

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

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

14120111-O

2. Project Title: See, Reporting Policy at III (C) (2).

PWS Herring Program – Coordination and Logistics

3. Principal Investigator(s) Names: See, Reporting Policy at III (C) (3).

W. Scott Pegau

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

February 2014 through January 2015

5. Date of Report: See, Reporting Policy at III (C) (5).

February 2015

6. Project Website (if applicable): See, Reporting Policy at III (C) (6).

<http://pwssc.org/research/fish/pacific-herring/>

7. Summary of Work Performed: See, Reporting Policy at III (C) (7).

During the past year considerable effort was placed into the development of the synthesis that was due in November 2014. A principal investigator (PI) meeting was held in March to outline the process, set deadlines, and coordinate between projects. A second meeting occurred in November to finalize the document. The November meeting was set at the end of the Gulf Watch Alaska PI meeting to encourage investigators from both programs to interact. A meeting also occurred during the Alaska Marine Science Symposium to allow investigators another opportunity to touch base with each other.

The synthesis pulls together results from the various projects and from the Gulf Watch Alaska program to examine our current knowledge of herring in Prince William Sound (PWS). The most surprising result was the correlation between the diatom abundance anomaly measured by the continuous plankton recorder and the growth of age-0 herring in PWS. A strong positive correlation was found and a manuscript is being drafted that discuss the findings. Other important findings include the spatial and temporal patterns associated with herring condition, the evidence of overwinter feeding by age-0 herring, the importance of different inputs to the age-structure-analysis model, and the ability to track acoustically tagged adult herring. For complete findings please see the synthesis titled, "Pacific herring in Prince William Sound: A synthesis of recent findings" that was submitted to the Exxon Valdez Oil Spill Trustee Council.

The logistical support and reporting tasks were completed as scheduled. The final acoustic intensive surveys occurred in March. CDFU fishermen were trained and assigned areas for fish capture in March. Arrangements were made for collection of herring from the Kayak Island spawning grounds using a local fisherman. Two cruises were contracted to support the expanded adult herring surveys. We were unable to find the adult herring staging for spawn at Port Gravina. On the second cruise herring were found prepared to spawn off Montague, but there were no observations of spawn occurring. We tested satellite transmitting cameras on Montague Island as a means to detect spawn without requiring daily aerial surveys. No spawn was observed with the cameras. A cruise occurred in November for the scheduled juvenile herring sampling. A second boat was contracted for a portion of that time to allow the non-lethal sampling project to sample with the acoustic survey vessel.

A plane was contracted to support the aerial surveys for the age-1 herring index and to support the forage fish project. We worked closely with the forage fish project to establish and test new sampling protocols. Several days of overlap of the aircraft and the sampling vessel allowed for validation of the aerial observations. A collaboration with a University of Oregon journalism class was established. The class provided people to maintain the paper logs while getting the opportunity to see more of PWS. Students have also been brought on for short periods to assist with analysis of the aerial survey data.

Once Kristen Gorman arrived at PWSSC the two herring condition projects were turned over to her. We continued to work together through the year to complete the transition and ensure she understands the deliverables of her projects and the status of work on them.

We took advantage of an opportunity to work with a science writer to develop articles for three commercial fishing journals.

This project continues to support investigators in uploading their data to the ocean workspace. Updated energetics, disease prevalence, acoustic survey, aerial survey, and tagging data were submitted. Presentations from PI meetings and other meetings are also uploaded to the workspace.

We often meet with Steve Moffitt, the local herring fisheries manager. It is through these meetings that we keep track of the needs of the resource managers. We were also able to meet with Sherri Dressler of ADF&G to discuss our findings and how they might be informed by herring research in other parts of the state. The herring oversight group was brought back to full strength by the addition of Steve Martell. We were able to meet with members of the oversight group to get their feedback on concerns and suggested directions.

8. Coordination/Collaboration: *See, Reporting Policy at III (C) (8).*

- a) This project is responsible for coordination among all of the HRM projects. In the past year there have been several meetings of the investigators to coordinate work, but also to pull together a synthesis of our understanding of herring in Prince William Sound.

There is coordination among the HRM and GWA programs in reporting, and PI meeting attendance.

This project shares responsibility with the GWA forage fish project for analysis of the aerial survey data.

- b) We follow the progress of the two other projects funded in Cordova. We use the harbor for testing herring and contribute when possible particularly to the Cordova Clean Harbor group.
- c) This project works with Steve Moffitt and Sherri Dressel of Alaska Department of Fish and Game to transfer new findings to ADF&G and for guidance about the needs of the department. Investigators from the National Oceanic and Atmospheric Administration and the US Geological Survey are participating in the program.

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

- a) Publications – Pacific herring in Prince William Sound: A synthesis of recent findings. This synthesis was submitted to the EVOSTC staff. Articles on the herring research program were developed for three commercial fishing journals.
- b) Presentations – Presented an overview of the HRM program to the EVOS PAC and Science Panel.
- c) Data products – This project does not generate data.
- d) Information archive - Presentations from the PI meetings are loaded on the Ocean Workspace.

10. Response to EVOSTC Review, Recommendations and Comments: *See, Reporting Policy at III (C) (10).*

There were no project specific comments.

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

Budget Category:	Proposed FY 12	Proposed FY 13	Proposed FY 14	Proposed FY 15	Proposed FY 16	TOTAL PROPOSED	ACTUAL CUMULATIVE
Personnel	\$19,100.0	\$27,900.0	\$28,700.0	\$20,900.0	\$21,700.0	\$118,300.0	\$ 55,227
Travel	\$9,500.0	\$4,100.0	\$5,000.0	\$4,000.0	\$8,700.0	\$31,300.0	\$ 15,973
Contractual	\$216,960.0	\$375,999.0	\$282,288.0	\$244,916.0	\$243,657.0	\$1,363,820.0	\$ 825,463
Commodities	\$2,300.0	\$4,000.0	\$2,300.0	\$4,400.0	\$1,000.0	\$14,000.0	\$ 9,164
Equipment	\$50,500.0	\$0.0	\$0.0	\$0.0	\$0.0	\$50,500.0	\$ 79,851
Indirect Costs (<i>will vary by proposer</i>)	\$35,700	\$56,130	\$37,800	\$36,800	\$35,570	\$202,000.0	\$ 144,630
SUBTOTAL	\$334,060.0	\$468,129.0	\$356,088.0	\$311,016.0	\$310,627.0	\$1,779,920.0	\$1,130,308.0
General Administration (9% of	\$30,065.4	\$42,131.6	\$32,047.9	\$27,991.4	\$27,956.4	\$160,192.8	
PROJECT TOTAL	\$364,125.4	\$510,260.6	\$388,135.9	\$339,007.4	\$338,583.4	\$1,940,112.8	
Other Resources (Cost Share Funds)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$60,000.0

COMMENTS:

This summary page provides an five-year overview of proposed funding and actual cumulative spending. The column titled 'Actual Cumulative' should be updated each fiscal year to provide information on the total amount actually spent for all completed years of the project. On the Project Annual Report Form, if any line item exceeds a 10% deviation from the originally-proposed amount; provide detail regarding the reason for the deviation.

This proposal contains the budgets of Bochenek-data management, Boswell-non-lethal sampling, and Branch-population dynamics within the contractual section.

Total expenditures are very close to the proposed budget at this stage. The project is overspent on Equipment due to repairs to the Remotely Operated Vehicle and the purchase of remote cameras. Funds from Personnel and Contractual Services will be used to cover the equipment expenses. The Boswell project accounts for most of the unspent contractual funds.



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