EVOS Annual Project Report

Project Number: 10100806

Project Title: Are Herring Energetics Limiting? Part III. Disease Challenges (Close-out)

PI Name: JJ Vollenweider, Ron Heintz, Paul Hershberger

Time Period Covered: September 1, 2009 – September 1, 2010

Date of Report: August 20, 2010

Report Prepared By: JJ Vollenweider

Project Website: N/A

Work Performed:

1. Chemical analysis of laboratory-derived samples from the disease challenges are complete. Data has undergone quality assurance measures and is archived in NOAA's nutritional lab ACCESS database.
2. Data analysis has been completed for 4 of the 6 manuscripts/reports (excluding the executive summary) to be completed.
3. Reports and Manuscripts:

Manuscript/Report	***Progress***
Vollenweider, Gregg, Heintz, Hershberger. Energetic cost of Ichthyophonus hoferi infection in juvenile Pacific herring (*Clupea pallasi*)	*Manuscript* Completed draft in internal review
Gregg, Vollenweider, Grady, Wade, Heintz, Hershberger. Effects of environmental temperature on the kinetics of ichthyophoniasis in juvenile Pacific herring (*Clupea pallasi*)	*Manuscript* Completed draft in internal review
Cox, Vollenweider, Heintz. Metabolic depression of fasting juvenile Pacific herring (*Clupea pallasi*)	*Manuscript* Completed draft in internal review
Sreenivasan, Heintz, Vollenweider, Rice, Hershberger, Gregg. Effects of temperature and diet on growth of juvenile Pacific herring (*Clupea pallasi*): Integrating physiological indices towards a comprehensive growth scenario.	*Report* Completed draft in internal review **
Vollenweider, Heintz. Overwinter energetics of juvenile Pacific herring (*Clupea pallasi*) from 3 Alaskan populations	*Manuscript* Draft to commence in September
Heintz, Vollenweider. Overwinter energetics of adult Pacific herring (*Clupea pallasi*) from 3 Alaskan populations	*Manuscript* Draft to commence in September
Vollenweider, Heintz, Rice, Hershberger. Executive Summary. Winter energetics of Pacific herring: The energetic toll of fasting and disease	*Report & Manuscript* Draft to commence in November. Due 4/15/11

** The report will be expanded and included as 1 component of a manuscript upon completion of Sreenivasan's PhD.

Future Work:
No significant changes are proposed to the FY10 study plan. Work on manuscripts and reports will continue and be finalized and compiled in the final report by the April 15, 2011 due date.

Coordination/Collaboration:
The laboratory-derived samples from the disease challenges were provided by laboratory manipulations conducted by P. Hershberger, J. Gregg and other staff at Marrowstone Marine Marine Field Station (USGS, WA).

Collaborations initiated during directed EVOS field sampling have continued despite completion of this project. Herring samples collected from related projects have been continually retained for disease monitoring by P. Hershberger at Marrowstone Marine Field Station.

This project worked closely with the Alaska Department of Fish and Game in Cordova, Juneau and Sitka. Samples were retained from directed EVOS sampling for AD&G's AWL (Age, Length, Weight) analysis. Similarly, ADF&G augmented our directed EVOS sampling. Furthermore, ADF&G contributed morphological data (Age-Weight-Length) for comparison to our data.

During field sampling years, herring samples were retained for genetic analysis conducted by NOAA (S. Wildes, Auke Bay Labs, Juneau, AK). Vollenweider secured herring from the following additional entities for inclusion in the genetics study : ADF&G (Hoonah Sound, Craig/Klawock, Ernest Sound, West Behm Canal, Hobart Bay, Tenakee, Bradfield Canal), Yakutat Science Center, & Glacier Bay National Park. Samples from several of these herring populations were analyzed with NOAA funds to examine population structure, resulting in the following manuscript. We hope to secure funding to analyze samples from the other populations for a better understanding of herring population structures in the Gulf of Alaska.

Wildes, Vollenweider, Nguyen, Guyon. Submitted. Genetic stock structure of Pacific herring (Clupea pallasi) in the eastern Gulf of Alaska. Fish Bull.

Community Involvement/TEK & Resource Management Applications:
The 7 manuscripts resulting from this study will provide a synoptic view of herring energetics in the winter. Our understanding of the impact of fasting and disease on herring survival and condition will be pertinent to resource management, arming managers with a better understanding of why some herring populations are robust while others are struggling. Winter energetics will also be important for directing supplementation efforts, should that occur. Furthermore, the opportunistic collections that resulted in the spin-off genetics stock structure paper provides initial data on herring population structure in the Gulf of Alaska, which is poorly understood yet critical for management of commercial harvests.

Information Transfer:
J. Vollenweider presented at the AK Marine Science Symposium, Anchorage, AK January 2010

P. Hershberger and J. Gregg visited Juneau for a PI meeting in February 2010

Budget:
Budget expenditures are proceeding as per projections; no problems are anticipated.