFG
Funding Requested by Fiscal Year:
FY07: \$89,200 FY08: \$0 FY09: \$0 FY10: \$0

Total Funding Requested:

\$89,200

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. **RECOMMENDATION: DEFER FUNDING**

Public Advisory Committee Comments: RECOMMENDATION: DO NOT FUND

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.

RECOMMENDATION: DEFER

Executive Director Comments: Until the PI submits the final report for a previously Trustee Council funded project (Project 00273), it is recommended to not fund this proposal.

RECOMMENDATION: DO NOT FUND

Project Number: 070210
Project: Salasky/Crumley-PWS Youth Watch
Project Title: PWS Youth Watch
Location: PWS, Resurrection Bay
Principal Investigator: Sheryl Salasky, Bob Crumley
Affiliation: BAA
Disbursing Agency: TBD

Funding Requested by Fiscal Year:

FY07: \$174,300 FY08: \$182,400 FY09: \$191,500 FY10: \$201,100
FY11: \$211,100

Total Funding Requested:

\$960,400

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. **RECOMMENDATION: FUND FOR ONE YEAR.**

Public Advisory Committee Comments: **RECOMMENDATION: DO NOT FUND**

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: During that time, a review and assessment of the program should be conducted between the YAW Directors, the Executive Director of EVOS TC office and other environmental educators. This review should summarize past performance of the YAW program, but the discussion should be broader and focus on the future direction of environmental education funded by the Trustee Council.

RECOMMENDATION: FUND FOR ONE YEAR.

Executive Director Comments: The PAC recommended not funding this proposal and further recommended the Trustee Council provide funding support to develop an environmental education-community outreach plan for the spill-affected area. The PAC expressed concern this proposal, which continues Project 040210, only targets a small percentage of students in the spill area. The sense of the PAC was before additional funding is approved, a comprehensive review of educational and community outreach efforts should be undertaken and a plan developed that would ensure broader accessibility of students within the spill-affected area and the implementation of school curricula specific to the Council's restoration goals. If the Council intends to provide transition funding until the environmental education-community outreach plan is implemented, it is recommended providing one year of funding at the FY06 level.

RECOMMENDATION: DO NOT FUND

Project Number: 070610

Project: **Schneider-Kodiak Youth Watch**

Project Title: Kodiak Youth Watch

Location: Kodiak

Principal Investigator: Teri Schneider

Affiliation: BAA

Disbursing Agency: TBD

Funding Requested by Fiscal Year:

FY07: \$93,800 FY08: \$95,300 FY09: \$98,500 FY10: \$0

Total Funding Requested:

\$287,600

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.
RECOMMENDATION: FUND FOR ONE YEAR.

Public Advisory Committee Comments: RECOMMENDATION: DO NOT FUND

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: During that time, a review and assessment of the program should be conducted between the YAW Directors, the Executive Director of EVOS TC office and other environmental educators. This review should summarize past performance of the YAW program, but the discussion should be broader and focus on the future direction of environmental education funded by the Trustee Council.
RECOMMENDATION: FUND FOR ONE YEAR.

Executive Director Comments: The PAC recommended not funding this proposal and further recommended the Trustee Council provide funding support to develop an environmental education-community outreach plan for the spill-affected area. The PAC expressed concern this proposal, which continues Project 040610, only targets a small percentage of students in the spill area. The sense of the PAC was before additional funding is approved, a comprehensive review of educational and community outreach efforts should be undertaken and a plan developed that would ensure broader accessibility of students within the spill-affected area and the implementation of school curricula specific to the Council's restoration goals. If the Council intends to provide transition funding until the environmental education-community outreach plan is implemented, it is recommended providing one year of funding at the FY06 level.
RECOMMENDATION: DO NOT FUND

Project Number: 070829
Project: **Shigenaka/Fukuyama/Downs/Holderied/Coats/Thompson - Lingerin Oil and Littleneck Clams**
Project Title: Bioavailability and Effects of Lingerin Oil to Littleneck Clams (*Protothaca staminea*) and Population Recovery Status in PWS
Location: PWS
Principal Investigator: Gary Shigenaka, Allan Fukuyama, Craig Downs, Kris Holderied, Douglas Coats, Terry S. Thompson
Affiliation: NOAA
Disbursing Agency: NOAA
Funding Requested by Fiscal Year:
FY07: \$495,700 FY08: \$60,500 FY09: \$0 FY10: \$0

Total Funding Requested:
\$556,200

Abstract:

We will determine the biological availability and effect of *Exxon Valdez* lingerin 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 unoled sites. Molecular biomarker assays and tissue histology will be used to determine effects of lingerin 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. **RECOMMENDATION: DO NOT FUND**

Public Advisory Committee Comments: **RECOMMENDATION: FUND** (as modified by the Science Director)

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.

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.

Note: The PIs have modified their scope of work to address the concerns outlined above. The new budget reflects the amended proposal.

RECOMMENDATION: FUND

Executive Director Comments: Agree with Science Director's recommendation.

RECOMMENDATIONS: FUND