

North Pacific Research Board: Format for Semiannual Progress Reports

Please Note: Semiannual Progress Reports are due beginning with the first July 15 and January 15 after the contract start date, for the first and last six months of the calendar year, respectively, and then every semester thereafter until the contract is completed. If the first report comes due before substantial progress has been made, please just note that in your initial report. If progress reports are delinquent, current and subsequent invoices will not be paid.

Please email electronic copy to: carolyn.rosner@nprb.org
with the following Subject line: *NPRB Project XXX Progress Report*

If you have any questions about the content of reports or schedule of reporting, please contact: Francis Wiese (907) 644-6713 or email francis.wiese@nprb.org.

[Please do not exceed 2 pages for your whole, written, semiannual report]

Project #: 728

Title: *Herring Synthesis: Documenting and Modeling Herring Spawning Areas within Socio-Ecological Systems over Time in the Southeastern Gulf of Alaska*

Principal Investigator(s) and Recipient Organization(s): Thomas F. Thornton, Portland State University; tthornto@pdx.edu.

Contract Period and Amount of Funding: July 1, 2007-June 31, 2009

Report Period: July 1 to December 31, 2007

Report Date: 1/15/08

Lead Author of Report: Thomas F. Thornton

Project Summary: Pacific herring (*Clupea pallasii*) is a foundation and bellwether species for North Pacific marine ecosystems. Productive spawning areas (and times) in Southeast Alaska are limited and historical population dynamics and ecology of herring are not well understood. Yet many communities with local and traditional knowledge (LTK) of herring fisheries claim that historical stocks were larger and spawning areas more numerous, but that they have dwindled due to factors such as over-harvesting, predation, disease, development, and climate change. While shifts in stocks and spawning have been documented since 1980, no synthesis of the deeper archaeological, historical, and ethno-ecological records on herring spawning areas has been carried out. We are synthesizing this information for the Southeast AK region, where herring and herring roe traditionally have been harvested in quantity. Using existing archaeological, ethnological, historical and biological records and community focus groups in each historical herring stock region, we are building historical and spatial database (using GIS) to: 1) identify the extent of historic and prehistoric herring spawning and massing areas; 2) link changes in herring spawn extent and intensity to environmental and human factors in the socio-ecological system; and 3) identify sensitive areas for protection and potential restoration of herring spawning.

Progress Summary:

After completing our human subjects review, we began our project by contacting the key tribes and confirming our timeline for research, project tasks, and outreach activities. Key tasks include: 1) literature review and annotated bibliography; 2) compilation of archeological data referencing fish bones/herring bones in Southeast AK; 3) synthesis of relevant herring massing, spawning, and harvest data from Fish and Game and industry records; 4) compiling relevant data layers in GIS for spatial analysis.

The literature compilation and review has been supervised by PI Thornton (Portland State University) with assistance from PSU graduate student Jamie Herbert and the Sitka Tribe of Alaska. We built a RefWorks database to house references and annotations. This web-based bibliographic file now contains approximately 300 entries, many with annotations. In addition, we executed a subcontract with Sitka Tribe (Robi Craig and Teresa Moses) to compile all of the tribe's in-house herring records (testimonies, interviews, resolutions, correspondence photos etc.) and enter these into the RefWorks database as well. When STA completes their entries by the end of January, we should have over 400 entries in the database, including numerous primary documents. Many of the documents are also being scanned to facilitate data-sharing, archiving, and electronic searching. STA is summarizing the context of its primary source materials in a companion document, and also building a digital image archive of herring-related photos from Southeast villages (see attached). The RefWorks database can be viewed at: <http://www.refworks.com/refshare/?site=037971147244400000/RWWS4A660669/RefShare%20Herring>

Co-PIs Madonna Moss (U. Oregon) and Virginia Butler (PSU) have been reviewing archaeological reports and compiling records of fish bones from herring and other fishes. They have set up the protocols for recording information to allow for inter-site comparisons and integration with the contemporary herring records. Archaeological site locations will be included in the GIS being developed by Thornton and other project members. They anticipate completing the compilation of archaeofish records by early April, 2008. From these records, Moss and Butler will develop a written report that outlines the long-term history of herring abundance in southeast Alaska. Their overview will also consider the methodological issues (e.g., sample recovery, spatial restrictions in samples, chronology of archaeological site occupations) that constrain current understanding.

Herring biologist Fritz Funk is scheduled to complete a detailed history of the herring fishery in Southeast Alaska, to serve as a backdrop for the maps of historical catch and spawning locations, and containing references to all known sources of herring catch and historical information for Southeast. In addition, he is to work with our GIS specialist to convert this historical data into maps showing stock, spawning, and harvest locations as well as herring reduction plant locales. He also will assemble appropriate climate time series data relevant to both herring and traditional harvests after review of the preliminary Local and Traditional Knowledge (LTK) synthesis and in consultation with PSU GIS specialist (September, 2008). Unfortunately, Mr. Funk has been delayed in completing his detailed history write-up due to personal circumstances. However, we have incorporated and annotated his major historical sources into the Refworks database and have requested the relevant stock, spawning, and harvest data from Fish & Game.

For outreach, a basic webpage has been created describing the project (http://web.pdx.edu/~tthornto/text_files/Research%20Projects.pdf) and to facilitate dissemination of information to tribes and the public. We plan to develop this webpage and add basic community information and photos (see attached 1895 photo of herring at Douglas, AK beach) in the next month in conjunction with the upcoming LTK focus groups. We are scheduling the focus groups with Southeast communities for March-April of this spring (2008).