

Form Rev. 9.14.17

*Please refer to the Reporting Policy for all reporting due dates and requirements.

1. Program Number: See, Reporting Policy at III (D) (1).

17120113

2. Program Title: See, Reporting Policy at III (D) (2).

Data Management Program

3. Program Lead Name(s): See, Reporting Policy at III (D) (3).

Dr. Carol Janzen

4. Time Period Covered by the Summary: See, Reporting Policy at III (D) (4).

February 1, 2017- January 31, 2018

5. Date of Summary: See, Reporting Policy at III (D) (5).

February 14, 2018

6. Program Website (if applicable): See, Reporting Policy at III (D) (6).

AOOS Gulf of Alaska Data Portal: <http://portal.aos.org/gulf-of-alaska.php>

7. Overview of Work Performed during the Reporting Period: See, Reporting Policy at III (D) (7).

The goal of this program is to provide critical data management support to *Exxon Valdez* Oil Spill Trustee Council's GulfWatch Alaska (GWA) and Herring Research and Monitoring (HRM) program investigators in order to assist study teams in efficiently meeting their objectives and ensuring data collected or consolidated through the effort is organized, documented, and available for their use and for future use by the larger scientific community. To meet this goal, the data management program leveraged the extensive cyberinfrastructure and data management capacities of both the Alaska Ocean Observing System (AOOS) and its technical partner, Axiom Data Science, utilizing the existing, collaborative relationships with program PIs to ensure continuity in the data collected across efforts. The goals of the program are achieved with the following objectives:

Objective 1. Initiate data management services and oversight for GWA and HRM Program data-related activities.

Objective 2. Continue to standardize and provide access to datasets from the first five-year GWA and HRM efforts for continuity and integration.

Objective 3. Facilitate, monitor, and evaluate regular data submissions and metadata generation in the Research Workspace.

Objective 4. Provide, maintain, and modify technical infrastructure for user groups to access information produced or processed by the GWA and HRM Programs.

Objective 5. Publish and promote data collected by the GWA and HRM Programs, making it available for research, management, and general audiences.

Objective 6. Execute management, user feedback, and internal and external communications related to GWA and HRM data and data products.

Objective 7. Verify data and metadata completeness and final transfer at the term completion.

This program prioritizes the preservation and accessibility of GWA and HRM data to scientific and resource management communities. This is achieved by the data management team by supporting data submission and organization, metadata generation, and data transfer among study teams. Throughout the FY17 period, Axiom data analysts and domain experts reviewed metadata and data structure formats produced from GWA and HRM data collection activities and advised the study team members in best practices for short-term and long-term data formats. Axiom software engineers enhanced the existing web-based tools to improve the discoverability of GWA and HRM project-level data both among the study teams through the Research Workspace and to the public via the Gulf of Alaska Data Portal.

The following activities were accomplished during the FY17 period.

OBJECTIVE 1. *Initiate data management services and oversight for EVOS GWA and HRM Program data-related activities.*

In spring 2017, the AOOS-Axiom team convened data management meetings with the GWA and HRM program leads to discuss the program-level data management strategy, and to verify the list of funded research projects. Additionally, the expectations for data management staff and program PIs were discussed and made explicit across the program leads and the data management team.

Using information generated during the meeting, an inventory of data expected to be generated by EVOS GWA and HRM sampling efforts was adapted from the 2012-2016 efforts. This inventory describes the datasets, indicates the investigator responsible for the data, and notes the status of metadata for each dataset. This inventory also provides a scaffold for which the data management team can track data and metadata progress throughout the life of the project.

Following this initial meeting, the data management team developed updated data management procedures to more efficiently guide project PIs through data documentation and curation throughout the lifetime of their projects. These procedures are made available to all PIs through the Research Workspace ([HERE](#)). The intent is to provide a data management framework for the program PIs with defined procedures for the collection, quality, storage, maintenance, and dissemination of project data. Procedures may be followed by PIs at any time during the preparation of their datasets, but are most useful when considered at the onset of project planning and implemented during data collection. The intent of this framework is to improve the accessibility and long-term usability of EVOS-funded data. With the procedures, the data management team also developed program-specific metadata templates for the PIs that include boilerplate information for fields that must contain program-wide metadata (e.g. access constraints, use constraints, and programmatic contact information). This approach is intended to make metadata creation less cumbersome for PIs and offer time saving steps while standardizing the metadata across programs.

OBJECTIVE 2. *Continue to standardize and provide access to datasets from the first five-year GWA and HRM efforts for continuity and integration.*

In July 2017 Axiom launched the [Research Workspace](#)¹ to the GWA and HRM programs, in addition to 600 others members associated with research and monitoring programs. The Research Workspace (‘Workspace’) is a redesign of the Ocean Workspace, with new features to improve data management and collaboration throughout all stages of scientific programs (Fig 1). The Research Workspace serves as an internal file sharing and storage tool, where all data files (including the contextual information, raw data, data not currently public, etc.) are housed and shared among program PIs. GWA and HRM investigators and administrators will use the Workspace as a web-based platform for PIs to upload, share

¹ <https://researchworkspace.com/intro/>

and discover datasets and supporting documents, and to rapidly author metadata. Together with the launch of the Workspace, the data management team released a new, robust version of the Research Workspace's metadata editor to capture detailed documentation on datasets and produce ISO 19110 and 19115-2 metadata outputs, while implementing important labor-saving steps for PIs (Fig 2).

To maintain data continuity for internal files within the Workspace and build upon data management services from the first five-year effort, the folder structure for all GWA and HRM projects was updated to assist PIs in maintaining an organized approach for storing data and metadata for the 2017-2021 funding period. These new FY17 data are stored in the Workplace alongside the data collected from 2012-2016 period for easy access by the study teams. In August 2017, the EVOSTC staff and Science Panel members, depending on their affiliation, were also invited to the GWA and/or HRM Workspace groups for access to the data and to track how the data collection is progressing over time across both programs.

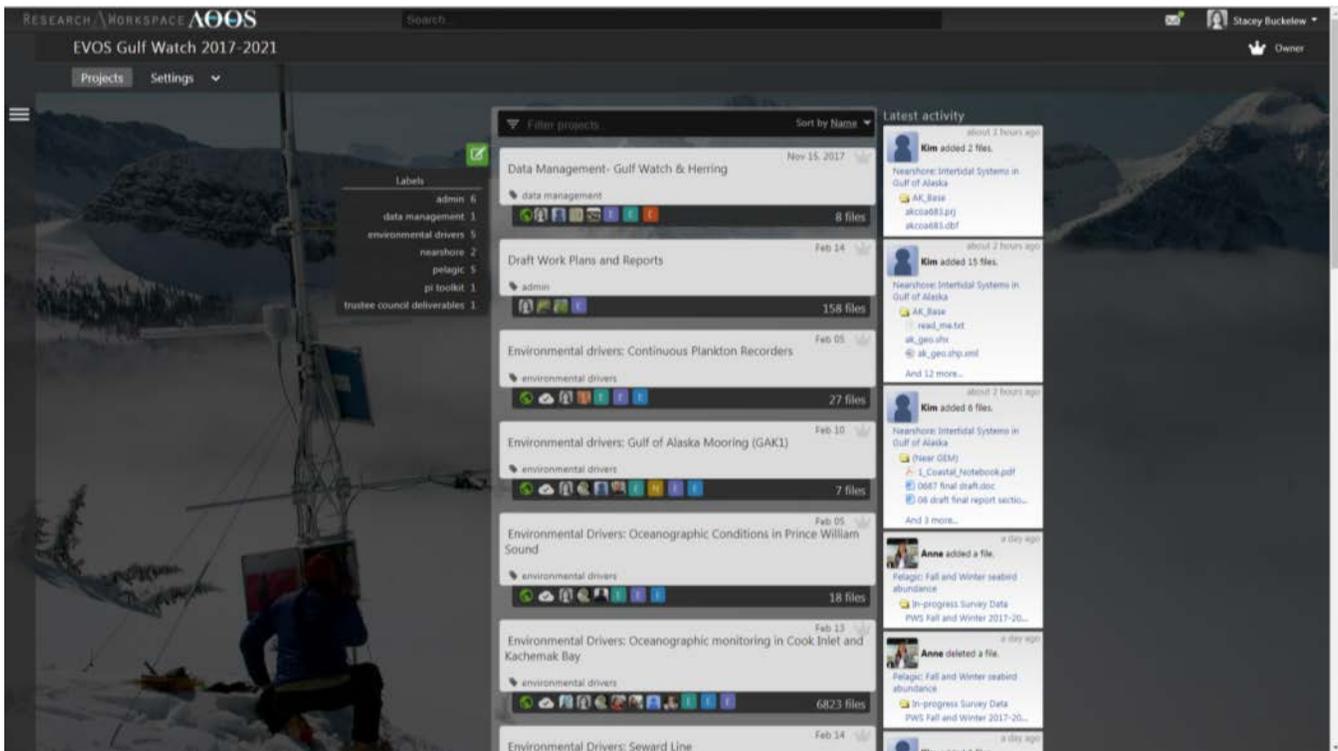


Fig. 1. A screenshot of the Research Workspace, the web-based platform used to collaboratively manage GWA and HRM project data throughout the entire data lifecycle.

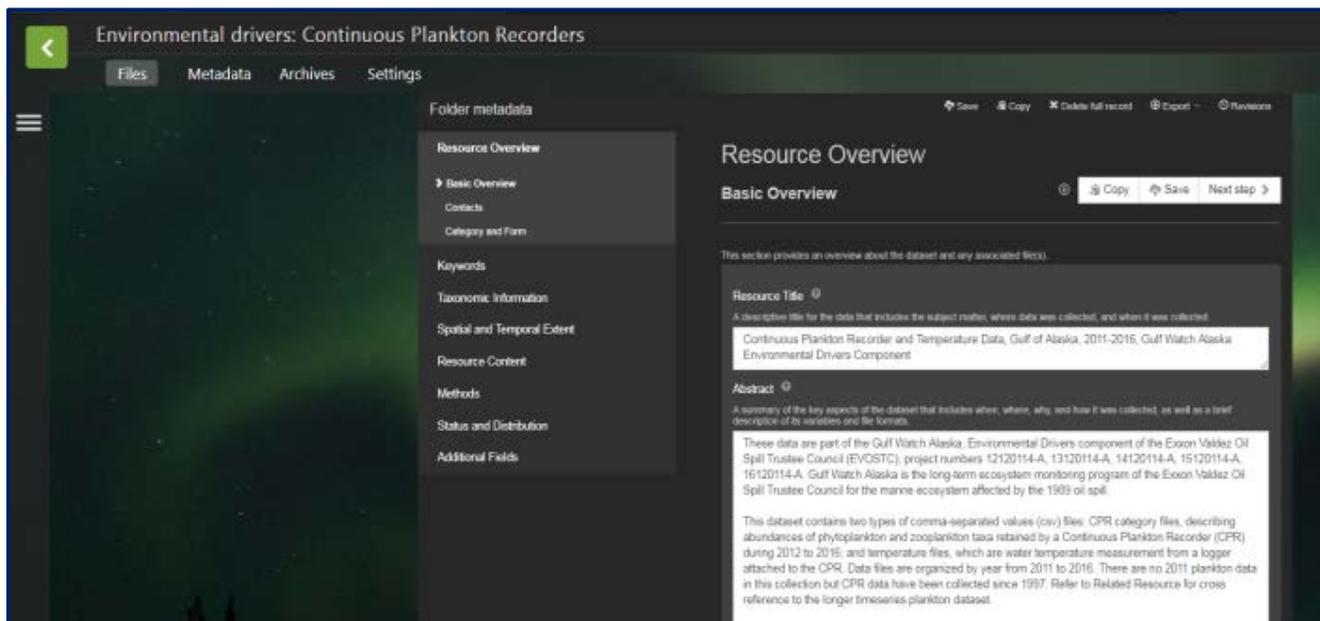


Fig. 2. A screenshot of the Research Workspace's new metadata editor in the ISO 19110 and 19115-2 standard, which allows PIs to author metadata alongside their datasets in a publication-ready format.

OBJECTIVE 3. *Facilitate, monitor, and evaluate regular data submissions and metadata generation in the Workspace.*

To enhance GWA and HRM PI use of the Workspace, Axiom hosted web-based training to the GWA program PIs at the April 2017 PI meeting, and to both the GWA and HRM Program PIs at the in-person November 2017 PI meetings. Beyond these trainings, the data management team provided additional one-on-one assistance to programs PIs, if they had questions or needed additional assistance getting oriented.

Throughout the FY17 period, oversight of timely and organized data, metadata documentation, and other program documents to the Workspace occurred using a combination of data management personnel and technical infrastructure. The data inventory (Obj. 1) was used to track data and metadata submissions to the Workspace against data that were expected to be generated through the GWA and HRM program terms. Following these submissions, Axiom audited the organization of the data by ensuring the types of data submitted were appropriate for long-term preservation and consistent conventions were used for naming files. Additionally, Axiom conducted quality control checks for accuracy and consistency of the metadata resulting in a list of issues in the metadata. The outcomes from these audits were communicated to the PIs and Axiom worked directly with them to implement any recommended changes before the dataset was considered final and ready for publication.

To facilitate timely data submission and corrections or updates to metadata, Axiom met with each individual PI at the November 2017 PI meeting in Cordova to discuss the specific data management plan for their project and the current data and metadata progress. Based on previous experiences, one-on-one meetings are an effective way to address individual metadata authoring questions, create accountability for data submissions, and strengthen relationships between PIs and data management staff. During these meetings, any organizational, data format, or metadata documentation changes or unexpected issues were discussed between Axiom and PI, with clear direction on what changes need made to ensure the data are publication-ready.

During the FY17 period, the data management team worked with GWA and HRM program PIs to finalize and publish outstanding datasets from the prior funding effort. These are datasets that had a longer processing time, thus did not contain the 2016 data in the data archive. In FY17, all outstanding 2012-2016 datasets were finalized, with content added to the Research Workspace and made available to through the Gulf of Alaska Data Portal. These finalized datasets will be archived in the Research Workspace DataONE Member Node in Q1 FY 18.

A summary of the 2016 finalized data and provisional 2017 data from GWA and HRMs programs is available in Table 2 (see Section 9). With few exceptions for data types that require long or involved processing phases, PIs are responsible for uploading their data into the Workspace no later than one year from date of collection. Accordingly, all 2017 data currently in the Workspace was delivered ahead of schedule.

OBJECTIVE 4. *Provide, maintain, and modify technical infrastructure to ensure access to information produced or processed by the GWA and HRM Programs.*

As mentioned, during the FY17 period, the data management team provided technological and staff services to assist in the organization, documentation, and formatting of data collected by GWA and HRM program activities to ensure the data can ultimately be transferred to long-term data archive and storage centers for future use. To support this goal, the Research Workspace became a [DataONE](#)² Member Node (news release [here](#)), which allows PIs to automatically transfer data and metadata from the Workspace to DataONE for long-term preservation, a citable digital object identifier (DOI), and discovery by broader scientific audiences (Fig 3).

At the end of the 2012-2016 funding period, the entire data holdings from the 2012-2016 GWA and HRM programs were archived with DataONE and are now publicly discoverable and citable through the [AOOS Gulf of Alaska Data Portal](#)³ and the [DataONE Search](#)⁴ catalog. For a comprehensive list of the datasets and their associated DOIs available through DataONE, refer to Table 3 in Section 9. Since those datasets were initially archived, Axiom has worked with DataONE to inform updates to the front-end of the DataONE system to better support the more recent ISO 19115 metadata standard available through this Research Workspace. This update will improve how the GWA and HRM metadata and associated data citations are displayed within the DataONE Search Catalog. Axiom continues to work with DataONE to optimize the automated archive submission pathways and will update 2016 datasets when the current cycle of improvements has been tested and deployed, with an anticipated date of completion in Q1 FY18.

² <https://www.dataone.org/>

³ <http://portal.aos.org/gulf-of-alaska.php>

⁴ <https://search.dataone.org/#data>

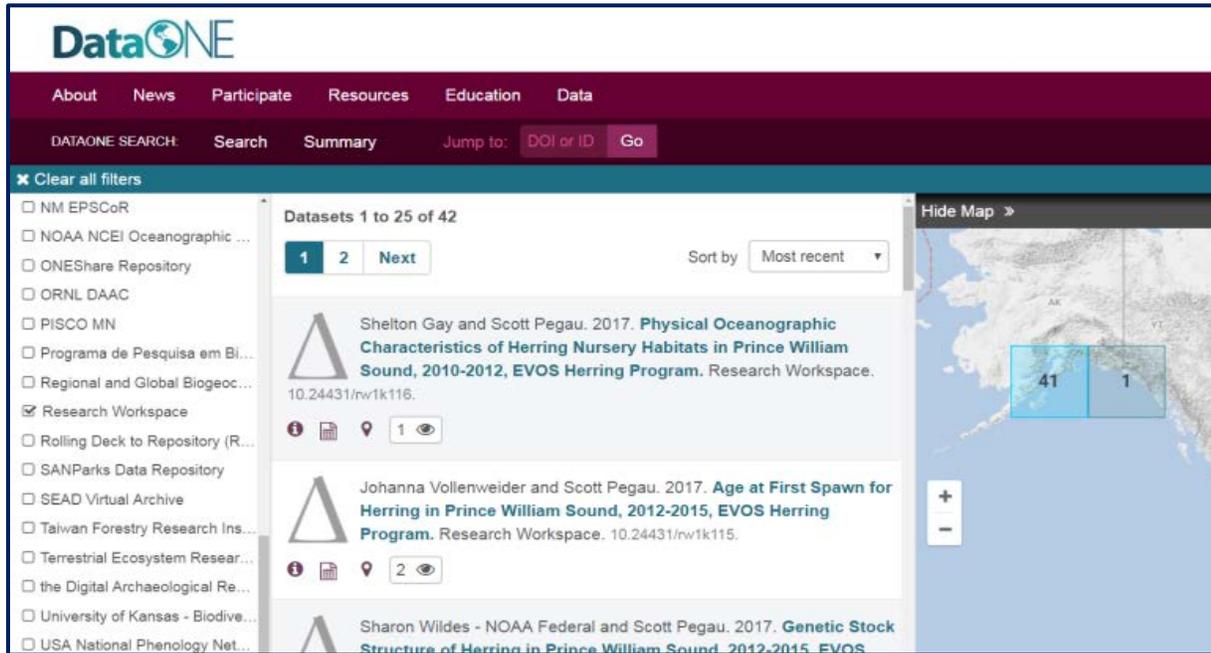


Fig. 3. A screenshot of the 2012-2016 GWA and HRM datasets archived and available for public access through the Research Workspace Member Node in the DataONE Search catalog.

OBJECTIVE 5. Publish and promote data collected by the HRM and GWA Programs, making it available for research, management, and general audiences.

Once PIs have written metadata and that metadata has been reviewed and approved by Axiom, the Workspace is used as a gateway to publish data and associated metadata to the Gulf of Alaska Data Portal, where it is publically-available for discovery by researchers, managers, and general audiences. As data providers, PIs have ultimate control for managing which data and supplemental documents are made publicly available. Within each project in the Research Workspace, PIs elect to publish data folders to the portal using a simple, clearly marked checkbox. During this project period, all 2016 data finalized in the FY17 period were published by the PIs and made publicly available through the Gulf of Alaska Data Portal. Below is an example of an HRM project for which data available are for public access through the Gulf of Alaska Data Portal (Fig. 4).

AAOOS Gulf of Alaska Data Integration Portal Search for data

1-10 of 19 results

Result types: Map layers, Projects, Sensor stations

Advanced search options

- Acoustics 4
- Activa 2
- Administration 1
- Algae 1
- Algal Blooms 2
- Benthic 2
- Birds 4
- Completed 11
- Digital Elevation Models 1
- Disease And Predation 2
- EVOS Gulf Watch Projects 13
- EVOS Herring Projects 19**
- EVOS Historical 1
- Environmental Drivers 1
- Fish 1
- Growth And Body Condition 4
- Habitat 4
- Hydrology 5
- Imagery 2
- Invertebrates 2
- Juveniles 1
- Lingering Oil 2
- Mammals 1
- Management 1
- Models And Forecasts 13
- Recreation 2
- Ocean And Atmosphere 16
- Oil/Contaminants 1
- Palaeo 1
- Physical Oceanography 1
- Population Modelling 1
- Public Outreach 1

Fatty acid analysis as evidence for winter migration of age-0 herring

This is data is part of the Herring Program of the Exxon Valdez Oil Spill Trustee Council, which is a multi-faceted study to determine why herring populations in Prince William Sound remain depressed since the early 1990s. To test the assumption about whether age-0 herring remain in their nursery bays over winter, this project (project # 13120111-1) tested the fatty acid (FA) composition of age-0 herring in a laboratory study. Herring were 5...

Info Data

Acoustic surveys of juvenile herring abundance

Typically, young fish spawning for the first time make up a large portion of the spawning stock and currently there isn't a reliable means to predict how many fish are going to recruit (join the spawning stock) in any given year. This project aimed to provide a measure of juvenile herring abundance in Prince William Sound to predict future additions to the spawning stock. Hydroacoustic (sonar) surveys were conducted November each year in eight...

Info Data

Acoustic consistency: intensive surveys of juvenile herring

Acoustic surveys are a tool that have been used to estimate juvenile herring populations in Prince William Sound. These surveys have traditionally occurred by making one observation per location, thus limiting the accuracy of this data to determine overwintering juvenile herring survival. There are several sources of error that may affect the population estimate from a single survey. This study was designed to test the consistency of population...

Info Data

Adult biomass surveys

Since 1993 the Prince William Sound Science Center has annually conducted surveys of the spawning biomass using hydroacoustic techniques. This information can be used as a biomass index in the age-structure-analysis model for determining the population biomass.

AAOOS Gulf of Alaska Data Integration Portal Search for data

Back to Search Results Project Overview Project Data (123)

Aerial surveys of juvenile herring

Abstract

This is data is part of the Herring Program of the Exxon Valdez Oil Spill Trustee Council, project number 15140111R, which is a multi-faceted study to determine why herring populations in Prince William Sound remain depressed since the early 1990s.

Flying 1000 feet in the air, following the contours of the Prince William Sound shoreline, schools of juvenile herring are easily identified and measured during the summer. Surveying from the air has the benefit of covering a large geographic area while minimizing the disturbance of herring. Aerial surveys cover waters that are too shallow for acoustic survey vessels to access. Aerial surveys were conducted from 2010 to 2012 during the months of June, July, and August as part of the PWS Herring Survey program by Evelyn Brown. Beginning in 2013 surveys have been conducted in June focused on age-1 herring and in July in support of the Forage Fish project in the Gulf Watch Alaska program. Each monthly survey takes about 10 to 12 days, 3 to 5 hours each day, in a Cessna 185 float plane. During the course of the survey, numbers of fish schools, species of fish, school size, and large marine mammals are recorded. Notes are kept on unusual oceanographic sightings. Data provided is a table with the number of schools observed and their size.

Purpose

This project is part of the Herring Research and Monitoring Program, which is a multi-faceted study to determine why herring populations in Prince William Sound remain depressed since the early 1990s. With funds from the Exxon Valdez Oil Spill Trustee Council, a group of research and monitoring projects were designed to improve predictive models of herring stocks through observations and research.

The aerial survey data is being used to develop an index of age-1 herring abundance to determine if it can be used to predict recruitment to the herring spawning stock. Combined with the Gulf Watch Alaska Forage Fish project we are examining fluctuations in these populations. We are using the data to examine the relationship between predators and the smaller forage fish, such as capelin, sand lance, and herring. Lastly, these surveys are providing maps of the forage fish distributions.

Supplemental Information

Raw survey and associated data files available upon request.

Time Range

2010 to 2016

Contacts

Principal Investigator
Scott Pegau
 Oil Spill Recovery Institute
 Research Program Manager



Fig. 4. A screenshot of an HRM project available through the Gulf of Alaska Data Portal. A user can select the GWA or HRM label within the catalog and then navigate to the project of interest. A user can read an overview statement about the project, and then select the Project Data button to download data files and metadata of interest.

The ADF&G herring fishery monitoring aerial survey data has been made publically-available for visual interaction within the Gulf of Alaska Data Portal. Specifically, users are able to map data layers for the entire data time series from 1973-2017, including herring spawn, age-sex-length, aerial survey routes, biomass, and seabird and marine mammal observation. Within the map, users can interact with the data to explore changes over time by filtering the data. A time slider bar can also be used to scroll data back in time. Users can see data values by hovering over points on the map. Or, custom data summaries can be applied by drawing a polygon over an area and extracting a histogram chart for that area. In the example below, herring biomass observations (total short tons) are mapped from 1974 to 2017 (Fig .5). A polygon is drawn over Hinchinbrook Island to create a histogram of the total tons of herring biomass from that time period.

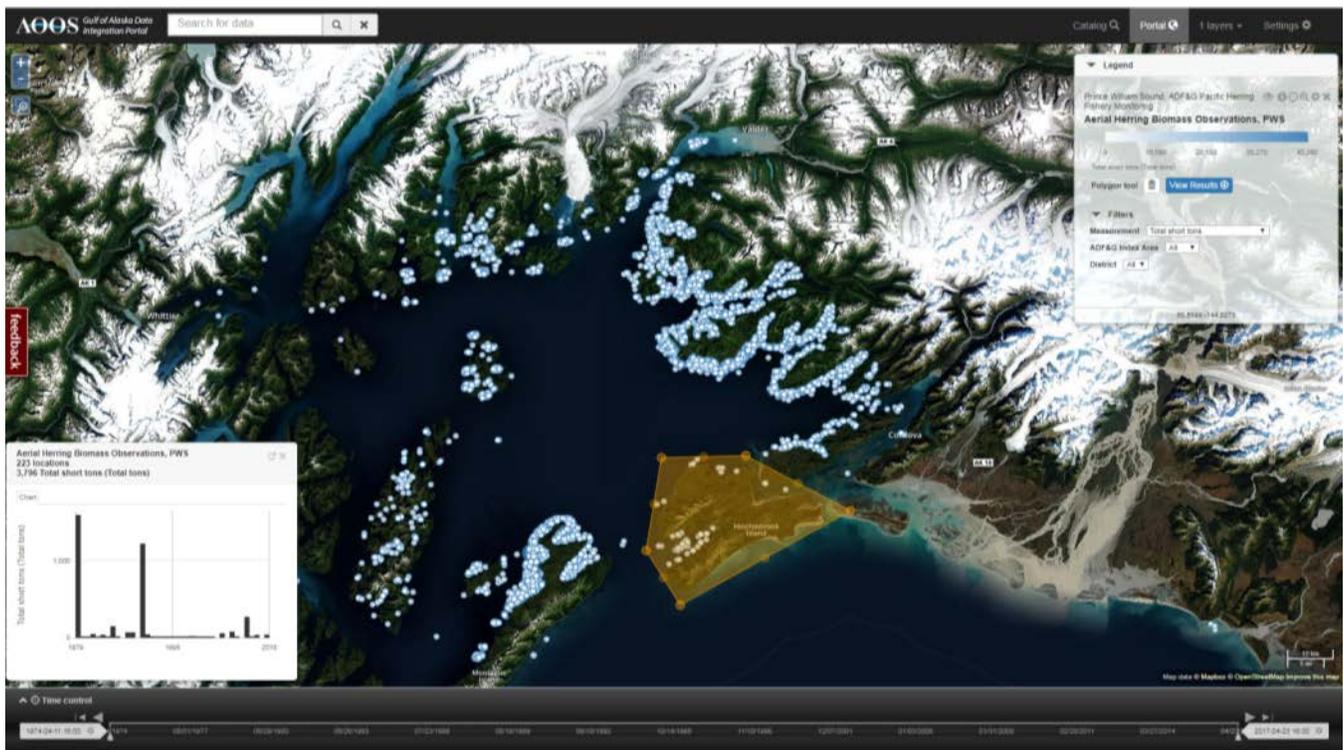


Fig. 5. A screenshot of an interactive data map for herring spawn data, 1973-2017, available through the Gulf of Alaska Data Portal for public access.

OBJECTIVE 6. *Execute management, user feedback, and internal and external communications related to GWA and HRM data and data products*

In FY17, data management team members attended the GWA and HRM program meetings where they presented progress made on data management tasks and objectives, received feedback on any recommended modifications to the data management approach and tools, provided PIs with training for data management tools, and coordinated one-on-one planning sessions for datasets to be delivered in FY17 and beyond. Presentation topics included data management program progress, improvements to the Research Workspace and corresponding changes in program procedures, and future directions for the Research Workspace and the Gulf of Alaska Data Portal. Presentations given by the data management team for the GWA and HRM program or to individuals PIs are listed below in section 9c.

Axiom staff met with PIs at program meetings, and opportunistically when time allowed, to give one-on-one training, hands-on assistance, or to answer questions about data management practices. New to the data management program in FY17, Axiom staff provided training to GWA team members in

[Jupyter Notebooks](#)⁵, which is a cloud-based feature integrated into the Research Workspace that allows PIs to write numerical workflows and scripts in Python and R to leverage uploaded datasets as well as a library of public datasets. This allows computationally-intense scripts to be developed, shared, and run iteratively through the life of the project. This scripting environment was demonstrated in “Demonstration of Jupyter Notebooks in the Research Workspace” (Koeppen & Suryan, 2017), one of the presentations given by the data management team this year. This presentation showed a test-case of using the Jupyter Notebooks scripting environment in the Research Workspace to create a reproducible workflow for analyzing GWA data. For this work, the data management team worked with Axiom staff scientist, William Koppen, and GWA Science Coordinator, Rob Suryan, to identify a scope of work and an ideal test dataset (mussel bed site data from the Environmental Drivers component). Dr Koeppen then wrote a script to combine multiple data files, create basic statistical summaries of mussel bed widths, generate several types of charts, and output as a CSV file of summarized mussel bed data. This work was intended to serve as an example of how the GWA and HRM programs might make use of the Jupyter Notebooks to facilitate reproducible analyses and standardize chart design. Figures 6 and 7 below show the introduction to Dr Koeppen’s script and one of the charts generated, respectively.

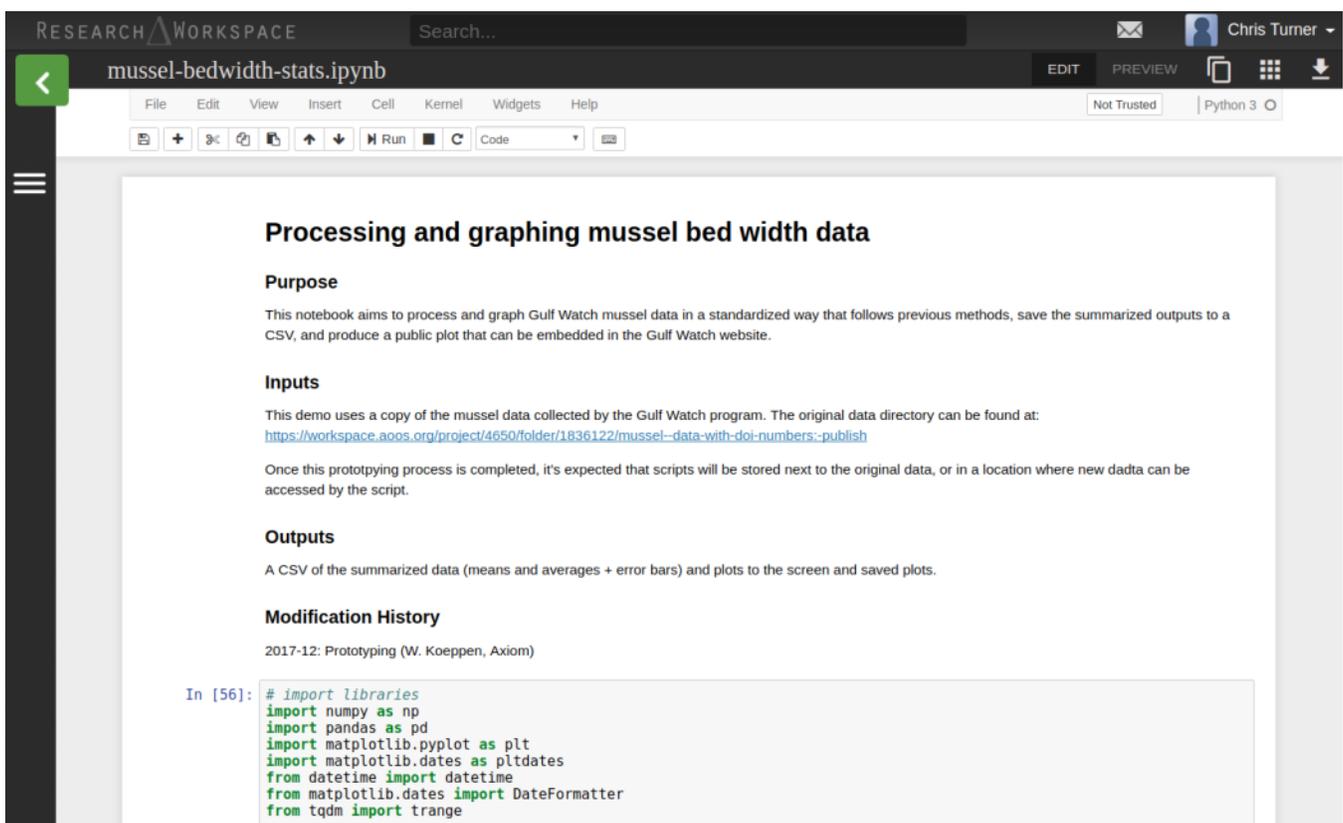


Fig. 6. A screenshot of the computing environment in the Research Workspace’s Jupyter Notebooks, where scientists can develop interactive numerical workflows or statistical computations on any data loaded within the Research Workspace.

⁵ <https://workspace.aaos.org/help/JupyterNotebooks.html#jupyter-notebooks>

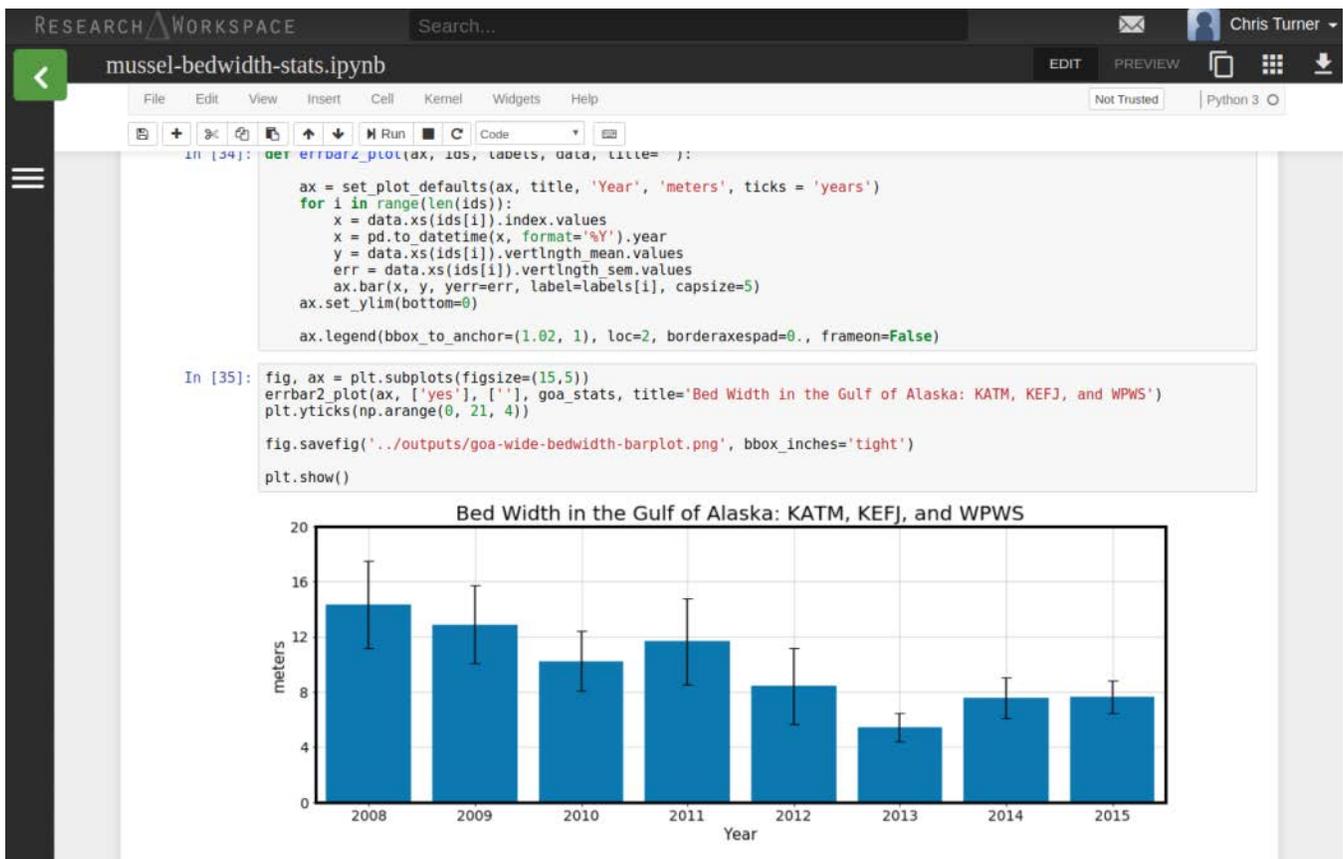


Fig. 7. A screenshot of standardized time series graphs created in Jupyter Notebooks for mussel bed site data from the Environmental Drivers component.

Finally, providing and maintaining a system to serve the GWA and HRM data management needs is a core component of the data management program. To ensure the efficacy of such a system, regular and structured feedback is required from data management system users, i.e., the program leads and PIs. The data management team gathered feedback from PIs through group discussions and one-on-one meetings and will continue to do so throughout the course of this program. This feedback is tracked and synthesized to identify what data management methods are working well and what procedural modifications or new technologies could be implemented to improve the performance of the data management system. In addition to gathering feedback throughout the year, the data management program team maintained regular contact with PIs over email to provide notification of approaching deadlines for data or metadata submission, asked questions related to these submissions, and/or responded to PIs' questions about data management procedures and responsibilities.

8. Coordination and Collaboration: See, Reporting Policy at III (D) (8).

Within a EVOSTC-Funded Program

By its very nature, AOOS's data management technical infrastructure is collaborative in the sense that the Workspace is designed to give open access across the GWA and HRM program teams for file sharing and transparency of data progress. Backing this infrastructure is a data management team that is well-coordinated with GWA and HRM program leads and science teams for timely data submissions and accuracy of metadata authoring, and to ensure data and products are available to general science and resource management communities. Through this collaborative work structure, the data management team is positioned to respond to the needs of the GWA and HRM programs by providing both the required technical support and requested modifications to the Workspace to enhance its accessibility and utility to scientists.

Coordination among these programs occurs through these activities:

- **Across program coordination:** Overall coordination of the data management effort is provided by Dr. Janzen, the AOOS Program Lead, who is responsible for ensuring coordination within this project and across the GWA and HRM Programs. AOOS’s time dedicated to the EVOSTC programs is focused on data management project oversight to ensure integration across GWA and HRM Programs and the data management services. Coordination across the programs occurs through email, phone communications, and regularly scheduled in-person meetings. Dr. Janzen and representatives from the Axiom data management team attended the annual PI meetings in November and January, and the regularly scheduled Program Management Team phone calls to help ensure a seamless response to data management and decision-support needs.
- **Within program and individual coordination:** Regular communication are maintained between the Axiom data management team and the GWA and HRM PIs both within the program (e.g. all GWA or HRM PIs) and at the individual PI level. These communications are a continuation of effective working relationships developed with the science teams in the first five-year effort.
- **Within program:** The data managers maintained regular communications with PIs, program management, and EVOSTC staff through participation at the annual PI meetings in November and January, and through regular program-wide emails correspondence. At meetings AOOS and the data management team communicated to all PIs about data submission progress and procedures through presentations and group discussions. Using emails, PIs were also notified of program data inventories and the submission timelines to help encourage compliance.
- **Individual:** Regular communications also occurred with individual PIs through annual one-on-one meetings at the November PI meeting to track project progress and provide hands-on support for data organization, formatting, and metadata authoring. The data managers also used email to inform individual PIs of their data submission progress, and to respond to PIs inquiries and/or requests for additional assistance. Depending on the location of individual PIs, assistance was also provided in-person during side meetings scheduled at the Alaska Marine Science Symposium (AMSS).

A. With Trustee or Management Agencies

AOOS brings a significant level of leveraged resources, infrastructure, regional data management projects and partnerships to this data management effort. The project team provides data management visualization, and preservation services (including providing access to and facilitating the use of the Research Workspace) to a number of other programs that receive funding from or are administered or overseen by representatives from the Trustee Council agencies. Additionally, this work benefits trustee or management agencies as all data and final data products produced by the GWA and HRM programs are currently or will be made available through the Gulf of Alaska Data Portal and DataONE Member Node, both of which are no-cost services that can be accessed by any member of the public. Some of these programs and their associated Trustee agencies are given below (Table 1).

Table 1. Other groups and agencies for which AOOS and Axiom coordinate data management services.

Group, Agency	Level and Type of Coordination	Representative
Arctic Marine Biological Observation Network (AMBON), Bureau of Ocean	Coordinate all data management activities for	Katrin Iken, Lead

Management (BOEM)	AMBON using the Workspace	Principal Investigator
Core Program, North Pacific Research Board (NPRB)	Guidance given on data and metadata best practices; access to and facilitation of the Workspace; organization and archiving of historical projects	Matthew Baker, Science Director; Jo-Ann Mellish, Program Manager
Arctic Ecosystem Integrated Synthesis (Arctic EIS), BOEM	Provide guidance to program management on data and metadata best practices; access to and facilitation of the Workspace; organization and archiving of completed projects	Franz Mueter, Lead Principal Investigator
Marine Arctic Ecosystem Study (MARES), BOEM	Develop data management plans for each sampling effort; access to and facilitation of the Workspace; acquire and ingest into AOOS Arctic Data Portal environmental datasets identified by program PIs as important context for MARES program; facilitate conversion of data into long-term preservation-ready formats; submission of datasets to long-term archives	Francis Wiese, Lead Project Manager
Integrated Ocean Observing System (IOOS), National Ocean and Atmospheric Administration (NOAA)	Develop community standards for sensor observations; make regional data nationally accessible	Derrick Snowden, Data Management And Coordination (DMAC) System Architect
Beluga Sightings Database Visualization, NOAA-National Marine Fisheries Service (NMFS)	Visualizations, guidance on building community standards for submitting marine mammal stranding observations	Mandy Migura, Marine Mammal Specialist
Alaska Ocean Observing System (AOOS) Data Management, NOAA	Data management; cyberinfrastructure; working directly with member and non-member organizations to ingest and document new datasets; visualizations	Molly McCammon, Director; Phil Mundy, Data Management Committee Chair
Central and Northern California Ocean Observing System (CeNCOOS) Data Management, NOAA	Data management; cyberinfrastructure; working directly with member and non-member organizations to ingest and document new datasets; visualizations	Francisco Chavez, Acting Director 2017; Henry Ruhl, New Director 2018
Southeast Coastal Ocean Observing System (SECOORA) Data Management, NOAA	Data management; cyberinfrastructure; working directly with member and non-member organizations to ingest and document new datasets; visualizations	Debra Hernandez, Director
Gulf of Alaska Integrated Ecological Research Program (GOAIERP),	Fully facilitated data and metadata management working directly with PIs, from initial sharing	Danielle Dickson, Program Manager

NPRB	within the group to long-term archiving at NPRB	
Russian-American Long-term Census of the Arctic (RUSALCA), NOAA	Access to Workspace; guidance on data and metadata management; archiving; visualizations in support of mission	Kathy Crane, U.S. Mission Coordinator
Alaska Data Integration working group (ADIwg), U.S. Geological Survey (USGS)	Generate community standards for project data; advise on translation from ADIwg metadata content profile into suite of ISO geospatial metadata of standards	Josh Bradley, Data Manager

9. Information and Data Transfer: *See, Reporting Policy at III (D) (9).*

The following information and data transfer activities occurred during the FY17 period:

a) *publications produced during the reporting period;*

Not applicable

b) *dates and locations of any conference or workshop presentations where EVOSTC-funded work was presented.*

The AOOS data team at Axiom Data Science attended the GWA and HRM PI meeting in November 2017, and the team meeting in January 2018 at the Alaska Marine Science Symposium (AMSS). Additionally, the AOOS data management team met with individual GWA and Herring Program PIs in Anchorage, Homer, and Cordova during FY17. Hands-on demonstrations of the Research Workspace and the Gulf of Alaska Data Portal were given at these meetings and during the one-on-one meetings. Additionally, the data management team provided information about the timelines for data submission and metadata generation, and the expected and appropriate data and file formats and naming conventions. From these meetings, data management plans (DMPs) for the GWA and HRM programs were established, each of which details how data for individually-funded projects will be handled throughout that program's lifecycle, from data collection to preservation. Agreeing to a plan at the start of the program ensures that, from the beginning, the data are organized, well-documented, and appropriately formatted for discovery, preservation, and ultimate data use for restoration and management purposes.

Specific presentations given by data management program team members during FY17 are listed below, including a metadata workshop hosted by Axiom Data Science at the Alaska Marine Science Symposium to which all GWA and HRM PIs were invited.

Data Management Presentations and Workshops

Bucklew, S. 2017. Research Workspace: Organization and navigation. Oral presentation. 2017 Gulf Watch Alaska Program PI Meeting, Cordova, AK. 15-17 November.

- Buckelew, S. 2017. Research Workspace: Organization and navigation. Oral presentation. 2017 Herring Program PI Meeting, Cordova, AK. 16 November.
- Buckelew, S. 2018. Data management update. Oral presentation. Gulf Watch Alaska Program meeting. 2018 Alaska Marine Science Symposium, Anchorage, AK. 23 January.
- Buckelew, S., Gill, I., and Turner, C. 2017. Metadata 411. Metadata Workshop. 2018 Alaska Marine Science Symposium, Anchorage, AK. 22-26 January.
- Koeppen W., and Suryan, R. 2017. Demonstration of Jupyter Notebooks in the Research Workspace. Live demonstration. 2017 Gulf Watch Alaska Program PI Meeting, Cordova, AK. 15-17 November.
- Janzen, C., Buckelew, S., Turner, C. 2017. EVOS TC 2017-18 Data Management Program. Oral presentation. 2017 EVOS Trustee Council Meeting
- Turner, C., and Janzen, C. 2017. Data management update for the Gulf Watch Alaska Program. Oral presentation. 2017 Gulf Watch Alaska Program PI Meeting, Cordova, AK. 15-17 November.
- Turner, C., and Janzen, C. 2017. Data management update for the Herring Program. Oral presentation. 2017 Herring Program PI Meeting, Cordova, AK. 16 November.

c) *data and/or information products developed during the reporting period*

Not applicable

d) *datasets and associated metadata that have been uploaded to the program's data portal.*

A summary of the 2016 finalized data and provisional 2017 data from GWA and HRMs programs available through the research Workspace and the Gulf of Alaska Data Portal is shown in Table 2.

A comprehensive list of the 2012-2016 datasets and their associated DOIs available through the DataONE archive are shown in Table 3.

Table 2. An inventory of GWA and HRM project data published through the Gulf of Alaska Data Portal as of February 19, 2018. The numeric codes are: "1" : Obligation to publish data has been met; "0" : No data from this season was published for the project; and "-" : The project collected no data during this season. **2017 data are not required to be published until 31 January 2019

Program	Project	Project	2016	2017	Comments
GWA	Environmental drivers: Continuous Plankton Recorders	Plankton data	1	0	
		Temperature data	1	1	2017 data are preliminary
GWA	Environmental drivers: Gulf of Alaska Mooring (GAK1)	CTD data	1	1	
		Mooring data	1	1	
GWA	Environmental Drivers: Oceanographic Conditions in Prince William Sound	Chlorophyll data	1	1	
		CTD data	1	1	
		Zooplankton data	1	0	2017 Zooplankton data are still being processed
GWA	Environmental Drivers: Oceanographic monitoring in Cook Inlet and Kachemak Bay	CTD data	1	1	
		KBNER meteorological data	1	0	
		KBNER nutrient data	1	0	
		KBNER water quality data	1	0	

		Zooplankton data	1	0	
GWA	Environmental Drivers: Seward Line	Chlorophyll data	1	1	
		CTD data	1	1	
		Nutrient data	1	1	
		Seabird data (Kuletz)	1	1	survey data, no processed densities
		Zooplankton data	1	0	2017 Zooplankton data are still being processed
GWA	Nearshore: Ecological trends in Kachemak Bay	Lottia data	1	0	
		Mussel data	1	1	
		Rocky intertidal data	1	1	
		Substrate data	1	1	
		Sea otter data	1	0	
		Seagrass data	1	1	
		Temperature data	1	0	
GWA	Nearshore: Intertidal Systems in Gulf of Alaska	Oystercatcher diet & nest density data	1	1	data in Workspace, but published by USGS
		Eelgrass data	1	1	
		Invertebrate and algae data	1	1	
		Marine birds and mammals data	1	1	
		Water quality data	1	1	
		Sea otter data	1	1	
GWA	Pelagic: Fall and Winter seabird abundance	Seabird survey data	1	1	
GWA	Pelagic: forage fish distribution, abundance, and body condition	Aerial survey data	1	0	
		Forage fish morph & count data	1	0	
		Marine predator survey data	1	0	
		Water chemistry (CTD & nutrients) data	1	0	
		Zooplankton data	1	0	
GWA	Pelagic: Humpback whale predation on herring	Fluke id catalog	1	1	
		Lipid database	1	0	
		Whale survey data	1	0	
GWA	Pelagic: Long-term killer whale monitoring	Acoustic catalog	1	1	
		Photo catalog	1	1	
		Satellite tagging and biopsy data	1	0	
		Prey sampling	0.5	0	data collected in 2016, still being analyzed
		Orca database	1	0	
GWA	Pelagic: Prince William Sound Marine Birds	Summer bird survey data	1	1	
Herring	Acoustic surveys of juvenile herring abundance	raw acoustic data	1	n/a	
		processed acoustic data	1	n/a	
		biomass summary	1	n/a	
Herring	ADFG Surveys: aerial survey, biomass age sex length, spawn	aerial biomass observation & routes data	1	1	
		aerial survey marine bird & mammal observations data	1	1	
		scale measurements data	1	0	

		ASL data	1	1	
		herring acoustics data	0	0	
Herring	Adult biomass surveys	raw acoustic data	1	1	
		processed acoustic data	1	1	
		biomass summary	1	1	
Herring	Aerial surveys of juvenile herring	raw survey data	1	1	
		age 1 index	1	1	
Herring	Herring capture	collected fish data	1	0	
		gear deployment log	1	0	
		cruise list	1	0	
Herring	Herring disease program	prevalence summary	1	0	
		raw lab data	1	0	
Herring	Modeling herring population dynamics in Prince William Sound	model codebase, output data	1	0	
Herring	Age at Maturity	fish energetics data	n/a	0	new project 2017

Table 3. Datasets generated by GWA and HRM programs from 2012 to 2016 that are stored in the Research Workspace, and made publicly available in the Gulf of Alaska Data Portal and replicated and published in the DataONE repository with a digital object identifier(DOI) for long-term preservation.

DOI	Program	Resource title	Principal Investigator
https://doi.org/10.24431/rw1k1u	Herring	Intensive Acoustic Surveys of Juvenile Herring, Prince William Sound, 2013-2014, EVOS Herring Program	Peter Rand
https://doi.org/10.24431/rw1k1v	Herring	Acoustic Juvenile Herring Abundance Data, Prince William Sound, 2012-2015, EVOS Herring Program	Peter Rand
https://doi.org/10.24431/rw1k111	Herring	Aerial surveys of juvenile herring, Prince William Sound, 2010-2016, EVOS Herring Program	Scott Pegau
https://doi.org/10.24431/rw1k115	Herring	Age at First Spawn for Herring in Prince William Sound, 2012-2015, EVOS Herring Program	Johanna Vollenweider, Ron Heintz
https://doi.org/10.24431/rw1k110	Herring	Fatty Acid Analysis as Evidence for Winter Migration of Age-0 Herring in Prince William Sound, 2010-2012, EVOS Herring Program	Ron Heintz, Fletcher Sewall
https://doi.org/10.24431/rw1k1z	Herring	Fish Predation on Juvenile Herring in Prince William Sound, Alaska, 2009-2012, EVOS Herring Program	Mary Anne Bishop
https://doi.org/10.24431/rw1k114	Herring	Genetic Stock Structure of Herring in Prince William Sound, 2012-2015, EVOS Herring Program	Sharon Wildes, Jeff Guyon
https://doi.org/10.24431/rw1k1y	Herring	Growth and Energy of Overwintering Herring in Prince William Sound, 2009-2012, EVOS Herring Program	Ron Heintz, Fletcher Sewall
https://doi.org/10.24431/rw1k1a	Herring	Validation of acoustic surveys for Pacific herring, 2010-2016: EVOS Herring Program	Mary Anne Bishop
https://doi.org/10.24431/rw1k11	Herring	Herring Infection Prevalence Data, 2007-2016, EVOS Herring Program	Paul Hershberger
https://doi.org/10.24431/rw1k17	Herring	High Temporal and Spatial Resolution Study of Herring Condition in Prince William Sound, Energetics Data, Prince William Sound, 2011-2012, EVOS Herring Program	Kristen Gorman, Tom Kline
https://doi.org/10.24431/rw1k16	Herring	High Temporal and Spatial Resolution Study of Herring Condition in Prince William Sound, Growth and Diet Data, 2011-2012: EVOS Herring Program	Ron Heintz, Fletcher Sewall, Kristen Gorman
https://doi.org/10.24431/rw1k13	Herring	Juvenile Herring Condition Monitoring, Energetics Data, Prince William Sound, 2005-2016, EVOS Herring Program	Kristen Gorman, Ron Heintz

https://doi.org/10.24431/rw1k15	Herring	Juvenile Herring Condition Monitoring in Prince William Sound, Growth and Diet Data, 2012-2016, EVOS Herring Program	Ron Heintz, Fletcher Sewall, Kristen Gorman
https://doi.org/10.24431/rw1k1i	Herring	Meta-analysis of Global Herring Population Dynamics, 1974 to 2011, EVOS Herring Program	John Trochta, Trevor Branch
https://doi.org/10.24431/rw1k1t	Herring	Using Bayesian Age-Structured-Analysis (ASA) Model for Herring Population Dynamics in Prince William Sound, EVOS Herring Program	Trevor Branch
https://doi.org/10.24431/rw1k116	Herring	Physical Oceanographic Characteristics of Herring Nursery Habitats in Prince William Sound, 2010-2012: EVOS Herring Program	Shelton Gay
https://doi.org/10.24431/rw1k14	Herring	Oceanographic Conditions in Prince William Sound, CTD, Chlorophyll-a, and Zooplankton Data: 2010-2012, EVOS Herring Program	Rob Campbell
https://doi.org/10.24431/rw1k1x	Herring	Tracking Seasonal Movements of Adult Pacific Herring in Prince William Sound, 2012-2014, EVOS Herring Program	Mary Anne Bishop
https://doi.org/10.24431/rw1k112	Gulf Watch	Continuous Plankton Recorder and Temperature Data, Gulf of Alaska, 2011-2016, Gulf Watch Alaska Environmental Drivers Component	Sonia Batten
https://doi.org/10.24431/rw1k18	Gulf Watch	GAK1 Mooring Timeseries data, Seward, AK, from the GAK1 project, 2012-2016, Gulf Watch Alaska Environmental Drivers Component	Seth Danielson, Thomas Weingartner
https://doi.org/10.24431/rw1k1b	Gulf Watch	CTD profile time series data from the GAK1 project, 2012-2016, Gulf Watch Alaska Environmental Drivers Component	Seth Danielson, Thomas Weingartner
https://doi.org/10.24431/rw1k19	Gulf Watch	Oceanographic Conditions in Prince William Sound, CTD, Chlorophyll-a, and Zooplankton Data: 2013-2016, Gulf Watch Alaska Environmental Drivers Component	Rob Campbell
https://doi.org/10.24431/rw1k1c	Gulf Watch	Oceanographic Monitoring in Cook Inlet and Kachemak Bay, Water Quality, Meteorological, and Nutrient Data collected by the National Estuarine Research Reserve System's System-wide Monitoring Program (NERRS SWMP), 2012-2016, Gulf Watch Alaska Environmental Drivers Component	Kris Holderied, Angela Doroff
https://doi.org/10.24431/rw1k1d	Gulf Watch	Oceanographic Monitoring in Cook Inlet and Kachemak Bay, CTD Data, 2012-2016, Gulf Watch Alaska Environmental Drivers Component	Kris Holderied, Angela Doroff
https://doi.org/10.24431/rw1k12	Gulf Watch	Oceanographic Monitoring in Cook Inlet and Kachemak Bay, Zooplankton Data, 2012-2015, Gulf Watch Alaska Environmental Drivers Component	Kris Holderied, Angela Doroff
https://doi.org/10.24431/rw1k1l	Gulf Watch	Seward Line Conductivity, Temperature, and Depth (CTD) Data, 2012 to 2016, Gulf Watch Alaska Environmental Drivers Component	Russell Hopcroft, Thomas Weingartner, Seth Danielson
https://doi.org/10.24431/rw1k1j	Gulf Watch	Prince William Sound Chlorophyll-A and Nutrient Data, 2012 to 2016, Gulf Watch Alaska Environmental Drivers Component	Russell Hopcroft
https://doi.org/10.24431/rw1k1m	Gulf Watch	Seward Line and Lower Cook Inlet Marine Bird Survey Data, 2006-2016, Gulf Watch Alaska Nearshore Component	Kathy Kuletz
https://doi.org/10.24431/rw1k1k	Gulf Watch	Prince William Sound Zooplankton Data, 1997 to 2016, Gulf Watch Alaska Environmental Drivers Component	Russell Hopcroft
http://dx.doi.org/10.5066/F7KD1W1M	Gulf Watch, USGS	Harlequin duck capture and EROD activity data from Prince William Sound, Alaska, 2011, 2013, and 2014, Gulf Watch Alaska Lingering Oil Component	Dan Esler, Brenda Ballachy
http://dx.doi.org/10.5066/F789141P	Gulf Watch, USGS	Sea otter gene expression data from Kodiak, the Alaska Peninsula and Prince William Sound, Alaska, 2005-2012	Dan Esler, Brenda Ballachy
https://doi.org/10.24431/rw1k1h	Gulf Watch	Lingering Oil Measurements, Site, Sample, and Photographic Data from Prince William Sound, 2015, Gulf Watch Alaska Lingering Oil Component	Mandy Lindeberg, Mark Carls

https://doi.org/10.24431/rwlk1o	Gulf Watch	Long-term Monitoring of Ecological Communities in Kachemak Bay, 2012-2016, Gulf Watch Alaska Nearshore Component	Katrin Iken, Brenda Konar
https://doi.org/10.24431/rwlk1e	Gulf Watch	Sea Otter Diet Data, Long-term Monitoring of Ecological Communities in Kachemak Bay, 2008-2015: Gulf Watch Alaska, Nearshore Component	Angela Doroff
http://dx.doi.org/10.5066/F7WH2N5Q	Gulf Watch, USGS	Gulf Watch Alaska Nearshore Component: Black oystercatcher nest density and chick diets from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2006-2016 Data	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
https://doi.org/10.5066/F78S4N3R	Gulf Watch, USGS	Gulf Watch Alaska Nearshore Component: Monitoring Site Locations from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
https://doi.org/10.5066/F7FN1498	Gulf Watch, USGS	Gulf Watch Alaska Nearshore Component: Intertidal Mussel Site Data from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2008-2015	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
https://doi.org/10.5066/F7WS8RD4	Gulf Watch, USGS	Gulf Watch Alaska Nearshore Component: Intertidal Mussel Site Data from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2016	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7513WCB	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Intertidal Rocky Shore Limpet Size Data from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2006-2014	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7513WCB	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Intertidal Rocky Shore Nucella and Katharina counts from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2006-2014	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7513WCB	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Intertidal Rocky Shore Invertebrate and Algae from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2006-2014	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7513WCB	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Intertidal Rocky Shore Seastar counts from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2006-2014	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
https://dx.doi.org/10.5066/F7416V6H	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Marine Bird and Mammal Survey Data from Katmai National Park and Preserve and Kenai Fjords National Park, 2006-2015	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7WH2N3T	Gulf Watch, USGS	Gulf Watch Alaska Benthic Component: Marine Water Quality, Water Temperature from Prince William Sound, Katmai National Park & Preserve, and Kenai Fjords National Park, 2006-2014	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger

http://dx.doi.org/10.5066/F7WH2N3T	Gulf Watch, USGS	Gulf Watch Alaska, Benthic Monitoring Component: Sea otter Carcass Collection from Prince William Sound, Katmai National Park & Preserve, and Kenai Fjords National Park	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7H993CZ	Gulf Watch, USGS	Gulf Watch Alaska, Benthic Monitoring Component: Sea otter foraging observations from Prince William Sound, Katmai National Park and Preserve, and Kenai Fjords National Park, 2013	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
http://dx.doi.org/10.5066/F7CJ8BN7	Gulf Watch, USGS	Sea Otter Aerial Surveys in Katmai National Park and Preserve 2008 and Kenai Fjords National Park 2007	Heather Coletti, Jim Bodkin, Brenda Ballachy, Dan Monson, Dan Esler, Mandy Lindeberg, Tom Dean, Ben Weitzman, Kim Kloeker, George Esslinger
https://doi.org/10.24431/rw1k1w	Gulf Watch	Fall and Winter Seabird Abundance Data, Prince William Sound, 2007-2016, Gulf Watch Alaska Pelagic Component	Mary Anne Bishop
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Fish morph data in Prince William Sound, Alaska 2012-2015	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Marine bird and mammal surveys in Prince William Sound, Alaska 2012-2013 and 2015	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Oceanographic profile data from various regions in Prince William Sound, 2012-2015	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Zooplankton biomass data from 2012-2015 in Prince William Sound, Alaska	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Nutrients data from CTD sampling stations in Prince William Sound, Alaska 2012-2015	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Fish catch data in Prince William Sound, Alaska 2012-2015	John Piatt, Mayumi Arimitsu
http://dx.doi.org/10.5066/F74J0C9Z	Gulf Watch, USGS	Gulf Watch Alaska Forage Fish Component: Hydroacoustic surveys in Prince William Sound, Alaska 2014-2015	John Piatt, Mayumi Arimitsu
https://doi.org/10.24431/rw1k1q	Gulf Watch	Lipid Analyses for Pacific Herring, Invertebrates and Humpback Whales in the Gulf of Alaska, 2012-2015, Gulf Watch Alaska Pelagic Component	John Moran, Jan Straley
https://doi.org/10.24431/rw1k1n	Gulf Watch	Significance of Whale Predation On Natural Mortality Rate of Pacific Herring in Prince William Sound, Alaska: 2006 - 2009, 2011-2015, Gulf Watch Alaska Pelagic Component	John Moran, Jan Straley
https://doi.org/10.24431/rw1k1p	Gulf Watch	Dall's and Harbor Porpoise Survey Data, Prince William Sound, Alaska: 2007 - 2008, 2011-2015, Gulf Watch Alaska Pelagic Component	John Moran, Jan Straley
https://doi.org/10.24431/rw1k1f	Gulf Watch	Acoustic Recordings of Killer Whales in Prince William Sound and Kenai Fjords, 2012 to 2016, Gulf Watch Alaska Pelagic Component	Craig Matkin
https://doi.org/10.24431/rw1k1s	Gulf Watch	Kenai Fjords and Prince William Sound Long-Term Photographic Monitoring of Killer Whales, 2012-2016, Gulf Watch Alaska Pelagic Component	Craig Matkin
https://doi.org/10.24431/rw1k1g	Gulf Watch	Prince William Sound Killer Whale Satellite Telemetry Data, 2004 to 2016, Gulf Watch Alaska Pelagic Component	Craig Matkin
https://doi.org/10.24431/rw1k1r	Gulf Watch	Behavior and Feeding Summaries for Killer Whales in Alaska, 2012-2016	Craig Matkin

https://doi.org/10.24431/rwlk1w	Gulf Watch	Prince William Sound Marine Bird Surveys, July 2012 to 2016, Gulf Watch Alaska Pelagic Component	Robert Kaler, Kathy Kuletz
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10. Response to EVOSTC Review, Recommendations and Comments: See, Reporting Policy at III (D) (10).

Science Panel Comments and Responses on Revised FY17-21 Proposal, September 2016

We appreciate the Team Lead's thorough responses to our questions and comments. We do not have any additional questions or comments on the revised proposal.

PI Response: NA

Science Panel Comments and Responses on Revised FY18 Proposal, September 2017

The Panel greatly appreciates the PI's efforts on this project. The coordination between the data management program and the HRM and LTM Programs has greatly improved. The proposal was well written and organized.

Can the PI confirm that data will be available and not require specially approved access to get to the data?

PI Response (10/13/2017):

The process for making data from the EVOS Gulf Watch Alaska (GWA) and Herring Research and Monitoring (HRM) programs publicly available is as follows. Project PIs upload preliminary and final datasets to the Research Workspace within one year of collection for sharing among collaborators. PIs maintain ownership of the data they have submitted to the Research Workspace; therefore, they have access to data from the 2012-16 and 2017-21 funding cycles without needing special permissions. Once data are finalized (e.g., within one year of data collection, in most cases) data are published from the Research Workspace to the AOOS Gulf of Alaska (GOA) data portal.

All data published to the GOA portal are accessible by the public with no restrictions or specially approved access. In the portal, these data are discoverable alongside the publicly-available final data from the 2012-2016 GWA and HRM projects. These data are further made available to the public through the Research Workspace DataONE member node, a preservation-oriented data repository that is openly accessible to the public. The DataONE archives, similar to the GOA portal, will continue to be updated with final data from the 2017 to 2021 funding cycle.

To navigate to the public-facing data in the GOA portal:

- 1. Visit the AOOS website (<http://data.aos.org>) and select the Gulf of Alaska portal (image below), or navigate directly to the portal at <http://portal.aos.org/gulf-of-alaska>.*
- 2. To view data, click on Data Layer Catalog*
- 3. From the catalog labels on the left hand side, select the Gulf Watch or Herring Projects*
- 4. Click on the project you want to open from the list.*

5. To view data files, click 'Project Data' in the upper right (top image below). Browse the files and click those you want to download

Are the ADFG herring data sets available on the DataOne portal? If not, they should be made accessible.

PI Response (10/13/2017):

The ADFG Prince William Sound datasets have been submitted to the Research Workspace for sharing among collaborators. Some of these datasets have been made available to the public through both the GOA data portal and DataONE. An inventory of these datasets and their publication status are shown in the below table.

The data management team is awaiting a final decision from ADFG Commercial Fisheries division about whether to make the remainder of the data available publicly. We will update the EVOSTC and the EVOS Science Panel with this information as soon as we have a response.

What is the status on linking DataOne to Workspace for all the projects?

PI Response (10/13/2017):

In June 2017, we launched the Research Workspace DataONE1 Member Node, a preservation-oriented data repository serving as the archival home for datasets published from the Research Workspace (news release here). Datasets published from the Research Workspace to the Research Workspace DataONE Member Node are issued a citable digital object identifier (DOI), and are discoverable through DataONE search interfaces alongside datasets and metadata from the other 40+ repositories that make up the DataONE federation. The final data holdings from the 2012-2016 GWA and HRM programs were archived in the Research Workspace DataONE Member Node and are now publicly discoverable and citable through both the AOOS Gulf of Alaska data portal2 and the DataONE Search3 catalog. These archived resources are linked to any related datasets from the EVOS historical data salvage project (conducted by NCEAS), which are also stored in DataONE. Within the Research Workspace, the GWA and HRM program datasets archived with DataONE are visible under the Archives tab within each project (see below image). Here PIs can view the resource title, DOI, and link to the associated data and metadata. Additionally, the DOI is reflected in the Gulf of Alaska data portal, from which any member of the public can navigate from the Gulf of Alaska portal to the archived dataset within DataONE.

In future Research Workspace updates, an archive page will be added to the EVOS GWA and HRM campaign which lists the archive dataset citations for the entire program (as opposed to individually by projects), and this list will include links to DataONE.

11. Budget: See, Reporting Policy at III (D) (11).

There are no funding adjustments from the authorized level of funding.



*We appreciate your prompt submission
and thank you for your participation.*