NOAA Cordova Clean Harbor

NVE Harbor Water Quality Improvement Program
Funding Opportunity Number: NOAA-NMFS-HCPO-2013-2003491

PROPOSAL:

Exxon Valdez Oil Spill Marine Habitat Harbor Water Quality Improvement Program

Submitted By:

Ivy R. Patton
Native Village of Eyak
Environmental Coordinator
Department of the Environment and Natural Resources

3 September 2013

CCH Project Partners: PWS Oil Spill Recovery Institute-PWS Science Center-Copper River Watershed Project-Native Village of Eyak-Cordova District Fishermen United-US Forest Service Cordova District-Alaska Sea Grant Marine Advisory Program-F/V Alpine-F/V Chagvan

approv

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NVE Harbor Water Quality Improvement Program
Funding Opportunity Number NOAA-NMFS-HCPO-2013-2003491

PROJECT SUMMARY

Proposer Native Village of Eyak
Title· NVE Harbor Water Quality Improvement Program
Site· Cordova, Alaska
Land Owner City of Cordova
Start Date February 1, 2014 (EVOS Fiscal Year start date)
Habitat/Species benefiting Human Services, including Commercial Fishing, Passive Use, Recreation and Tourism, and Subsistence

PROJECT SCOPE: In late 2010, a group of concerned local residents along with several organizations, including the Native Village of Eyak (NVE), formed a coalition named Cordova Clean Harbor project (CCH) with the following goals:

- Bring a local, physical presence down into the Cordova Harbor to promote clean boating practices through education and information dissemination,
- Engage local harbor staff, marine businesses, Coast Guard, and non-profit organizations in supporting increased use of available services, and
- Evaluate, recommend and assist with improving user practices and augmenting critical harbor services

Over the past three years CCH has worked to raise awareness of issues related to the harbor and collect input from harbor users to identify ways in which the harbor could be improved Over three hundred and fifty responses to harbor user surveys were received over the two years The input indicated that there is broad interest in improving harbor conditions, increasing garbage bin availability, anti-freeze and waste oil management, and bilge pumping services Over forty percent of respondents in 2012 indicated that they supported more public education and signage

NVE proposes a portfolio of several projects These components were identified by CCH over the past three years:

- Addressing waste and antifreeze disposal. This will be achieved by providing new waste receptacles at locations that reduce the chance of materials being lost back to the environment while making it easier to properly dispose of waste
- Continued outreach activities aimed at educating harbor users to best practices that will reduce waste reaching the harbor This will be done using signage, development of outreach materials,
- Evaluate the effectiveness of the effort by tracking changes in use patterns and PAH levels in mussels

Project Outputs/Outcomes Report

NVE Harbor Water Quality Improvement Program
Funding Opportunity Number: NOAA-NMFS-HCPO-2013-2003491

Time Line: February 1, 2014 – January 31, 2017

Activity	Feb 2014	Mar 2014	April 2014	May 2014	June 2014	July 2014	Aug 2014	Sept 2014	Oct 2014 - Mar 2015	April 2015	May 2015	June 2015	July 2015	Aug 2015	Sept 2015	Oct 2015 - Mar 2016	April 2016	May 2016	June 2016	July 2016	Aug 2016	Sept 2016	Oct 2016 - Jan 2017
Mussel Sampling																							
Antifreeze Shed Construction																							
Antifreeze Backhaul																							
Antifreeze Recycling Purchase																							
Education/Outreach																							
Distribute Materials																							
Bi-weekly volunteer dockwalk																							
create and distribute newsletter																							
trash management plan																							
harbor signage																							
battery shed																							
Research and Reporting																							
Evaluation																							

Permits and Approvals: Approval from the Harbormaster's office, City of Cordova's Assistant Manager, and Prince William Sound Regional Citizens' Advisory Council.
See letters of support for documentation.

Federal Funds Requested: $315,663.80
Non-Federal Match Anticipated: $0.00
Overall Project Cost: $344,073.50

PROJECT NARRATIVE

Goal: The goal of the proposal is to reduce the amount of oil, and solid and hazardous waste reaching the Cordova harbor.

Importance and Applicability:
Like many public harbors, the Cordova Harbor is faced with chronic oil and debris pollution. Annually waters in and around the harbor are coated with spilled petroleum products, mostly the result of contaminated bilge water, and debris from boat maintenance projects. The constant presence of oil within the harbor has led to it being used as a positive control for hydrocarbon studies in Prince William Sound (Thomas et al. 2007). Additionally, litter management in the harbor is a constant challenge for city staff.

Cordova's harbor is located in the heart of town, and is heavily relied upon by the commercial fisherman, recreationists, tourists, and subsistence users for work, food, and recreation. Locals and tourists alike take walks on the Breakwater Trail or the dock floats, and they enjoy sitting at the Fisherman's Memorial park bench overlooking the harbor. People are often seen fishing from the dock floats, and sea otters, seals, sea lions, and shorebirds frequent the harbor for foraging and shelter. The amount of debris and hazardous waste in the Cordova Harbor is not only a health risk, but also an eyesore. By improving the water quality and appearance of the Cordova Harbor, the human services injured resource will be enhanced.

Each year, from May through September, the harbor's 700 slips are fully occupied, and additional transient moorage is heavily utilized. With a broad range of vessels operations using the harbor including commercial fishing boats, tenders, charter, pleasure, sail, houseboats (liveaboards), and subsistence skiffs, a portfolio of approaches is required to improve water quality including an increased and consistent public education and awareness of clean harbor practices and resources.

NVE Harbor Water Quality Improvement Program
Funding Opportunity Number NOAA-NMFS-HCPO-2013-2003491

The goal of this proposal addresses priorities 4 and 8 of the funding announcement by reducing oil and solid waste entering the Cordova harbor The approaches we propose will address priorities 9, 10, 11, 13, and 16 as well

NVE is a federally recognized tribe representing Alaska Natives from Cordova and the surrounding area Cordova is a landlocked rural city of about 2,250 people located on the eastern side of Prince William Sound and is accessible only by air or water Many tribal members work in the commercial fishing industry, which is the backbone of Cordova's economy NVE is the largest tribe on the Copper River with a membership of about 582 people, which constitutes about 25% of Cordova's population NVE includes Alaska Natives of Eyak, Chugach Eskimo, Aleut, Aluttiq, Athabascan, Yupik, Inupiat, Tlingit, and Haida/Tsimshian background

A 5-member Traditional Tribal Council promotes self-determination for its tribal members and governs NVE Under the guidance of the Council, tribal offices provide Tribal members with health and social services, economic development, natural resource/environmental programs, jobs, and job training The Tribe operates in a manner consistent with Alaska Native cultural values and traditions in order to enhance the well being of our people both physically and spiritually The council seeks to enrich tribal living through community-operated tribal programs and self-determination opportunities

Background:
Cordova Harbor Pollution was voted the "Number One Action for Priority" Environmental concern in Cordova by NVE's Community Action for a Renewed Environment (CARE) program which began in 2010 to prioritize and address environmental concerns within our community Harbor Pollution was one of the highest priorities identified by the CARE program has actively gained support from local organizations and community members. Around this time, the collaboration named the Cordova Clean Harbor Project (CCH) came to existence with the following goals·

- Bring a local, physical presence down into the Cordova Harbor to promote clean boating practices through education and information dissemination,
- Engage harbor staff, businesses, federal government agencies (USFS, USCG), and local organizations in supporting increased use of available services, and
- Evaluate, recommend and assist with improving user practices and augment critical harbor services

In 2011, CCH surveyed harbor users to gather suggestions for keeping the harbor cleaner A summer intern at a local organization also interviewed 50 commercial fishermen To heighten awareness of needed harbor improvements, survey respondents were given a bilge sock absorbent that included information on available harbor services, contact information, etc This exercise indicated there was broad interest in improving harbor conditions, increasing garbage bin availability, anti-freeze and waste oil management, and bilge pumping services

In 2012 a more extensive user survey and outreach effort was undertaken CCH obtained small grants from two member organizations, which produced three outcomes 1) producing a project banner with a logo, rack cards with harbor services information, and two freestanding colorful display boards depicting harbor conditions, issues and solutions, 2) hiring of a quarter-time project coordinator, and 3) design a survey for dissemination by a volunteers The survey was conducted at the harbor twice weekly for 2 months during the summer The survey was conducted by a group of residents that were present in the harbor twice weekly for 2 months in the summer Survey respondents received a bilge absorbent Input from tender operators was

gathered via surveys distributed through their respective seafood processors Over 100 survey responses from local resident and recreational users were obtained via an on-line website designed by CCH This group was contacted via community email lists as well as through a CCH booth at the spring community health fare Over 40 percent of respondents supported "more public education and signage" in the harbor

Technical Approach and Community Outreach:
NVE proposes a portfolio of several projects These components were identified in the past three years. The focal areas include·

1 Addressing waste and antifreeze disposal around the harbor (addresses priorities 4, 8, and 11 of the announcement)
2 Examining ways to improve solid waste in and around the harbors (addresses priorities 4, 8, and 9)
3 Continued outreach activities aimed at educating harbor users to best practices that will reduce waste reaching the harbor (addresses priorities 4, 8, 10, 13, and 16)
4 Evaluate the effectiveness of the effort

Each focal area is addressed through a number of specific projects The detail of each component follows

Waste Disposal:
Trash management
Through CCH surveys, ongoing conversations with the Harbor Commission, and discussions with the Harbor staff and City Refuse Department, we will focus on two priority activities over the next three years: 1) development and implementation of a comprehensive harbor trash bin management plan (2014), and 2) development and installation of harbor signage highlighting user services, locations, maps and contact information (2015) In 2016, project evaluation and future planning will take place

Trash management continues to be a chronic problem in the harbor It was recognized as one of the highest priority issues in both surveys Over the years, many harbor land use plan revisions have resulted in a general decrease in the number of bins available at convenient locations, problems with overflow, avian predation in opened bins, etc

We propose to address this issue in three ways: coordinate discussion between Harbor staff, City Public Works, and Harbor Commission to develop a Harbor Waste Bin Management Plan, investigate alternative bin designs and installation, and communicate trash management alternatives and changes to the fleets.

Development of a Management Plan will require evaluating current bin usage, disposal responsibility, location, maintenance costs, and other factors Once the current system is evaluated, solutions such as increasing the number of bins, determining efficient locations, modification of bins, installation of cement containment pads, etc , will be evaluated and implemented in coordination with the City

Antifreeze Disposal Demonstration Project
Antifreeze is accepted and stored in drums at the City's baler facilities at mile 1 2 Whitshed Road, which has limited hours of operation There is no current plan for the recycling or back hauling of the antifreeze collected It is disposed of with the city's sewage once the storage area gets too full According to the summer survey conducted by CCH, over 85% of harbor users said they would use an antifreeze receptacle if it were provided near the harbor

Antifreeze can be neutralized by most sewer systems, however the toxins can be too much for some ecosystems to bear Antifreeze should be treated as potentially hazardous waste and should never be dumped on the ground, in the water, or in dumpsters Waste antifreeze can contain high levels of heavy metals including lead and chromium ethylene glycol is extremely toxic to humans and animals, even in small amounts The city of Cordova's harbormaster's office has noted that many people currently dump anti-freeze in to the used oil receptacle or into the harbor waters directly

Alternatives to the dumping the waste antifreeze into the sewer system will be investigated It is anticipated that a community the size of Cordova will generate approximately 500 gallons of antifreeze for disposal and removal each year. We will keep track of how much antifreeze is disposed of at the harbor and at the city bailer Three alternatives currently exist that will be examined, 1) backhaul out of Cordova via transportation service 2) the purchase of antifreeze recycling unit and training to city staff to operate, 3) contracting with a mobile antifreeze service to come to Cordova and recycle the waste antifreeze Both recycling options produce a reusable anti-freeze that can be put back into a system. Research will include examining costs for back hauling, recycling, and to explore possible re-use of the antifreeze in Cordova to find a viable alternative to dumping into the sewer

We are proposing a pilot demonstration project over the next 3 years to see if backhauling or recycling of antifreeze would be a better fit for our community The pilot project will examine costs and effectiveness of antifreeze disposal, collection, storage, and transportation out of Cordova The first step is the design, construction and installation of an antifreeze waste receptacle located near the waste oil receptacle at the Cordova harbor It will consist of a shed with a secondary containment and a large plastic drum with lid to dispose the liquid Clearly labeled signs will be created to show how to properly dispose of waste oil and antifreeze Education outreach will be conducted on antifreeze disposal and the dangers associated with negligent dumping The harbor antifreeze will be disposed of with the antifreeze collected at the city baler until a safer alternative is created

The second step is to ship no more than 10 drums filled with used antifreeze to a recycling company in anchorage after fishing season late fall 2014. Costs will be analyzed for the demonstration service to see how feasible and cost efficient it is to implement an antifreeze backhaul program in Cordova

The third step is the purchase of an antifreeze-recycling unit for the collected waste Key personnel will be trained on the operation of the unit Antifreeze from the harbor will be recycled and used to see how viable a product it is Total costs for the backhauling will be compared to the total costs it would take to create and operate an antifreeze recycling station located in Cordova. City and Harbormaster swill be engaged throughout this demonstration project, and the outcome will be an antifreeze management plan.

User Education:

Harbor signage

As highlighted in our survey results, harbor users are very open to additional directional signage in the harbor Signage is a positive way to inform the public of available harbor services, contact information, and reinforce best practices

In partnership with Harbor staff, Harbor Commission, the City of Cordova, and project partners, a variety of outdoor metal signs will be developed for key traffic areas in the harbor In addition,

one or more permanent sign boxes will be installed to allow for rotation of posters, photos, and information

Harbor outreach
Highest harbor use months are April through mid-September with several key times when different gear types are present Gillnet drift fleet (over 500 vessels) and an accompanying tender fleet (50 vessels) use the harbor beginning mid-April prior to the traditional start of the Copper River sockeye and king seasons In early June, gillnetters generally split fishing time between fishing opportunity in Prince William Sound and the Copper River Also in early June, several purse seine vessels (50 to 80 vessels) begin using the harbor to prepare for PWS pink and chum fishing Seiners generally leave the Cordova harbor for the duration of the season about July 1st, returning for repairs and provisioning before the end of their season in late August The five-month gillnet season continues for cohos in mid-August through the end of September

On an annual basis, this project proposes activities during two time periods·

April 1 through September 30·

- Outreach education material distribution at cannery welcome-back picnics, fishing association annual meetings, etc including flyers, user survey's as necessary, bilge socks, etc
- Distribute materials to processors for summer tender fleet
- Research, write and record five PSA announcements on harbor waste management highlights, best practices, services, etc for broadcast on KLAM Cordova & KCHU Valdez radio.
- Coordinate weekly and bi-weekly volunteer dock walk teams (4-6 persons) Activities to include· trash pick up, sheen/organic debris pick up, assist harbor staff with monitoring cart condition, garbage bin/web recycling van loads, place passive sausage boom and roped absorbents in high sheen concentration areas, answer public questions, administer surveys, etc
- In advance of each season, compile a newsletter to be mailed to all harbor slip owners (700) Items to include. update on harbor improvements, changes, etc., best management practices for oil, hydraulic, bilge water management; reminders of existing waste management systems in the harbor, harbor photos, etc

October 1 through March 31·

- Coordinate development of annual projects, conduct evaluation
- Coordinate partner communication and input to Harbor Commission, Harbor staff, city
- Conduct monthly partner meetings
- Reports to partners & funders

Evaluation:
To annually evaluate project effectiveness, the project coordinator will

- Annually review summer outreach and winter infrastructure projects and report back to CCH committee and funders
- Document the number of bilge pump uses/requests as compared to previous year (available from harbormaster)
- Develop, distribute and analyze harbor surveys, as necessary, to identify challenges in achieving clean practices, suggestions for improvement, equipment needs, etc
- Monitor PAH and pathogen levels in mussel tissues conducted twice per year

Thomas, R E , M Lindberg, P.M Harris, and S D Rice, 2007, Induction of DNA strand breaks in the mussel (*Mytilus trossulus*) and clam (*Protothaca staminea*) following chronic field exposure to polycyclic aromatic hydrocarbons from the *Exxon Valdez* spill, Mar Pol Bul , 54(6), 726-7

DETAILED, NARRATIVE BUDGET JUSTIFICATION

Budget Narrative

NVE has well-established administrative capacity, including procedures for accounting, auditing, evaluating, reviewing, and reporting, NVE has a mature financial management system and qualified staff necessary to properly administer the requested funding for the project NVE has well maintained computer systems and broadband Internet service for easy grant management The program has expanded to include emergency response oversight, assessment and monitoring, and natural resource an environmental planning NVE is requesting $315,663 80 for this project The overall budget for the Harbor Water Quality Improvement Program includes $125,874 for personnel, $99,075 for Contractual, $17,250 for Commodities, $900 for equipment, and $72,564 80 for indirect rates

Salaries and wages include a NVE Clean Harbor Coordinator at 25FTE, a NVE DENR Department Head at 10FTE and a seasonal part-time Clean Harbor Support Staff at 25FTE totaling $125,874

Contractual costs include design and production of the Harbor Signage Plan, Battery Shed Plan, Antifreeze Disposal Shed and Backhaul/Recycle, Garbage Bin Management Plan These contracts will be put out to bid, and winning contractors shall work closely with the City of Cordova and NVE for completion within cost

Harbor signage costs include $10,000 for the design, production, and installation of directional signage to be placed within and around the harbor Signs will highlight user services, locations, maps and contact information In addition, two permanent sign boxes will be installed to allow for rotation of posters, photos, and information

Battery shed design and construction requests $30,000 to research, design, construct and install a shed that serves as a battery collection location

Garbage Bin Management Plan and Improvements requests a total of $35,000 This amount includes the purchase, freight, and installation costs of bins, and costs for printing and supplies

Other contracting costs include collection, shipping and analysis for the Mussel Biomonitoring plan, which totals $7,200 This accounts for two sampling events (summer and winter) each year for three years Each sampling event includes cost of lab analysis, supplies (coolers and ice), shipping Sampling will be a partnership between PWSRCAC and NVE See letter of support

Commodities include all costs for Education and Outreach. NVE will produce deliverables that include annual mailings, rack cards, posters, banners, and advertisements Purchases will include raingear, gloves, trash bags, bilge socks, sausage boom, and harbor carts The outreach team will consist of Clean Harbor Coordinator and Support Staff and volunteers who will engage harbor users on CCH efforts, improvements, proper disposal methods, and will seek feedback and information through surveys The education and outreach team will annually evaluate project effectiveness

NVE's indirect rate is 29.85% Indirect costs total $72,564.80.

MONITORING PLAN APPROPRIATE FOR PROJECT PROPOSED

The proposed monitoring plan will be modeled after Prince William Sound Regional Citizen's Advisory Council's (PWSRCAC) Long Term Environmental Monitoring Plan, which is similar to NOAA's Musselwatch Program Native Village of Eyak will work with PWSRCAC and Auke Bay Laboratories for the design, collection, sampling, and reporting of mussel tissues in the Cordova Harbor It will consist of bi-annual collection of mussels taken from a location with the harbor This type of biomonitoring will show physical and biological changes as harbor water quality improves and will show baseline data relative when our project begins, as well as contaminant transport

The mussel is an important indicator species within the Cordova harbor because they are important food for sea birds and sea otters are found readily within the harbor Mussels are filter feeders and take up contaminants readily. A sample workplan will be developed and samples will be collected in summer and winter. Locations for sample collection will be determined by NVE and PWSRCAC when the work plan is developed The analyses for mussel tissue biomonitoring will include, but not be limited to, Polycyclic Aromatic Hydrocarbons (PAH) and total pathogens

The results of this plan will not only be used to get a baseline hydrocarbon read, but will be used to help identify major issues to guide community or management decisions in and around the harbor Contaminants found within the mussels should decrease over time as harbor water quality improves through user outreach and education, and proper waste disposal Results will be shared with PWSRCAC and NOAA Mussel-watch program.

PROJECT DESIGN PLANS

Not available at this time

A SITE LOCATION MAP

Figure 1. Map of the Cordova harbor in downtown Cordova, Alaska

RESUMES

John Whissel, NVE Director of Environment and Natural Resources
Ivy Patton, NVE Environmental Coordinator

LETTERS OF SUPPORT

Figure 1. Map of the Cordova Harbor in downtown Cordova, Alaska

Regional Citizens' Advisory Council / *"Citizens promoting environmentally safe operation of the Alyeska terminal and associated tankers."*

In Anchorage: 3709 Spenard Road / Suite 100 / Anchorage, Alaska 99503 / (907) 277-7222 / FAX (907) 277-4523
In Valdez: P.O. Box 3089 / 130 South Meals / Suite 202 / Valdez, Alaska 99686 / (907) 834-5000 / FAX (907) 835-5926

August 30, 2013

Ivy R. Patton
Environmental Coordinator
Native Village of Eyak
Cordova, AK 99574

August 30, 2013

Re: Request to Partner on Mussel Sampling

Dear Ms. Patton:

The Prince William Sound Regional Citizens' Advisory Council (PWSRCAC) is an independent non-profit corporation whose mission is to promote environmentally safe operation of the Valdez Marine Terminal and associated tankers. Our work is guided by the Oil Pollution Act of 1990 and our contract with Alyeska Pipeline Service Company. PWSRCAC's 19 member organizations are communities in the region affected by the 1989 Exxon Valdez oil spill, as well as commercial fishing, aquaculture, Native, recreation, tourism and environmental groups.

PWSRCAC would be receptive to your request to work within our existing Memorandum of Understanding with Auke Bay Laboratory for the mussel sampling proposed in your Cordova Clean Harbor proposal. Your sampling process and budget in your October 28, 2013 appear to show adequate funding for the process.

We enthusiastically support your proposal and look forward to collaborating with the Native Village of Eyak in this important endeavor. Please contact Joe Banta for addition information or to answer questions on the process.

Sincerely,

Mark Swanson
Executive Director

Cc: PWSRCAC Scientific Advisory Committee

951.105.130830.EyakSampleShare

The Eyak Corporation
901 LeFevre Street
PO Box 340
Cordova, AK 99574
Email: aarnold@eyakcorp.com
Toll Free: (800) 478-7161
Phone: (907) 424-7161
Fax: (907) 424-5161

November 1, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,
I am writing on behalf of Eyak Corporation in regards to the Native Village of Eyak's (NVE) Harbor Water Quality Improvement Program. The Eyak Corporation (TEC) supports NVE's efforts to improve water quality and reduce pollution in and around Cordova's small boat harbor.

The Eyak Corporation (TEC) is a village corporation representing 326 original shareholders. Orca Inlet and Prince William Sound holds profound significance for our people culturally and for subsistence. The Eyak Corporation has been an active partner of NVE's Community for a Renewed Environment Program (CARE). In 2012, community members chose Cordova Harbor Water Quality as CARE's number one priority for action. Cordova's small boat harbor has become polluted through poor design, negligence, and misuse. Many of our fishermen are uneducated on proper hazardous waste disposal methods and some are unaware what services are provided. Our harbor lacks adequate dumpsters that attract birds and bears and litter is always present. We support NVE and partners to educate and inspire our shareholders and community members to be proud of our harbor and to keep it clean for future generations.

We hope you can support this project for the important benefits it will have for our harbor users and community members.

Sincerely,

Angela Arnold
Land Manager

COPPER RIVER WATERSHED PROJECT
Voices for a wild salmon economy

November 1, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,

On behalf of the Copper River Watershed Project (CRWP), I am writing to express my support for the Native Village of Eyak's (NVE) application for funds to improve Cordova Harbor water quality. As an organization that works to foster sustainable economic development, we are very concerned about harbor water quality and the degradation of our near shore waters, which support several commercially fished species on which Cordova's fleet depends for earning a livelihood.

The harbor is a concentrated source of water pollution for two reasons: town drainage patterns direct a large percentage of our stormwater run-off to the harbor and Orca Inlet, and the fishing fleet of boats in the harbor needs more facilities for managing the waste it generates.

Cordova Harbor is located in a prominent downtown location at the base of Mt. Eyak. The harbor is flooded with sediment-laden water washed from the surrounding streets with each storm. There is a need for adequate dumpsters around the harbor that will keep solid waste in and wildlife out. CRWP supports education, outreach, and implementation of best operation practices to keep petroleum and other hazardous liquids out of our waters. CRWP has supported NVE's Community Action for a Renewed Environment (CARE) program and together we have worked on keeping dog waste out of our watershed by starting a "Clean Streets, Clean Streams, Clean Shoes" scoop the poop program. CARE's top priorities include water quality. Harbor pollution was identified by the CARE community group as the number one priority for action.

I urge your support for this important project that will help NVE work with other community organizations and harbor users to improve facilities for keeping waste materials out of our near shore waters.

Sincerely,

Kristin Carpenter

Kristin Carpenter, Executive Director

P.O. Box 1560, Cordova, AK 99574 tel 907.424.3334 web www.copperriver.org

Prince William SOUNDKEEPER®

PO Box 1368. Cordova. Alaska 99574
Phone: 1-907-424-5701
www.pwsoundkeeper.org
info@pwskeeper.org
Tax id # 45-0538213

November 8, 2012

Dear NOAA Funding Representative,

Prince William Soundkeeper (PWSK) is very proud to be a part of the Cordova Clean Harbor Project. By working together, the various environmental organizations that are involved in the goal of protecting Prince William Sound's ecosystem are able to produce meaningful results without duplicating or confusing efforts. Because of this group's past success in working towards bringing awareness to the Cordova harbor user groups and local citizens, the Board of Directors for PWSK strongly agrees that continuing this collaboration is a very important part of fulfilling the Water Keeper Alliance mission of protecting and enhancing the waters of Prince William Sound through stewardship and education.

The funding currently available through NOAA will provide much needed support to continue and expand this project through the next few years.

Prince William Soundkeeper strongly supports the efforts of this group to obtain funding through this NOAA water quality funding opportunity.

Please feel free to contact me with any questions.

Regards,

Kate McLaughlin
President and Executive Director

Sea Grant Alaska

Marine Advisory Program
School of Fisheries and Ocean Sciences
University of Alaska Fairbanks
PO Box 830 ~ Cordova, AK 99574
907.424.7542 ~ fax 907.424.3673

November 10, 2012

To Whom It May Concern:

On behalf of the Alaska Sea Grant Marine Advisory Program, I am writing in support of the Native Village of Eyak/Cordova Clean Harbor Project grant application to enhance local residents' efforts in improving management of Cordova Harbor oil and debris pollution. The Marine Advisory Program (MAP) is the outreach, research and extension unit within the University of Alaska Fairbanks School of Fisheries and Ocean Sciences. Our faculty is involved statewide in support of coastal community sustainability through university-supported research and outreach programs.

Cordova ranks in the top ten U.S. seafood ports. Salmon and halibut commercial landings are valued at over 120 million dollars annually with volumes in excess of 80 million pounds. Unlike Kodiak (third ranked U.S. seafood port) or Dutch Harbor (top ranked U.S. seafood port) where generally larger (80 to 200 foot) and fewer vessels are landing substantial catches, Cordova's fleet is comprised of over 600 individually owned and operated vessels (28 to 58 foot). This mix of fishing operations, tender vessels, subsistence and recreational skiffs, agency research vessels, barges, etc. makes for an intensely utilized harbor.

The 700-slip harbor is truly the economic heart of this community providing services and moorage for local fishing operations as well as vessels transiting and working in the Prince William Sound region. In my role with MAP, I have had the pleasure to be involved with the Cordova Clean Harbor Project since it's inception in 2010.

The Cordova Clean Harbor partnership is a cross-cutting group of residents and organizations leading a grassroots, resident-based effort to improve harbor conditions through public education, small spill response training, and infrastructure enhancement. The group successfully works with the Cordova Harbor Commission as well as Harbor staff. Project partners have extensive experience in oil spill technology (Oil Spill Recovery Institute), biological monitoring (Native Village of Eyak), as well as wide general public support (PWS Keeper, Copper River Watershed Project, Cordova District Fishermen United, et. al.). As exemplified in the volunteer-administered harbor user surveys (over 350 responses) during the pilot phase of the project, many Cordovans voiced their vested interest and support in the harbor's continued improvement.

This project is building on a local initiative focused on deliverable products, is collaborative, and will substantially improve harbor services to the benefit of local as well as regional boaters and vessel operators. I urge support of this application, and please contact me if I can answer any question.

Regards,

Torie Baker, Fisheries Agent/Associate Professor
UAF School of Fisheries and Ocean Science

THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE
Prevention & Emergency Response Program

555 Cordova Street
Anchorage, Alaska 99501
Main: 907-269-3063
Fax: 907-269-7648

November 13, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,

The Alaska Department of Environmental Conservation (ADEC) is writing to express its support for the Native Village of Eyak (NVE) and partners to improve Cordova Harbor water quality. ADEC'S Spill Prevention and Response (SPAR) program has worked with NVE in the past to promote oil spill outreach education, home heating oil tank safety, and to assist bringing a presence to the community for spill reporting procedures and emergency response.

ADEC continues to support communities that choose to promote safe management practices for solid and hazardous waste storage, transfer, containment, and disposal, Harmful fluids such as antifreeze, petroleum, paints, and other solvents must be kept out of our state's waterways.

ADEC SPAR supports and looks forward to assisting NVE with exploring additional ways to improve the community and the State of Alaska's ability to prevent and respond to spills in the Cordova harbor. There is a need for continued collaboration with entities in Cordova to work together and develop a durable and safe protocol for spill prevention, outreach, and spill removal/response.

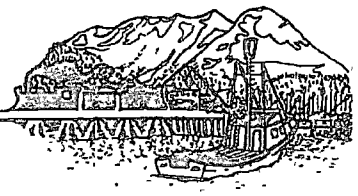
We hope you can support this project for the important benefits it will have for Cordova Harbor users and community members alike.

Sincerely,

John L Brown

John Brown,
Environmental Program Specialist IV

CITY OF CORDOVA



Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

November 14, 2012

Dear Ms. Hsieh,

The City of Cordova is writing to express its support for the Native Village of Eyak's (NVE) efforts to improve Cordova Harbor water quality. Water quality and harbor pollution is of great concern to the City since a majority of our residents and their families are harbor users. Cordova's harbor is vital not only for commercial fishing, which is Cordova's main economic driver, but for recreation and subsistence purposes as well.

There are noted concerns:

- During large rainfalls, the harbor gets infiltrated with water runoff washed from the surrounding streets.
- There is a continued need for improved dumpsters around the harbor that will keep solid waste in and wildlife out.
- There is a continued need to improve disposal of waste materials in safe locations adjacent to the harbor and for education of users.

The City fully supports education, outreach, and implementation of best operation practices to keep petroleum and other hazardous liquids out of our waters. Previously the City has partnered and supported NVE's Community Action for a Renewed Environment (CARE) program and together we have worked on keeping dog waste out of our watershed by starting a "Clean Streets. Clean Streams. Clean Shoes." Scoop the poop program. CARE's top priorities include water quality, with Harbor Pollution being the number one priority for action.

We hope you can support this project for the important benefits it will have for our harbor users and community members alike.

Sincerely,

Cathy Sherman

Cathy Sherman
Assistant City Manager

CC: Tony Schinella, Harbormaster

602 Railroad Avenue PO Box 1210 Cordova, Alaska 99574 Telephone (907) 424-6200 Fax (907) 424-6000

P.O. Box 705
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(907) 424-5800 Fax: (907) 424-5820

November 14, 2012

Ivy Patton
Native Village of Eyak
PO Box 1388
Cordova, AK 99574

Dear Ivy,

The purpose of the Prince William Sound Oil Spill Recovery Institute (OSRI) is to support research, education, and demonstration projects designed to respond to and understand the effects of oil spills in the Arctic and sub-Arctic marine environments. The Cordova Clean Harbors proposal, which will examine ways to prevent, educate about, and respond to small spills, is directly related to OSRI's mission.

Demonstration projects that occur in Cordova but are successful will have transferability to other locations. Disseminating information about successful small spill response technologies and best practices is a priority to OSRI. By supporting research, education, and partnerships, OSRI regularly engages in the translation of technical information for non-technical audiences. We fully support your proposal's community engagement tactics through outreach activities designed to reduce the likelihood of small spills and increase the effectiveness of small spill response.

We hope your proposal will be successful and I look forward to helping generate positive outcomes. OSRI is pleased that our research program manager, Dr. Scott Pegau, will be able to contribute his considerable expertise to this project.

Regards,

Katrina Hoffman
President and CEO, Prince William Sound Science Center
khoffman@pwssc.org

PRINCE WILLIAM SOUND
SCIENCE
CENTER

Katrina Hoffman, President & CEO
Prince William Sound Science Center
PO Box 705
Cordova, Alaska 99574

Ivy Patton
Native Village of Eyak
Cordova, AK 99574

November 14, 2012

Dear Ivy,

The Prince William Sound Science Center has been very supportive of Cordova Clean Harbors activities as they have progressed over recent years. Two years ago, our education staff helped mentor the Clean Harbors intern and assisted with refining the messages she delivered to the initiative's target audience. We have provided storage for bilge pillows that were distributed and our staff have contributed input to Clean Harbors meetings as well as helped create the survey that was distributed in summer 2012.

The Science Center's mission is oriented towards understanding regional ecosystems, but also educating folks about them and ensuring that our communities understand their interconnectedness and dependence upon sustainable natural resources. The Cordova Harbor is a primary point of access between the community of Cordova and the waterfront. Further, the Science Center building sits on pier pilings in the harbor, and our research vessel is docked in the harbor.

We support evidence-based solutions to improving harbor conditions. We also support efforts to educate the community about the challenges of our harbor's conditions, and ways that they can contribute to solutions. Providing outreach and infrastructure to address the issues raised in the community survey are practical approaches. We fully support your proposal to NOAA to address hazardous waste and waste management issues.

Sincerely,

Katrina Hoffman
President and CEO, Prince William Sound Science Center
khoffman@pwssc.org

Cook Inletkeeper
3734 Ben Walters Lane
Homer, Alaska 99603

p. 907.235.4068
f. 907.235.4069
www.inletkeeper.org

November 14, 2012

Dear Exxon Valdez Oil Spill Trustee Council,

Cook Inletkeeper is pleased to support the Clean Harbors project proposed by the Native Village of Eyak and the Cordova Clean Harbors group. This project uses previously gathered information from local boaters, partner organizations, and community members to improve waste management and pollution prevention efforts at the Cordova Harbor.

As the lead organization of the Alaska Clean Harbors program, Cook Inletkeeper has been involved in clean boating and clean harbors efforts around the state since 2009. The kind of collaboration demonstrated in Cordova, and enhanced through this proposed project, serves as an example of how communities around the region can effectively tackle water quality and marine habitat protections with local, innovative solutions.

Coordination with the City Harbor staff and outreach to local fishermen and boat owners demonstrates this group's dedication to improving marine habitat and water quality through this project. I have been able to participate in several of their conversations regarding this proposal. We believe that funding of this project will benefit not only the area around the Cordova Harbor, but harbors and communities around the region by setting an example of effective collaboration towards common goals. The efforts put forth through this project have potential to lead the way towards creative solutions that can be implemented in other communities, thus adding to the pollution prevention toolbox for harbors throughout the *Exxon Valdez* spill area.

Cook Inletkeeper supports this kind of hands-on and collaborative effort to protect marine habitat and water quality. Please don't hesitate to contact me with any questions regarding our support for this proposed project.

Sincerely,

Rachel Elord

Rachel Lord
Outreach & Monitoring Coordinator

November 15, 2012

Elise Hsieh
Executive Director
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Ms. Hsieh,

The City of Cordova's Harbormasters Office recognizes and supports the work that the Clean Harbor Commission is doing. We are helping to bring awareness to the harbor that promotes best boating management practices for solid and hazardous waste alike. Trash and litter is a big problem near the harbor due to inadequate and abused dumpsters. There is a need for adequate dumpsters around the harbor that will keep solid waste in and wildlife out.

The education and outreach component is crucial to reach our harbor users about safe disposal of hazardous wastes such as oil, antifreeze, paint, and batteries. Signage around the harbor will encourage proper boat maintenance and encourage the prevention of litter and waste.

NVE and their partner's are exploring ways to improve the communication to prevent and respond to small spills in the Cordova harbor. There is a need for collaboration with entities in Cordova to work together and develop a durable and safe protocol for small spill prevention, outreach, and spill removal/response.

We hope you can support this project for the important benefits it will have for the Cordova Harbor and it's users.

Sincerely,

Anthony Schinella
Harbormaster, City of Cordova

Cordova Snow Mgmt

COPPER RIVER WATERSHED PROJECT
Voices for a wild salmon economy

October 21, 2013

Elise Hsieh, Executive Director and
Catherine Boerner, Science Coordinator
EVOS Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

Dear Elise and Catherine,

Thank you for providing your comments and those of the EVOS Science Panel on our Reducing Cordova Snowmelt Pollution to Marine Habitat proposal. They are very helpful in showing what points in the proposal were not made clearly enough and I'd like to clarify those points in advance of next week's EVOS Trustee Council meeting.

approve

Summarizing the points that were raised by theme, it seems that the main areas of concern are:

(1.) A note was made that the proposal lacks a "detailed work plan" and that "the water quality monitoring plan could not be evaluated, because fundamental information was missing": our proposal does not contain a detailed monitoring plan for how we would sample snow melt run-off for pollutants because I felt we could not develop such a plan without conferring with the project engineers. If funding is awarded, I plan to consult with the engineers and the City Public Works staff on the most appropriate snow storage sites for sampling, the sampling intervals, which water quality sampling methods (grab sample vs. passive samplers) and what analytes we are testing for (I expect them to be TAH,TAqh, TSS but will consult with project engineer staff). We did include funding in our budget request for the time needed on the part of the engineers to assist with this step.

A reviewer also questioned why we did not propose to use passive samplers, which mimic bio-accumulation of pollutants over time. We are familiar with this sampling method, and have in fact used it with assistance from NOAA's Auke Bay lab to test for stormwater pollution in Eyak Lake in 2005 – 2006. I was told at that time that passive samplers could not be used to determine exceedances in the State water quality standards, and recently confirmed that with ADEC staff (pers. Communication, Brock Tabor, Oct. 3, 2013). As advised by Shane Serrano of DEC in August, we will likely want to "sample for multiple answers to characterize the snow piles . . . Design a sampling plan so that you can look at multiple parameters and maybe then you can answer more than one question" (pers.

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communication, S. Serrano, August 20, 2013). I expect, then, that our final sampling plan will be based on CRWP staff's knowledge of the local area and its receiving waters combined with the engineers' water quality sampling experience, and may be a mix of both grab and passive sampling methods.

All grab samples will be analyzed by a DEC-approved lab in Anchorage collected using methods lined out in a 2009 DEC- approved QAPP for stormwater sampling.

(2.) Cooperation from the City of Cordova: there seems to be concern that the City of Cordova may not be a willing partner. A comment was made that the study may not provide benefit "without a guarantee of implementation from the City of Cordova." It's true that we will need permission from the City to implement recommended Best Management Practices with regard to modifications in snow storage practices that will likely be located on City of Cordova property. We feel confident that the strength and history of our working relationship with the City create a very positive environment for such a collaboration. Just last week the CRWP completed construction of a stormwater bioswale on City of Cordova property, between the Cordova Community Medical Center and Odiak Pond. We worked with the City of Cordova to develop a memorandum of understanding between the City and the CRWP for long-term maintenance of the bioswale, which cost $27,500 to construct. Photos of this bioswale are attached to this letter. We have also worked with the City on installation of an oil and grit separator to filter stormwater mechanically before the stormwater is discharged into Eyak Lake. That project was completed in 2011 and cost $110,000. Management of both of these projects has required a commitment of time and equipment from the City, which it has provided.

(3.) "Funding does not cover implementation of the recommendations", "It does not include any implementation costs," and "this project will only produce a report that would need the financial support of the City to be implemented." We included $70,000 in our FY 15 budget request for engineer's designs of three Best Management Practice snow melt filtration structures, for their site survey costs, and for their construction. This funding is requested from the EVOS Trustee Council, not from the City of Cordova. There will likely be associated costs on the part of the City in implementing the recommendations to construct these structures. These costs are anticipated to be in the nature of Public Works staff time needed to review designs and consultations with the City Planner to review maps of City property, and long-term maintenance (as mentioned above).

We would be pleased to work with the EVOS Trustee Council staff to fill in any gaps in work plan detail if funding is awarded. Thank you for the opportunity to respond to these concerns, and I look forward to talking with you at your EVOS Trustee Council meeting on October 28, 2013.

Sincerely,

Kristin Carpenter

Kristin Carpenter
Executive Director

STORMWATER RUN-OFF BIOSWALE AT ODIAK POND
Cordova, Alaska
October 18, 2013

The CRWP received grant funding to construct a biofilter to treat stormwater pollution draining into Odiak Pond. The pond is the third largest stormwater receiving waterbody in Cordova, and hosts Coho salmon.

The CRWP and the City of Cordova evaluated several possible sites for creation of a bioswale, and agreed on the yard between the Cordova Community Medical Center and Odiak Pond.

A *bioswale* uses soils, biological organisms and vegetation to remove and break down pollutants from stormwater run-off.

Contractor rolling out coir fabric to stabilize loose soil until vegetation takes root. Bioswale is 160' long, and the channel meander is designed to slow down water flow so that sediment drops out of stormwater flows.

Construction for this project took approximately five days.

Outlet end of bioswale, with Odiak Pond in the background. Willows were planted at the inlet and outlet ends of the biowale to assist with re-vegetation growth.

FY14 NON-PROGRAM
PROJECT PROPOSAL FORM

Project Title: EVOS Legacy: Reducing Cordova Snowmelt Pollution to Marine Habitat

Project Period: FY 15 – FY 16 (Feb. 1, 2014 – January 31, 2016)

Primary Investigator(s): Kristin Carpenter, M.P.P., Executive Director, Copper River Watershed Project

Abstract:

The Copper River Watershed Project (CRWP) proposes to demonstrate that application of best management practices to managing snow in a developed community will improve the water quality of snowmelt discharges that flow directly into the Cordova harbor and Orca Inlet, the habitat range of the majority of PWS juvenile herring. Synthesized research on the long-term effects of the *Exxon Valdez* oil spill found that chronic persistence of oil has sub-lethal impacts on marine populations. Over the course of a winter, contaminants that commonly accumulate in snow include oil, grease, sediment, nitrogen, phosphorous, and metals. The CRWP will work with the City of Cordova and the Alaska Department of Transportation & Public Facilities to examine current snow handling practices in Cordova, identify Best Management Practice procedures and structures that could help reduce the concentration of contaminants in snow melt run-off, implement BMP structures at three snow storage sites, conduct water quality testing to assess the effectiveness of the BMP structures, and produce a guidance report for distribution to other municipalities.

Estimated Budget:
EVOSTC Funding Requested:

FY14	FY15	FY16	FY17	FY18	TOTAL
$103,817.88	$137,590.49				

(Funding requested must include 9% GA)

Non-EVOSTC Funds to be used:

FY14	FY15	FY16	FY17	FY18	TOTAL
$6,900	$6,900				

Date: September 3, 2013

(THIS SUMMARY PAGE NOT TO EXCEED ONE PAGE)

I. NEED FOR THE PROJECT

A. Statement of Problem

Identify the problem the project is designed to address. Describe the background and history of the problem. Include a scientific literature review that covers the most significant previous work history related to the project.

Non-point source stormwater run-off is among the leading contaminants degrading water quality in the U.S. today (National Water Quality Inventory, 2003, EPA). Stormwater run-off occurs when precipitation from rain or snowmelt flows over the land surface, and picks up and carries with it many different pollutants that are found on paved surfaces such as sediment, nitrogen, phosphorus, bacteria, oil and grease, trash, pesticides and metals (Center for Watershed Protection, cwp.org). The snowmelt component of stormwater run-off has particular characteristics that contribute to pollution. Researcher Torsten Meyer at the University of Toronto observes that "During the winter months, contaminants accumulate in the snow. When the snow melts, these chemicals are released into the environment at high concentrations. One of the main findings is that there is a peak contaminant flush at the very beginning of the melt" (University of Toronto Media Room, March 2011).

In eastern Prince William Sound, where two-thirds of the juvenile herring population were observed in June, 2013 (S. Pegau, personal communication), stormwater run-off from rain and snowmelt is discharged directly into the Cordova harbor and into Orca Inlet. Unlike sewer system flows, most often there is no "end of pipe" treatment for stormwater run-off. Yet research comparing stormwater run-off alone with a combination of sewage and stormwater shows marginal differences in contaminant levels (Haile, 1996; Novotny and Olem, 1994; R. Pitt, 2000; Moffa & Associates, R. Pitt and SAVIN Engineers, 2001). Pacific herring, identified as an injured resource that is not recovering by the *Exxon Valdez* Oil Spill (EVOS) Trustee Council, were fished commercially in Prince William Sound until 1999 but have not been able to generate sufficient biomass since then to support commercial fishing.

Cordova has a maritime climate strongly influenced by the proximity of the Gulf of Alaska to the south and the heavily glaciated Chugach Mountains to the north. Annual precipitation is 162 inches. The annual average snowfall in Cordova is 108 inches, resulting in an average snowpack of 13 inches (DOWL HKM Engineering, 2012).

The Copper River Watershed Project (CRWP) proposes to demonstrate that application of best management practices for managing snow removal in a developed community will improve the water quality of snowmelt discharges that flow directly into the Cordova harbor and Orca Inlet, the habitat range of the majority of PWS juvenile herring. The CRWP has developed a partnership with the City of Cordova and the Alaska Department of Transportation & Public Facilities (ADOT/PF) to identify solutions for mitigating the effects of snow storage on our salmon and herring habitat waterbodies. Harmful contaminants in plowed snow are well documented in the national literature (Novotny and Olem, 1994; Meyer, Lei and Wania, 2010). Plowed snow is currently dumped in Cordova's harbor, into Orca Inlet, and stored immediately adjacent to Eyak Lake and Odiak Pond. Photographs from several places around Cordova document that storing snow immediately adjacent to fresh and marine water bodies is a common practice. A City street sweeper truck does sweep sand from the streets, but the sand is not collected.

Not only is stormwater run-off a widespread problem, but synthesized research on the long-term impacts of the *Exxon Valdez* oil spill found that chronic persistence of oil is a "major pathway" for sub-lethal population impacts in the marine environment:

> Laboratory experiments show that these multi-ringed polycyclic aromatic hydrocarbons (PAHs) from partially weathered oil at concentrations as low as 1 ppb [part per billion] are toxic to pink salmon eggs exposed for the months of development and to herring eggs exposed for 16 days (Marty et al., 1997 and Heintz et al., 2001 in Peterson et al., 2003).

In assessing 14 years of research on the *Exxon Valdez* oil spill, Peterson et al. (2003) conclude that research on chronic exposure to the spill's lingering oil points the way to a new understanding of ecotoxicology: "Our synthesis implies necessary modifications of environmental standards for water quality, stormwater control, chronic low-level oil releases, and other human activities."

The broader legacy of the *Exxon Valdez* oil spill, Dr. Charles Peterson observed, is "Recognition that chronic exposures of fish eggs to oil concentrations as low as a few parts per billion lead indirectly to higher mortality [showing] the critical need to better control stormwater run-off of petroleum hydrocarbons and other toxins. In a developed country like the United States, an amount of petroleum equal to the *Exxon Valdez* oil spill is spilled annually for every 50 million people" (Peterson, 2003, UNC press release).

With the challenge of "non-point source" pollution being that its sources are diffuse, small communities are currently more likely to ignore this slow drip of chronic pollution being discharged every day. Their Public Works departments are tasked with providing basic services like street repair and storm drain maintenance. There is little time for taking on the researching and experimenting with new methods in extreme climates to try approaches that might or might not work.

Guidance on "Snow Disposal Area Siting" provided by the Alaska Department of Environmental Conservation on its web site states that

> Snow removed from roads and parking lots has been shown to contain various pollutants, including road salt, sand, litter, animal waste, and automotive pollutants such as metals and oil. For instance, a 2006 study of fresh fallen snow collected from roads in Juneau and Anchorage exhibited a visual sheen, indicating the presence of oil or grease. These samples also showed exceedences of state water quality standards for cadmium, lead, zinc, and mercury (ADEC 2006). These substances are not normally characteristic of freshly fallen snow but are a result of particular land uses related to urbanization and human activities. As snow melts, these pollutants can be transported into surface water or groundwater (www.dec.alaska.gov).

Stormwater picks up whatever pollutants are present on a site; for developed sites these are frequently trash, oils and grease, fertilizers, pesticides, pet waste, and sediment. Stormwater drains typically discharge directly into a river, stream, lake or saltwater, so these pollutants are introduced directly into natural water bodies with no treatment. (City and Borough of Juneau, Manual of Stormwater Best Management Practices, p. 8). DOWL HKM engineers also note that "Removal of suspended sediments is of particular importance because many other pollutants such as heavy metals and organics, are attached to the sediment particles. Collecting and removing

suspended sediments is an effective strategy for removing organic and metal contaminants" (Odiak Pond Stormwater Assessment, 2012).

Under Alaska's Pollutant Discharge Elimination System (APDES) storm water program, Anchorage and Fairbanks are the only municipalities defined as "urbanized areas." They are the only communities in Alaska required to obtain an APDES permit and develop a storm water management program designed to prevent harmful pollutants from being washed by storm water run-off into local waterbodies (http://dec.alaska.gov/water/wnpspc/stormwater /sw_municipal.htm). In a small, rural community, this one-time request for assistance from the EVOS Trustee Council would go a long way toward helping the City of Cordova's Public Works crew take a comprehensive look at its operations.

Since 2008, we have commissioned a series of reports on stormwater pollution:

- Cordova Stormwater Design Study Report, Bratslavsky Consulting Engineers (2008): this study characterized watersheds within the City of Cordova and identified causes and sources of pollution likely to exist within the defined watersheds. No sampling or testing was included in the scope of this study, but it estimated likely pollutants based on land use type and national averages for pollutant loading
- Cordova Stormwater Design Study Report, Jacobs Engineering (2009): this report provided recommendations for stormwater treatment alternatives and non-point source pollution remedies for watersheds within the City of Cordova. The engineers identified Best Management Practices (BMPs) in four categories – structural, educational, source control, and maintenance – and discussed the feasibility of implementing each recommendation.
- Odiak Pond Stormwater Assessent, DOWL HKM Engineers (2012): as part of an Odiak Pond restoration effort, the engineers developed a run-off model to predict pollutant loading to prioritize water treatment efforts for reducing stormwater pollution in Odiak Pond.

Each of these reports specifically recommends developing and implementing a snow management plan for Cordova: "Development of a comprehensive snow storage plan, educational BMPs, and establishing snow storage sites away from receiving waterbodies are recommended" (Jacobs Engineering, 2009).

The CRWP has not been able to secure funding to conduct baseline water quality testing of snow melt run-off in Cordova. But using published values that account for development density and land use types, DOWL HKM engineers predicted sediment, biological oxygen demand, heavy metals, hydrocarbons and fecal coliform as contaminants that are discharged into the Odiak Pond watershed. The residential, commercial and industrial land use types in this part of town are representative of other Cordova sub-basins, though the North and South fill sub-basins that drain to the Cordova harbor have a higher percentage of industrial land use.

B. Summary of Project to Date. Not applicable

C. Relevance to 1994 Restoration Plan Goals and Scientific Priorities
Discuss how the project will evaluate the hypotheses or questions posed in the Invitation. Describe the results you expect to achieve during the project, the benefits of success as they relate to the category

under which the proposal was submitted, and the potential recipients of these benefits. Describe how this project addresses restoration of injured services or resources

Development of a snow management plan, including implementation of three storm water pollutant mitigation Best Management Practice (BMP) structures in Cordova, will further the EVOS Trustee Council's objective of reducing "pollution in the marine environment to contribute to the recovery of injured natural resources" (p. 16, EVOS TC FY '12 Invitation). This proposal focuses on the Storm Water subject area identified in the Council's FY '12 Invitation and will benefit water quality in the marine coastal environment as well as the recovery for PWS herring populations, an injured *Exxon Valdez* oil spill resource that has not recovered.

Stormwater run-off in Cordova drains to three primary receiving waterbodies: Orca Inlet, Eyak Lake, and Odiak Pond (see attached Cordova sub-basin illustration).

Cordova's largest stormwater outfall (6 ' diameter culvert) into Orca Inlet is the discharge point for approximately 265 acres of drainage, encompassing most of downtown Cordova as well as residential and industrial lands. The primary concerns for the area are sediment, debris and petroleum loading (Jacobs, 2009). The discharge point is just outside the harbor breakwater, on the southwest corner of the Cordova Harbor. At low tide, Orca Inlet is miles of exposed mudflats, critical forage habitat for migrating shorebirds. The marine inlet also hosts Pacific herring, once a highly valuable commercial species for Prince William Sound fishermen, before the *Exxon Valdez* oil spill, but one that is currently listed by the EVOS Trustee Council as "not recovering" (www.evostc.state.ak.us/recovery). Orca Inlet is also valuable habitat for other commercial fishing species including pink salmon, for spawning and migration, and coho salmon for migration.

Stormwater run-off has been identified as a pollutant in Cordova from testing conducted by the CRWP. In 2005 – 2006, CRWP staff followed the Kenai Watershed Forum's lead and worked with NOAA's Auke Bay Laboratory to deploy sampling "pucks" in Eyak Lake. The pucks are designed to mimic bio-accumulating aquatic organisms. Immersed in a waterbody for thirty days, they can be used to monitor long-term, chronic hydrocarbon exposure. We deployed pucks at five sites in Eyak Lake. Two locations showed evidence of hydrocarbon exposure: (1.) offshore of the Cordova Electric Cooperative's diesel power plant clean-up site; and (2.) 15 feet into the lake from the largest stormwater outfall pipe on Eyak Lake. NOAA researchers concluded that

> "PAH [polycyclic aromatic hydrocarbon] composition patterns were heavily petrogenic, indicating that uncombusted oil such as spills or urban run-off was the source. Concentrations of PAH were greatest during fall, presumably associated with stormwater run-off from fall precipitation. . . . Although well below the Alaska Water Quality Criteria of 15,000 ng L^{-1} for total PAH, the highest of these concentrations are near the threshold for toxicity to salmon embryos, but any such impacts are likely to be sporadic and localized because incubation in upwelling habitats would protect embryos from exposure. (Short et al., December 2006)."

In a study of the persistence of stranded oil on shoreline ecology and recovery, Cordova's harbor has also been identified as a concentrated source of hydrocarbon pollution (Miles et al., 2001). And although the study did not determine whether the source of the hydrocarbon pollution, identified as "diesel/light fuel", was from boat use in the harbor or elsewhere, the Cordova harbor does have seven stormwater culverts discharging untreated run-off directly into the harbor (Bratslavsky Consulting Engineers, 2008).

Cordova's harbor and the large stormwater outfall pipe just outside the harbor both drain directly into Orca Inlet, a highly tidally influenced body of water that flushes twice a day into Prince William Sound (drainage in the northern two-thirds of Orca Inlet flows north and west into Prince William Sound on an ebb tide). According to aerial surveys, this area hosts the heaviest populations of juvenile herring in Prince William Sound. Specifically, Scott Pegau, Research Scientist and Program Manager of the Oil Spill Recovery Institute in Cordova, reported that of 1,980 schools of one-year old herring observed in June, 2013 aerial surveys, 1,200 schools were observed in eastern Prince William Sound between Cordova and Sheep Bay (personal communication, 8/12/13).

II. PROJECT DESIGN

A. Objectives

List the objectives of the proposed research, the hypotheses being tested during the project, and briefly state why the intended research is important.

Long-term research conducted as a result of the *Exxon Valdez* oil spill has documented that chronic pollution, such as stormwater pollution, has harmful effects in marine environments:

> "Now synthesis of 14 years of *Exxon Valdez* oil spill studies documents the contributions of delayed, chronic, and indirect effects of petroleum contamination in the marine environment" (Peterson et. al., 2003).

The CRWP's hypothesis holds that the water quality of snow melt-water and stormwater discharges can be improved by applying Best Management Practices to snow handling and storage in Cordova. We have four objectives for improving water quality from melt-water run-off discharged from snow piles formed from clearing City of Cordova streets:

- Analyze City of Cordova snow management practices and make recommendations to help reduce snow melt-water pollution being discharged into aquatic and marine environments. By analyzing costs, efficiency and environmental impacts, a plan will be developed that includes: (1.) a long-term plan for snow management; (2.) short- and long-term improvements to snow management practices; and (3.) identification of potential snow storage and treatment sites for reducing snow melt-water run-off.
- Implement Best Management Practice (BMP) filtration structures at up to three sites around Cordova for filtering snow melt-water. Referred to as "structural BMPs," these constructed treatment areas "are designed to control the rate and volume of stormwater run-off, release of pollutants to receiving waters, and/or remove pollutants once they are incorporated into the stormwater run-off" (Shannon and Wilson, 2006, BMP Effectiveness Report 18-9001-15 Fairbanks, AK).
- Monitor stormwater run-off water quality before and after implementation of BMPs. Since the goal is to reduce downstream pollutant loads and concentrations of pollutants, we will follow a water quality testing regime that determines whether the effluent (or downstream water quality) is cleaner than the influent (or upstream water quality).

- Synthesize results on the effectiveness of BMPs (maintenance required, results of water quality monitoring) and the cost-effectiveness of each approach applied with regard to water quality improvements in a "BMP Guidance Report" that will be distributed to other small, coastal municipalities.

B. Procedural and Scientific Methods

For each objective listed in A. above, identify the specific methods that will be used to meet the objective. In describing the methodologies for collection and analysis, identify measurements to be made and the anticipated precision and accuracy of each measurement and describe the sampling equipment in a manner that permits an assessment of the anticipated raw-data quality.

If applicable, discuss alternative methodologies considered, and explain why the proposed methods were chosen.

For conducting a snow management analysis of City of Cordova and Alaska Department of Transportation & Public Facilities snow handling procedures, our primary method will be to contract with DOWL Engineers for an analysis of snow management practices within Cordova city limits. DOWL HKM Engineering conducted a similar study for the City and Borough of Juneau in 2010, and the City of Fairbanks contracted for an analysis of suitable BMPs as part of its Fairbanks Stormwater Best Management Practice Development Project (Shannon & Wilson, 2006). In year 1 of the project, the analysis in Cordova will consist of documenting snow removal routes and timing of snow collection, historic snow fall records, amount of sand applied to roads, locations of snow dumps and their proximity to aquatic and marine water bodies, and equipment used. We will conduct water quality monitoring at selected snow dump sites in year 1, before any modifications to City of Cordova and ADOT/PF snow handling practices are made. Analysis tools will include interviews of City of Cordova Public Works operators, examination of maps of snow removal routes and location of snow dumps, photo documentation of snow management practices over the course of a winter season, and preliminary modeling to anticipate pollutants of concern for use in identifying appropriate stormwater treatment BMPs.

Conducting this analysis will involve two site visits per year by DOWL HKM Engineers. During the first visit, in the first project year, the engineers will interview Cordova Public Works staff to document their current practices. The engineers will also create maps (from aerial imagery or CAD maps) to illustrate snow management practices. Before the snow clearing season begins, the engineers will visit each snow storage site to analyze its drainage patterns and site conditions.

During the winter season, CRWP staff will assist with documenting current City practices by taking photos of each snow storage site. We expect that DOWL HKM engineers will make a site visit to Cordova during the first project year winter to track whether actual snow management practices match what was discussed during the initial City Public Works staff conversations.

Such an analysis is a critical first step in identifying solutions for snow melt run-off:

> The amount of pollutants in urban snow is affected by a number of factors including land use, traffic load, type of traffic in the time between snowfall and removal, type of deicers applied to the roadway surface, and the time of year. The pollutant pathway is also affected by snow handling activities and winter climate conditions. Quick removal of snow from roadways reduces the potential for an increased amount of pollutants in

the snow caused by traffic. Average annual snowfall for Cordova is 108 inches. Years of excessive snowfall, such as the winter of 2011/2012 when Cordova recorded 325 inches of snowfall, can lead to emergency snow storage practices including storing snow in and near wetlands, stream channels, and other fresh waterbodies. Such practices have direct, adverse effects on water quality (Odiak Pond Stormwater Assessment, DOWL HKM engineers, 2012).

In the Year 2 BMP trial project phase, we will work with City of Cordova and ADOT/PF staff to select three sites for implementing structural BMPs to help improve snow melt water quality run-off. CRWP staff will also work with the project engineers, City of Cordova and ADOT/PF staff to monitor the implementation of recommendations to revise snow handling practices.

Selection of appropriate BMPs "is dependent on specific site characteristics and constraints, including stormwater flow rates and treatment volumes, target pollutants, available area, cost, permitting requirements, required maintenance, and community support" (Odiak Pond Stormwater Assessment, 2012). Structural BMPs that are likely to be considered for implementation in Cordova include:

- Provide ponds for early season meltwater detention and for late season sedimentation
- Maintain a vegetated buffer between the site and any surface water bodies.
- Maintain [or establish] a vegetated site surface where possible
- Provide aggregate to armor drainageways and treat meltwater through infiltration and percolation prior to flowing offsite (Odiak Pond Stormwater Assessment, 2012).
- Use of a passive 'V-swale' pad configuration tested by Anchorage investigators (Wheaton, Rice, 2003) may also be considered for implementation.

When we implement structural BMPs for treating snow melt-water at locations upstream of the stormwater discharge point, we'll be relying on engineered drawings and contractor services to create the treatment area. Methods used to track achieving this objective include quantitative methods such as "was the treatment structure constructed within the specified budget and timeline, and according to design drawings?" We will also monitor the treatment area to ensure that the recommended practice is being followed or the treatment site is being maintained as called for by the BMP specifications in winter 2014/2015 and 2015/2016 of the project. We will compare year 1 practices to year 2 practices to determine how costs and environmental impacts are affected after recommendations have been implemented.

CRWP will collect water quality samples following a sampling plan developed with the project engineers. The CRWP has an ADEC-approved Quality Assurance Project Plan (QAPP) that was approved in 2009 for the purpose of collecting stormwater run-off samples in Odiak Pond, Eyak Lake, and at the stormwater outfall culvert in Orca Inlet. We will collect samples for analyzing TSS, TAH, and TAqH using approved EPA testing methods. The sampling method from that plan will need to be modified to account for collecting snowmelt, and we were advised by ADEC that we will likely want to design a plan that allows us to look at multiple parameters so there is potential for answering more than one question (S. Serrano, ADEC, personal communication, 8/20/13). Parameters we anticipate focusing on include pollutant analytes, amount of snowmelt flow and time of season, and rate of snow melt –snow piles can be designed to facilitate faster or slower rates of melting, and orientation of the snow pile might be an important factor in this process. Slowing the rate of snow pile melting allows for more control of the discharge, and controlling the

discharge means being able to facilitate more filtration of contaminants from the snow melt run-off.

Samples will be collected during "dry" periods to establish a water quality baseline, during snowmelt periods, and during "wet" storm events. CRWP staff will collect water quality samples in the first year of this project during the first few hours of storm events and during dry periods of one week or longer. Water quality samples will be collected at the Orca Inlet stormwater outfall, and at selected snow dump sites during the spring melt.

Dissemination of useful findings to other small communities with similar snowfall levels and water quality concerns will be the final phase of this project. As mentioned earlier, only two municipalities in Alaska are required to obtain a stormwater discharge permit, and they have dedicated resources to compliance because of the permit requirement. Other Alaska communities are left to develop plans on their own that follow ADEC guidance and consider the impacts of snow handling on water quality (see "Coordination and Collaboration" section below for more detail on dissemination of project results).

C. Data Analysis and Statistical Methods

Describe the process for analyzing data. Discuss the means by which the measurements to be taken could be compared with historical observations or with regions that are thought to have similar ecosystems Describe the statistical power of the proposed sampling program for detecting a significant change in numbers. To the extent that the variation to be expected in the response variable(s) is known or can be approximated, proposals should demonstrate that the sample sizes and sampling times (for dynamic processes) are of sufficient power or robustness to adequately test the hypotheses. For environmental measurements, what is the measurement error associated with the devices and approaches to be used?

D. Description of Study Area

Where will the project be undertaken? Describe the study area, including if applicable decimally-coded latitude and longitude readings of sampling locations or the bounding coordinates of the sampling region (e.g., 60.8233, -147.1029, 60 4739, -147.7309 for the north, east, south and west bounding coordinates). The formula for converting from degree minute seconds to decimal degrees is. degrees + (minutes/60) + (seconds/3600) so 121°8'6" = 121. + (8/60) + (6/3600) = 121.135

Our primary study area will be snow storage locations and snow removal routes within the City of Cordova. Stormwater run-off in Cordova drains to three primary receiving waterbodies: Orca Inlet (tidal mudflats and marine ecosystem), Odiak Pond (freshwater and tidally influenced) and Eyak Lake (pink, sockeye and coho spawning system). The attached map shows a hydrological delineation of Cordova's drainage sub-basins. Fifty-three percent of Cordova's stormwater run-off drains to Orca Inlet (Bratslavsky Consulting Engineers, 2008).

E. Coordination and Collaboration

Indicate how your proposed project relates to, complements or includes collaborative efforts with other proposed or existing projects funded by the Trustee Council. Describe any coordination that has taken or will take place (with other Council funded projects, ongoing agency operations, activities funded by other marine research entities, etc.) and what form the coordination will take (shared field sites, research

platforms, sample collection, data management, equipment purchases, etc.). If the proposed project requires or includes collaboration with other agencies, organizations or scientists to accomplish the work, such arrangements should be fully explained and the names of agency or organization representatives involved in the project should be provided. If your proposal is in conflict with another project, note this and explain why

We anticipate that this work will be a valuable resource to other small, coastal communities in Alaska who are looking for field-tested examples of snow management BMPs that benefit water quality. The Alaska Department of Environmental Conservation's Section Manager for Storm Water and Wetlands agreed that the Department could assist with circulating our BMP Guidance Report via a "targeted e-mail distribution of the hyperlink to communities" (depending on the final report's relevancy) and that the Department could also post a link on its web page for snow management resources to the City of Cordova's or the EVOS Trustee Council's web page (e-mail communication with J. Rypkema, ADEC, 8/15/13) for the final project report.

We would also work to distribute our project results through professional networks. Shane Serrano, Environmental Program Specialist at the Alaska Department of Environmental Conservaton, recommended contacting the Alaska Association of Port and Harbor Administrators with our project results to propose making a presentation at its annual meeting. We will also contact the Alaska Rural Water Association (AWRA) and other professional associations that serve as resources to municipalities to help distribute project results.

At the local level, the CRWP will incorporate the work done under this project into its monthly outdoor education sessions on stormwater run-off conducted at Odiak Pond with Cordova's seventh grade science class. Since 2009, the Copper River Watershed Project has coordinated monthly stormwater education class sessions with the Cordova School District's seventh grade science class. The class visits Odiak Pond for these sessions because it's so close to the school. This class began its Odiak Pond program with setting minnow traps in the Odiak Pond inlet creek (under the supervision of a local AK Department of Fish & Game fish biologist). The traps captured coho salmon fry in November, 2009 and April, 2010, which the class used to complete and submit, with 27 student signatures, a nomination of Odiak Pond to the State Catalogue of Anadromous Waters.

Starting with the 2010-2011 school year, students added an assessment of stormwater debris entering Odiak Pond. Each month a small group of students walks the drainage area around Odiak Pond, collecting and counting the different types of garbage they find. At the conclusion of the school year students generate graphs based on their data and develop outreach materials promoting stormwater stewardship with the broader Cordova community. These projects include trash sculptures, posters, boxholder mailings, movies, radio podcasts, and newspaper articles. The stormwater assessment is continuing this school year, with students adding turbidity to their regular water quality observations. Lessons learned from the snow management assessment will be incorporated into this program and into student outreach projects (see attached Cordova Times article by 7th grade student).

CRWP will continue to work at the public meeting level to keep the City Council and Planning & Zoning Commission apprised of the progress and improvements made through analyzing the City's snow management practices. We also use the Cordova Times newspaper as a way of communicating with a broader audience, and will continue our public education work around

pollutants associated with storm water run-off. We will also coordinate public education outreach, integrating our messages and the timing of outreach efforts, with the Cordova Clean Harbor initiative if this proposal and that effort receive EVOS Trustee Council funding.

III. CV's/RESUMES

The resumes of all principal investigators and other senior personnel involved in the proposal must be provided. **Each resume is limited to two consecutively numbered pages** and must include the following information.

- A list of professional and academic credentials, mailing address, and other contact information **(including e-mail address).**
- A list of up to five of your most recent publications most closely related to the proposed project and up to five other significant publications. Do not include additional lists of publications, lectures, etc.
- A list of all persons (including their organizational affiliations) in alphabetical order with whom you have collaborated on a project or publication within the last four years. If there have been no collaborators, this should be indicated

IV. SCHEDULE

A. Project Milestones

For each project objective listed above (II.A.), specify when critical project tasks will be completed. Project reviewers will use this information in conjunction with annual project reports to assess whether projects are meeting their objectives and are suitable for continued funding. Please format your information like the following example.

Objective 1. Analyze City of Cordova snow management practices and make recommendations to help reduce snow melt-water pollution being discharged into aquatic and marine environments.
To be met by September 2014

Objective 2. Implement Best Management Practice (BMP) filtration structures at up to three sites around Cordova for filtering snow melt-water.
To be met by November 2014

Objective 3. Monitor stormwater run-off water quality before and after implementation of BMPs.
To be met by January 2016

Objective 4. Synthesize results on the effectiveness of BMPs and the cost-effectiveness of each approach applied with regard to water quality improvements in a "BMP Guidance Report".
To be met by January 2016.

B. Measurable Project Tasks

Specify, by each quarter of each fiscal year, when critical project tasks (for example, sample collection, data analysis, manuscript submittal, etc.) will be completed. This information will be the basis for the

quarterly project progress reports that are submitted to the Trustee Council Office. Please format your schedule like the following example

FY 14, 1st quarter (February 1 – April 30, 2014)	
Feb – April	Contractor reviews City of Cordova and AK DOT/PF snow management practices (maps, route schedules, location of snow dump sites)
Feb. – April	CRWP staff collect water quality samples during dry periods for baseline
FY 14, 2nd quarter (May 1, 2014- July 31, 2014)	
May – June	Contractor analyzes snow management practices
May - June	CRWP staff collect snow melt water quality samples
June – July	Contractor prepares draft (65%) snow management plan with recommendations for snow melt treatment structures
FY 14, 3rd quarter (August 1, 2014- October 31, 2014)	
September	Contractor and CRWP staff meet with City of Cordova and ADOT/PF to review snow management plan recommendations, discuss implementation
September	Contractor submits final Cordova Snow Management Plan
September	Contractor creates drawings for BMP structures
September - November	CRWP staff, City of Cordova staff, ADOT/PF staff and local contractors (if needed) coordinate implementation of BMP structures
FY 14, 4th quarter (November 1, 2014 – January 31, 2015)	
Nov – Jan.	CRWP staff monitor snow management practices and structures for effectiveness in retaining snow and filtering snow melt-water (allowing for winter rain events)
Nov. – Jan.	CRWP staff collect water quality samples during dry or wet periods
FY 15, 1st quarter (Feb. 1 – April 30, 2015)	
Feb. – April	CRWP staff monitor snow management practices and structures for effectiveness in retaining snow and filtering snow melt-water (allowing for winter rain events).
Feb - April	CRWP staff collect water quality samples during wet or dry periods
FY 15, 2nd quarter (May 1 – July 31, 2015)	
Early May	City of Cordova and ADOT/PF staff, contractor and CRWP staff meet to review lessons learned, implementation challenges and successes.
May - June	CRWP staff collect snow melt water quality samples
	Engineer drafts guidance report, CRWP circulates to project partners for review and comment.
FY 15, 3rd quarter (Aug. 1 – Oct. 31, 2015)	
	CRWP staff synthesizes water quality sampling results and changes in snow management practices for effectiveness in treating snow melt-water
	CRWP staff collect water quality samples
	CRWP staff present guidance report at October annual meetings of Alaska Rural Water Association and Alaska Association of Port and Harbor Administrators
FY 15, 4th quarter (Nov. 1 2015 – Jan. 31, 2016)	

	CRWP staff monitor snow management practices and structures for effectiveness in retaining snow and filtering snow melt-water (allowing for winter rain events).
	CRWP staff collect water quality samples
	CRWP presents project results to City of Cordova Council

V. BUDGET

Budget Form (Attached)

Please complete a budget form for each proposed year of the project.

A grant request budget for developing a snow management plan for the City of Cordova is made up of the following project expenses:

Salaries

CRWP staff:

1.5 months per project year for CRWP Executive Director, 173 hours x $28.94 + 18% fringes in year one, 173 hours x $30.10 + 18% fringes in year 2) = $18,078.64.

1.5 months per project year for CRWP Project Technician, 173 hours x $22.05 + 18% fringes in year one, 173 hours x $23.15 + 18% fringes in year 2) = $13,840.69.

1 month in project year 2 for CRWP Program Director for work on community outreach and incorporating snowmelt run-off into monthly 7th grade science class field trips, 173 hours x $25.49 + 18% fringes = $5,203.53.

Contractual

DOWL HKM Engineering, analysis of City of Cordova snow management practices, $90,000 for work on conducting snow management analysis on City of Cordova and Alaska Department of Transportation and Public Facilities streets within City limits, for assistance with developing a water quality sampling plan, for assistance with designing three snowmelt filtration structures and with preparing a guidance report for distribution to other Alaska municipalities.

CRWP will conduct a competitive bid solicitation for contractor services to construct the three snow pile BMP structures. Contractor costs are estimated to be $8,000 per BMP structure, $24,000 total.

CRWP will contract for surveying services needed in construction of snow pile BMP structures, three structures x $2,000 per site = $6,000.

Water quality sampling: sampling for Total Suspended Solids (TSS), Total Aqueous Hydrocarbons (TAqH), and Total Aromatic Hydrocarbons (TAH) at one site costs roughly $500. We anticipate sampling during two "dry" events in each project year, and also sampling at three snow pile sites plus the Orca Inlet stormwater outfall four times during each project year. We have also allowed for shipping costs of transporting collected samples to testing lab in Anchorage. Total, $23,440.

Travel

DOWL HKM Engineers make four trips to Cordova from Anchorage, 2 people x $490 for round-trip airfare, and 2 trips by one person, round-trip from Anchorage - Cordova. We anticipate that the engineers will make 1 trip with two people and one trip with one person per project year.

Per diem costs are estimated at $200 per day per person

Indirect Costs

The CRWP has a federally-approved indirect cost rate of 19 65%, $37,268 75

Non-EVOS Funds

We anticipate an in-kind match of $13,800 from City of Cordova staff and from Alaska Department of Transportation and Public Facilities staff with their participation in the snow management analysis.

Cordova Clean Harbor
(Admin)

Laurel Jennings
7600 Sand Point Way NE
Seattle, WA 98115

Exxon Valdez Oil Spill Trustee Council
4210 University Drive
Anchorage, AK 99508-4626

approve

September 3, 2013

The NOAA Restoration Center has submitted project-monitoring costs (fiscal year 2014) for projects approved for funding by the EVOS trustee council. This proposal assumes that both Cordova projects will receive funding from the council. Both projects are located in Cordova, therefore both projects could be monitored with a single travel cost. Conversely, if only one project is funded, the travel costs will remain the same as travel to the area would still need to occur.

We have determined that our labor can be covered under the 9% general administration fee but we would like to ask for our travel to be covered separately. Please find our travel budget summary enclosed for your review.

Project	Travel	Cost
Cordova – Snow management & Harbor water quality improvement projects (2 projects for one travel expenditure)	ANC to Cordova (round trip), 1 person, 2 days X 3 monitoring trips	$1300 x 3 = $3,900
Anchorage – Project management	SEA to ANC (round trip), 1 person, 2 days	$2,100
	TOTAL	**$6,000**

Konlag

October 25, 2013

KONIAG
INCORPORATED

Ms Eloise Hsiech
Executive Director
Exxon Valdez Oil Spill Trustee Council
Grace Hall, 4230 University Drive, Suite 230
Anchorage, AK 99508

Re: Karluk River Conservation Easement

Dear Ms. Hsiech:

On behalf of Koniag, Inc., I want to express our appreciation to the Trustee Council in extending the opportunity for Koniag to meet with the Council at its October 28th meeting to address the status of the Master Agreement and Conservation Easement.

Since the February Council Meeting, Koniag has reviewed the concerns it has about the Easement, which could be addressed without being in violation of the principles stated by the Council at its February meeting. We have discussed these concerns with representatives of the Fish and Wildlife Service and the Alaska Department of Fish and Game and have discovered that we have dramatically different interpretations of even the most basic provisions of the Easements.

In light of this, we are not requesting time to appear before the Council at its meeting. Koniag is aware of the provisions of the Master Agreement which require that any election made by it to terminate the Master Agreement and the Easement must be made within the 30 day period following the Council's October meeting.

Please express our appreciation to the Council for its consideration.

Yours truly,

Koniag, Inc.

Thomas H. Panamaroff
Interim President

cc: Ron Unger, Chairman Koniag, Inc.
Jessica Graham, General Counsel
William H. Timme

RECEIVED
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Company Name: Ms. Elise Hsieh	**Invoice#:**
Phone:	**Date:** 10/25/13
Address: Grace Hall, 4220 University Drive, Suite 230	
Delivery / Pick-Up	
Delivery	

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Reference #:

Signature: 3:50p

2014 Work Plan

Exxon Valdez Oil Spill Trustee Council

DRAFT Work Plan for Federal Fiscal Year 2014

Issued September 19, 2013
Updated October 11, 2013

Exxon Valdez Oil Spill Trustee Council
4210 University Drive
Anchorage, AK 99508-4650
Tel: 907-278-8012 Fax: 907-276-7178
www.evostc.state.ak.us

FISCAL YEAR 2014

DRAFT WORK PLAN

Issued September 19, 2013
Updated October 11, 2013

Prepared by:
Exxon Valdez Oil Spill Trustee Council

CORA CAMPBELL
Commissioner
Alaska Dept. of Fish and Game

MICHAEL C. GERAGHTY
Attorney General
Alaska Department of Law

LARRY HARTIG
Commissioner
Alaska Dept. of Environmental Conservation

JIM BALSIGER
Director, Alaska Region
National Marine Fisheries Service

TERRI MARCERON
Forest Supervisor
Chugach National Forest
US Department of Agriculture

PAT POURCHOT
Special Assistant to the Secretary for Alaska
Office of the Secretary
US Department of the Interior

Notice

The abstract of each proposal 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 or other staff of the *Exxon Valdez* Oil Spill Trustee Council, nor do they reflect policies or positions of the Trustee Council.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:

- ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526.
- The department's ADA Coordinator can be reached via phone at the following numbers: (VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648, (Juneau TDD) 907-465-3646, or (FAX) 907-465-6078.
- 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.

PLEASE COMMENT

You can help the Trustee Council by reviewing this draft work plan and letting us know your priorities for Fiscal Year 2014. You can comment by:

Mail:	4210 University Drive Anchorage, AK 99508-4650 Attn: Draft Fiscal Year 2014 Work Plan
Telephone:	1-800-478-7745 Collect calls will be accepted from fishers and boaters who call through the marine operator.
Fax:	907-276-7178
E-mail:	elise.hsieh@alaska.gov

FY14 Proposal Funding Recommendations

Page Number	Project Number	Principal Investigator	Project Title	FY13 Requested	Science Panel	Science Coord	PAC	Executive Director	Trustee Council
6	14120100	EVOS Admin	EVOS Administration	$1,735,765	N/A	N/A	Not Reviewed	N/A	Pending
7	11100853 – Am 8 29 13	Irons	Pigeon Guillemot Restoration Research in PWS – Phase 2	$396,656	Fund	Fund Conditional	Not Reviewed	Fund	Pending
11	14120116	Pallister	Marine Debris Removal Program	$445,919	Fund	Fund	Not Reviewed	Fund	Pending
16	14120114	McCammon	LTM - Marine Conditions and Injured Resources and Services	$2,994,400	Fund *	Fund *	Not Reviewed	Fund*	Pending
81	14120111	Pegau	PWS Herring Program - Coordination and Logistics	$1,358,431	Fund*	Fund*	Not Reviewed	Fund*	Pending
135	14120112	Jennings	NOAA Harbor Protection – Project Management	$6,540	Not Reviewed	Fund Conditional	Not Reviewed	Fund Conditional	Pending
138	14120112-A	Patton	NOAA Harbor Protection – Cordova Clean Harbor	$193,722	Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional	Pending
142	14120112-B	Carpenter	NOAA Harbor Protection – Cordova Snow Management	$103,818	Fund Conditional	Do Not Fund	Not Reviewed	Fund Conditional	Pending
			TOTALS	**$7,235,251**					

**Individual projects within this program have conditional fund recommendations which are not reflected here*

PWS Long-Term Monitoring Projects

The total for these projects can be found above under 13120114-McCammon

Page Number	Project Number	Principal Investigator	Project Title	FY13 Requested	Science Panel	Science Coord.	PAC	Executive Director	Trustee Council
71	14120114R	Ballachey	LTM Program - Nearshore benthic systems in the Gulf of AK	$331,900	Fund	Fund	Not Reviewed	Fund	Pending
23	14120114A	Batten	LTM Program - Continuous Plankton Recorders	$68,800	Fund	Fund	Not Reviewed	Fund	Pending
29	14120114C	Bishop	LTM Program - Seabird Abundance in Fall and Winter	$80,900	Fund	Fund	Not Reviewed	Fund	Pending
32	14120114D	Bochenek	LTM Program - Data Management	$164,000	Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional	Pending
36	14120114E	Campbell	LTM Program - Oceanographic Conditions in PWS	$197,300	Fund	Fund	Not Reviewed	Fund	Pending
74	14120114S	Carls	LTM Program - Oil Level and Weathering Tracking	$8,700	Fund	Fund	Not Reviewed	Fund	Pending
39	14120114G	Doroff	LTM Program - Oceanographic Monitoring in Cook Inlet/Kachemak Bay	$166,500	Fund	Fund	Not Reviewed	Fund	Pending
69	14120114Q	Esler	LTM Program – Oil Exposure of HADU	$111,300	Fund	Fund	Not Reviewed	Fund	Pending
26	14120114B	Hoffman	LTM Program - Coordination and Logistics	$298,600	Fund	Fund	Not Reviewed	Fund	Pending
42	14120114H	Holderied	LTM Program - Science Coordination and Synthesis	$148,300	Fund	Fund	Not Reviewed	Fund	Pending
45	14120114I	Hollmen	LTM Program - Conceptual Ecological Modeling	$95,600	Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional	Pending
48	14120114J	Hopcroft	LTM Program - Seward Line Monitoring	$100,500	Fund	Fund	Not Reviewed	Fund	Pending
51	14120114K	Kuletz	LTM Program - PWS Marine Bird Surveys	$211,100	Fund	Fund	Not Reviewed	Fund	Pending

Page Number	Project Number	Principal Investigator	Project Title	FY13 Requested	Science Panel	Science Coord.	PAC	Executive Director	Trustee Council
77	14120120	Jones	Data Management and Synthesis	$372,100	Fund	Fund	Not Reviewed	Fund	Pending
54	14120114L	Konar	LTM Program - Ecological Communities in Kachemak Bay	$48,100	Fund	Fund	Not Reviewed	Fund	Fund
57	14120114M	Matkin	LTM Program -Long-term killer whale monitoring	$132,800	Fund	Fund	Not Reviewed	Fund	Fund
60	14120114N	Moran	LTM Program - Humpback Whale Predation on Herring	$139,600	Fund	Fund	Not Reviewed	Fund	Fund
63	14120114O	Piatt	LTM Program - Forage Fish Distribution, Abundance, and Body Condition	$202,500	Fund	Fund	Not Reviewed	Fund	Fund
66	14120114P	Weingartner	LTM Program - GAK1 Monitoring	$115,700	Fund	Fund	Not Reviewed	Fund	Fund

PWS Herring Program Projects

The total for these projects can be found above under 13120111-Pegau

Page Number	Project Number	Principal Investigator	Project Title	FY13 Requested	Science Panel	Science Coord.	PAC	Executive Director	Trustee Council
90	14120111A	Bishop	PWS Herring Program - Validation of Acoustic Surveys	$148,000	Fund	Fund	Not Reviewed	Fund	Pending
93	14120111B	Bishop	PWS Herring Program - Tracking Seasonal Movements	$17,400	Fund	Fund	Not Reviewed	Fund	Pending
96	14120111C	Bochenek	PWS Herring Program - Data Management Support	$24,000	Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional	Pending
101	14120111D	Boswell	PWS Herring Program – Non Lethal Sampling of herring	$51,263	Fund	Fund	Not Reviewed	Fund	Pending
128	14120111Q	Branch	PWS Herring Program - Population Dynamics Modeling	$97,836	Fund	Fund	Not Reviewed	Fund	Pending
103	14120111E	Buckhorn	PWS Herring Program - Expanded Herring Surveys	$68,100	Fund	Fund	Not Reviewed	Fund	Pending

Page Number	Project Number	Principal Investigator	Project Title	FY13 Requested	Science Panel	Science Coord.	PAC	Executive Director	Trustee Council
106	14120111F	Buckhorn	PWS Herring Program - Juvenile Herring Abundance Index	$66,100	Fund	Fund	Not Reviewed	Fund	Pending
109	14120111G	Buckhorn	PWS Herring Program - Intensive survey of juv herring	$46,543	Fund	Fund	Not Reviewed	Fund	Pending
112	14120111H	Butters	PWS Herring Program – Outreach & Education	$32,700	Fund	Fund	Not Reviewed	Fund	Pending
115	14120111K	Hershberger	PWS Herring Program – Herring Disease Program	$281,900	Fund	Fund	Not Reviewed	Fund	Pending
117	14120111L	Pegau	PWS Herring Program - Herring Condition Monitoring	$238,700	Fund	Fund	Not Reviewed	Fund	Pending
120	14120111M	Pegau	PWS - Juvenile Herring Intensive Monitoring	$20,400	Fund	Fund	Not Reviewed	Fund	Pending
123	14120111O	Pegau	PWS Herring Program - Coordination and Logistics	$388,136	Fund	Fund	Not Reviewed	Fund	Pending
126	14120111P	Guyon	PWS Herring Program - Herring Genetics	$50,500	Fund	Fund	Not Reviewed	Fund	Pending
132	14120111R	Pegau	PWS Herring Program – Aerial Surveys	$70,850	Fund	Fund	Not Reviewed	Fund	Pending

Non-Program Proposals & Project Amendments

Project Number: **14120100**

Project Title: EVOSTC Administrative Budget

Primary Investigator(s): Elise Hsieh, EVOSTC Executive Director
Linda Kilbourne, EVOSTC Administrative Manager

PI Affiliation: N/A

Project Manager: N/A

Funding Received To Date:

FY12	FY13
$1,711,790	$2,025,279

Funding includes 9% GA.

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$1,735,765	$0	$0	$1,735,765

Requests include 9% GA.

Abstract:

The budget structure is designed to provide a clearly identifiable allocation of the funds supporting Trustee Council activities. The program components are:

- Administration Management
- Data Management
- Science Program
- Public Advisory Committee (PAC)
- Habitat Protection Program
- Trustee Council Member Expenses
- Trustee Agency Support/Project Management
- Alaska Resources Library & Information Services (ARLIS)

The budget estimates detailed within those specified program components are projected based upon prior year actual expenditures and include the application of estimated merit step increases, as well as payroll benefits increases. Detailed12-month budget component items cover necessary day-to-day operational costs of the *Exxon Valdez* Oil Spill Restoration Office and administrative costs associated with overseeing current Trustee Council program objectives.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
N/A	N/A	Not Reviewed	N/A

Project Number: **11100853 – Am.8.29.13**

Project Title: Pigeon Guillemot Restoration Research in Prince William Sound

Primary Investigator(s): David Irons

PI Affiliation: USFWS

Project Manager: USFWS

Funding Received To Date:

FY07	FY08	FY09	FY10	FY11	FY12
$317,000	$284,300	$48,400	$0	$281,000	$0

Funding includes 9% GA.

Funding Requested by Fiscal Year:

FY14	FY15	FY16	FY17	FY18	Total
$396,656	$391,206	$154,015	$139,968	$124,708	$1,206,551

Requests include 9% GA.

Funding From Non-EVOSTC Sources:

FY14	FY15	FY16	FY17	FY18	Total
$391,280	$ 371,280	$ 317,580	$313,580	$312,580	$1,716,000.00

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

This amendment to project 11100853, Pigeon Guillemot Restoration Research in Prince William Sound, Alaska, provides an opportunity to restore the population of Pigeon Guillemots (*Cepphus columba)* in Prince William Sound, Alaska, which has fallen by more than 90% at the Naked Island Group since 1989. A restoration plan for Pigeon Guillemots in PWS was prepared to address the species' lack of population recovery following injury by the 1989 *Exxon Valdez* oil spill. Predation on nests and adults by mink is now the primary limiting factor for guillemot reproductive success and population recovery at the most important historical nesting site for guillemots in PWS (i.e., the Naked Island group). Mink on the Naked Island group are descended in part from fur farm stock and apparently arrived on the island group during the 1980s. Control of predatory mink at these islands was selected as the preferred restoration alternative because it is feasible and most likely to result in the recovery of guillemots in PWS. Other alternatives are either currently unavailable or unlikely to be effective. A control effort is likely to be successful but if it is not then the agencies would discuss alternatives, one of which would be to amend the EA and remove the remaining mink from the islands. Potential negative effects of the preferred alternative are either negligible or largely avoidable. The Naked Island group guillemot population would likely increase five-fold within the first 10 years following mink control, and the Sound-wide population of guillemots would likely increase within 15 years of mink control at the Naked Island group, once the Naked Island group had become a source population for other parts of PWS.

Phase I: Completion of the NEPA process for the proposed action. (Completed)
Phase II: Control of predatory mink on the Naked Island Group, PWS Alaska

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund Conditional	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The panel recommends funding of this proposal. The panel notes that the proposal is strong and well-written and provides a level of detail that allows for constructive review.

The panel does acknowledge that culling could be a temporary or on-going solution and a "money sink," if continued into future years and that it is a substantial commitment to fund and monitor over time. However, it is active restoration, which is rare among submitted proposals, and it is an interesting scientific experiment.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the science panel regarding the scientific merit of the proposal I also echo the concerns of the Panel this is likely a temporary solution and a full cull would be needed to increase the population by the numbers cited in the proposal Dr. Irons stated in his final report for Phase 1 of this project (Page 12).

" because even a single mink can devastate a guillemot colony (U S Fish and Wildlife, unpubl data), culling is unlikely to significantly reduce the level of guillemot nest predation or facilitate population recovery "

Has something changed since the report was accepted that a limited cull would now be considered useful?

I also have several questions regarding the design of the project including: If the number of birds increases, are there any plans to determine if the increase was from the predator removal or other factors? The plan includes monitoring the population on Smith Island as a control which is currently mink-free. However, there is no monitoring plan discussed in the proposal. Will Smith Island be surveyed at the same time and frequency as Naked Island? The proposal states that ADFG is only willing to consider a limited cull at this time. If a complete removal is found to be necessary, would a permit to complete this work be possible or denied due to the mixed genetic stock of the mink on the Island?

At this time, I feel that the Council should postpone a funding decision until a final Environmental Assessment is provided by the PI and the question above regarding the limited cull is answered.

Public Advisory Committee – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: September 2013

I concur with the Science Panel and support the concerns of the Science Coordinator. Due to the prospect of matching funds if this proposal is funded at this time and the opportunity for active restoration, I recommend funding, conditioned upon completion of the EA to the satisfaction of EVOSTC Executive Director and the coordinating agencies (USFWS, APHIS, ADFG, USFS).

Trustee Council Comments – FY14

Date: October 2013

Pending

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	No consensus	No comments	No consensus

Science Panel Comments – FY12

Date: June 2011

This proposal has been previously submitted to the EVOS Trustee Council and reviewed by the Science Panel Support for the work was strong among the Science Panel members. One concern that arose pertained to the question of whether the mink found today on Naked and nearby Islands in the Naked group are descendants of the animals introduced artificially or whether these are fully native mink with an intact natural genome That question has now been answered with DNA analysis revealing a mixed genome, not reflecting a pure native stock This answer would appear to satisfy the question of whether these mink are natural (no) and to allow the extermination to move forward, if supportable scientifically by the Science Panel and Trustee staff and if politically and financially acceptable to the Trustee Council.

Here we will provide a review of the adequacy of the science First, it is noteworthy that PIGUs are the only bird species still listed as Not Recovering after EVOS. Second, the importance of Naked Island and its potential recovery to this species is evident – the Naked Island group held about 25% of the PIGU population in PWS prior to the spill despite representing only 2 % of the PWS shoreline. Third, the inference that mink represent the impediment to PIGU recovery on Naked is strong, based especially on comparison Smith Island where mink are absent and PIGU survival is good Fourth, the contention that strong recovery of PIGUs on Naked would lead to spread and re-colonization of other suitable sites in PWS is a reasonable expectation, so restoration on Naked pays a wider dividend of recovery elsewhere in PWS. Fifth, we know that the introduced foxes are now gone from Naked so that isn't the problem Sixth, the alternatives analysis is compelling in showing that no other restoration option would work and that eradication is the only solution. For example, providing more of the now reduced lipid-rich prey would be useless, resulting in feeding mink better not in enhancing PIGU survival and abundance. Culling would be a half-step and require costly intervention forever, and thus can be rejected as a viable restoration option Seventh, elimination of predatory mammals on islands is a well-established practice to enhance ground-nesting seabirds and other birds Consequently, this proposal makes good sense scientifically and addresses an ongoing restoration failure of importance The only questions involve the costs and the potential use of dogs, if trapping fails to get every last mink in the eradication process The costs are 2.4 Million or 1 3 Million if a National Wildlife Foundation match is obtained We concur that these cost estimates are reasonable because a 3-5 year time frame is needed to complete the removal So while high, the expenditures are likely justified. The use of dogs in the removal of mink seems to possibly conflict with animal rights as an unacceptably cruel practice.

Science Coordinator Comments – FY12

Date: June 2011

This proposal is scientifically compelling and builds on four years of work focused on this topic While the idea of a direct restoration project is appealing, I am concerned that the total project cost is very high in relation to the total number of nests that they project will be added to the island complex

Public Advisory Committee Comments – FY12

Date: July 2011

No project specific comments.

Executive Director Comments – FY12

Date: July 2011

I do not have a recommendation for this project. The project is very compelling because it potentially provides active restoration for an injured species. However, the high cost and speculation regarding the long-term outcome needs to be weighed carefully by the Council.

FY07 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
Fall 2006	Fund reduced	Not reviewed	Not reviewed	Fund reduced

Science Panel Comments – FY07

Date: Fall 2006

This proposal investigates the efficacy of direct restoration techniques for the pigeon guillemot population in PWS. They will genetically sample mink that reside on Naked Island Archipelago to determine if the population was introduced or native and make recommendations for a recovery plan for pigeon guillemots based on the findings Pigeon guillemots are one of two non-recovered species and this project represents one of the few restoration based proposals that have been submitted. The genetic sampling of mink and studies examining the relative contribution of mink vs. other predators to pigeon guillemot survival and reproduction are important in evaluating mink removals as a potential restoration activity. However, there is some concern that removal of mink may not be an appropriate restoration activity if the mink are in fact native. Also, food limitation studies may be difficult to interpret with respect to restoration and are perhaps premature. Mink removal may still prove an effective restoration tool even if food quality is poor. Furthermore, given the likely annual variation in food supply, a lack of food in one year may not be a reasonable predictor of future food limitation. We recommend funding the initial year of this proposal and suggest that efforts be made to provide genetic evidence on mink at the end of that year so that reasoned decisions can be made regarding future funding

Science Coordinator Comments – FY07

Date: Fall 2006

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.

Public Advisory Committee – FY07

Date:

Not Reviewed

Executive Director Comments – FY07

Date: April 2011

Salaries and logistics are the major expenses of this proposal. Assuming mink predation on pigeon guillemots, any direct restoration will likely involve controlling the mink population on Naked Island. Before this can be undertaken a determination must be made whether the mink population is indigenous or introduced. Therefore, I only recommend funding the minimum mink capture and genetic testing program necessary to determine where the population is indigenous or introduced. I further recommend local trappers and logistics be utilized in this effort to reduce expense.

Project Number: **14120116**

Project Title: Marine Debris Removal Program

Primary Investigator(s): Chris Pallister

PI Affiliation: Gulf of Alaska Keeper

Project Manager: ADFG

Funding Received To Date:

FY12	FY13
$481,064	$483,088*

*Funding includes 9% GA. *Funding for FY13 was for Project 13120116-AM 2.24.13*

Funding Requested by Fiscal Year:

FY14	FY15	FY16	FY17	FY18	Total
$445,919	$310,650	$0	$0	$0	$756,569

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$384,400	$0	$396,120	$0	$0	$396,120

Abstract:

*This abstract is excerpted from the PI's Proposal, dated 9/5/13.

Gulf of Alaska Keeper (GoAK) originally proposed this marine debris cleanup project as a portion of a multiyear marine debris cleanup proposal to the Trustee Council. That proposal was submitted and approved before the full extent of impacts from the March 2011 Japanese earthquake and tsunami became apparent in Alaska. In response to the influx of Styrofoam, urethane foam, and other Japanese tsunami marine debris (JTMD), GoAK submitted an amended proposal to the Trustee Council which delayed the Barren Island cleanup project one year. GoAK instead spent the 2013 season removing JTMD from impacted PWS shorelines. GoAK started the 2013 PWS JTMD cleanup May 8 and will finish cleaning beaches there toward the later part of September.

While JTMD continued to wash up on PWS beaches during the winter of 2012/2013, and will likely continue to do so for years, the immediate threat to shorelines within PWS from the massive volume of foam tsunami debris has been substantially abated. GoAK has successfully removed most of the foam debris from inner PWS. However, Montague Island's Gulf of Alaska shoreline has an immense quantity of foam debris littering its beaches. Refloated debris from the northern three fifths of that shoreline still poses a direct threat to inner PWS beaches. GoAK received a grant from the Alaska Legislature to remove JTMD from high priority beaches. We are using part of the legislative grant to clean a small portion of the northeast Montague shoreline to prevent, as much as is possible, refloated debris from entering and again fouling inner PWS shorelines. In addition to the 2013 cleanup work on northeast Montague Island, a portion of the legislative funding will be used in the summer of 2014 to help with the Barren Islands cleanup project.

GoAK has also been selected by the Alaska Department of Environmental Conservation as a contractor eligible to submit cleanup proposals for ADEC marine debris projects, including the projects supported with Japanese funds gifted to the U.S. for JTMD response. Funding GoAK obtains from ADEC, and with their approval, will first be applied to cleaning outer Montague Island, particularly the northern beaches that have the potential to send refloated debris into PWS.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The panel recommends funding of this proposal. The panel supports the PI decision to switch clean-up effort to address Styrofoam debris from the Japanese tsunami, and thus also endorses provision of funds to complete the originally intended clean-up on islands of high resource value, as proposed

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: September 2013

I concur with the Science Panel.

Trustee Council Comments – FY14

Date: October 2013

Pending

FY13 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

**Funding for FY13 was for Project 13120116-AM 2 24 13 which was an amendment to the original proposal designed to address tsunami debris*

Science Panel Comments – FY13

Date: January 2013 Individual Panel Member Comments

Reviewer 1:

This project was the most meritorious of the FY 2012 proposals for clean-up projects and was accordingly funded. The modifications made to the work plan and suggested here for the 2013 field season are well justified by the unexpected challenges associated with tsunami debris from the Japanese earthquake. There is urgency to address the Styrofoam debris quickly, as proposed, because once the large pieces have been broken up by waves and harsh weather, the resulting small bits are exceedingly difficult to find and remove Even though Japanese or US government funding may become available, re-orienting FY 2013 field efforts to focus on where the GoA Keeper has documented massive debris, especially styrofoam, accumulations is well conceived and I urge support. Postponing the planned debris removal with a lag of one year will not jeopardize the original goals, provided additional funds are provided to handle the proposed FY 2013 clean-up of tsunami debris. In addition, as the Styrofoam breaks up into smaller pieces, the potential for fish and wildlife harm grows dramatically as these smaller pieces can become ingested by fish and birds A large fraction of the area where the debris has been documented to be most abundant falls on historic herring nesting grounds (Montague, Naked, Eleanor, Knight Islands) potentially inferring with herring recovery efforts. The budget is well leveraged and this clean-up is very cost-effective with diverse contributions to the project. I consider this proposal to be the highest priority project among all submitted for FY 2013 consideration by the EVOS Trustee Council and urge its support.

Reviewer 2:
This amendment to a previously awarded grant is well justified. Indeed, the subsequent input of tsunami debris dwarfs the amount of debris that was already present I concur that cleaning up the large amount of Tsunami debris should take precedence over the previously funded work. The amendment is well prepared, and the budget seems reasonable I recommend funding the amendment.

Reviewer 3:
This project seems to have the strongest relationship to injured resources in the spill region among the submitted FY 2013 proposals. Marine debris can adversely modify natural marine habitats and can harm or even kill animals when ingested Probability of ingestion increases with time after degradation into smaller, bite-sized pieces (e g., Styrofoam, plastics) by wave action The justification for the project is strengthened by the arrival of massive amounts of tsunami debris If funded, the project should be well coordinated with any other state and federal cleanup efforts, as well as those by organizations, such as the Marine Conservation Alliance. I am supportive of EVOS funding of this proposal.

Reviewer 4:
This proposal focuses on a marine debris cleanup program that is an extension of the currently funded work plan While there is a substantial request for this project, GoAK will match the EVOSTC funds at a 1 to1 level. They propose to stretch funding over a three year period. They propose to clean large stretches of coastline by removal of plastic and styrofoam debris Much of this additional work will be due to the Japanese tsunami debris that complicates the previous cleanup efforts The debris areas are valuable intertidal regions. Funding is recommended.

Science Coordinator Comments – FY13
Date: September 2013
I concur with the comments individual science panel members regarding the technical merits of this project I would like to see a discussion of how the Gulf of Alaska Keeper is coordinating their work with ADEC's and NOAA's efforts on the removal of tsunami marine debris

Public Advisory Committee – FY13
Date: January 2013
Abstracts were submitted to individual members of the PAC for comment No comments were received

Executive Director Comments – FY13
Date: September 2013
I recommend funding his Amendment to the original proposal for FY'13. As a multi-year project, funding for FY'14 would be re-submitted on September 1, 2013 for Council review at their Fall 2013 meeting

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June-July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12
Date: June 2011
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 Coordinator Comments – FY12
Date: June 2011
I concur with the Executive Director and Science Panel.

Public Advisory Committee Comments – FY12

Date: July 2011

The PAC supports funding the Gulf of Alaska Keeper marine debris project, and encourages the project team and EVOS staff to work with Eyak and other groups to strengthen the public outreach and education component of the project. Passed, with dissent by Brune, who questions the value of a one-time cleanup effort; and with Andersen Faulkner abstaining due to her association with Eyak

Brune raised a question about funding marine debris cleanup when much of the debris can be attributed to international trade and not as a result of the oil spill. Hsieh stated that it adversely impacted injured species, therefore, addressing it could help with their restoration. French noted that a one-time cleanup of marine debris would not help much, since debris arrives every year—stopping it at the source would be more effective Stacy Studebaker made a point that education and outreach should be a component of the marine debris project, and that many in Kodiak, participated in beach cleanup efforts French agreed, and further stated that many other groups were involved in marine debris cleanup throughout Alaska, and perhaps better integration of their efforts would be of value. Mutter noted that there was an annual Marine Debris Workshop held at the Alaska Forum on the Environment, which included many marine debris cleanup organizations

Fandrei asked that the Trustee Council be made aware of the PAC's concern with funding short-term projects for marine debris cleanup because they do not address the long-term problem—the source of the debris

Executive Director Comments – FY12

Date: July 2011

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 proposal is diversified, highly leveraged and well-designed.

Long-Term Monitoring of Marine Conditions and Injured Resources and Services Program Projects

Project Number: **14120114**

Project Title: GulfWatch Alaska Program (Long-Term Monitoring Program)

Primary Investigator(s): Molly McCammon

PI Affiliation: AOOS

Project Manager: NOAA, ADFG, USFWS, USGS

Funding Received To Date:

FY12	FY13
$2,904,600	$2,675,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$ 2,994,400*	$2,803,800*	$2,405,000*	$13,783,500

*Requests include 9% GA. *Includes additional funds requested for 14140114-Q Lingering oil and a FY shift of funds from FY14 to FY15 for lingering oil 14140114-S*

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$540,000	$555,900	$592,700	$561,300	$373,600	$2,553,400

Abstract:

*This abstract is excerpted from the PI's Proposal, dated 8/30/13.

The goal of the Long-term Monitoring (LTM) program, now known as Gulf Watch Alaska, is to provide sound scientific data and products that inform management agencies and the public of changes in the environment and the impacts of these changes on *Exxon Valdez* oil spill (EVOS) injured resources and services. The five-year program includes: 1) four monitoring components (environmental drivers, benthic, pelagic, lingering oil); 2) data management services; 3) integrated syntheses of data; 4) historic data recovery and syntheses; and 5) science outreach.

The program has six primary objectives:

1. Sustain and build upon existing time series in the EVOS-affected regions of the Gulf of Alaska.
2. Provide scientific data, data products and outreach to management agencies and a wide variety of users.
3. Develop improved monitoring for certain species and ecosystems.
4. Develop science synthesis products to assist management actions, inform the public and guide monitoring priorities for the next 20 years.
5. Enhance connections between the Gulf Watch Alaska and Herring Research and Monitoring (HRM) programs.
6. Leverage partnerships with outside agencies and groups to integrate data from broader efforts.

Some highlights from our progress in year 2 of the program include:

a) Successful completion of annual field data collection and reporting for all monitoring projects under the program.
b) Published 70 (19%) of the 370 historical, EVOS-funded data sets, with an additional 26 in process of publication.
c) Refined sampling protocol to improve sampling efficiency for forage fish data collection in Prince William Sound.
d) Website featuring program news and summaries and access to the program data portal.

e) Cross specialty communication and participation with shared vessel time and staff time between projects and programs.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund Contingent	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The science panel appreciates the general approach of the LTM program but feels that more basic information was needed to fully evaluate the potential success of the program. Our comments below, and for several individual projects, highlight examples that would have benefitted from the inclusion of additional information for developing more informative proposals and progress reports. The panel looks for more informative proposals and progress reports in the future. Our goal is to provide feedback that may strengthen the program while it is still in its formative stage of implementation.

Proposals by Matkin on killer whales, Moran on humpback whales, and Carls & Lindeberg on benthic monitoring were all praised by the Science Panel for their importance, inclusion of detail, and significant progress.

Proposals were lacking in detail, hindering their evaluation

There was not enough information provided for the Science Panel to evaluate the proposals and offer substantive suggestions. In order to evaluate proposal merits, the Science Panel wanted to see more detail, including:

- Sampling design, locations and methods, including QA/QC of data collection
- Approach to data analysis including statistical methods and/or relevant contrasts
- Explicit statement of how analyses will answer the major questions
- A discussion of results to date and any adjustments in project design in view of results
- Explicit statement of how individual project results relate to or will be integrated into the broader program
- The proposals should be reviewed as a whole by someone from the group before submission.

The panel, EVOSTC and agency staff will be looking at options for providing brief guidance and/or a form for the programs in advance of proposal drafting and submission to clarify expectations. When EVOSTC staff has a draft form or guidance, we will circulate it to the Team Leads for their feedback. There was also initial discussion regarding reporting which we will also circulate if it is further developed.

An overall review by an outside expert in physical oceanography and climate would be useful.

In the current round of proposals, the need to describe physical oceanographic forcing was rarely described. Several proposals generally provided vague language, in some cases they cut and pasted text from the overarching and original 2012 proposal.

There is uneven treatment and an apparent lack of collaboration among the four oceanography projects in LTM. The Weingartner (GAK1) and Hopcroft (Seward Line) proposals are well thought out and collaborative. However, Campbell and Doroff proposals should be more collaborative and thorough, including physical measurements; they are also unclear on instrument calibration and data QA/QC. There is no evidence of collaboration with trained physical oceanographers or reference to the PWS sampling stations in the Hopcroft proposal. An overall review of the physical oceanography and climate aspects of LTM (and, to a lesser extent, herring) would be useful.

Outside expert for oceanography review - some suggestions for trained oceanographers who work with biologists include: John Largier, UC Davis/Bodega Marine Laboratory, Steven Bogard, SWFSC-NMFS, and Jack Barth, OSU.

Publications
The Science Panel encourages investigators to publish their results in peer-reviewed journals to make their hard-won results available to wider scientific audience This encouragement especially applies to young investigators who are establishing their careers. They may quickly become unable to compete for other jobs. We anticipate the FY17 Invitation will include an expectation to publish

Data Management
The Science Panel is concerned about progress on data management. The data management proposal drew heavily on their old proposal without including sufficient updated evidence of interactions between the programs' PIs and the data management team. In addition, there does not appear to be a data management policy or QA/QC policy created as the programs approach Year Three. In addition, no milestones were reported in the newly submitted proposals, so it was difficult to gauge how much progress had been made in the last two years Moreover, it was not clear how data would be available for synthesis The panel recommends that the Council condition funding upon the creation of a credible and detailed data management policy and a QA/QC policy and include clear milestones in for their proposal

Regarding a QA/QC policy. such a document is a basic need of any data management. We note too that instruments commonly need to be calibrated before and after use to be able to adjust for measurement drift, if it occurs With two separate data centers operating under the EVOSTC program it is crucial that a high level of QA/QC be maintained The Science Panel is concerned that adequate attention is not being devoted to this fundamental aspect of data management It is particularly important that to assemble complete metadata to ensure that long-term data sets can be verified and understood once the current participants have moved on to new positions For example, EPA and NSF require detailed data management and QA/QC plans as part of all proposals. Large monitoring programs, such as NSF's LTER and oceanographic programs, devote considerable time and effort to addressing these critical needs
Example As a specific example, the Ocean Tracking Network (OTN) has four nearly full-time people creating metadata forms that are required to be filled out, submitted and checked for QA-QC before data can be added to the database. Since OTN is currently adding equipment to tracking arrays in PWS, it would be particularly appropriate at this time to arrange communication between senior OTN data managers with EVOSTC program data PIs to ensure that data standards are adequate As with OTN, and as emphasized in the initial funding of the EVOSTC programs, skilled data management resulting in data that can be relied upon by the scientific community and resource agencies will ultimately determine the long-term success and influence of the programs The contact at OTN is Bob Branton (bob.branton@gmail.com) or (bob branton@dal ca).

Attrition of Experienced Personnel
The panel notes that it may be a challenge to replace experienced personnel retiring or transitioning out of the programs, but the need for their expertise remains. To address these changes, the panel suggests that the programs partner their junior PIs with newly recruited, experienced scientists. Where difficulties exist in filling key positions, the panel also suggests strategically tapping outside experts to review projects and provide consultation and setting up a Post-Doc training program for the LTM and Herring projects. As experienced personnel leave the program either through retirement or departure, the salary savings could fund this kind of activity.

Potential Resource - The panel encourages the programs to consider options for developing concepts for postdoctoral programs that can help address these issues. The panel and the programs' internal panels and advisory groups can provide assistance in identifying potential post doc candidates who may be helpful to the programs Intergovernmental Personnel Assignments and perhaps NRC Research Associate post-docs may also be a source for additional expertise and post-doc work.

Synthesis in Advance of February 2015 Workshop
There is concern from our review of the proposals that the programs are postponing work on synthesis until just before the Workshop. The programs should think through and create a step-by-step route and design for their 2015 synthesis so there is sufficient field time to work on it. This plan should include mechanisms and process

The part of synthesis that involves creation of and testing of models is best done by an iterative process in which modeling is sequentially tested by reference to new data and the models revised accordingly.

There was also a suggestion to focus on cross-cutting topical issues, such as acoustics and calibration. PIs with different expertise could be paired to initiate and encourage actual synthetic analyses and presentation in contrast to single PI presentations on isolated projects or topics.

Examples for pairings include: disease and physiology, and modeling of herring movements and disease.

Inter-project cooperation and communication
The Science Panel acknowledges and salutes the efforts made to coordinate logistics of field projects, especially following a long period when PIs worked relatively independently on most projects. However we are not convinced that some of the individual projects are as well connected as they should be, in terms of communication among PI's. This comment is based on an apparent lack of connectivity among some of the proposals.

Program Science Panel and Upcoming 2015 Synthesis
*See also Synthesis in Advance of February 2015 Workshop, above.

Proposal Objective 2. Assist with Scientific Review Panel
"Setup of the panel has been delayed in order to make the most effective use of panel members' time in advance of the synthesis workshop. Planning of the synthesis workshop begins in the final two quarters of year 2; the panel will be established by the end of year two (approximately one year in advance of the synthesis workshop)."

This is a major problem. Bringing an outside science review into projects makes changes difficult (because of already established long-term monitoring protocols). Some of these aspects should have been established in Year 1 rather than just before a major synthesis workshop in Year 3. The Science Panel suggests they establish a group that reviews the developed monitoring and integration plans and how they support synthesis.

Regarding the Program's Science Panel:
What is its status? Their influence and guidance is not apparent; guidance, integration is needed. The LTM Program's internal Science Panel should be already composed, constituted and advising by now.

Science Coordinator Comments – FY14

Date: September 2013

In concur with overall comments of the Science Panel. I agree with the Panel's comments regarding the overall poor quality of the proposals. Most proposals made no effort to even change the dates of their tasks and deliverables making it almost impossible to determine where the project was in meeting its objectives. I am also particularly concerned by the lack of a functioning science advisory committee this far into the program. The creation of this group was a requirement of the FY12 Invitation for Proposals under which this program was funded. ***I would recommend to the Council that funding of the administrative portion of this program be withheld until a plan is in place for a program science advisory body.***

Public Advisory Committee Comments – FY14

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel and their extensive comments noted above and support the concerns of the Science Coordinator.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: July 2011 – Individual Panel Member Comments

Individual Comment 1:

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

Date: April 2011

This proposal is well presented and provides a thorough long-term monitoring program for the spill area. The team is experienced and well -qualified to complete the proposed work The outreach and education strategies and partnerships are well thought-out and have the potential to provide effective means to disseminate information and engage community members in understanding the results of the integrated monitoring program. The potential future development of a citizen monitoring program would provide another effective strategy The Science Panel was especially impressed with the section called 'cross-cutting' that showed the linkages with the Herring Program Gathering and making data available will be the keystone of this program. The Science Panel expressed serious concerns about past performance of some participants and that the data management team does not have sufficient expertise or scientific guidance to deliver a useable data system. In addition, it is not clear at all there is a plan for the inclusion of structurally diverse data: where and how will such data be organized so that relevant data and metadata from a broad array of disciplines can be assembled in one database. The panel viewed this as this as an informatics problem that, if not resolved at the onset, will jeopardize the long-term program. There is a very clear need to overcome critical technological impediments to accomplishing synthetic, integrative environmental science, while at the same time promoting more open access to information and data sharing It is critical that this database be open source and be compliant with the Knowledge Network for Bio-complexity 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.

Science Coordinator Comments – FY12

Date: April 2011

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 benefit 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

Public Advisory Committee – FY12

Date: April 2011

The PAC supports funding the LTM project proposal, noting that the PAC agrees with the Science Coordinator in that there are serious concerns regarding the data program and would encourage the Council to assist the project team by providing funding for a comprehensive review of the data program. The motion passed, with dissent by Brune and Bauer, based on Axiom's current past due deliverables.

It was moved by French, second by Studebaker, that the PAC supports the Science Panel recommendation for additional funding for the LTM project to consider the effects of lingering oil Passed unanimously.

Executive Director Comments – FY12

Date: April 2011

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.

Project Number: 14120114-A

Project Title: GulfWatch Alaska Program - Continuous Plankton Recorders

Primary Investigator(s): Sonia Batten

PI Affiliation: Sir Alister Hardy Foundation for Ocean Science

Project Manager: NOAA

Funding Received To Date:

FY02-FY11	FY12	FY13
	$	$66,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$68,800	$70,700	$73,100	$279,500

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$91,900	$94,700	$97,300	$100,700	$384,600

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. Many important species, including herring, forage outside of Prince William Sound for at least some of their life history (salmon, birds and marine mammals for example) so an understanding of the productivity of these shelf and offshore areas is important to understanding and predicting fluctuations in resource abundance. The Continuous Plankton Recorder (CPR) has sampled a continuous transect extending from the inner part of Cook Inlet, onto the open continental shelf and across the shelf break into the open Gulf of Alaska monthly through spring and summer since 2004. There are also data from 2000-2003 from a previous transect. The current transect intersects with the outer part of the Seward Line and provides complementary large scale data to compare with the more local, finer scale plankton sampling on the shelf and in PWS. We propose to continue sampling this transect through 2016. Resulting data will enable us to identify where the incidences of high or low plankton are, which components of the community are influenced, and whether the whole region is responding in a similar way to meteorological variability. Evidence from CPR sampling over the past decade suggests that the regions are not synchronous in their response to ocean climate forcing. The data can also be used to try to explain how the interannual variation in ocean food sources creates interannual variability in PWS zooplankton, and when changes in ocean zooplankton are to be seen inside PWS. The CPR survey is a cost-effective, ship-of-opportunity based sampling program supported in the past by the EVOS TC that includes local involvement and has a proven track record.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011 – Individual Panel Member Comments

There are no project specific comments.

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: April 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: April 2011

There are no project specific comments

Project Number: **14120114-B**

Project Title: GulfWatch Alaska Program - Administration, Science Review Panel and PI Meeting Logistics, and Outreach and Community Involvement

Primary Investigator(s): Katrina Hoffman

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$263,300	$274,700

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$298,600	$293,400	$288,100	$1,418,200

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of Gulf Watch Alaska (GWA), the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services program submitted by McCammon et al. To meet Gulf Watch Alaska's long-term restoration monitoring goal, this 5-year long-term monitoring program will:

1. Implement the guidance of Trustee Council planning efforts;
2. Sustain and build upon existing time series;
3. Enhance collaborations between principal investigator projects in the proposed monitoring program and with the proposed Herring Program;
4. Leverage partnerships with outside agencies and groups to integrate data from a broader monitoring effort than that funded by the Trustee Council;
5. Provide data and scientifically-based data products to a wide variety of users; and
6. Develop science synthesis products to assist management actions, inform the public and guide the evolution of monitoring priorities for the next 20 years.

This project addresses administration and fiscal management of the program. To achieve that, the PWS Science Center is serving as the administrative lead and fiscal agent responsible for: managing award contracts for all non-Trustee Agency projects within the program; ensuring the program and projects adhere to all reporting policies, practices and timelines; serving as a liaison between the program and EVOSTC staff; coordinating travel and logistics for principal investigator annual meetings; coordinating travel and logistics for outreach efforts; participating in an annual audit; and providing administrative support to the outreach and community involvement component of the GWA program.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

This proposal demonstrates a good range of activities, is well written and explained. Very good elaboration on the level of partnering and how partnerships work. The project has good advisory committees, but could use some evaluation of the impacts of its public educational programs – are they reaching the intended audience, etc. The budget may be inadequate to support evaluation costs

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments

Public Advisory Committee – FY12

Date: April 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: April 2011

There are no project specific comments.

Project Number: **14120114-C**

Project Title: GulfWatch Alaska Program - Seabird Abundance in Fall and Winter

Primary Investigator(s): Mary Anne Bishop

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$51,700	$78,600

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$80,900	$83,400	$86,300	$380,900

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Gulfwatch Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et.al. The vast majority of seabird monitoring in areas affected by the *Exxon Valdez* oil spill has taken place around breeding colonies during the reproductive season, a time when food is generally at its most plentiful. However, late fall through winter are critical periods for survival as food tends to be relatively scarce or inaccessible, the climate more extreme, light levels reduced, day length shorter and water temperatures colder. Of the seabirds that overwinter in PWS, nine species were initially injured by the *Exxon Valdez* oil spill, including three species that have not yet recovered (marbled murrelet, Kittlitz's murrelet and pigeon guillemot). Here we propose to continue to monitor from 2012 through 2016 seabird abundance, species composition, and habitat associations using multiple surveys (up to 5 surveys per season) during late fall and winter. The data will improve our predictive models of seabird species abundance and distribution in relation to biological and physical environmental factors. In addition, by monitoring the top-down forcing by seabirds, a major source of herring predation, this project will complement the suite of PWS HRM studies, including improved mortality estimates for herring population models. This project is part of the pelagic component within the integrated Gulfwatch LTM program submitted by McCammon et. al. Our project uses as observing platforms the vessels associated with the LTM Humpback Whale surveys and PWS HRM Juvenile Herring Abundance Index as well as the Extended Adult Herring Biomass Surveys and integrates the seabird observations with those studies.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The proposed objectives are to characterize the spatial and temporal distribution of seabirds in PWS during late fall and winter and relate the presence of seabirds with prey distributions from hydro-acoustic surveys for

identifying winter habitat of seabirds and improving estimates of herring consumption in winter. The panel feels that improved resolution of sampling during summer, when seabirds are nesting and most accurately censused, may be more fruitful than conducting expansive surveys during the winter. Given the overlap of investigators on the summer and winter surveys, we encourage them to consider conducting annual rather than biannual surveys in summer by scaling back winter surveys.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC, no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: April 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: April 2011

There are no project specific comments.

Project Number: **14120114-D**

Project Title: GulfWatch Alaska Program – Data Management

Primary Investigator(s): Rob Bochenek

PI Affiliation: Axiom Consulting and Design

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$190,800	$163,400

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$164,000	$164,000	$162,600	$844,700

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project supplies the EVOS Long Term Monitoring (LTM) effort with critical data management support to assist study teams in efficiently meeting their objectives and ensuring data produced or consolidated through the effort is organized, documented and available to be utilized by a wide array of technical and non technical users. This effort leverages, coordinates and cost shares with a series of existing data management projects which are parallel in scope to the data management needs of the long term monitoring program. In the first two years, this project would focus on providing informatics support to streamline the transfer of information between various study teams and isolate and standardize historic data sets in the general spill affected area for use in retrospective analysis, synthesis and model development. These efforts would continue into year three through five but efforts would also focus on developing management and outreach applications for the data and data products produced from the LTM program.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

Progress is listed as "Data is being archived on the Workspace by investigators in the program..." and "Data from the past two field seasons will be ingested into the data management system. We will continue to refine and expand the information available through the Herring data portal."

Please specify what data have been incorporated. Also, the demonstration of progress is not adequate. More detail is essential. Failing that, this project should be suspended. An inventory of all data proposed to be incorporated eventually into the program should be drawn up and an accounting of progress on incorporating the listed data sets should reported annually, including any changes to the inventory of target datasets

The Science Panel is concerned about progress on data management. The data management proposal drew heavily on their old proposal without including sufficient updated evidence of interactions between the programs' PIs and the data management team. In addition, there does not appear to be a data management policy or QA/QC policy created as the programs approach Year Three. In addition, no milestones were reported in the newly submitted proposals, so it was difficult to gauge how much progress had been made in the last two years Moreover, it was not clear how data would be available for synthesis The panel recommends that the Council condition funding upon the creation of a credible and detailed data management policy and a QA/QC policy and include clear milestones in for their proposal.

Regarding a QA/QC policy: such a document is a basic need of any data management. We note too that instruments commonly need to be calibrated before and after use to be able to adjust for measurement drift, if it occurs. With two separate data centers operating under the EVOSTC program it is crucial that a high level of QA/QC be maintained The Science Panel is concerned that adequate attention is not being devoted to this fundamental aspect of data management It is particularly important that to assemble complete metadata to ensure that long-term data sets can be verified and understood once the current participants have moved on to new positions For example, EPA and NSF require detailed data management and QA/QC plans as part of all proposals. Large monitoring programs, such as NSF's LTER and oceanographic programs, devote considerable time and effort to addressing these critical needs

Example· As a specific example, the Ocean Tracking Network (OTN) has four nearly full-time people creating metadata forms that are required to be filled out, submitted and checked for QA-QC before data can be added to the database. Since OTN is currently adding equipment to tracking arrays in PWS, it would be particularly appropriate at this time to arrange communication between senior OTN data managers with EVOSTC program data PIs to ensure that data standards are adequate As with OTN, and as emphasized in the initial funding of the EVOSTC programs, skilled data management resulting in data that can be relied upon by the scientific community and resource agencies will ultimately determine the long-term success and influence of the programs The contact at OTN is Bob Branton (bob.branton@gmail.com) or (bob.branton@dal.ca)

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review We have reviewed the work completed to date and are comfortable with the program continuing their proposed work

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Modify	Modify		Modify

Science Panel Comments – FY12

Date: June 2011

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.

Science Coordinator Comments – FY12

Date: June 2011

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 benefit if Axiom was given assistance from a group that has experience working with large heterogeneous data sets

Public Advisory Committee – FY12

Date: July 2011

Issues raised by the Science Panel, Trustee Council staff, and the PAC called for additional work and collaboration to assist with establishment of a data management system that includes accessible scientific data as well as public information. French noted that he had no problem with either NCEAS or Woods Hole—he questioned Axiom's role and staying power French said he supported the NCEAS and Axiom collaboration. Chairman Eilo summed the PAC interest in the Trustee Council implementing a solid data management, synthesis, and public access system.

Executive Director Comments – FY12

Date: July 2011

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.

Project Number: **14120114-E**

Project Title: GulfWatch Alaska Program – Long term monitoring of oceanographic conditions in Prince William Sound

Primary Investigator(s): Robert Campbell

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$238,100	$193,200

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$197,300	$203,700	$209,300	$1,041,600

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$23,300	$23,300	$23,300	$23,300	$23,300	$69,900

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. This project is intended to provide physical and biological measurements that may be used to assess bottom-up impacts on the marine ecosystems of Prince William Sound. Specifically, it is proposed to deploy an autonomous profiling mooring in central Prince William Sound that will provide high frequency (~daily) depth-specific measurements of physical (temperature, salinity, turbidity), biogeochemical (nitrate, phosphate and silicate) and biological (Chlorophyll-a concentration) parameters that will be telemetered out in near real-time. Several regular vessel surveys are also proposed to provide ground-truth data for the mooring, and to attempt to capture some of the spatial variability in PWS. As well as the mooring site, the surveys will visit all four of the SEA bays to maintain ongoing EVOSTC funded time series measurements at those sites and to support proposed herring research (Pegau et. al). The major entrances (Hinchinbrook Entrance and Montague Strait) will also be visited. The surveys will make the same suite of measurements as the mooring, and will also collect water and plankton samples. This project will also link significantly with the herring research efforts proposed by Pegau et al., and will analyze plankton samples collected during intensive studies of juvenile herring feeding and energetics.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The physical measurements are very important in a project of this kind. There is little evidence that the nuances of the physical oceanography – from instrument calibration, data QA, interpretation of results, and relationships to other similar programs – are in place. There is no reference to or integration with the UA (University of Alaska) physical oceanographers from the GulfWatch (GAK1) program or to the physical measurements being made in PWS in the Seward Line program, or the historical physical oceanography conducted by the PWSSC that describes water mass movements from the shelf into Hitchinbrook Entrance and through PWS.

For the moored instrument, calibration is a concern. The proposal states that instruments will be calibrated annually. Typically they should be calibrated before and after each deployment, and the data corrected for drift of the instruments. Has a physical oceanographer been consulted on this? The concern is that the physical data will be assumed to be accurate and will be used for various purposes without adequate QA/QC.

There is not a lot of specificity on how the plankton will be handled, net sizes or other factors. Need further information on target species, and it would be good to show how this relates to Hopcroft's Seward line project, particularly those EVOSTC funded samples taken in PWS, and to Batten's continuous plankton recorder results. There is no evidence of this in the Collaboration and Cooperation section of the proposal.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: July 2011

There are no project specific comments

Science Coordinator Comments – FY12

Date: July 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments

Project Number: 14120114-G

Project Title: GulfWatch Alaska Program – Long-term monitoring of oceanographic conditions in Cook Inlet/Kachemak Bay to understand recovery and restoration of injured near-shore species

Primary Investigator(s): Angela Doroff

PI Affiliation: ADFG

Project Manager: ADFG

Funding Received To Date:

FY12	FY13
$191,900	$177,400

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$166,500	$133,700	$108,800	$778,200

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is designed to assist in the evaluation of recovery and restoration of injured resources in the foot print of the *Exxon Valdez* oil spill (EVOS). It is important to know if oceanic conditions and changes in the Gulf of Alaska are synchronous with near-shore trends, and monitoring at multiple sites will help discern such relationships. Mapping currents and water mass movements of a region contributes to our understanding of patterns in the abundance and diversity of marine plankton, invertebrates, fish, birds, and mammals in coastal Alaska. The complex structure of fronts where water masses meet and the patterns associated with the movement of water masses are still not understood for lower Cook Inlet. In this study, we will be mapping the waters in lower Cook Inlet and Kachemak Bay to understand the intrusions of the Alaska Coastal Current and to identify spatial and temporal changes of various other currents in this region and relate these observations to injured resources. Developing an understanding of the structure of the physical oceanography will help us understand the connectivity of water movement and potential plankton transport between lower Cook Inlet and Kachemak Bay. By determining the local species of phytoplankton and zooplankton and understanding their seasonal distribution we will begin to understand the biological patterns associated with upper trophic levels of the nearshore marine system. Information from this project will also be useful to local mariculture operations, subsistence harvesters of hard shell clams and other invertebrates, NOAA Regional Ocean Circulation Model development, and monitoring programs for harmful algal blooms.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The Science Panel agrees that mapping the waters of lower Cook Inlet and Kachemak Bay to understand the effects of intrusions of the Alaska Coastal Current and variation of other currents on phytoplankton and zooplankton distribution and abundance is a valuable part of long-term ecosystem monitoring.

Questions arose about the ability to meet this objective with the proposed unbalanced sampling design. Sampling transects 3, 4, 6, and 7 (Kachemak Bay and lower Cook Inlet) will be reduced from quarterly in the first three years of the project to three times in Y4 and twice in Y5 due to budget constraints, thereby limiting the scope of analysis among years. Would a different, but inter-annually consistent, design provide a more powerful, thorough, and rigorous analysis of temporal and spatial variation under these budget constraints? Alternatives might include reducing the· (1) sampling frequency of transects to three times per year throughout the study, (2) the number of stations along transects to maintain quarterly sampling or (3) the number of transects to maintain quarterly sampling. We advise that this sampling plan be carefully re-evaluated and justified.

Concerns were also expressed about the collection and handling of physical measurements – are instruments appropriately calibrated, and how are data handled (QA/QC)? Evidence of collaboration with other physical measurement programs (GAK1, Seward Line) and the relationship to (and use of?) the results of the new Seward Line PWS stations were of interest.

Are the physical oceanography measurements in the program designed to take into account the gyre and counter-gyre in Kachemak Bay?

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-H**

Project Title: GulfWatch Alaska Program – Science Coordination and Synthesis

Primary Investigator(s): Kris Holderied

PI Affiliation: NOAA

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$123,500	$139,000

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$148,300	$146,100	$151,600	$708,500

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is part of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et al. Long-term monitoring has been implemented within the *Exxon Valdez* Oil Spill (EVOS)-affected region under a variety of organizations and programs. However, many of these efforts have been conducted independently, with emphasis on monitoring of single species or within individual disciplines. By explicitly providing for science coordination and syntheses of data from our long-term monitoring program, as well as incorporating an interdisciplinary framework into program development and implementation, we seek to improve open access to multi-disciplinary data and promote use of integrated information from the entire program for both research and resource management in the EVOS-affected region. The science coordination and synthesis component of our integrated program improves linkages between monitoring in different regions as well within a given region, as a way to better discern the impacts of environmental change on restoration and continued recovery of injured resources. Science coordination includes facilitating program planning and sharing of information between principal investigators, developing annual reports on the science program, and coordinating ongoing evaluation of the overall program. Science synthesis efforts helps integrate information across the entire program and is closely coordinated with the conceptual ecological modeling and data management teams in our integrated program.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: 14120114-I

Project Title: GulfWatch Alaska Program – Conceptual Ecological Modeling

Primary Investigator(s): Tuula Hollmen

PI Affiliation: Alaska SeaLife Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$83,100	$91,900

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$95,600	$78,600	$81,900	$431,000

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. Under this research project, we will develop conceptual ecological models to support the synthesis and planning relating to the long term monitoring program in Prince William Sound, outer Kenai coast, and lower Cook Inlet/Kachemak Bay. To develop these models, we will summarize system components, processes, and influences into a synthetic framework. The conceptual models will assist in identification of data needs and development of further long term monitoring priorities, and support ecosystem based understanding, monitoring, and management of resources within our study area. The conceptual models will also provide guidance for development of numerical and quantitative models of system function and responses to external influences. Finally, the conceptual models will provide a communication tool among scientists, resource managers, policy-makers, and the general public, and will offer outreach opportunities for our project by using data visualization and interactive web-based tools. Development of conceptual ecological models is a multi-step, iterative process, responding to evolving understanding of the structure and dynamics of the system by revising and refining models throughout the process. Specific steps of the process involve: defining goals and scope of the modeling, summarizing current understanding of system structure and processes, defining environmental and anthropogenic influences included in the modeling, development of relevant hierarchies and submodels, refining models with increased understanding of system function, and development of interactive and visualization tools to provide methods to use models for long term planning, development of hypotheses, data exploration, and outreach.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

From the CV, there is no evidence that the PI has experience as a synthetic ecological modeler. Her CV and publications suggest that she is more of an avian physiologist. It is unclear how their web-based visualization and data exploration tools differ from those of the data management group and NCEAS. Is there unnecessary duplication? Also, it appears that there are no plans to achieve the objectives until the very end of the 5-yr program. This is not acceptable, as it leaves inadequate time for iterative model evaluation and refinement

This modeling project is very important to the overall program. However, it lacks evidence of any progress two years into the project and offers no vision of what can and will be done. No milestones have been tied to ongoing costs for this project. The proposals include an integration component but the submissions were boilerplate. More explicit information that sets out a road map is needed, not necessarily a longer submission. The programs are focused on monitoring but the programs should still have forward-thinking research. There should also be an adaptive process that allows the programs to set out a conceptual model, which is continuously updated and refined as its accuracy is challenged by new data and the PIs should develop a collection of reasonable hypotheses.

To address these problems, the panel recommends the formation of a Conceptual Modeling Group, drawn from the programs' existing PIs who are already involved in the programs and known for their synthetic vision Piatt, Pegau, Weingartner, Hopcroft and Jeep Rice

Examples of synthesis can be found on the Internet, including Chesapeake Bay, George's Bank and Steve Brandt's spatially explicit modeling of habitat quality and fish growth. Daniel Pauly and Tom Okey have been involved in an ECOPATH-ECOISM modeling of the PWS food web.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011 – Individual Panel Member Comments

Individual Comment 1:

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 citations 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?

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-J**

Project Title: GulfWatch Alaska Program – Seward Line Monitoring

Primary Investigator(s): Russ Hopcroft

PI Affiliation: University of Alaska, Fairbanks

Project Manager: ADFG

Funding Received To Date:

FY12	FY13
$98,000	$59,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$100,500	$104,000	$107,700	$470,200

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$300,000	$400,000	$400,000	$400,000	$400,000	$2,000,000

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

The ocean undergoes year-to-year variability in the physical environment, superimposed on longer-term 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 longer-term. 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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/June 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-K**

Project Title: GulfWatch Alaska Program – Continuing the Legacy: Prince William Sound Marine Bird Population Trends

Primary Investigator(s): Kathy Kuletz

PI Affiliation: USFWS

Project Manager: USFWS

Funding Received To Date:

FY12	FY13
$206,300	$24,200

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$211,100	$24,200	$215,700	$681,400

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$56,000	$22,000	$56,000	$22,000	$56,000	$212,000

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

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 pigeon 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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The Science Panel agrees that continuing the long-term monitoring of marine birds in Prince William Sound (since 1989) is important, given that some species (pigeon guillemots and marbled murrelets) are still declining in oiled areas. We also agree that the high inter-annual variation in numbers of some bird species is problematic, and hence, we question whether maintaining biennial sampling is sufficient to detect trends in recovery. Annual sampling may be needed to better couple variation in bird abundances with ocean conditions, and thereby improve our understanding of factors affecting the recovery of bird populations in PWS; however, it also would increase the budget substantially

In light of this, we recommend that the PIs review the purpose and goals of sampling and that the sampling frequency be carefully reconsidered, in part by using a power analysis of impacts of alternative survey frequencies.

Science Coordinator Comments – FY14

Date: September 2013

In concur with the Science Panel but I do not agree that more frequent sampling may be necessary.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel but do note that the sampling frequency has been reviewed by the Panel in the past with varied recommendations. Suffice to say, issues regarding budget and purpose remain and should be continued to be revisited by the PIs.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011 – Individual Panel Member Comments

Individual Comment 1:

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

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: 14120114-L

Project Title: GulfWatch Alaska Program – Long-term monitoring of Ecological Communities in Kachemak Bay: a comparison and control for Prince William Sound

Primary Investigator(s): Brenda Konar

PI Affiliation: University of Alaska, Fairbanks

Project Manager: USFWS

Funding Received To Date:

FY12	FY13
$48,100	$48,200

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$48,100	$48,100	$47,400	$239,800

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. As part of this component, we monitor rocky intertidal, seagrass and clam gravel beach systems as well as the sea otter abundance and diet in Kachemak Bay. This component is complementary to work being conducted under this program in Prince William Sound and Katmai.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-M**

Project Title: GulfWatch Alaska Program – Long-term killer whale monitoring

Primary Investigator(s): Craig Matkin

PI Affiliation: North Gulf Oceanic Society

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$7,200	$132,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$132,800	$132,900	$132,900	$538,700

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$23,500	$23,500	$23,500	$23,500	$23,500	$117,500

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

The proposed project is a continuation of the annual monitoring of AB pod and the AT1 population killer whales in Prince William Sound-Kenai Fjords. These groups of whales suffered significant losses at the time of the oil spill and have not recovered at projected rates. Monitoring of all the major pods and their current movements, range, feeding habits, and contaminant levels will help determine their vulnerability to future perturbations, including oil spills. The project also extends the scope of the basic monitoring to include an innovative satellite tagging program used to examine habitat preference, feeding ecology and assist in relocating whales for feeding studies. It continues examination of feeding habits using observation, prey sampling and innovative chemical techniques. The study will delineate important habitat, variations in pod specific movements and feeding behavior within a temporal and geographic framework. We will examine the role of both fish eating and mammal eating killer whales in the near-shore ecosystem and their impacts on prey species. Community based initiatives, educational programs, and programs for tour boat operators will continue to be integrated into the work to help foster restoration by improving public understanding and reducing harassment of the whales.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

In concur with the Science Panel

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-N**

Project Title: GulfWatch Alaska Program – Long-term monitoring of humpback whale predation on Pacific herring in Prince William Sound

Primary Investigator(s): John Moran

PI Affiliation: NOAA

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$127,400	$128,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$139,600	$141,600	$54,400	$591,900

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$25,000	$25,000	$25,000	$25,000	$25,000	$225,000

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al. 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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

This proposal was praised by the Science Panel for their importance, inclusion of detail, and significant progress.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-O**

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

Primary Investigator(s): John Piatt

PI Affiliation: USGS

Project Manager: USGS

Funding Received To Date:

FY12	FY13
$209,900	$202,500

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$202,500	$202,500	$150,300	$967,600

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$297,200	$297,200	$297,200	$297,200	$72,200	$1,260,800

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al.

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) since the 1990's. We propose to adopt some of these earlier sampling techniques, and also incorporate new methods to monitor forage fish in Prince William Sound with fishing and acoustic surveys of forage fish, and to measure indices of forage fish condition.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-P**

Project Title: GulfWatch Alaska Program – GAK1 Monitoring

Primary Investigator(s): Tom Weingartner

PI Affiliation: University of Alaska, Fairbanks

Project Manager: ADFG

Funding Received To Date:

FY12	FY13
$109,500	$112,500

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$115,700	$119,100	$122,500	$579,300

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et. al.

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 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.

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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-Q**

Project Title: GulfWatch Alaska Program – Lingering Oil - Evaluating Chronic Exposure of Harlequin Ducks to Lingering *Exxon Valdez* Oil

Primary Investigator(s): Dan Esler

PI Affiliation: USGS

Project Manager: USGS

Funding Received To Date:

FY12	FY13
$204,200	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$111,300			$111,300

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$70,000	$0	$10,000	$0	$0	$80,000

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This Lingering Oil project is associated with Gulf Watch Alaska, the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services funded by the EVOSTC. Harlequin duck populations in PWS were injured as a result of the *Exxon Valdez* oil spill, with evidence for both immediate acute mortality and longer term injury from chronic exposure to oil spilled in 1989. A series of EVOSTC projects have examined exposure of harlequin ducks to lingering oil as a factor constraining recovery, using the cytochrome P4501A biomarker, CYP1A. Harlequin ducks showed elevated CYP1A in oiled areas from 1998 through 2011 relative to unoiled areas, which was interpreted to indicate continued exposure to residual oil over that period. Data from March 2013 indicated that CYP1A induction was similar between oiled and unoiled areas, suggesting that exposure to lingering oil had ceased by that time, 24 years after the spill. As recommended in previous iterations of this body of work, we propose to re-sample harlequin duck CYP1A in March 2014 to confirm 2013 findings and substantiate our conclusion that exposure to lingering oil has abated. This work contributes to understanding of the timeline and process of recovery of injured species, as well as the nearshore ecosystem, generally.

****The funding requested is a change from the full program proposal for the five years of the project approved by the Council. This project was originally only planned for FY12 but they are adding a request for FY14 in order to re-sample HADU CYP1A to confirm their findings.***

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-R**

Project Title: GulfWatch Alaska Program – Long-Term Monitoring: Nearshore Benthic Ecosystems in the Gulf of Alaska

Primary Investigator(s): Brenda Ballachey

PI Affiliation: USGS

Project Manager: USGS

Funding Received To Date:

FY12	FY13
$282,400	$304,100

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$331,900	$309,600	$331,900	$1,559,900

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$25,000	$73,000	$73,000	$73,000	$73,000	$317,000

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

We propose to continue the long-term nearshore marine monitoring program which has been ongoing in the GOA since 2006, supported by the National Park Service-Southwest Alaska Network and the US Geological Survey, and supported by the Gulf Watch Alaska project since 2012. The sampling design consists of three primary sampling locations in nearshore habitats in the central GOA region, including Prince William Sound (PWS), Kenai Fjords National Park (KEFJ), and Katmai National Park (KATM). Additionally, we will coordinate with nearshore sampling ongoing in Kachemak Bay as part of the Gulf Watch Alaska project. In western PWS, KEFJ and KATM, we plan to continue sampling at established sites on an annual basis through 2016. In eastern and northern PWS, we plan to continue sampling at established sites in alternate years, with eastern PWS scheduled for 2014. Monitoring includes measurements of water quality (temperature, salinity), intertidal invertebrates and algae, sea grasses, sea otters, black oystercatchers, and surveys of marine birds and mammals. The monitoring also includes measures of nearshore ecosystem productivity, predator-prey dynamics, and stable isotope and contaminant analyses.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120114-S**

Project Title: GulfWatch Alaska Program – Lingering Oil - Extending the Tracking of oil levels and weathering (PAH composition) in PWS through time

Primary Investigator(s): Mark Carls

PI Affiliation: NOAA

Project Manager: NOAA

FY12	FY13
$19,600	$13,100

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$8,700*	$169,200*	$6,500*	$217,100

Requests include 9% GA

**Funds originally requested for FY15 are now being requested in FY14 due to a shift in sampling dates, because the majority of the funds will be needed (in FY15). The FY14 request is equal to the value originally approved for FY15. This transposition of funding year requests results in no net effect on the total budget. See Part B, Summary of Project to Date for a detailed explanation.*

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et al. This project fills three needs: understanding exposure levels (past and present) for species such as mussels, intertidal invertebrates, sea otters, and harlequin ducks, (2) understanding the natural degradation of quantity and composition of PAH over a long time course, and 3) definitive long-term source identification by measurement of geochemical biomarkers (triterpanes, hopanes, and steranes). The objectives are 1) to determine oil quantity and weathering in 12 PWS beaches 25 years post spill (with repeats every 5 years thereafter), 2) provide supplementary support analyses for other long-term monitoring collaborators, 3) maintain and expand the hydrocarbon database, and 4) produce annual, final, and published reports. The subset of PWS beaches to be monitored are those where sequestered oil is expected to linger for decades. At least three predictive data sets will be considered in determining which beaches are monitored: (1) mussel bed time series started in the early 1990s, (2) beach surveys that were continued up to 2004, and spatial modeling analysis that was initiated in 2008.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

This is one of the few projects presenting data, and it was "refreshing." The hydrocarbon database is important to assess environmental damage in the event of another oil spill, and it may be still relevant to biological assessments of long-term oil impacts and perhaps to re-opener disputes. The PI's indicate that there are not enough funds for complete updating and QA/QC of the database with 1-person/yr effort. If so, arrangements should be made to correct this oversight. If the solution is to request additional funds, then a detailed supplemental proposal should fully justify this request. In general, the Science Panel requests that fundamental information on the numbers and locations of sampling (both site and tidal elevation) be included in future project proposals and reports to more fully evaluate them.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC, no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120120**

Project Title: GulfWatch Alaska Program – Lingering Oil - Collaborative Data Management and Holistic Synthesis of Impacts and Recovery Status Associated with the *Exxon Valdez* Oil Spill

Primary Investigator(s): Matthew Jones

PI Affiliation: NCEAS

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$416,800	$464,700

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$372,100	$379,200	$73,900	$1,706,700

Requests include 9% GA

Funding From Non-EVOSTC Sources:

FY12	FY13	FY14	FY15	FY16	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/30/13.*

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 cyber-infrastructure 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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

NCEAS appears to be working quickly to process the inherently difficult historical data recovery in preparation for their future synthesis efforts, and in spite of what appears to be a more limited involvement regarding collaborating on methods for processing current data. There remains unanimous Panel concern regarding the Programs' data management, as captured in the FY12 Panel comments below.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

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

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 preeminence of NCEAS to collaborate in this venture.

Science Coordinator Comments – FY12

Date: April 2011

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

Public Advisory Committee – FY12

Date: July 2011

Issues raised by the Science Panel, Trustee Council staff, and the PAC called for additional work and collaboration to assist with establishment of a data management system that includes accessible scientific data as well as public information French noted that he had no problem with either NCEAS or Woods Hole—he questioned Axiom's role and staying power French said he supported the NCEAS and Axiom collaboration. Chairman Eilo summed the PAC interest in the Trustee Council implementing a solid data management, synthesis, and public access system.

Executive Director Comments – FY12

Date: July 2011

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.

PWS Herring Research and Monitoring Program Projects

Project Number: **14120111**

Project Title: PWS Herring and Monitoring Program

Primary Investigator(s): Scott Pegau

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$1,027,225	$1,264,818

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$1,358,479	$1,294,907	$1,241,483	$6,186,193

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

The goal of the Herring Research and Monitoring program is to improve the predictive models of herring stocks through observations and research. The program is designed around a twenty year time frame with changes in emphasis of the process studies every five years. During this period we have objectives to help us move towards our goal.

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. Address assumptions in the current measurements. Develop new approaches to monitoring.

A combination of monitoring and process studies will be used to address these objectives. The monitoring projects follow changing conditions and provide inputs to modeling efforts. The process studies are designed to be much shorter and to answer a very specific question. The monitoring components include tracking the prevalence of disease, increased adult biomass surveys, and juvenile condition and biomass surveys. All of the monitoring components address the first objective. To address the first objective we are examining the age that fish join the spawning stock, the genetic structure, and examining the approaches available to model herring stocks. To address the second objective we are working on gathering relevant datasets and providing visualization, conducting an analysis using the herring scale library owned by ADF&G, and providing coordination between projects to examine the connectivity.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

Proposals were lacking in detail, hindering their evaluation

There was not enough information provided for the Science Panel to evaluate the proposals and offer substantive suggestions In order to evaluate proposal merits, the Science Panel wanted to see more detail, including:

- Sampling design, locations and methods, including QA/QC of data collection
- Approach to data analysis including statistical methods and/or relevant contrasts
- Explicit statement of how analyses will answer the major questions
- A discussion of results to date and any adjustments in project design in view of results
- Explicit statement of how individual project results relate to or will be integrated into the broader program
- The proposals should be reviewed as a whole by someone from the group before submission.

The panel, EVOSTC and agency staff will be looking at options for providing brief guidance and/or a form for the programs in advance of proposal drafting and submission to clarify expectations. When EVOSTC staff has a draft form or guidance, we will circulate it to the Team Leads for their feedback. There was also initial discussion regarding reporting which we will also circulate if it is further developed.

Publications

The Science Panel encourages investigators to publish their results in peer-reviewed journals to make their hard-won results available to wider scientific audience. This encouragement especially applies to young investigators who are establishing their careers. They may quickly become unable to compete for other jobs. We anticipate the FY17 Invitation will include an expectation to publish.

Data Management

The Science Panel is concerned about progress on data management The data management proposal drew heavily on their old proposal without including sufficient updated evidence of interactions between the programs' PIs and the data management team. In addition, there does not appear to be a data management policy or QA/QC policy created as the programs approach Year Three In addition, no milestones were reported in the newly submitted proposals, so it was difficult to gauge how much progress had been made in the last two years Moreover, it was not clear how data would be available for synthesis. The panel recommends that the Council condition funding upon the creation of a credible and detailed data management policy and a QA/QC policy and include clear milestones in for their proposal.

Regarding a QA/QC policy. such a document is a basic need of any data management We note too that instruments commonly need to be calibrated before and after use to be able to adjust for measurement drift, if it occurs. With two separate data centers operating under the EVOSTC program it is crucial that a high level of QA/QC be maintained The Science Panel is concerned that adequate attention is not being devoted to this fundamental aspect of data management. It is particularly important to assemble complete metadata to ensure that long-term data sets can be verified and understood once the current participants have moved on to new positions. For example, EPA and NSF require detailed data management and QA/QC plans as part of all proposals Large monitoring programs, such as NSF's LTER and oceanographic programs, devote considerable time and effort to addressing these critical needs

Example· As a specific example, the Ocean Tracking Network (OTN) has four nearly full-time people creating metadata forms that are required to be filled out, submitted and checked for QA-QC before data can be added to the database Since OTN is currently adding equipment to tracking arrays in PWS, it would be particularly appropriate at this time to arrange communication between senior OTN data managers with EVOSTC program data PIs to ensure that data standards are adequate. As with OTN, and as emphasized in the initial funding of the EVOSTC programs, skilled data management resulting in data that can be relied upon by the scientific community and resource agencies will ultimately determine the long-term success and influence of the programs The contact at OTN is Bob Branton (bob branton@gmail.com) or (bob branton@dal.ca).

Attrition of Experienced Personnel
The panel notes that it may be a challenge to replace experienced personnel retiring or transitioning out of the programs, but the need for their expertise remains. To address these changes, the panel suggests that the programs partner their junior PIs with newly recruited, experienced scientists. Where difficulties exist in filling key positions, the panel also suggests strategically tapping outside experts to review projects and provide consultation and setting up a Post-Doc training program for the LTM and Herring projects As experienced personnel leave the program either through retirement or departure, the salary savings could fund this kind of activity.

Potential Resource - The panel encourages the programs to consider options for developing concepts for postdoctoral programs that can help address these issues. The panel and the programs' internal panels and advisory groups can provide assistance in identifying potential post doc candidates who may be helpful to the programs. Intergovernmental Personnel Assignments and perhaps NRC Research Associate post-docs may also be a source for additional expertise and post-doc work.

Synthesis in Advance of February 2015 Workshop
There is concern from our review of the proposals that the programs are postponing work on synthesis until just before the Workshop. The programs should think through and create a step-by-step route and design for their 2015 synthesis so there is sufficient field time to work on it. This plan should include mechanisms and process. The part of synthesis that involves creation of and testing of models is best done by an iterative process in which modeling is sequentially tested by reference to new data and the models revised accordingly.

There was also a suggestion to focus on cross-cutting topical issues, such as acoustics and calibration. PIs with different expertise could be paired to initiate and encourage actual synthetic analyses and presentation in contrast to single PI presentations on isolated projects or topics.

Examples for pairings include: disease and physiology, and modeling of herring movements and disease.

Herring Program Advisory Group, academic position suggestion
Some additional expertise that could assist with this group are Tim Essington (UW) and Alec McCall, SWFSC would also be a good choice for membership. *See also Attrition of Experienced Personnel, above.

Defining program priorities
There is a basic requirement of the herring program to develop a credible and defensible program/project to assess herring abundance. In practice this means the implementation of a modern stock assessment model. This requirement supersedes all others because virtually all other projects in the herring program, and some in the GulfWatch program, are dependent on the confidence levels associated with the herring assessments. Such assessment is essential even in the absence of any commercial fishery of in Prince William Sound, because herring abundance will impact so much of the ecology of other species.

Stock assessments usually are done by an agency, such as ADFG, but because of the importance of herring it is reasonable for other experts to develop a state-of-the-art age-structured stock assessment (ASA) model tailored for PWS herring, perhaps to be done cooperatively with ADFG From the proposals this seems to be happening, but, in the opinion of the Science Panel, not rapidly enough. The concern with delay is that it will be difficult to fully appreciate many of the ecological processes of Prince William Sound unless there is a reasonable understanding of the abundance of herring. In other worlds, the scientific value of nearly all of the herring projects depends partly on the reliability of the herring assessments

Typically, an age-structure-assessment (ASA) model requires a 'tuner' or an independent dataset that provides a time-series index of abundance (i.e., to tune the model). For PWS herring there may be only two options: a time series of (i) spawn data or (ii) acoustic data. The problem is complex, because the time series of these two datasets are of differing length. Perhaps there are other data options, but the modelers need to ensure that they understand the strengths and limitations of all the data they use in the model. This is a task that requires experience.

It is important to note that, while acoustic estimates of abundance of herring are commonly used around the world, they seldom are used as stand-alone independent measures of biomass. Instead, they usually contribute time-series data to more complex models that incorporate age structure data and other information If the available time series data (from spawn or acoustics) are not suitable for an ASA model, then other assessment models or approaches must be considered – and presumably this could involve acoustic approaches, or even simple models based mainly on spawn abundance data. Therefore a firm recommendation of the Science Panel is that the direction and requirements of the stock assessment process, through ASA models, should be clarified and evaluated as soon as possible

We wish to further elaborate about why all the other herring projects are secondary in importance to stock abundance estimation. It is because much of the biology and life history of herring is impacted by density-dependent processes and this, in turn, can affect growth, maturation, migration, condition, disease and recruitment – all subjects of the proposals in the herring program. Herring abundance also affects other fauna, especially seabirds and marine mammals. Therefore, the Science Panel recommendation is that the assessment of herring abundance should get top priority, and proceed as vigorously and rapidly as possible. This is not to say that the other projects are unworthy or should stop - on the contrary. The assessment project, while vital, is among the most scientifically routine of the lot, because it involves the implementation of exiting protocols and methodologies. That does not mean it is simple or easy to do, but it is not a 'hypothesis testing' enterprise in the usual sense. Nevertheless, the products of assessments will provide a basis for better science for almost all of the other projects. The common element on all the other projects, with the possible exception of some acoustics projects, is that they aim to determine why and how herring populations change – physiologically or ecologically In a sense their value is dependent on the rigor of the herring abundance assessments

What are the implications of this recommendation?

(1) The project on ASA modeling work should be acknowledged as a priority (even a pre-requisite) among the other herring projects It needs to be implemented rapidly because its requirements could impact that way that other projects develop, especially acoustic projects

(2) The immediate implication is that the development of a functional herring ASA model should be proceeding much more rapidly than indicated in the progress report If this task cannot be implemented in a timely manner, than the herring program should consider other ways of getting this work done

(3) A longer-term implication is that some of the closely related projects that might provide input data to the ASA, especially some of the acoustic projects, could require modification or reconsideration If the age-structured model cannot incorporate the acoustic data, as it is presently acquired, then the design of the acoustic programs should be adjusted and re-evaluated However, this cannot be determined until the ASA model is functional and evaluated.

(4) Once the ASA model is functional, then it should be formally reviewed by 1-2 independent (outside) experts to evaluate its formulation, application and efficacy Such a review is a common practice and should culminate in a report that documents the review findings This report would then provide direction about the data requirements for a reliable ASA model of PWS herring. (Note: this was a recommendation in the 2011 Science Panel report)

(5) If the fully-developed ASA model cannot provide acceptable results because of the limitations of the input data, then other approaches to herring biomass assessments must be considered. These could include simpler models that rely more directly on acoustics or spawn deposition.

Inter-project cooperation and communication

The Science Panel acknowledges and salutes the efforts made to coordinate logistics of field projects, especially following a long period when PIs worked relatively independently on most projects However we are not convinced that some of the individual projects are as well connected as they should be, in terms of communication among PI's This comment is based on an apparent lack of connectivity among some of the

proposals.

Project gap: microchemistry

The panel noted that the PWS herring population could have important spatial structure that might go undetected by genetic analysis of microsatellites. This could occur if PWS herring consist of a meta-population with spatially separate sub-populations that, nevertheless, have sufficient genetic exchange to preclude genetic detectable differentiation. Therefore it is important to re-examine this issue because the previous genetic work, conducted more than a decade ago, had a short duration and a limited number of probes. Based on the previous genetic study in Prince William Sound, and similar but more recent genetic analyses of other herring populations in the eastern Pacific, the panel does not anticipate that the current genetic studies will demonstrate new evidence of genetic variation within PWS. Instead these studies will probably provide important confirmatory evidence of a lack of genetic differentiation detectable within different parts of the Sound. Such evidence, however, would not necessarily mean that PWS herring lack any spatial variation.

It is possible that PWS herring constitute a meta-population consisting of several sub-populations that may have spatially distinct life histories for parts of their lives. If so, these populations could have different growth rates, and population parameters. Knowledge of such possible spatial structure is integral to understanding factors affecting the abundance of PWS herring. The absence of such understanding represents an ongoing gap in the program. Such a gap could be addressed by analyses of microchemistry of otoliths. Time spent by herring in different bays within PWS and the surrounding region, could be reflected in the chemical composition of otoliths that can be detected by analyses of microchemistry. This approach would have linkages to several other projects. Thus, the microchemistry approach would provide helpful new insights to ongoing projects while improving linkages among them.

The panel is aware of difficulties associated with previous attempts to examine microchemistry of herring. We acknowledge that microchemistry must be used carefully as a research tool, but point out that it can be a powerful and informative approach when done properly. For this reason we suggest that the herring program could consider the incorporation of this approach. For technical reasons, explained below, we further suggest that the optimal approach would be the examination of otoliths.

Regarding scales vs. otoliths: Herring scales may not be a good tissue for microchemistry, but otoliths may be useful. The main problem with scales is that herring resorb calcium and other minerals from their scales as they mature sexually. The effect does not interfere with annulus formation on scales but it could confound comparisons of putative population groups. This is not a concern for otoliths where, in theory, the chemical signatures are retained unchanged with age/time. The main concern with otolith collections is that they need to be collected and stored carefully prior to analysis. As they dry, otoliths tend to develop hairline cracks that can accumulate extraneous material – which again can confound results.

Potential Resource - The current director of the UAF Alaska Stable Isotope Facility is Matt Woller He is well respected and is an excellent collaborator. See: http://ine uaf.edu/werc/asif/

Forage Fish

The Science Panel supports the enhanced attention to estimating population abundances of important forage fish in the Long-term Monitoring/Gulf Watch Project, while noting that the Herring Program will also be sampling forage fishes acoustically and during net tows, such as those planned to ground-truth acoustic signals Except for herring itself, the early studies of EVOS impacts on the PWS ecosystem unfortunately failed to establish population assessment on any of the forage fishes of known significance to supporting higher-order predators: sand lance, capelin, and eulachon in particular. The Piatt project in LTM/Gulfwatch can serve as the centerpiece study of forage fish to which information gathered by PIs on other projects could be transferred to provide enhanced knowledge of abundances and dynamics of forage fishes.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel. I commend this program for its dedication to using local community resources when appropriate and its efforts to work together as a team. I concur with the Panel's comments regarding the overall poor quality of the proposals. Most proposals made no effort to even change the dates of their tasks and deliverables making it almost impossible to determine where the project was in meeting its objectives.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC, no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel and Science Coordinator.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011 – Individual Panel Member Comments

Individual Comment 1:

Linkages among the projects are 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.

Date: April 2011

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 miledays, 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 is 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

Science Coordinator Comments – FY12

Date: April 2011

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.

Public Advisory Committee – FY12

Date: July 2011

The Science Panel said the response to their concerns and further coordination was good. The Alaska Department of Fish and Game will partially fund a herring liaison position. Improved modeling techniques will be included as a separate project (PI is Branch) Torie Baker stated that this type of effort is what is needed to help resource managers in their decision-making. It was moved by French, second by Anderson Faulkner that the PAC concurs with the Science Panel recommendation to fund the Branch modeling project. There were no objections.

Date: April 2011

The PAC supports funding the herring project proposal, noting that the PAC agrees with the Science Coordinator in that there are serious concerns regarding the data program and would encourage the Council to assist the project team by providing funding for a comprehensive review of the data program, and (amendment moved by Baker, second by Andersen Faulkner) further, the PAC supports additional discussions with the Alaska Department of Fish and Game on the use of the recommended dive surveys. The motion passed, with dissent by Brune and Bauer, based on Axiom's current past due deliverables

The group discussed the herring proposal and the added value of the NCEAS data management addition Catherine Boerner stated that the data was the "gold mine" of many of these projects, and needed to be made available over the long term—and the NCEAS team will assist in making this happen. Baker raised a question about the use of "outside" consultants versus Alaskans, and how the two would work together Hsieh said that NCEAS is experienced in working with diverse groups and it was her impression, thus far, that Axiom would also be amenable to working with NCEAS Brune questioned past due delivery of a product by Axiom, noting the Trustee Council policy to not fund organizations which were behind in deliverables—he believes Axiom should not be awarded additional work when there are outstanding deliverables, and that this sets a dangerous precedent Fandrei agreed that this was an issue. Hsieh said she expected the outstanding deliverable to come in May. French said it was important that data not be proprietary so it would be publicly available Amanda Bauer asked if there were other organizations that Axiom did work for. Hsieh mentioned several State and Federal agencies that are Axiom clients

Executive Director Comments – FY12

Date: July 2011

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.

Project Number: **14120111-A**

Project Title: PWS Herring Program - Validation of Acoustic Surveys for Pacific Herring Using Direct Capture

Primary Investigator(s): Mary Anne Bishop

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$68,100	$90,600

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$148,000	$141,100	$145,300	$593,000

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Acoustic surveys provide a relatively low-cost, remote sensing tool to estimate species-specific fish biomass and abundance. Interpreting acoustic data requires accurate ground truthing of acoustic backscatter to confirm species and length frequency of insonified targets. Since November 2012, juvenile and adult herring acoustic surveys have been conducted in November and late March, respectively. Pelagic trawls are the recommended method for validating species composition and for obtaining relatively unbiased information on length frequency distribution, age, and other biological information. Here we propose to use a low-resistance, light-weight midwater sweeper trawl capable of towing speeds (up to 3 knots) as a method to ground truth acoustic surveys for juvenile herring. Our pelagic trawl surveys will take place in conjunction with and onboard the same vessel as three studies in the PWS Herring Research and Monitoring program: a) Juvenile Herring Abundance Index (years 2-5); b) Acoustic Consistency: Intensive Surveys of Juvenile Herring (year 3). Because of concerns of the Alaska Department of Fish and Game, for the March Expanded Adult Herring Surveys (years 2-5) we are being required to use gillnets and jigging for validation. Our project will provide data on species composition and length frequency to aid in the interpretation of current and historical acoustic surveys. In addition it will provide adult herring samples to Alaska Department of Fish and Game for the adult herring age-structure-analyses model and will provide juvenile herring samples to researchers investigating juvenile herring fitness and disease. Our trawls will also provide fishery-independent surveys for non-herring species, thus increasing our knowledge of pelagic fishes in Prince William Sound.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

It seems that Dr. Bishop is performing a 'service' to the other PI's, but an essential one, especially in the collection of herring samples. For this service the Science Panel applauds her efforts It would be useful to know, however, how much of the total effort is actually dedicated to acoustic work. This proposal contributes to the cumulative cost of acoustic work in Prince William Sound – so between the three proposals by PI Buckhorn, and this, the total annual effort and cost of acoustic work is significant This may be appropriate if acoustics has a central role by providing key data for annual abundance estimates

A general comment: The rationale for this proposal is to validate an acoustic target using a single beam sounder This is valid in the context of the present program but there may be a more fundamental question that has not been addressed – although it is not directed specifically at this project Is the acoustic equipment being used the best for the job? If acoustic estimates were used as the ASA tuning index, how would any change(s) in the acoustic surveys (survey protocols, or equipment) affect the temporal integrity of the index? Similar questions were posed in the 2011 Science Panel report

A different question: There is an interesting excerpt from the proposal: "We recognize that a major deficit in the existing PWS Herring Survey program is the lack of an effective means of validating the acoustic signal Fortunately, if we can establish through direct capture of insonified fish that certain patterns in echograms can be interpreted as different year classes of herring, ***then we may be able to reanalyze historical acoustic measurements to better understand changes in juvenile herring populations."***

The suggestion above is that acoustic strength estimates, obtained by field measurements in from this project, could be used to adjust results from past herring surveys It is not clear who would do this retrospective analysis Regardless, such a contribution would be welcome - with the caveat that the rationale and methodology must be documented and accessible, preferably in a published report.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel and Science Coordinator.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-B**

Project Title: PWS Herring Program - Tracking Seasonal Movements of Adult Pacific Herring in Prince William Sound

Primary Investigator(s): Mary Anne Bishop

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$70,700	$17,500

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$17,400	$0	$0	$105,600

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Knowledge of fish movements and migrations are critical to understanding fish population dynamics. In Prince William Sound (PWS) adult herring disperse after spawning, however their movement patterns are poorly understood. Currently the only information on adult herring movements are a small number of observations from fishers that suggest PWS herring are regularly migrating out of PWS and onto the shelf. This proposal focuses on verifying adult Pacific herring movements using detections of tagged fish. The Herring Marking Workshop sponsored by EVOS in December 2008, reviewed all potential marking methods for herring and conditionally endorsed acoustic tagging as a method for determining herring movements. This pilot project will acoustic tag wild adult herring for the first time. Herring will be sampled from around Port Gravina, a spring spawning area. We will examine detections from acoustic arrays to determine seasonal movement patterns in and out of Prince William Sound. The proposed project builds on our previous and current research on acoustic-tagged fishes. This project will synergize with efforts of the Ocean Tracking Network (OTN). The ability to track herring is critical to answer many questions including those about stock structure, migration habits, and the occurrence of skip-spawning. Determining the capabilities of this technology will help guide our choice of future research emphasis.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

Is there any identification of gender in fish upon tagging? If so, more information on male/female schooling/movement behaviors would be very useful to come out of this work.

The results of progress to date were helpful and interesting. Given that the application of the acoustic tag technology to herring appears to be successful, it would be useful to present future results in the context of testable hypotheses – particularly regarding movements of herring into and out of Prince William Sound. Project Objective 2 is to monitor movement from overwintering to spawning grounds. While the shift from tagging from fall to spring appears to be well justified, the proposal should discuss how this affects achievement of Objective 2 and whether Objective 2 should be revised.

Potential Resource - Because of the departure of Sean Powers from his role as co-PI on this project, the project may need to add a co-PI with experience in acoustic tagging of fish. Several fish ecologists are now using this technology, including Joel Fodrie of UNC and Craig Layman of NC State University.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: June 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: June 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-C**

Project Title: PWS Herring Program – Data Management Support

Primary Investigator(s): Rob Bochenek

PI Affiliation: Axiom Consulting and Design

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$130,800	$130,800

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$22,500	$23,500	$24,000	$331,400

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

This project supplies the EVOS Long Term Monitoring (LTM) effort with critical data management support to assist study teams in efficiently meeting their objectives and ensuring data produced or consolidated through the effort is organized, documented and available to be utilized by a wide array of technical and non-technical users. This effort leverages, coordinates and cost shares with a series of existing data management projects which are parallel in scope to the data management needs of the long term monitoring program. In the first two years, this project would focus on providing informatics support to streamline the transfer of information between various study teams and isolate and standardize historic data sets in the general spill affected area for use in retrospective analysis, synthesis and model development. These efforts would continue into year three through five but efforts would also focus on developing management and outreach applications for the data and data products produced from the LTM program.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

Progress is listed as "Data is being archived on the Workspace by investigators in the program..." and "Data from the past two field seasons will be ingested into the data management system. We will continue to refine and expand the information available through the Herring data portal "

Please specify what data have been incorporated. Also, the demonstration of progress is not adequate More detail is essential. Failing that, this project should be suspended. An inventory of all data proposed to be incorporated eventually into the program should be drawn up and an accounting of progress on incorporating the listed data sets should reported annually, including any changes to the inventory of target datasets.

The science panel is concerned about progress on data management The data management proposal drew heavily on their old proposal without including sufficient updated evidence of interactions between the programs' PIs and the data management team. In addition, there does not appear to be a data management policy or QA/QC policy created as the programs approach Year Three. In addition, no milestones were reported in the newly submitted proposals, so it was difficult to gauge how much progress had been made in the last two years. Moreover, it was not clear how data would be available for synthesis. The panel recommends that the Council condition funding upon the creation of a credible and detailed data management policy and a QA/QC policy and include clear milestones in for their proposal.

Regarding a QA/QC policy: such a document is a basic need of any data management. We note too that instruments commonly need to be calibrated before and after use to be able to adjust for measurement drift, if it occurs. With two separate data centers operating under the EVOSTC program it is crucial that a high level of QA/QC be maintained. The Science Panel is concerned that adequate attention is not being devoted to this fundamental aspect of data management. It is particularly important that to assemble complete metadata to ensure that long-term data sets can be verified and understood once the current participants have moved on to new positions. For example, EPA and NSF require detailed data management and QA/QC plans as part of all proposals Large monitoring programs, such as NSF's LTER and oceanographic programs, devote considerable time and effort to addressing these critical needs

Example: As a specific example, the Ocean Tracking Network (OTN) has four nearly full-time people creating metadata forms that are required to be filled out, submitted and checked for QA-QC before data can be added to the database. Since OTN is currently adding equipment to tracking arrays in PWS, it would be particularly appropriate at this time to arrange communication between senior OTN data managers with EVOSTC program data PIs to ensure that data standards are adequate. As with OTN, and as emphasized in the initial funding of the EVOSTC programs, skilled data management resulting in data that can be relied upon by the scientific community and resource agencies will ultimately determine the long-term success and influence of the programs The contact at OTN is Bob Branton (bob branton@gmail com) or (bob branton@dal ca)

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received..

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund
April 2011	Modify	Modify	Modify	Modify

Science Panel Comments – FY12

Date: April 2011

Gathering and making data available will be the keystone of this program. The Science Panel expressed serious concerns about past performance of some participants and that the data management team does not have sufficient expertise or scientific guidance to deliver a useable data system In addition, it is not clear at all there is a plan for the inclusion of structurally diverse data· where and how will such data be organized so that relevant data and metadata from a broad array of disciplines can be assembled in one database The panel viewed this as this as an informatics problem that, if not resolved at the onset, will jeopardize the long-term program. There is a very clear need to overcome critical technological impediments to accomplishing synthetic, integrative environmental science, while at the same time promoting more open access to information and data sharing It is critical that this database be open source and be 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.

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 preeminence of NCEAS to collaborate in this venture.

Science Coordinator Comments – FY12

Date: April 2011

Please also refer to comments which can be found under 12120114 - McCammon and 1210120 - Jones.
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.

Public Advisory Committee – FY12

Date: July 2011

Issues raised by the Science Panel, Trustee Council staff, and the PAC called for additional work and collaboration to assist with establishment of a data management system that includes accessible scientific data as well as public information. In response, the National Center for Ecological Analysis and Synthesis (NCEAS) submitted a proposal to work with Axiom (a subcontractor to AOOS), and the

Woods Hole Oceanographic Institution also submitted a proposal. Elements of both options were reviewed and discussed. Data management generally consumes about 30% of a research program budget, the costs for including one of these options for assistance remain within that range. French noted that he had no problem with either NCEAS or Woods Hole—he questioned Axiom's role and staying power. McCammon said that Axiom would be a subcontractor to AOOS, had been doing cutting edge work, and was committed to the project—they have a 4-year contract. She also stated that the AOOS Board was committed to the project. French said he supported the NCEAS and Axiom collaboration. Eilo summed the PAC interest in the Trustee Council implementing a solid data management, synthesis, and public access system

Date: April 2011

Brune questioned past due delivery of a product by Axiom, noting the Trustee Council policy to not fund organizations which were behind in deliverables—he believes Axiom should not be awarded additional work when there are outstanding deliverables, and that this sets a dangerous precedent Fandrei agreed that this was an issue. Hsieh said she expected the outstanding deliverable to come in May. French said it was important that data not be proprietary so it would be publicly available Amanda Bauer asked if there were other organizations that Axiom did work for Hsieh mentioned several State and Federal agencies that are Axiom clients

PAC agrees with the Science Coordinator in that there are serious concerns regarding the data program and would encourage the Council to assist the project team by providing funding for a comprehensive review of the data program

Executive Director Comments – FY12

Date: July 2011

Please also refer to comments which can be found under 12120114 - McCammon and 1210120 - Jones. 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

Project Number: **14120111-D**

Project Title: PWS Herring Program - Non lethal sampling: In situ estimation of juvenile herring sizes

Primary Investigator(s): Kevin Boswell

PI Affiliation: Florida International University

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$43,676

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$51,263	$0	$0	$94,939

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

A common source of bias in acoustic surveys is proper partitioning of size classes and their respective contribution to biomass estimates (see Simmonds and MacLennan 2005). This is particularly evident when considering the probability of encountering multiple size classes (or age classes) within a given survey region, or even within a large school. Several approaches have been successful in estimating in situ size distributions, though many require appropriate light fields to determine target sizes (Foote and Traynor 1988; Gauthier and Rose 2001; Kloser and Horne 2003). Recent application of imaging sonars have proven useful for acquiring high-resolution measurements of target-length distribution, without the need for ambient or external light sources, thereby reducing the potential of behaviorally mediated bias in length estimation. Further, automated analysis software has been refined to rapidly provide length estimates and target tracking parameters, even for tightly schooling fishes.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received..

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

Project Number: **14120111-E**

Project Title: PWS Herring Program – Expanded Adult Herring Surveys

Primary Investigator(s): Michele Buckhorn

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$6,500	$84,400

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$68,100	$90,600	$84,400	$334,000

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Prince William Sound herring stock biomass estimates from hydroacoustic surveys provide a direct measure of the stock abundance and are also a primary input into the age-structured assessment (ASA) model that is the forecasting tool used for managment. Prior to 2001, the hydroacoustic surveys were conducted exclusively by the Prince William Sound Science Center (PWSSC). Since 2001, the effort has been shared between PWSSC and the Cordova office of Alaska Department of Fish and Game (ADF&G). While the ADF&G considers the hydroacoustic surveys to be critical (Steve Moffitt, personal communication) the lack of a commercial herring fishery in PWS since 1998 has reduced management priorities for herring. Thus the PWSSC contribution has become critically important for the long-term, especially if a future fishery appears only a remote possibility. With the level of effort available over the past several years, PWSSC and ADF&G individually have achieved herring biomass estimates with a precision of about ±30%, which is insufficient for management purposes. However, the combined effort currently meets management requirements for precision. Current stock assessment efforts by ADF&G resource managers in PWS focus on the largest spawning aggregations. The objective of this study is to increase the current survey area of adult spawning beyond the Port Gravina and Fidalgo areas to provide a more precise estimate of spawning biomass. We propose to extend the PWSSC acoustic surveys to help identify the relative contributions of additional spawning aggregations over temporal and spatial scales. This will help establish more accurate estimates of the total herring biomass in PWS and provide an alert to changes in biomass in different regions. Beginning in FY2013 and continuing until 2016, hydroacoustic surveys will be conducted in late spring (April-May) to assess adult spawning biomass. ADF&G will continue to conduct direct sampling for age/length/weight. Additional direct capture will be conducted using a midwater trawl at adult spawning sites (See Bishop proposal).

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

If acoustic information is to be used for annual herring assessments (by ADFG or anyone else) then it would seem reasonable that there were some meaningful communication between the people doing the survey and those doing the assessments (see specific comments on the previous proposal).

Is there a data source, or database on areas that were 'historically surveyed'? If so, what or where is it? Will it be made available to the data synthesis projects? Has there been any effort made to report on these data? Because of PI departures, a very junior, although promising scientist without any peer-reviewed publications, is left alone to execute this project. The Science Panel urges engagement of a more senior experienced partner to help guide and enhance this project.

It is gratifying to see that samples from Kayak Island were made available to geneticists. However, there does not appear to be any reference to this in the genetics proposal.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-F**

Project Title: PWS Herring Program – Juvenile Abundance Index

Primary Investigator(s): Michele Buckhorn

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$90,100	$80,100

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$66,100	$84,900	$83,000	$404,200

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Management of the Pacific herring stock in Prince William Sound (PWS), Alaska, is based primarily on an age-structured-assessment (ASA) model. The current model, developed in 2005, incorporates both hydroacoustic estimates of the adult herring biomass and an index of the male spawning, called the "mile-days of spawn". Unfortunately, the forecast is based on measurements from the previous year and does not have a direct measure of future age 3 recruitment. Current knowledge suggests that most mortality occurs during the first winter of life, so the relative recruitment may be fixed by the end of the first year. Consequently, estimates of relative abundance of age 1 and age 2 fish should provide an index of future recruitment. An index of age 0 fish would also provide a forecast of recruitment if additional information were available on the magnitude of the first year mortality. We will conduct annual fall surveys (FY2013-2016) of 8 bays; four of which will be the Sound Ecosystem Assessment (SEA) bays (Cooney et al. 2001). This will maintain a continual database from these locations. The other 4 bays will be selected based upon the survey results of the current EVOSTC FY10 Herring Survey Project (# 10100132). Surveys will be conducted using 120 kHz split-beam hydroacoustic unit in a stratified systematic survey design (Adams et al. 2006). For this study, direct capture will be directed to size and species composition. A midwater trawl will be used to sample randomized transects within each strata.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: April 2011

There are no project specific comments

Executive Director Comments – FY12

Date: April 2011

There are no project specific comments.

Project Number: **14120111-G**

Project Title: PWS Herring Program – Intensive surveys of juvenile herring

Primary Investigator(s): Michele Buckhorn

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$50,100	$29,757

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$46,543	$6,800	$0	$133,200

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Hydroacoustic surveys of juvenile herring nursery areas in Prince William Sound have been conducted during fall and late-winter for the last several years. The number of locations surveyed have varied from 5-9, including the 4 Sound Ecosystem Assessment (SEA) bays. However, each seasonal effort has conducted only a single night survey in each of these locations. Thorne (2010) examined seasonal changes from fall 2006 to spring 2009. He showed that apparent overwinter mortality of age 0 herring appeared to be greatest in Simpson Bay and least in Whale Bay. However, the differences in seasonal abundance could be attributed to mortality, emigration, or changes in ambient light. We propose to address these uncertainties with an intensive fall and late winter/spring intensive survey. The fall series will start mid-October 2014 and extend to the first week of December. The late winter/spring series will begin the 3rd week of February 2015, and extend into the 2nd week of April. We propose to conduct the surveys in two bays sufficiently adjacent to cover each bay each night, such as Simpson Bay, Port Gravina, Windy Bay or St. Mathews Bay. In addition to the hydroacoustic surveys, we propose a single night of direct capture effort in each location for each of the survey weeks (See Bishop, this proposal). The survey design will follow the historic zig zag transects run by Thorne since 1993 in order to remain consistent with that sampling design and to put the long term fall and spring surveys into context.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There is reference made to the assessment model but there is nothing in the new population dynamics proposal to indicate any meaningful communication between the acoustics work and the developing assessment models Specifically, is it anticipated that data derived from acoustic surveys will be used as input to the assessment model? If so, it is important that there is an active dialogue among people working on inter-related projects.

This juvenile herring project is predicated on the assumption that it will provide a useful prediction of age-3 recruitment. If there were a commercial fishery this prediction could be especially useful but its value as a predictor would diminish if commercial fisheries for herring were not re-established. In any event such a juvenile index could provide a measure of first year survival, or 'over-wintering' survival, and then this could be useful, especially to the projects concerned with disease and 'condition'.

Please clarify: will the survey design in 2014 match that in 2013? Again, Dr. Buckhorn and the project could benefit greatly by engaging a senior collaborator for this project.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date:

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-H**

Project Title: PWS Herring Program – Outreach & Education

Primary Investigator(s): Lindsay Butters

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$16,500	$30,500

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$32,700	$36,000	$38,300	$154,000

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

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

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

Was there any attempt to coordinate output with Gulf monitoring group? As noted above, the Science Panel notes that there may be opportunities and requirements for increased communication among PI's within the herring project. A key point is how the different projects relate to each other, especially their connections or inter-dependences. This aspect was not well developed in this (2013) set of proposals. Perhaps this outreach project can assist in this regard?

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-K**

Project Title: PWS Herring Program – Herring Disease Program (HDP)

Primary Investigator(s): Paul Hershberger

PI Affiliation: USGS

Project Manager: USGS

Funding Received To Date:

FY12	FY13
$0	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$281,900	$291,900	$298,000	$871,800

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

The Herring Disease Program (HDP) is part of a larger integrated effort, Prince William Sound Research and Monitoring (outlined in a separated proposal by Dr. Scott Pegau). Within this integrated effort, the HDP is intended to evaluate the impact of infectious and parasitic diseases on the failed recovery of the PWS herring population. The framework for the 2012 – 2016 HDP involves a combination of field surveillance efforts, field-based disease process studies, and laboratory-based controlled studies. Field surveillance efforts will provide continued and expanded infection and disease prevalence data for herring populations in Prince William Sound (PWS), Sitka Sound, and Puget Sound. During FY 2014 we will continue the health assessments of adult herring from Prince William Sound and Sitka Sound, we will continue to rear colonies of specific-pathogen-free Pacific herring for controlled studies in the laboratory, and we will develop a chromogenic in situ hybridization assay that will be capable of identifying Ichthyophonus in histological tissue sections.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The Science Panel feels that this is probably one of the most important high-payoff programs within EVOSTC. Funding needs to continue and the incorporation of disease ecology needs to be somehow incorporated into models

Science Coordinator Comments – FY14

Date: September 2013

I wholly concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

Project Number: 14120111-L

Project Title: PWS Herring Program – Herring Condition Monitoring

Primary Investigator(s): Scott Pegau

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$230,000

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$ 238,700	$251,500	$253,900	$974,100

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

Considerable concern was expressed about the departure of Dr Kline and the panel endorses Pegau's expressed urgency in finding a suitable replacement. These proposals tackle important issues and they both do a very good job of relating what they do to other projects, especially to the ASA model These proposals also present well and respond to much of what the panel recommended in 2011.

Over-wintering mortality among herring juveniles has been invoked as an explanation for many things· recruitment variation, spatial variation in herring survival and susceptibility to disease within Prince William Sound, and perhaps more. It is an important topic and there is a rich legacy of work on this by productive researchers in Prince William Sound. It is important that this work receive the continued attention it deserves, including as much synthesis of past work as possible.

With respect to the 2013 proposals: no plan is evident to examine the relationship of the change in energy content to climate and oceanographic conditions during the pre-sampling and overwintering periods. If PIs are truly interested in determining whether the "constraints" are relaxed, then all constraints, including climate/ocean factors must be considered.

As much as possible these projects must be integrated with oceanographic and biological data from LTM, especially because the causes for condition changes are crucial. The project must also be integrated with the herring disease program. The panel suggests that condition be used in experiments with disease challenges including transmission mechanisms.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC, no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel

Project Number: **14120111-M**

Project Title: PWS Herring Program – Juvenile Herring Intensive Monitoring

Primary Investigator(s): Scott Pegau

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$207,000	$77,300

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$20,400	$0	$0	$304,700

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

Considerable concern was expressed about the departure of Dr. Kline and the panel endorses Pegau's expressed urgency in finding a suitable replacement. These proposals tackle important issues and they both do a very good job of relating what they do to other projects, especially to the ASA model These proposals also present well and respond to much of what the panel recommended in 2011

Over-wintering mortality among herring juveniles has been invoked as an explanation for many things. recruitment variation, spatial variation in herring survival and susceptibility to disease within Prince William Sound, and perhaps more It is an important topic and there is a rich legacy of work on this by productive researchers in Prince William Sound. It is important that this work receive the continued attention it deserves, including as much synthesis of past work as possible

With respect to the 2013 proposals. no plan is evident to examine the relationship of the change in energy content to climate and oceanographic conditions during the pre-sampling and overwintering periods If PIs are truly interested in determining whether the "constraints" are relaxed, then all constraints, including climate/ocean factors must be considered.

As much as possible these projects must be integrated with oceanographic and biological data from LTM, especially because the causes for condition changes are crucial The project must also be integrated with the herring disease program. The panel suggests that condition be used in experiments with disease challenges including transmission mechanisms

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received..

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-O**

Project Title: PWS Herring Program – Coordination and Logistics

Primary Investigator(s): Scott Pegau

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$364,125	$510,229

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$ 388,136	$339,007	$338,583	$1,940,113

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

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.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work.

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting No individual comments were received.

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

There are no project specific comments.

Science Coordinator Comments – FY12

Date: April 2011

There are no project specific comments.

Public Advisory Committee – FY12

Date: July 2011

There are no project specific comments.

Executive Director Comments – FY12

Date: July 2011

There are no project specific comments.

Project Number: **14120111-P**

Project Title: PWS Herring Program – Genetic Stock Structure

Primary Investigator(s): Jeffrey Guyon

PI Affiliation: NOAA

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$50,500	$53,100	$0	$103,600

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Understanding if there is one PWS herring stock or multiple stocks is important for proper management of fisheries. We propose to study the genetic uniqueness of herring from PWS to determine if it may be a complicating factor in the recovery process. A previous genetic study of herring in the region indicated that the PWS herring population was genetically distinct from other stocks spawning outside the Sound (O'Connell et al. 1998), providing an impetus for additional work. Several recent studies have made advancements in herring research using microsatellite loci, and have detected fine-scale genetic differentiation among local regions of herring (Beacham et al. 2008; Andre et al. 2011; Wildes et al. 2011). Each microsatellite locus contains multiple alleles making microsatellites ideal genetic markers for analyzing migratory fish with limited stock structure like herring. Based on our experience studying Pacific herring in Southeast Alaska using microsatellite markers (Wildes et al. in 2011), successful completion of this proposal will require (1) increasing the number of genetic samples per collection from the 50 used in the previous analysis (O'Connell et al. 1998) to 150 fish, (2) using an increased number of informative markers (from 5 to 15), (3) analyzing at least two years of collections to examine temporal stability, and if sampling allows (4) spatial stability from collections from two different historical locations (east, west). Evaluation of temporal and spatial variation of herring population(s) in and around PWS using updated genetic protocols will provide important information about herring life history that will contribute to improving the application of the ASA model.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

The investigators should re-examine their plans to ensure that the sites of proposed sampling match the broad objectives of the coordinated proposals. We suggest that the greatest value from this work would be a definitive evaluation of the genetic differentiation, or lack of it, within PWS and areas immediately adjacent, such as Kayak Island. It is not clear that one location east and one location west would satisfy questions about stock structure within PWS If sample size is an issue, perhaps analyzing the samples from Yakutat has lower priority The Science Panel also wonders why there was no reference made to the samples collected from Kayak Island (were these samples of eggs or fish?). Inclusion of these samples would seem to be high priority.

Further, we advise that the investigators take adequate measures to ensure that they are examining fish in spawning condition. Alternately, if it were possible to conduct genetic analyses on late embryos (from spawn samples) as this might be a useful approach.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

Project Number: **14120111-Q**

Project Title: PWS Herring Program – Modeling the population dynamics of PWS herring

Primary Investigator(s): Trevor Branch

PI Affiliation: University of Washington

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$36,907	$87,014

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$97,836	$100,406	$104,920	$427,083

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 8/29/13.*

Shortly after the Exxon Valdez oil spill, the Prince William Sound herring populations collapsed and have not yet recovered. We propose a modeling project to (1) revise and update the ASA model used to manage this population, (2) conduct simulations to test which data sources are most important in assessing the current status of this population, and (3) collect data on herring populations worldwide to find out how often these populations collapse under ordinary conditions.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

While this effort may be in the correct direction, the estimation of herring biomass is an integral and very important part of the herring program. Candidly, the Science Panel had expected more progress and more effort than the efforts of a graduate student to be directed at this issue. This comment should not be seen as a criticism of the student, but instead as a deficiency in the effort directed at this important issue

There is no indication from the proposal that there is any dialogue between the PI and the other herring program PI's and if so, that is a problem that should be addressed. A specific concern is the extent to which acoustic data, or acoustic indices, can be used, as a component of the annual assessments. Similar questions exist about the spawn data It seems probable that some form of fisheries-independent index would be required to tune the age-structure (ASA) model. If not, then something else might be used, such as a spawn index and if so, that might require a reallocation of resources. Therefore a better understanding of the data requirements for practical development of the ASA model is required. To this end the modelers need to examine and evaluate the strengths and weaknesses of the available data, preferably in collaboration with other PI's in the herring program.

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee Comments – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
September 2012	Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY13

Date: September 2012

Due to the change in the funding cycle, the program only began their work four months prior to this review. We have reviewed the work completed to date and are comfortable with the program continuing their proposed work

Science Coordinator Comments – FY13

Date: September 2012

I concur with the Science Panel.

Public Advisory Committee Comments – FY13

Date: September 2012

Not reviewed due to the lack of a quorum at their meeting. No individual comments were received..

Executive Director Comments – FY13

Date: September 2012

I concur with the Science Panel.

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
April – Aug.2011	Fund	Fund	Fund	Fund

Science Panel Comments – FY12

Date: April 2011

The Herring Program team clearly gave careful thought to how modeling should be done and who should do it. Their choice and recruitment of Trevor Branch at UW is superb This is a young rising star in fisheries dynamics modeling, who has many experienced colleagues with whom to interact His proposal represents a good guideline for the modeling work he will begin, identifying some key processes of high value to the herring program We expect to see evolution of the modeling as the project develops and see Branch as a leader who will make adaptive additions and modifications as new issues arise. We would like to have seen a more overt mention of how competing drivers of herring mortality will be tested against one another – physiological stress, starvation, top-down predation, and disease These are clearly embedded in the life history modeling, but model fits to choose the factor or combinations of factors that best fit observed abundance changes would be welcome.

Agency Staff Comments – FY12

Date: August 2011

The proponent is a great choice for this work, and having this as a doctoral project is a cost-effective way to get some very good work done The project description is light on details, and that is acceptable to a limited extent, given that the work includes an investigation of what has been done and the available data (via the management strategy evaluation), and that it is important to be flexible in model development.

It would be helpful to have more details on the "holistic" model. For example, the Hulson et al. age structured analysis is referenced in relation to the management strategy evaluation, but there is no clear description of how the proposed holistic life-stage model relates to or builds off of the ASA, i.e., what the structure of the "holistic" model will be. Another concern is that is not clear if or how the "holistic" model will be used to aid in identifying the limiting factors in herring recruitment and recovery That could be an important aspect of the overall herring program. The disclaimer in the second paragraph of the "Statement of the Problem" is disconcerting given the intellectual effort that the proposal aims to expend on model development "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." Perhaps the proponent could offer a more detailed, though conditional description of what the expected benefits might be

Other items
The order of the three tasks is a bit confusing. The tasks given in Methods (p. 3-4) are.
1 Management strategy evaluation to identify most informative datasets –
2. Predict future levels of recruitment – a meta-analysis of time series for other herring and clupeid stocks.
3. Holistic model of herring dynamics – life stage model (age based), tasks conducted by UW students and faculty with access to Hilborn, Punt, and Essington

The expected order of completion of these tasks as given under Milestones (p 7) is
1. model (by 9/14),
2. MSE (by 9/15), and
3. predict recruitment (by 9/16)

It is not clear why a model will be developed first, and then a different model (ASA) used in the management strategy evaluation. Also, the work to predict future recruitment, as described, appears correlational and doesn't appear to involve the "holistic" model or a mechanistic understanding of herring dynamics, yet the timeline has this work occurring after initial model development How would this work be related to the "holistic" model? Timeline (p. 7) FY12 dates are given as beginning October 1, 2013. Should that be 2011? The budget includes

research assistant-ship and tuition for a Ph.D. student – essentially a half time position dedicated to this research. This is a cost efficient use of funds.

Science Coordinator Comments – FY12

Date: April 2011

I concur with the Science Panel's comments. The PI's identified are skilled and well-respected in their field and will bring valuable experience to this complex project.

Public Advisory Committee – FY12

Date: April 2011

The PAC concurs with the Science Panel recommendation to fund the Branch modeling project There were no objections.

Executive Director Comments – FY12

Date: April 2011

There are no project specific comments.

Project Number: **14120111-R**

Project Title: PWS Herring Program – Aerial Survey Support

Primary Investigator(s): Scott Pegau

PI Affiliation: PWS Science Center

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	Total
$ 70,850	$70,850	$0	$141,700

Request includes 9% GA

Funding From Non-EVOSTC Sources: **We have requested this information from the Herring Program.*

FY12	FY13	FY14	FY15	FY16	Total

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 9/3/13.*

This project is for providing aerial survey support to the EVOSTC sponsored Herring Research and Monitoring (HRM) and Gulf Watch Alaska (GWA) programs. For the HRM program the aerial support will be used to help collect herring samples for the genetics project and to provide an aerial index of age-1 herring abundance. For the GWA program the aerial support will be used by the forage fish project. The desire is to provide an aerial index of forage fish abundance and guide the capture efforts of the vessel. In turn the vessel will be providing ground truth of fish types and size of schools for better interpretation of the aerial based forage fish information. This proposal request is strictly for aerial support, all analysis and vessel funding will come from the existing projects. Funding for this project will be managed as a supplement to the HRM Coordination and Logistics project (12120111-O) led by Dr. Pegau.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund	Fund	Not Reviewed	Fund

Science Panel Comments – FY14

Date: September 2013

There are no project specific comments.

Science Coordinator Comments – FY14

Date: September 2013

There are no project specific comments.

Public Advisory Committee Comments – FY14

Date: October 2013

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: October 2013

There are no project specific comments.

NOAA Harbor Protection Program Projects

Project Number: **14120112**

Project Title: NOAA Harbor Protection Projects – Project Management

Primary Investigator(s): Laurel Jennings

PI Affiliation: NOAA

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$19,883	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	FY17	FY18	Total
$6,540	$0	$0	$0	$0	$6,540

Request includes 9% GA

Funding From Non-EVOSTC Sources:

FY14	FY15	FY16	FY17	FY18	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 9/3/13.*

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.

The invitation cycle has been completed and five proposals were submitted to the Council in 2/13 for their review. The Council requested revised proposals from two of the five proposers which were submitted on 9/3/13. This request for funding is for travel costs only to assist with project monitoring. The total requested above is based on both proposals receiving funding. If only one proposal is selected the request is as follows:

Project	Travel	Cost
Cordova – Snow management & Harbor water quality (2 projects for one travel expenditure)	ANC to Cordova (round trip), 1 person, 2 days X 3 monitoring trips	$1300 x 3 = $3,900
Anchorage – Project management	SEA to ANC (round trip), 1 person, 2 days	$2,100
	TOTAL	**$6,000**

FY14 Funding Recommendations:			
Science Panel	**Science Coordinator**	**PAC**	**Executive Director**
Not reviewed	Fund Conditional	Not reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

Not reviewed

Science Coordinator Comments – FY14

Date: September 2013

This proposal's funding is dependent on the Council's decision on proposals from the Copper River Watershed and the Native Village of Eyak.

Public Advisory Committee – FY14

Date: September 2013

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received.

Executive Director Comments – FY14

Date: September 2013

This proposal's funding is dependent on the Council's decision on proposals from the Copper River Watershed and the Native Village of Eyak.

Trustee Council Comments – FY14

Date: October 2013

Pending

FY12 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
June/July 2011	Not reviewed	Do not fund	Do not fund	Fund
April 2011	Do not fund	Do not fund	Do not fund	Do not fund

Science Panel Comments – FY12

Date: June 2011

Not reviewed.

Science Panel Comments – FY12

Date: April 2011

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 to other Best Management Practices (BMP) but the proposal 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 Coordinator Comments – FY12

Date: June 2011

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.

Public Advisory Committee Comments – FY12

Date: July 2011

A revised proposal with funds leveraged has reduced the cost of this effort, which will be managed by NOAA staff. Studebaker raised a concern about the details of the effort, it is not clear what will be done and where. John French mentioned the need to coordinate this with the U.S. Coast Guard clean harbors program. Eilo stated that he supported the cleanup of harbors. The only changes to the project are a reduced budget. 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

Executive Director Comments – FY12

Date: July 2011

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

Trustee Council Comments – FY12

Date: October 2011

A revised proposal has been submitted by the team At this time, funding has only been approved to complete the scoping and RFP development phase of this project The Council will review the completed RFP at a later date and will determine at that time if future funding is warranted

Trustee Council Comments – FY12

Date: September 2011

The Council did not vote to fund this entire request. However, it did request a revised proposal and budget that would be limited to the scoping and RFP phase, concluding with presentation to the Council of the proposals received in response to the RFP and with a budget not-to-exceed $125,000 (plus 9% GA) The following items were also specifically noted as being of interest.

1 Greater staffing efficiency for travel in the spill-area communities. limit travel time and number of travelers to only those necessary.
2. Consult EVOSTC office staff members, such as Cherri Womac, who have experience locating free or low-cost meeting rooms in these communities.
3. Work with DEC staff to ensure that the scoping/RFP phase seeks proposals for work which is not already legally required by state or federal law
4 The currently-proposed timeframe for scheduling meetings in the communities is an extremely busy time for harbor personnel. It is recommended that you determine when other meetings with harbor personnel are occurring and/or adjust your schedule to dates that are outside of the commercial fishing season
5. The scoping/RFP phase should emphasize to proposers and interested parties that the Council's current intent is to consider funding proposals with a total not to exceed the remaining amount of the original NOAA Clean Harbor proposal. For example, if the entire $125,000 is used during the scoping/RFP phase, fund proposals up to a total of approximately $953,750.

Trustee Council Comments – FY12

Date: June 2011

The Council requests the proposer review the Science Panel comments and strengthen its proposal and adjust the budget to $1 million dollars

Project Number: **14120112 - A**

Project Title: NOAA Harbor Protection Program – Cordova Clean Harbor

Primary Investigator(s): Ivy Patton

PI Affiliation: Native Village of Eyak

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	FY17	FY18	Total
$193,722	$72,996	$77,355	$0	$0	$344,074

Requests include 9% GA.

Funding From Non-EVOSTC Sources:

FY14	FY15	FY16	FY17	FY18	Total
$0	$0	$0	$0	$0	$0

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 9/3/13.*

Like many public harbors, the Cordova Harbor is faced with chronic oil and debris pollution. Annually waters in and around the harbor are coated with spilled petroleum products, mostly the result of contaminated bilge water, and debris from boat maintenance projects. The constant presence of oil within the harbor has led to it being used as a positive control for hydrocarbon studies in Prince William Sound (Thomas et al. 2007). Additionally, litter management in the harbor is a constant challenge for city staff.

Cordova's harbor is located in the heart of town, and is heavily relied upon by the commercial fisherman, recreationists, tourists, and subsistence users for work, food, and recreation. Locals and tourists alike take walks on the Breakwater Trail or the dock floats, and they enjoy sitting at the Fisherman's Memorial park bench overlooking the harbor. People are often seen fishing from the dock floats, and sea otters, seals, sea lions, and shorebirds frequent the harbor for foraging and shelter. The amount of debris and hazardous waste in the Cordova Harbor is not only a health risk, but also an eyesore. By improving the water quality and appearance of the Cordova Harbor, the human services injured resource will be enhanced.

Each year, from May through September, the harbor's 700 slips are fully occupied, and additional transient moorage is heavily utilized. With a broad range of vessels operations using the harbor including commercial fishing boats, tenders, charter, pleasure, sail, houseboats (liveaboards), and subsistence skiffs, a portfolio of approaches is required to improve water quality including an increased and consistent public education and awareness of clean harbor practices and resources

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund Conditional	Fund Conditional	Not Reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

The science panel appreciates the interest of the local community in cleaning up Cordova Harbor We also appreciate the improvements to the proposal in response to our comments on the previous version, but we do recommend further changes to the work plan should the proposal be funded.

It should be straightforward to estimate the costs of the three antifreeze waste disposal options without actually implementing each of them If the real objective of this part of the proposal is to implement the three approaches on a trial basis to determine which of them is likely to be most effective, then this should have been stated together with a detailed rationale of the pros and cons of each approach It also isn't clear to the panel why additional surveys are needed, although we do recommend that a follow-up survey be conducted to evaluate compliance with the initiatives and reasons for the success or failures of each initiative We also recommend that knowledge gained from the project be communicated to other communities and a plan for doing so should be developed

Science Coordinator Comments – FY14

Date: September 2013

I concur with the Science Panel.

Public Advisory Committee – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: October 2013

I concur with the Science Panel.

Trustee Council Comments – FY14

Date: October 2013

Pending

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
January 2013	No consensus	Modify	Not reviewed	Modify

Individual Science Panel Comments – FY13

Date: December 2012/January 2013

Reviewer 1:

This proposal describes several projects, each of which could make important contributions to preventing water pollution in the Cordova harbor and Orca Inlet and one of which can provide proof of concept for responding to small oil spills The proposal reflects past work in various groups in Cordova-Eyak coming together under the banner of Clean Harbors to support this project on behalf of the environment and natural resources of the area Several components make up this proposed project It will address antifreeze pollution by pursuing recycling possibilities It will address the lead pollution of improper disposal of batteries with a battery storage shed. It will hold a conference and then conduct pilot studies of containment and removal of small oil spills, including purchase of boom It will conduct a variety of outreach efforts including educational possibilities through the high school ocean science bowls. All of this seems well conceived The question is whether this fits the profile of EVOS Trustee funding policies. First, the EVOS Trustee Council has not previously invested in pollution prevention or in research or implementation of response actions. That is clearly what this proposal is all about. Second, the cost of this project is very high – 417 K in EVOS Trustee Council funds. Third, I cannot find evidence that the responsible PIs have a track record of demonstrating experience and success in handling this

level of funding in a previous similar project. Fourth, I question the value of the PAH sampling in mussels, given that the response activities for small oil spills represent merely a pilot project not a sustained set of responses that could be sufficient to allow detection of reduced pollution in the mussels Fifth, the sampling design for collecting mussels (From where? How many? Why the proposed frequency?) is not adequately justified. Sixth, this proposal needs to do a better job of relating pollution reduction to enhancing recovery of injured species, to show the connection typically required for EVOS Trustee Council funding.

Reviewer 2:
I appreciate that groups are coalescing on behalf of the community to improve water quality of the Cordova Harbor Several projects have been proposed, including 1) proper disposal of antifreeze, batteries and trash, 2) small oil spill response, 3) workshops, public education and outreach, and 4) monitoring of water quality. A substantial component of this proposal is exploratory (e.g., workshops, contest), but I favor a more cost-effective approach of implementing best available practices There are a great many harbors that are addressing these same issues, and it should be straight forward to adopt existing practices I am also not convinced that the monitoring PAHs in mussels is the best use of funds for tracking success of this multi-pronged approach to cleaning up the harbor Furthermore, mussels will be collected from only one location in the harbor. How will this provide meaningful data on small spills that are patchy in space and time? This is the most expensive of the proposals, and the budget could be trimmed to focus on components that would have a direct, immediate impact on improving water quality while concomitantly reducing associated administrative costs

Reviewer 3:
This proposal is presented by a group of concerned citizens including the NVE and others such as PWS keeper, Cordova fishermen, etc. Their goals are to bring a presence to Cordova Harbor to promote clean boating practices, engage local harbor staff, businesses, etc. in supporting services and to assist with improving user clean practices. Previously NVE and CCH has addressed antifreeze disposal, dealing with small spills in the harbor and developing cleanup approaches, extending outreach activity for education of harbor users, and evaluation of changes through PAH monitoring of mussel tissues. While the other tasks are worthy, the last item on PAH levels in mussels is too ambitious and the design is probably not such that useful data can be obtained It is suggested this last task be eliminated This is an expensive proposal and cost savings could be realized in a number of areas, particularly in administration.

Science Coordinator Comments – FY13
Date: January 2013
Overall, the proposal is clear and maximizes the local, state, and federal resources available The costs are clearly detailed and the objectives are reasonable in both time frame and cost The amount of cooperation and coordination that has already been achieved is remarkable and I appreciate that much of the planning and design has already occurred prior to this funding request.

My primary concern is with the projects that address small-spill response though workshops and a demonstration project. While these projects would certainly be useful for OSRI or the oil and gas industry, they may not be able to receive funding through the EVOS Trustee Council who is usually not able to fund any activities in oil spill prevention and response. I would recommend that these projects be removed from the proposal and the budget be reduced accordingly I also suggest that some clarification is needed about the antifreeze demonstration project to ensure that this project would result in a long term solution to the harbor's need for dealing with antifreeze. In response to several of the science panel members concern regarding the PAH monitoring in mussels, the sampling and monitoring proposed is part of the existing NOAA Mussel Watch Program. This information would add to the long-term data set that already exists through this program.

Public Advisory Committee Comments – FY13
Date: January 2013
Abstracts were submitted to individual members of the PAC for comment. No comments were received

Executive Director Comments – FY13

Date: February 2013

I support the recommendations and observations of the Science Coordinator, though I also note the remaining concerns of the Council's legal advisers.

Executive Director Comments – FY13

Date: January 2013

This project was solicited by NOAA under EVOSTC project 12120112, Phase I of which was funded in the FY'12 Work Plan Phase I was funded by the Council at a reduced sum of $20,000 for an invitational process and work with spill area communities to encourage submission of proposals reducing contamination originating from harbors and marinas. It should be noted that there are concerns regarding the proposals that were submitted under this program. This has long been a tenuous funding area for the Council. In the past, the Council funded acquisition of waste management facilities and activities and aided their implementation, but there was concern about the very indirect links between such projects and restoration. The projects submitted under NOAA's invitation have simply renewed these concerns Moreover, some of the proposals are for projects that are very similar to those that have been funded by the Council in the past and have, apparently, not been successful or not maintained, both of which are inimical to Council policies. Lastly, some of the proposals seek funding that is aimed at correcting illegal behaviors on the part of members of the public or of governmental entities and seek monies that would augment, probably unlawfully, the appropriations of local governments and one or more State agencies.

Project Number: **14120112 - B**

Project Title: NOAA Harbor Protection Program – Snow Management Analysis

Primary Investigator(s): Kristin Carpenter

PI Affiliation: Copper River Watershed Program

Project Manager: NOAA

Funding Received To Date:

FY12	FY13
$0	$0

Funding includes 9% GA

Funding Requested by Fiscal Year:

FY14	FY15	FY16	FY17	FY18	Total
$103,818	$137,591	$0	$0	$0	$ 241,409

Request includes 9% GA

Funding From Non-EVOSTC Sources:

FY14	FY15	FY16	FY17	FY18	Total
$6,900	$6,900	$0	$0	$0	$13,800

Abstract:

**This abstract is excerpted from the PI's Proposal, dated 9/3/13.*

The Copper River Watershed Project (CRWP) proposes to demonstrate that application of best management practices to managing snow in a developed community will improve the water quality of snowmelt discharges that flow directly into the Cordova harbor and Orca Inlet, the habitat range of the majority of PWS juvenile herring. Synthesized research on the long---term effects of the *Exxon Valdez* oil spill found that chronic persistence of oil has sub-lethal impacts on marine populations. Over the course of a winter, contaminants that commonly accumulate in snow include oil, grease, sediment, nitrogen, phosphorous, and metals. The CRWP will work with the City of Cordova and the Alaska Department of Transportation & Public Facilities to examine current snow handling practices in Cordova, identify Best Management Practice procedures and structures that could help reduce the concentration of contaminants in snow melt run-off, implement BMP structures at three snow storage sites, conduct water quality testing to assess the effectiveness of the BMP structures, and produce a guidance report for distribution to other municipalities.

FY14 Funding Recommendations:

Science Panel	Science Coordinator	PAC	Executive Director
Fund Conditional	Do Not Fund	Not Reviewed	Fund Conditional

Science Panel Comments – FY14

Date: September 2013

The science panel appreciates the interest of the local community to improve water quality of the Copper River Watershed by improving snow management practices in Cordova. We also appreciate the improvements to the proposal in response to our comments on the previous version, and the outreach plan communicating findings and recommendations to other communities. However, we do recommend further changes should the proposal be funded, beginning with developing a detailed work plan.

The water-quality monitoring plan could not be evaluated, because fundamental information was missing, such as the number of water samples to be taken at each location. The panel also questions the decision to take water samples rather than deploying passive samplers. Water samples provide instantaneous snapshots, whereas passive samplers gather data over the entire time period that they are deployed (weeks), providing a more time-integrated and reliable assessment of water quality. The plan should explain how data will be analyzed (including who at PWSSC or NOAA Auke Bay Lab would provide the scientific interpretations) and how the differences in snowfall in the two years will be taken into account to determine the effect of snow management on water quality before and after modified snow removal practices are in place. Indeed, it is unclear whether this assessment can be made in just two years given that snowfall may differ considerably between years confounding interpretation of results.

Science Coordinator Comments – FY14

Date: September 2013

I also appreciate the interest and dedication of the local community in Cordova in improving their water quality. However, the link to Injured Resources and Services is tenuous and without a guarantee of implementation from the City of Cordova the study would not provide any benefit.

Public Advisory Committee – FY14

Date:

The October 2013 PAC meeting was cancelled due to the federal government shutdown. Abstracts were submitted to the PAC; no individual comments were received

Executive Director Comments – FY14

Date: September 2013

I concur with the Science Panel's comments

Trustee Council Comments – FY14

Date: October 2013

Pending

FY13 FUNDING RECOMMENDATIONS

Date	Science Panel	Science Coordinator	PAC	Executive Director
January 2013	No consensus	Do not fund	Not reviewed	Do not fund

Individual Science Panel Comments – FY13

Date: December 2012/January 2013

Reviewer 1:

This proposal describes an engineering analysis of options for conducting snow removal and storage in Cordova in ways that are intended to minimize negative impacts on water quality and habitat during its melting phase (and create cost economies to the Town) Funding does not cover implementation of the recommendations. Previous engineering reviews imply that beneficial changes are likely to emerge, although no smoking gun of water quality violations has been identified. One year of minimal water quality sampling is proposed but sampling design is only generally presented. The NGO (PIs) responsible for this proposal and project if funded has previous experience with project management and apparently successful implementation. Costs are modest ($68 K) to EVOS. Community outreach and education components seem reasonable and appropriate. What

exactly the contracted engineering consultants will do and what ranges of options exist is rather vague, so more history of the similar analyses done by the engineers would have been a useful guide as to the breadth of their analyses likely to be done for Cordova The tie-in to injured species is minimal – herring were once abundant in Orca Inlet and fresh-water salmon rearing habitats are potentially polluted by contaminants in the melting snow I am not convinced enough of the relevance to restoration and recovery of EVOSlisted species, but the project has merit.

Reviewer 2:
An analysis of snow management in Cordova has been proposed to reduce likely contamination of the watershed, which might affect salmon, herring and shorebirds A surprising shortcoming of the proposal is that a specific set of likely alternatives to current management practices was not presented, providing little basis for assessing the potential outcomes of this proposal Water quality will be assessed during wet and dry periods, but here too, details are lacking making it difficult to evaluate the success of the study. Recommended changes to the management plan that are easily incorporated will be tried in the second year of the project. Outreach and education components are appropriate, and the cost of the proposal is reasonable ($68K).

Reviewer 3:
This proposal conducts an evaluation of the snow removal and sanding options for Cordova. It does not include any implementation costs The connection to injured resources in the spill area is somewhat tenuous

Reviewer 4:
This is a "scoping" proposal for dealing with management of snow from the Cordova area where melt results in contaminant loading into salmon habitat. A BMP for snow removal will be developed and in 2014-2015, a demonstration implementation of snow management will occur. There will be public outreach and education with K-12 student involvement This seems like an appropriate use of funds and is a reasonable cost. The specific details of the plan are lacking but could be provided Also, this is a clear way to improve harbor health, but not clear if specific enhancement of damaged species will occur

Science Coordinator Comments – FY13
Date: January 2013
A snow management plan for Cordova would likely be highly beneficial to the marine habitat. With the recent record snowfall years it becomes even more important that the pollutants contained in the snow are not contributing to a decline in water quality or detrimental to critical marine habitat
However I have concerns regarding the actual implementation of the analysis This project will only produce a report that would need the financial support of the City to be implemented.

Public Advisory Committee Comments – FY13
Date: January 2013
Abstracts were submitted to individual members of the PAC for comment No comments were received.

Executive Director Comments – FY13
Date: February 2013
I support the recommendations and observations of the Science Coordinator. While appreciative of the efforts made by the proposers and the project support by NOAA, legal and practical concerns remain.

Executive Director Comments – FY13
Date: January 2013
This project was solicited by NOAA under EVOSTC project 12120112, Phase I of which was funded in the FY'12 Work Plan Phase I was funded by the Council at a reduced sum of $20,000 for an invitational process and work with spill area communities to encourage submission of proposals reducing contamination originating from harbors and marinas. It should be noted that there are concerns regarding the proposals that were submitted

under this program This has long been a tenuous funding area for the Council. In the past, the Council funded acquisition of waste management facilities and activities and aided their implementation, but there was concern about the very indirect links between such projects and restoration The projects submitted under NOAA's invitation have simply renewed these concerns Moreover, some of the proposals are for projects that are very similar to those that have been funded by the Council in the past and have, apparently, not been successful or not maintained, both of which are inimical to Council policies Lastly, some of the proposals seek funding that is aimed at correcting illegal behaviors on the part of members of the public or of governmental entities and seek monies that would augment, probably unlawfully, the appropriations of local governments and one or more State agencies.