

## FY15 PROJECT PROPOSAL SUMMARY PAGE

### Continuing, Multi-Year Projects

*Proposals are due to the EVOSTC office by September 2, 2014. Please note that the information in your proposal and budget form will be used for funding review. Late proposals, revisions or corrections may not be accepted.*

**Project Title:** PWS Herring Research and Monitoring: Juvenile Herring Abundance Index

**Project Period:** February 1, 2015 – January 31, 2016

**Primary Investigator(s):** Michele Buckhorn, PhD (Lead PI)  
Richard Thorne, PhD (co-PI); Prince William Sound Science Center, Cordova, AK

**Study Location:** Prince William Sound, AK

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

**Abstract\*:**

Management of the Pacific herring stock in Prince William Sound (PWS), Alaska, is based primarily on an age-structured-assessment (ASA) model. The current model, developed in 2005, incorporates both hydroacoustic estimates of the adult herring biomass and an index of the male spawning, called the “mile-days of spawn”. Unfortunately, the forecast is based on measurements from the previous year and does not have a direct measure of future age 3 recruitment. Current knowledge suggests that most mortality occurs during the first winter of life, so the relative recruitment may be fixed by the end of the first year. Consequently, estimates of relative abundance of age 1 and age 2 fish should provide an index of future recruitment. An index of age 0 fish would also provide a forecast of recruitment if additional information were available on the magnitude of the first year mortality. We will conduct annual fall surveys (FY2013-2016) of 8 bays; four of which will be the Sound Ecosystem Assessment (SEA) bays (Cooney et al. 2001). This will maintain a continual database from these locations. The other 4 bays will be selected based upon the survey results of the current EVOSTC FY10 Herring Survey Project (# 10100132). Surveys will be conducted using 120 kHz split-beam hydroacoustic unit in a stratified systematic survey design (Adams et al. 2006). For this study, direct capture will be directed to size and species composition. A midwater trawl will be used to sample randomized transects within each strata.

**Estimated Budget:**

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

FY12	FY13	FY14	FY15	FY16	TOTAL
90,143	80,155	66,054	84,911	82,949	404,172

**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:** 8/15/2014

## **I. EXECUTIVE SUMMARY**

Management of the Pacific herring stock in Prince William Sound (PWS), Alaska, is based primarily on an age-structured-assessment (ASA) model. The current model, developed in 2005, incorporates both hydroacoustic estimates of the adult herring biomass and an index of the male spawning, called the “mile-days of spawn”. Evidence suggests that the current model performs adequately. Unfortunately, the forecast is based on measurements from the previous year and does not have a direct measure of future recruitment. Since herring are a relatively short-lived fish, this uncertain recruitment can be a substantial component of the forecast abundance.

Herring in Prince William Sound are believed to recruit primarily as age 3. Current knowledge suggests that most mortality occurs during the first winter of life, so the relative recruitment may be fixed by the end of the first year. Consequently, estimates of relative abundance of age 1 and age 2 fish should provide an index of future recruitment. An index of age 0 fish would also provide a forecast of recruitment if additional information were available on the magnitude of the first year mortality.

Hydroacoustic surveys of juvenile herring abundance have been conducted over the past 4 years. These surveys have been conducted in both fall and late winter. The focus has been on age 0 herring, driven by interest in the extent of the critical first overwinter mortality, and has included energetics and disease research as well as research on sources of predation mortality

## **II. COORDINATION AND COLLABORATION**

### **A. Within a EVOTC-Funded Program**

This project is part of the integrated “PWS Herring Research and Monitoring” proposal submitted by the Prince William Sound Science Center to the Exxon Valdez Oil Spill Trustee Council. It includes the collaboration and coordination described there for work within the herring research group and with the Long-Term Monitoring proposal submitted by the Alaska Ocean Observing System. This includes working with the Validation of Acoustic Surveys, Herring Disease, and Non-Lethal Sampling projects in the Herring Research and Monitoring program, and bird surveys from the Gulf Watch Alaska program.

### **B. With Other EVOSTC-funded Projects**

N/A

### **C. With Trustee or Management Agencies**

N/A

## **III. PROJECT DESIGN – PLAN FOR FY15**

### **A. Objectives for FY15**

Project Objectives:

1. Conduct annual surveys of juvenile herring to create an index of future recruitment
2. Validate species and size composition of fish ensonified during acoustic transects (See Bishop proposal).

### **B. Changes to Project Design**

There have been no changes from the original proposal.

#### **IV. SCHEDULE**

##### **A. Project Milestones for FY 15**

**Objective 1.** Conduct annual surveys of juvenile herring to create an index of future recruitment  
*November 2014*

**Objective 2.** Validate species and size composition of fish ensouffied during acoustic transects (See Bishop proposal).  
*November 2014*

##### **B. Measurable Project Tasks for FY 15**

**FY 15, 1st quarter (February 1, 2015 - April 31, 2015)**

*January: Finish Nov. 2014 analysis*

**FY 15, 2nd quarter (May 1, 2015-July 30, 2015)**

*May PI meeting*

**FY 15, 3rd quarter (August 1, 2015 – October 31, 2015)**

**FY 15, 4th quarter (November 1, 2015- January 31, 2016)**

*November Acoustic-trawl surveys*

#### **V. PROJECT PERSONNEL – CHANGES AND UPDATES**

Dr. Buckhorn will be leaving the project before the FY15 funding begins. The PWSSC is beginning the search for a suitable replacement. Dr. Thorne remains available as the Co-PI to assist with the transition.

#### **VI. BUDGET**

##### **A. Budget Forms (Attached)**

Provide completed budget forms.

##### **B. Changes from Original Proposal**

No changes are requested.

##### **C. Sources of Additional Funding**

No additional funding is provided.