

## FY12 INVITATION PROPOSAL SUMMARY PAGE

**Project Title:** Long term monitoring: Program management component – Science Coordination and Synthesis for the Long Term Monitoring Program

**Project Period:** October 1, 2011 – September 30, 2016

**Primary Investigator(s):** Kris Holderied, NOAA Kasistna Bay Laboratory  
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**Study Location:** **Prince William Sound, Gulf of Alaska shelf along the outer Kenai Peninsula coast, and lower Cook Inlet/Kachemak Bay, Alaska**

**Abstract:**

This project is a component of the integrated Long-term Monitoring of Marine Conditions and Injured Resources and Services submitted by McCammon et al. Long-term monitoring has been implemented within the *Exxon Valdez* Oil Spill (EVOS)-affected region, with support from the EVOS Trustee Council (TC), agencies, North Pacific Research Board, Alaska Ocean Observing System, other research grant organizations, and citizen science 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 proposed 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 will improve linkages between monitoring in different regions (Prince William Sound, Gulf of Alaska shelf, lower Cook Inlet) as well as between disciplines in a given region, as a way to better discern the impacts of environmental change on restoration and continued recovery of injured resources. Science coordination will include 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 will help integrate information across the entire program and will be closely coordinated with the conceptual ecological modeling and data management teams in our integrated program.

**Estimated Budget:**

**EVOSTC Funding Requested: (does not include 9% Trustee Agency G&A):**

*FY12: \$113.3; FY13: \$127.5; FY14: \$136.1; FY15: \$134.0; FY16: \$139.1*  
*TOTAL: \$650.0*

**Non-EVOSTC Funds to be used: (in-kind contribution)**

*FY12: \$13.0; FY13: \$13.0; FY14: \$13.0; FY15: \$13.0; FY16: \$13.0*  
*TOTAL: \$65.0*

**Date:** June 1, 2011

# PROJECT PLAN

## I. NEED FOR THE PROJECT

### A. Statement of Problem

In the two decades following the *Exxon Valdez* oil spill (EVOS), and after extensive restoration, research and monitoring efforts, it has been recognized that full recovery from the spill will take decades and requires long-term monitoring of both the injured resources and factors other than residual oil that may continue to inhibit recovery or adversely impact resources that have recovered. Monitoring information is valuable for assessing recovery of injured species, managing those resources and the services they provide, and informing the communities who depend on the resources. In addition, long-term, consistent, scientific data is critical to allow us to detect and understand ecosystem changes and shifts that directly or indirectly (e.g. through food web relationships) influence the species and services injured by the spill.

An integrated monitoring program requires information on environmental drivers and pelagic and benthic components of the marine ecosystem. Additionally, while extensive monitoring data has been collected thus far through EVOS Trustee Council (TC)-funded projects as well as from other sources and made publicly available, much of that information needs to be assessed holistically to understand the range of factors affecting individual species and the ecosystem as a whole. Interdisciplinary syntheses of historical and ongoing monitoring data are required to answer remaining questions about the recovery of injured resources and impacts of ecosystem change.

The overarching goal of the long-term monitoring program is to provide sound scientific data and products to inform management agencies and the public of changes in the environment and the impacts of these changes on injured resources and services. The science coordination and synthesis effort will support this goal by documenting the overall science monitoring program, improving information sharing between PIs and with the herring program, assisting in development of multi-disciplinary datasets and tools, and informing an ongoing evaluation of the long term monitoring program's effectiveness and priorities in meeting EVOS TC goals.

### B. Relevance to 1994 Restoration Plan Goals and Scientific Priorities

Please see pages 2-4 of the integrated proposal titled "Long-Term Monitoring of Marine Conditions and Injured Resources and Services," and submitted by McCammon et al.

## II. PROJECT DESIGN

### A. Objectives

1. *Improve **communication, data sharing and** coordinated field work **planning** between principal investigators (PIs) of the individual monitoring projects, as well as with other agencies and research organizations;*
2. *Improve and document **integration of science monitoring** results across the LTM program - working with the PIs, data management and modeling teams as well as other agencies and research organizations; and*
3. *Improve **communication of monitoring information** to resource managers and the public through data synthesis and visualization products and tools – working with the data management, conceptual ecological modeling and outreach teams, as well as other agencies and research organizations.*

Science coordination and synthesis efforts will be closely coordinated with and informed by our LTM program administration, data management, conceptual ecological modeling and outreach efforts, as well as by planning and results from the EVOSTC-funded herring program. As outlined in the proposal submitted by McCammon et al., the science synthesis effort of our LTM program will also help fill a coordination gap between science and monitoring programs in the spill-affected region, specifically including the North Pacific Research Board (NPRB) Gulf of Alaska Integrated Ecosystem Research Program (GOAIERP), the National Park Service (NPS) Inventory and Monitoring Program, other agency monitoring programs, separately-funded projects of the Alaska Ocean Observing System (AOOS), and multi-agency and university collaborative programs such as the Geographic Information Network of Alaska (GINA), Alaska Statewide Digital Mapping Initiative (SDMI) and Landscape Conservation Cooperatives (LCCs).

### B. Procedural and Scientific Methods

Kris Holderied will serve as the science lead for the LTM program and contribute approximately one month of in-kind labor to program coordination and synthesis efforts. Upon approval of funding by the EVOSTC, a full-time science coordinator will be hired to conduct the bulk of science coordination and synthesis efforts proposed here. Labor rates for the science coordinator are escalated by approximately 3% each year. Funding is also requested for office space, computers and supplies for the science coordinator and travel for the science lead and science coordinator. Please see detailed budget submission for additional information.

*Objective 1: Improve data sharing and coordinated field work planning between PIs of the individual monitoring projects, as well as with other agencies and research organizations*

- a. Coordinate with Team Lead, PIs, administrative team and EVOSTC staff on overall LTM program planning, reporting and evaluation.
- b. Plan agenda and facilitate annual PI meeting. Meeting logistics will be handled by the administrative team.

- c. Develop and maintain ongoing field work schedule for posting on LTM program website.
- d. Coordinate with the herring program lead on program implementation and joint information needs.
- e. Coordinate with groups outside the LTM program (NPRB GOAIERP, NPS, GINA, LCCs etc.) on joint synthesis of information.

*Objective 2: Improve and document integration of science monitoring results across the LTM program*

- a. Prepare annual and final reports on overall science monitoring effort, working with the LTM lead (M. McCammon), Administration team, PIs, data management team, and outreach team.
- b. Assist data management and conceptual ecological modeling teams with historical data synthesis. Initial emphasis will be on time series within the LTM program, and then expand to other time series. Level of effort required will be evaluated after year 1.
- c. Coordinate development of a monitoring data synthesis report for Year 3 joint workshop between LTM and herring programs.
- d. Help plan and facilitate Year 3 integrated workshop between LTM and herring programs with LTM lead, administrative team, EVOS TC staff, and herring program lead
- e. Coordinate with PIs to improve integration of multi-disciplinary monitoring activities within geographic regions (PWS, outer Kenai Peninsula coast, lower Cook Inlet) and of monitoring within single disciplines between different regions.
- f. Assist in development of conceptual ecological models with the modeling team, herring program lead, and outside groups.

*Objective 3: Improve communication of monitoring information to resource managers and the public through data synthesis and visualization products and tools*

- a. Work with data management team, modeling PI, and outreach team to develop data exploration and visualization tools. Initial focus will be to investigate and implement simple tools that are already being used in other monitoring programs. One example would be a simple web-based trend analysis and site comparison visualization tool for physical oceanographic data.
- b. Assist in outreach of conceptual ecological models with the modeling team, herring program lead, outreach team, and outside groups.
- c. Assist with internal “beta” testing of initial data visualizations and tools developed by the data management team.

d. Network with other monitoring programs and regional stakeholders to identify information needs that may be met by improved data visualization tools for the LTM program data.

### Coordination

As described in detail in the summaries for the environmental drivers, benthic and pelagic component plans in Appendix 1 of the proposal submitted by McCammon et al., the monitoring efforts we propose under this program will be closely coordinated with existing monitoring by other agencies and research organizations. We have already contacted many program managers and scientists in these monitoring programs as part of developing our proposal. Some are participating as principal or collaborating investigators on this proposal and others are interested in sharing data and coordinating on monitoring protocols. Some examples include the NPRB GOAIERP, the Alaska Ocean Observing System's GOA programs, National Park Service Inventory and Monitoring Program, Kachemak Bay Research Reserve System-Wide Monitoring Program, Cook Inlet and Prince William Sound Regional Citizens Advisory Council monitoring programs, U.S. Fish and Wildlife sea otter surveys, small mesh trawl fishery surveys conducted by NOAA National Marine Fisheries Service (NMFS) and the Alaska Department of Fish and Game (ADF&G) and new oceanographic monitoring to be conducted by the NMFS Kodiak Laboratory.

Please also see detailed project descriptions for individual monitoring projects, data management efforts and conceptual ecological modeling efforts for more information on the specific scientific and data handling procedures and methods that will be used within our proposed LTM program.

### Synthesis

Necessarily, the initial priorities for science synthesis will be to support integration of data collected by project PIs during the initial 5-year program as well as of historical data collected under the same programs in the past. Initial coordination with PIs on availability of historical datasets has confirmed that a significant effort will be required to identify and collect information solely from monitoring projects in our integrated program. The science synthesis and data management teams will work together on that effort, particularly during the first two years of the program. We recognize the need to also integrate data from other research and monitoring programs such as those listed above, and intend to do so to the extent possible within the amount of funds available for the long-term monitoring program. Our data management program will ensure that these other science programs have ready access to information from all projects in our monitoring program.

## **C. Data Analysis and Statistical Methods**

Please see the detailed project descriptions for the Data Management and Conceptual Ecological Modeling components of the integrated long-term monitoring proposal by McCammon et al for details on proposed data analyses. As described above, integration of data between multi-disciplinary projects and helping to provide improved access to that information by PIs, resource managers, coastal planners, the research community and the general public will be the primary focus of the program-wide science synthesis effort.

## **D. Description of Study Area**

The study area will include all areas identified for projects in the environmental, pelagic, and benthic monitoring components of the integrated proposal titled “Long-Term Monitoring of Marine Conditions and Injured Resources and Services” submitted by McCammon et. al.

## **E. Coordination and Collaboration with Other Efforts**

The primary goals of the LTM program science coordination and synthesis efforts are to: 1) support coordination between the EVOSTC-funded LTM projects, 2) facilitate coordination with the EVOSTC-funded herring program, and 3) support collaborations with other efforts, including state and federal agency operations and research programs funded by other organizations such as NPRB. Please see above sections and the schedule below for details.

## **III. SCHEDULE**

### **A. Project Milestones**

Most milestones for the science coordination and synthesis effort will be met each year in an ongoing process.

**Objective 1.** Improve data sharing and coordinated field work planning between project PIs and other agencies and research organizations.

*Annual PI meetings to be conducted each year (tentatively in November)*

*Initial coordinated field work schedule to be met by April 2012*

*LTM program update at Alaska Marine Science Symposium each year*

*Annual LTM proposed workplan submission to be met by June each year*

**Objective 2.** Improve and document integration of science monitoring results across the LTM program.

*Annual LTM progress report submission to be met by August each year*

*Initial synthesis of historical data available in digital format from LTM projects to be met by September 2012*

*Data synthesis report for Year 3 joint workshop to be met by October 2014*

**Objective 3.** Improve communication of monitoring information to resource managers and the public through data synthesis and visualization products and tools.

*Development of initial tool to be met by September 2012*

(see Data Management project description for additional milestones)

## **B. Measurable Project Tasks**

### **FFY 12, 1st quarter (October 1, 2011-December 31, 2011)**

*Project funding approved by Trustee Council*

*Conduct PI meeting*

*Hire science synthesis coordinator*

*Attend coordination meetings (expected with EVOS TC staff and with administrative, data management and ecological model teams)*

### **FFY 12, 2nd quarter (January 1, 2012-March 31, 2012)**

*Attend Alaska Marine Science Symposium and present on LTM program plan*

*Initiate collection, with data management team, of historical data from LTM PI projects*

### **FFY 12, 3rd quarter (April 1, 2012-June 30, 2012)**

*Submit proposed workplan for FFY 13*

*Provide initial coordinated field work schedule to PIs and online.*

### **FFY 12, 4th quarter (July 1, 2012-September 30, 2012)**

*Submit report on synthesis of historical data that is already available in digital format from the LTM projects*

*Submit annual report on monitoring efforts in the LTM program*

### **FFY 13 (October 1, 2012-September 30, 2013)**

*Conduct annual PI meeting, with conceptual modeling workshop during the meeting*

*Complete first example interactive data visualization tool and continue to assist with development of new data visualization and access tools*

*Facilitate annual PI meeting*

*Attend Alaska Marine Science Symposium and provide update on LTM program*

*Assist in planning of joint LTM-herring program workshop in FFY 14*

*Submit report on synthesis of all available historical data from LTM projects*

*Submit proposed work plan for FFY 14*

*Submit annual report on monitoring efforts in the LTM program*

### **FFY 14 (October 1, 2013-September 30, 2014)**

*Facilitate joint workshop between LTM and herring program PIs (replaces annual PI meeting)*

*Continue to assist development of new data visualization and access tools*

*Attend Alaska Marine Science Symposium and provide update on LTM program*

*Submit report on updated synthesis of historical data.*

*Submit proposed work plan for FFY 15*

*Submit annual report on monitoring efforts in the LTM program*

### **FFY 15 (October 1, 2014-September 30, 2015)**

*Facilitate annual PI meeting*

*Continue to assist development of new data visualization and access tools*

*Attend Alaska Marine Science Symposium and provide update on LTM program*

*Submit report on updated synthesis of historical data.*

*Submit proposed work plan for FFY 16*  
*Submit annual report on monitoring efforts in the LTM program*

**FFY 16 (October 1, 2015-September 30, 2016)**

*Facilitate annual PI meeting*  
*Continue to assist development of new data visualization and access tools*  
*Attend Alaska Marine Science Symposium and provide update on LTM program*  
*Submit final report on updated synthesis of historical data*  
*Submit proposal for next 5-year LTM program*  
*Submit final report on monitoring efforts in the FFY 12-16 LTM program*



**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**

<b>Budget Category:</b>	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED
Personnel	\$90.0	\$111.6	\$115.2	\$117.6	\$121.2	\$555.6
Travel	\$10.8	\$9.4	\$11.4	\$9.9	\$11.4	\$52.9
Contractual	\$7.5	\$5.5	\$5.5	\$5.5	\$5.5	\$29.5
Commodities	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$5.0
Equipment	\$4.0	\$0.0	\$3.0	\$0.0	\$0.0	\$7.0
Indirect Costs ( <i>will vary by proposer</i> )	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
<b>UBTOTAL</b>	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
General	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
<b>CT TOTAL</b>	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
Other	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

In-Kind
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<b>EV12</b>
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<b>Program</b>
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<b>SUMMARY</b>
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**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**

<b>Budget Category:</b>	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED
Personnel	\$90.0	\$111.6	\$115.2	\$117.6	\$121.2	\$555.6
Travel	\$10.8	\$9.4	\$11.4	\$9.9	\$11.4	\$52.9
Contractual	\$7.5	\$5.5	\$5.5	\$5.5	\$5.5	\$29.5
Commodities	\$1.0	\$1.0	\$1.0	\$1.0	\$1.0	\$5.0
Equipment	\$4.0	\$0.0	\$3.0	\$0.0	\$0.0	\$7.0
<b>SUBTOTAL</b>	<b>\$113.3</b>	<b>\$127.5</b>	<b>\$136.1</b>	<b>\$134.0</b>	<b>\$139.1</b>	<b>\$650.0</b>
General Administration (9% of subtotal)	\$10.2	\$11.5	\$12.2	\$12.1	\$12.5	\$58.5
<b>PROJECT TOTAL</b>	<b>\$123.5</b>	<b>\$139.0</b>	<b>\$148.3</b>	<b>\$146.1</b>	<b>\$151.6</b>	<b>\$708.5</b>
Other Resources (Cost Share Funds)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0

**In-Kind contributions:** FY12 - FY16: \$65.0K in salary support for Kris Holderied (\$13.0K/year)

**FY12-16**

**Program Title: Long-Term Monitoring - Coordination & Synthesis**  
**Team Leader: Kris Holderied**  
**Agency: NOAA**

**FORM 4A  
TRUSTEE AGENCY  
SUMMARY**

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**

<b>Personnel Costs:</b>		Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Project Title				
Interdisciplinary Physical scientist/ Ecologist	Science coordinator	10.0	9.0		90.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
a		Subtotal	9.0	0.0	90.0
<b>Personnel Total</b>					<b>\$90.0</b>

<b>Travel Costs:</b>	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description					
Marine Science Symposium (2 people for 5 days)	0.3	2	10	0.2	2.6
Coordination mtgs w/EVOSTC and LTM team (2 people/ 2 days @3/yr)	0.3	6	12	0.2	4.2
Principal Investigator Meeting - Anchorage (2 people for 3 days)	0.3	2	6	0.2	1.8
Coordination mtg with Herring Program - Cordova (2 people for 3 days)	0.5	2	6	0.2	2.2
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
<b>Travel Total</b>					<b>\$10.8</b>

**FY12**

**Program Title: LTM - Coordination & Synthesis**  
**Team Leader: Kris Holderied**  
**Agency: NOAA**

**FORM 4B  
PERSONNEL &  
TRAVEL DETAIL**

















**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
 DETAILED BUDGET FORM FY 12-FY16**

<b>New Equipment Purchases:</b> Description	Number of Units	Unit Price	Equipment Sum
Computer workstation	1.0	3.0	3.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
<b>New Equipment Total</b>			<b>\$3.0</b>

<b>Existing Equipment Usage:</b> Description	Number of Units	Inventory Agency

**FY14**

**Program Title: LTM - Coordination & Synthesis**  
**Team Leader: Kris Holderied**  
**Agency: NOAA**

**FORM 4B  
 EQUIPMENT DETAIL**





**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**

<b>New Equipment Purchases:</b> Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
<b>New Equipment Total</b>			<b>\$0.0</b>

<b>Existing Equipment Usage:</b> Description	Number of Units	Inventory Agency

**FY15**

**Program Title: LTM - Coordination & Synthesis**  
**Team Leader: Kris Holderied**  
**Agency: NOAA**

**FORM 4B  
EQUIPMENT DETAIL**

**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**

<b>Personnel Costs:</b>		Months Budgeted	Monthly Costs	Overtime	Personnel Sum
Name	Project Title				
Physical scientist/ Ecologist	Synthesis coordinator	12.0	10.1	0.0	121.2
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
Subtotal			10.1	0.0	
<b>Personnel Total</b>					<b>\$121.2</b>

<b>Travel Costs:</b>	Ticket Price	Round Trips	Total Days	Daily Per Diem	Travel Sum
Description					
Marine Science Symposium (2 people for 5 days)	0.4	2	10	0.2	2.7
Coordination mtgs w/EVOSTC and LTM team (2 people/ 2 days @3/yr)	0.4	6	12	0.2	4.5
Principal Investigator Meeting - Anchorage (2 people for 3 days)	0.4	2	6	0.2	1.9
Coordination mtg with Herring Program - Cordova (2 people for 3 days)	0.6	2	6	0.2	2.3
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
<b>Travel Total</b>					<b>\$11.4</b>

**FY16**

**Program Title: LTM - Coordination & Synthesis  
Team Leader: Kris Holderied  
Agency: NOAA**

**FORM 4B  
PERSONNEL &  
TRAVEL DETAIL**







**EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL  
DETAILED BUDGET FORM FY 12-FY16**