

Project #: B58

Title:

Fish acoustic survey

Principal Investigator(s) and Recipient Organization(s):

PI: Dr. Chris Wilson

NOAA Fisheries

AFSC-RACE, Midwater Assessment and Conservation Engineering

7600 Sand Point Way NE

Seattle, WA 98115

Contract Period and Amount of Funding:

1 February 2008 to 31 December 2012

\$154,499 (NOAA-AFSC match was \$2,349,000)

Report Period:

1 October 2008 through 1 April 2009

Report Date:

30 March 2009

Lead Author of Report:

Dr. Patrick Ressler

Proposed timeline and milestones within report period: None.

Project Summary: This project provides travel and overtime support for conducting an acoustic survey of pollock abundance in June and July 2009. Normally, NOAA-AFSC acoustic pollock surveys occur biennially (e.g., 2006, 2008, 2010). Funding from this project, along with a very large match in funding by NOAA-AFSC, allows an additional survey in 2009. This survey will provide not only information on pollock, but also will provide a research platform for many other BSIERP projects.

Progress Summary: RACE acoustic surveys to assess walleye pollock stocks are typically conducted biennially during even years in the EBS and odd years (e.g., 2009) in the Gulf of Alaska (GOA). The AFSC requested funding from NPRB for conducting an acoustic survey of pollock abundance in June and July 2009 because AFSC funding was insufficient to cover the 2009 EBS acoustic survey that addressed BSIERP objectives as well as the simultaneous GOA acoustic survey. The 2009 EBS survey will take place as scheduled; however, the 2009 GOA acoustic survey was cancelled due to competing ship needs within NMFS and NOAA. As a result, the AFSC funding intended to support the 2009 EBS acoustic survey is now available to support other BSIERP objectives.

We requested that \$56,250 of Project B58 funds be reallocated to more fully address the goal of Project B62 (Forage distribution and ocean conditions). The goals of Project B62 are to understand the response to pollock and euphausiids to ocean habitat shifts and to use this understanding to model the impacts of climate change on their distribution. Reallocation of funds will enable us to cover BSIERP-related sampling during the summer 2009 EBS acoustic survey beyond what is done during the standard acoustic survey, and expand research effort of Project B62 by contributing to the support of a post-doc and summer undergraduate intern, which will enhance the contribution of this Project to the BSIERP study.

We also requested that \$83,371 of Project B58 funds be reallocated to Project B61 (Functional Foraging Response). Reallocation of funds will enable quantification of the spatial interactions between

planktivores (primarily pollock) and critical zooplankton prey (primarily euphausiid) using acoustic survey data (Project B58). Understanding this spatial interaction is needed for predicting the distribution of ecosystem production and depends on increased detail in BSIERP field work. These needs were highlighted by 2008 field results presented at the Alaska Marine Science Symposium by Patrick Ressler and Anne Hollowed and by sensitivity testing of the FEAST model (Aydin, Gibson).

Projects B61 and B62 warrant increased emphasis because of the commercial importance of pollock and the ecological importance of pollock and euphausiids in the Bering Sea. For example, juvenile pollock are important prey for seabird and fur seal colonies on the Pribilof Islands. Pollock and euphausiids are two focal species of BEST-BSIERP. The pollock fishery is the most valuable fishery in Alaska. Pollock abundance has declined sharply due to weak year classes during 2001-2005. Pollock are dependent on euphausiids and copepods during early life. Shifts in zooplankton size and abundance during 2001-2005 are suspected culprits in the pollock decline. Although ecologically important, euphausiid studies are limited. For example, the Bering Sea vertically integrated ecosystem model (ROMS/NPZ/FEAST) depends on annual abundance information, yet none exists. Understanding why pollock has declined depends on a description of pollock foraging ecology, zooplankton population dynamics and ocean conditions. Reallocation of funds will enable quantification of the spatial interactions between planktivores (pollock) and critical zooplankton prey (euphausiid) and help us understand why pollock abundance has declined.

Lessons learned and project adjustments: Since B58 funds were no longer needed to support an acoustic survey in the EBS during summer 2009, **NPRB has approved reallocation of Project B58 funds to Projects B61 and B62.**

Integration activity: None specific to this project.

Education and Outreach: None specific to this project.

Next year's Workplan: Subsequent to this document, reports on work supported by re-allocated funds will be included with project B61 and B62 reports.