

Bering Sea Integrated Ecosystem Research Project: April 1, 2009 Report for B72

Project #: B72

Title: Spatially explicit integrated economic model of pollock and cod

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

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Contract Period and Amount of Funding: Summer 2008 – September 20, 2010. Current contract amount in spending plan is \$248,051. Total B72 project amount through 2012 is \$455,734.

Report Period: This is the first project report, covering all work through September 2008.

Report Date: April 1, 2009

Lead Author of Report: Alan Haynie

Proposed timeline and milestones within report period

- Organize VMS, Observer, and environmental data with collaboration of other project PIs
- Integrate environmental data into first models
- Refine modeling approach.

Project Summary: This project will model how fishing effort is likely to change in the Bering Sea cod and pollock fisheries under changing environmental conditions. These models will be constructed both directly, through the inclusion of spatially-explicit environmental data into existing models, and indirectly, through the inclusion of spatial predictions of fish abundance from FEAST or other BSIERP-related models. This project will allow us to model how research conducted on the Bering Sea ecosystem (as reflected in hypotheses 1-4) will translate into changes in fishing effort, as discussed more directly in hypothesis 5.

Progress Summary: Since the October project report, project-related work has included:

- Completing a working paper that which develops a methodology that allows us to use VMS data to accurately predict where fishing occurs for unobserved vessels
- Interviewing post-doctoral candidates
- Submitting revisions of a paper for publication that contains first pollock fisher location choice models
- Developing a new spatial-GEV model to supplement the current modeling approach; this new method has the potential to provide a significant improvement in the spatial modeling fisheries behavior
- Analyzing salmon bycatch in the pollock fishery for a related project, which will be very important in future predictions of fishery behavior in the pollock fishery after new salmon bycatch regulations are implemented in 2011
- Organizing and analyzing environmental data for the project, including satellite, weather station, and buoy data.
- Submitting abstracts of BSIERP-related work to GLOBEC and IMCC meetings this spring.

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Lessons learned and project adjustments:

Continuing to prepare environmental data for integration into the pollock fishery model. The first models are expected to be running for presentation at the May IMCC meeting & June GLOBEC meeting. We are currently discussing the post-doc position with promising candidates so expect to hire a candidate shortly.

I have invested some effort in the ‘Synthesis Group,’ which I expect to continue through the coming 6-month period.

Integration activity: The following integration activities have taken place to during the last 6 months:

- Attending the BSIERP PI Meeting in Girdwood
- Contributing to discussion on ways to improve statistical analysis of all models
- Participating in regular Modeling and PI conference calls
- Presenting modeling approach to the EMC and modeling PIs at the Alaska Marine Science Symposium
- Participating in Symposium Group workshop at Alaska Marine Science Symposium and participating in ongoing ‘Synthesis Group’ efforts.

Education and Outreach:

No outreach activities to report from this period; extensive conference-activity planned for the next six months.

FY09 Project B72 Workplan

December 2008: submit paper predicting fishing using VMS data; complete draft of new pollock modeling for AFSC internal review.

March 2009: Complete data organization of environmental and Pacific cod data; run first pollock models with environmental data.

September 2009: Present revised pollock model with environmental data; run “basic” cod models.

2009-2012 Tasks, Assignments, Timeline:

B72: Spatially explicit integrated economic model of pollock and cod, Contact: Alan Haynie, Alan.Haynie@noaa.gov, 206-526-4253.

All work will be overseen by Alan Haynie with the assistance of a postdoctoral fellow and potentially other researchers who may collaborate on related work if external funding will support this work. Below is an outline of the 5-year plan for this B72 project.

December 2008: submit paper predicting fishing using VMS data; complete draft of new pollock modeling for AFSC internal review.

March 2009: Complete data organization of environmental and Pacific data to run model; run preliminary pollock models with environmental data.

September 2009: Present revised pollock model with environmental data.

March 2010: Run first cod models with environmental data; submit pollock paper for review.

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September 2010: Present final “stand-alone” pollock model and revised cod models.

September 2011: Submit manuscripts for publication. Incorporate FEAST and other spatially-explicit BSIERP model output into pollock and cod models, as feasible.

September 2012: Finalize and submit all publications.

Depending on the interaction of this project with other aspects of BSIERP, years 3-5 could extend slightly depending on the pace of other projects.