

FY16 PROJECT PROPOSAL SUMMARY PAGE
Continuing, Multi-Year Projects

Project Title: Data Management Support for the Integrated Herring Research Program

Project Period: February 1, 2016 – January 31, 2017

Primary Investigator(s): Rob Bochenek, Axiom Data Science

Study Location: EVOS Spill Affected Area

Project Website (if applicable): <http://pwssc.org/research/fish/pacific-herring/>

Abstract*: This project supports the EVOS Integrated Herring Research Program 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, cyber-infrastructure and partnerships which contribute capacity and information to this effort. During year one and two, 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. This work would scale down in year three thru five to provide support for general project level data management and archival.

Estimated Budget:

EVOSTC Funding Requested* (must include 9% GA):

FY12	FY13	FY14	FY15	FY16	TOTAL
130.8K	130.8K	22.3K	23.2K	24.0K	331.1K

Non-EVOSTC Funds to be used:

FY12	FY13	FY14	FY15	FY16	TOTAL

**If the amount requested here does not match the amount on the budget form, the request on the budget form will be considered to be correct.*

Date: August 10, 2015

I. EXECUTIVE SUMMARY

As originally proposed, the objectives of this project are to 1) provide data management oversight and services for EVOS Integrated Herring Research Program team data centric activities which include data structure optimization, metadata generation, and transfer of data between project teams; 2) consolidate, standardize and provide access to study area data sets that are critical for retrospective analysis, synthesis and model development; and 3) integrate all data, metadata and information products produced from this effort into the AOOS data management system for long term storage and public use.

Project investigators continue to provide core data management oversight and services for the Long-term Monitoring Program known as EVOS Integrated Herring Research Program. The focus continues to be on establishing – and implementing - protocols for data transfer, metadata requirements and salvage of historic data, both those data funded by the *Exxon Valdez* Oil Spill Trustee Council and ancillary historic data from other projects. Investigators meet with National Center for Ecological Analysis and Synthesis investigator Matt Jones to coordinate future activities. PIs have participated in regular PI meetings, including the in-person meeting in November 2013 and the January 2014 data meeting and are coordinating activities between the Herring and LTM programs. In addition, the AOOS Ocean Research Workspace, rolled out to PIs in Year 1, continues to be used as the internal staging area for PI data and work products, with individual PI user and group profiles created. Several training seminars have been held via webinars, and PIs are now using the system to organize and consolidate their project level data. Software engineers at Axiom are providing support for the Workspace, resolving bugs and implementing new functionality in response to user feedback.

During the first half of FY15, investigators increased the data management support for the Integrated Herring Research Program through establishing a dedicated half time FTE data coordinator. The data coordinator is working with the Herring Program lead Scott Pegau to reorganize the Herring Program Research Workspace to better support investigators and ensure that data produced from the program is tracked, curated to proper data and metadata standards and made available for open use. It is expected that the new Herring Program Research Workspace structure will be finalized by the start of the FY16 project year (February 1, 2016). Data from previous year’s sampling and research efforts will also be made available early in the FY16 project year via the Alaska Ocean Observing System. The following figure denotes the number and frequency of total file uploads to the Herring Program Research Workspace

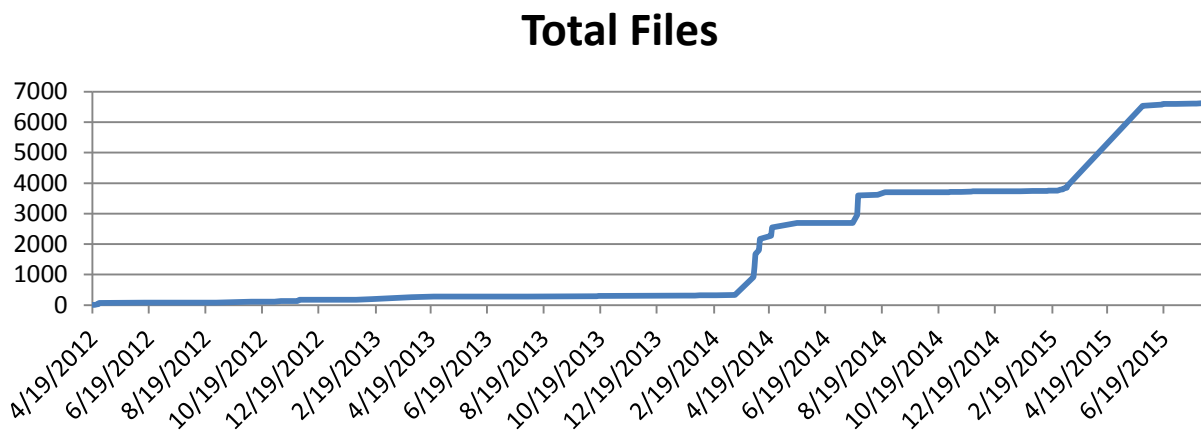


Figure 1. Total files ingested into the Herring Program Research Workspace since the onset of the Integrated Herring Program.

Investigators have been involved in several exercises and meetings to optimize approaches to managing EVOS Integrated Herring Research Program data in more effective ways. Most notable of these activities occurred in January of 2014 during an EVOSTC sponsored Data Management Meeting. During that meeting, several recommendations were made which have spurred investigators to adapt their data management approach in support of the entire EVOS Integrated Herring Research Program . Investigators have been modifying protocols defined in the EVOS Integrated Herring Research Program data management plan to address these issues.

II. COORDINATION AND COLLABORATION

A. Within a EVOTC-Funded Program

The Research Workspace technology being used for data management of the EVOS Integrated Herring Research Program is designed to help facilitate the integration of datasets across disciplines and researchers within the EVOS Integrated Herring Research Program. This technology is also being used by the EVOSTC sponsored Gulf Watch program. Teams and investigators are able to access each other's datasets in a seamless fashion.

The Research Workspace is also being used to organize and centralize data and electronic resources for historic EVOS funded projects. NCEAS and AOOS data management teams have been working together over the span of the project to salvage and document as much information as possible for historic EVOS data that is in jeopardy of being lost to time.

B. With Other EVOSTC-funded Projects

None

C. With Trustee or Management Agencies

During this year the data management team released the Alaska Ocean Observing System's Gulf of Alaska (GOA) Data Portal, which integrates a large number of additional GIS, numerical modeling and remote sensing data resources that have been centralized through efforts of this project. The team was able to leverage the AOOS Ocean Data Explorer portal which has been developed using other funding (primarily NOAA) and has these additional features: an integrated search catalog which allows users to search by category or key word, ability to preview data before downloading files, and advanced visualization tools. The platform provides open access to a large array of valuable scientific information that can be accessed and used by managers and scientists with Trustee Council agencies. AOOS data management has worked with several data consumers within USGS, NPS, BOEM and NOAA in accessing and using data contained within this data portal. The Research Workspace is also being used by the North Pacific Research Board's Gulf of Alaska Integrated Ecosystem Research Program. Historic data acquired through that program is also being provided to EVOS Integrated Herring Research Program PIs.

III. PROJECT DESIGN – PLAN FOR FY16

A. Objectives for FY16

- 1) Provide data management oversight and services for EVOS LTM project team data centric activities, which include data structure optimization, metadata generation, and transfer of data between project teams.
- 2) Consolidate, standardize and provide access to study area data sets that are critical for retrospective analysis, synthesis and model development.

- 3) Integrate all data, metadata and information products produced from this effort into the AOOS data management system for long-term storage and public use.

B. Changes to Project Design

Small changes have been made to protocols within the EVOS Integrated Herring Research Program Data Management Plan to address concerns of the EVOSTC Science Panel and include clarification of QA/QC procedures and review of Standard Operating Procedures (SOPs) by the program’s internal science advisory team.

IV. SCHEDULE

A. Project Milestones for FY 16

For each project objective listed (III.A), specify when critical project tasks will be completed, as submitted in your original proposal. Please identify any substantive changes and the reason for the changes. Please format your information as in the following example:

Objective 1. Provide data management oversight and services for EVOS LTM project team data centric activities, which include data structure optimization, metadata generation, and transfer of data between project teams.

Assess and review year 5 data sets – To be met by September 2016

Objective 2. Consolidate, standardize and provide access to study area data sets that are critical for retrospective analysis, synthesis and model development.

Data ingested in year 4 will be available via data access tools – To met by June 2016

Any additional historical data will be made available through the AOOS Gulf of Alaska portal - Ongoing

Objective 3. Integrate all data, metadata and information products produced from this effort into the AOOS data management system for long-term storage and public use.

This task is ongoing.

B. Measurable Project Tasks for FY 16

FY 16, 1st quarter (February 1, 2016 - April 31, 2016)

March *Submit annual report*

March *Submit annual financial report*

FY 16, 2nd quarter (May 1, 2016-July 30, 2016)

May *Participate in Herring Program annual PI meeting*

June *Release version 3 of user tool platform*

FY 16, 3rd quarter (August 1, 2016 – October 31, 2016)

September *Oversee transfer of field year 5 data*

October *Assess year 4 datasets and metadata submitted through Ocean Workspace*

FY 16, 4th quarter (November 1, 2015- January 31, 2016)

January *Annual Marine Science Symposium*

V. PROJECT PERSONNEL – CHANGES AND UPDATES

None

VI. BUDGET

A. Budget Forms (Attached)

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$94,400.0	\$93,700.0	\$16,700.0	\$17,300.0	\$17,900.0	\$240,000.0	
Travel	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Contractual	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Commodities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	
Equipment	\$3,900.0	\$4,800.0	\$0.0	\$0.0	\$0.0	\$8,700.0	
Indirect Costs (23%)	\$21,700	\$21,500	\$3,800	\$4,000	\$4,100	\$55,100.0	
SUBTOTAL	\$120,000.0	\$120,000.0	\$20,500.0	\$21,300.0	\$22,000.0	\$303,800.0	\$0.0
General Administration (9% of	\$10,800.0	\$10,800.0	\$1,845.0	\$1,917.0	\$1,980.0	\$27,342.0	
PROJECT TOTAL	\$130,800.0	\$130,800.0	\$22,345.0	\$23,217.0	\$23,980.0	\$331,142.0	
Other Resources (Cost Share Funds)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	

B. Changes from Original Proposal

No Change

C. Sources of Additional Funding

AOOS brings a significant level of leveraged resources, infrastructure, regional data management projects and partnerships to this proposed effort. The data management effort for the LTM and herring projects could not be accomplished for the budgeted amount by a team without these leveraged resources.

1. AOOS – (540k to AOOS DM) Alaska oceanographic data management effort. Supports open source, standards based data system that serves up and archives real-time sensor feeds, models & remote sensing data, GIS data layers, and historical datasets. Data system developed on interoperability concepts and meets NOAA Integrated Ocean Observing System standards and protocols for streaming data feeds to national data assimilation centers. Data Management Committee chaired by Dr. Phil Mundy provides ongoing advice, prioritization and direction to the team at Axiom Consulting & Design. AOOS board is made up of federal and state agencies, and major marine research institutions in the state that have committed to data sharing. The AOOS board has committed to supporting a statewide data system for as long as AOOS exists. Federal funding is stable, although we would like to see it increase. In the event AOOS was to end, all data and data products would be transferred to the University of Alaska.
2. NPRB GOAIERP – (80K) During this project year, NPRB will be providing funding to the AOOS data management team to support the Gulf of Alaska Integrated Ecosystem Research Program, which is performing research in the same area as EVOS Integrated Herring Research Program.
3. USFWS Seabird Data System – (\$50K) Project involves the creation and population of a series of new seabird metric databases (diet and productivity) and integrating these new databases with legacy seabird databases (species distribution and abundance at seabird colonies, pelagic species distribution and abundance, USGS seabird monitoring databases and NPRB’s North Pacific Seabird Diet Database). Modern spatially explicit, web based data entry interfaces have and continue to be developed to assist researchers existing in distributed agencies to contribute their historic and current seabird metric data into standard data structures. Project will result in vastly increasing the amount and quality of seabird species distribution, diet and other seabird data

available for use in retrospective analysis and management. Though data includes areas around all of Alaska, most available data is located in GOA and PWS.

4. AOOS – collaborator with Alaska Data Integration Working Group – an initiative with the Alaska Climate Change Executive Roundtable – to develop protocols for serving up project data to increase data sharing among federal and state agencies.
5. AOOS and NOAA – initiatives to develop data sharing agreements with private sector, including oil & gas companies.
6. Kenai Fish Habitat Partnership/Cook Inlet Regional Citizens Advisory Council (28K) – contract with Axiom to develop a data management system for their oceanographic and contaminants data in Cook Inlet.
7. NOAA – Project to Axiom to develop a Cook Inlet beluga sightings database.