

Epi-benthic bottom trawl survey (O2.25)

Contact Information

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Summary

The Resource Assessment and Conservation Engineering (RACE) Division of the Alaska Fisheries Science Center (AFSC) conducts annual bottom trawl surveys to monitor the condition of the eastern Bering Sea (EBS) continental shelf epi-benthos. This survey is funded with in-kind money and will play a supporting role from 2008 to 2010 by providing biological and environmental survey data to other PI's being funded by BSIERP.

Background

Since 1971, the National Marine Fisheries Service (NMFS) Resource Assessment and Conservation Engineering Division of the Alaska Fisheries Science Center has conducted an annual bottom trawl survey in the eastern Bering Sea to determine the distribution and abundance of groundfish and crab resources. The primary purpose of the trawl survey time series is to provide the North Pacific Fisheries Management Council with up-to-date information on the distribution, abundance, and population biology of key groundfish, crab, and other invertebrate species within the EBS continental shelf ecosystem. The annual trawl survey and time series will provide valuable biological and environmental data for studying the ecosystem dynamics of the EBS epi-benthos.

Species and Geographic Scope

This annual trawl survey samples 376 stations (Fig. 1) covering about 0.5 million square kilometers of the Bering Sea shelf between the depths of 20 m and 200 m from Bristol Bay to St. Matthew Island. Trawl survey catches include taxa from about 100 individual fish species and over 150 individual invertebrate species, including major commercial groundfish and crabs (for list of species see Lauth and Acuna 2007; <http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-176.pdf>)

Hypotheses

This project by itself does not address any specific hypotheses pertaining directly to BSIERP; instead this project supports other BSIERP projects.

Project Description

Two commercial fishing vessels will be chartered to conduct a bottom trawl assessment survey of groundfish and invertebrate resources on the eastern Bering Sea shelf. The charters and the survey are contingent on the availability of funds from the federal government. Survey charters will begin and end in Dutch Harbor, AK, and will usually be conducted during the late-spring and summer months (June and July) during the years 2008, 2009, and 2010. The survey will consist of 376 sampling stations positioned within a 20 nm X 20 nm grid pattern (Figure 1). Most stations are located at the approximate centers of their respective grid cells; however, there is a higher density of stations around the Pribilof Islands and St. Matthew Island. Sampling will begin at the eastern end of Bristol Bay and progress westward. Trawling procedures will follow the protocols established by Stauffer (2004; <http://spo.nmfs.noaa.gov/tm/tm65.pdf>). The trawls will be towed for thirty minutes of estimated bottom time at a speed of 3.0 kt at each station. All stations will be sampled using the 83-112 eastern bottom trawl, which has an 83' headrope and a 112' footrope. The trawl will be towed behind 816 kg steel V-doors and paired 180.1' dandy-lines. Acoustic net mensuration equipment will be deployed on the net at all stations for *in situ* net configuration monitoring and area-swept determinations. A CTD and a light meter will be deployed on the headrope of the trawl to collect depth, temperature, salinity, and light

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intensity data for the duration of the tow. Additionally, a bottom contact sensor (inclinometer) will be deployed on the footrope to determine the interval the trawl was actually on-bottom in a fishing configuration. Catches will be processed to obtain the total weight and quantity of each species present in the trawl. When the catch is too large to be entirely sorted, a total weight will be calculated and a representative subsample will be extracted and processed; the resulting composition will be extrapolated by weight to totals per species. Biological information (e.g., length, maturity, age, weight per individual, stomach contents) will be collected for species of interest as encountered. Various special projects, approved by peer-review prior to the beginning of the cruise, will be undertaken throughout the cruise.

Project Reporting

Research Products: Standardized area-swept estimates of abundance for relevant invertebrate or fish taxa, and synoptic environmental dataset that includes profiles of light intensity, water temperature, and salinity for each trawl station.

Research Links: The EBS trawl survey is not funded by this BSIERP proposal and is only playing a supporting role by providing biological and environmental survey data to other PI's, and by providing survey platforms for a limited amount of additional data collection.

Research Reporting: Survey data will generally be edited and available to PI's two months following completion of each survey year.

Dissemination: Results are published annually in a peer-reviewed NOAA Technical Memorandum in the spring following the completion of each survey year (e.g., Lauth and Acuna 2007; <http://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-176.pdf>).

Graduate Students and Post-docs: None

Figures

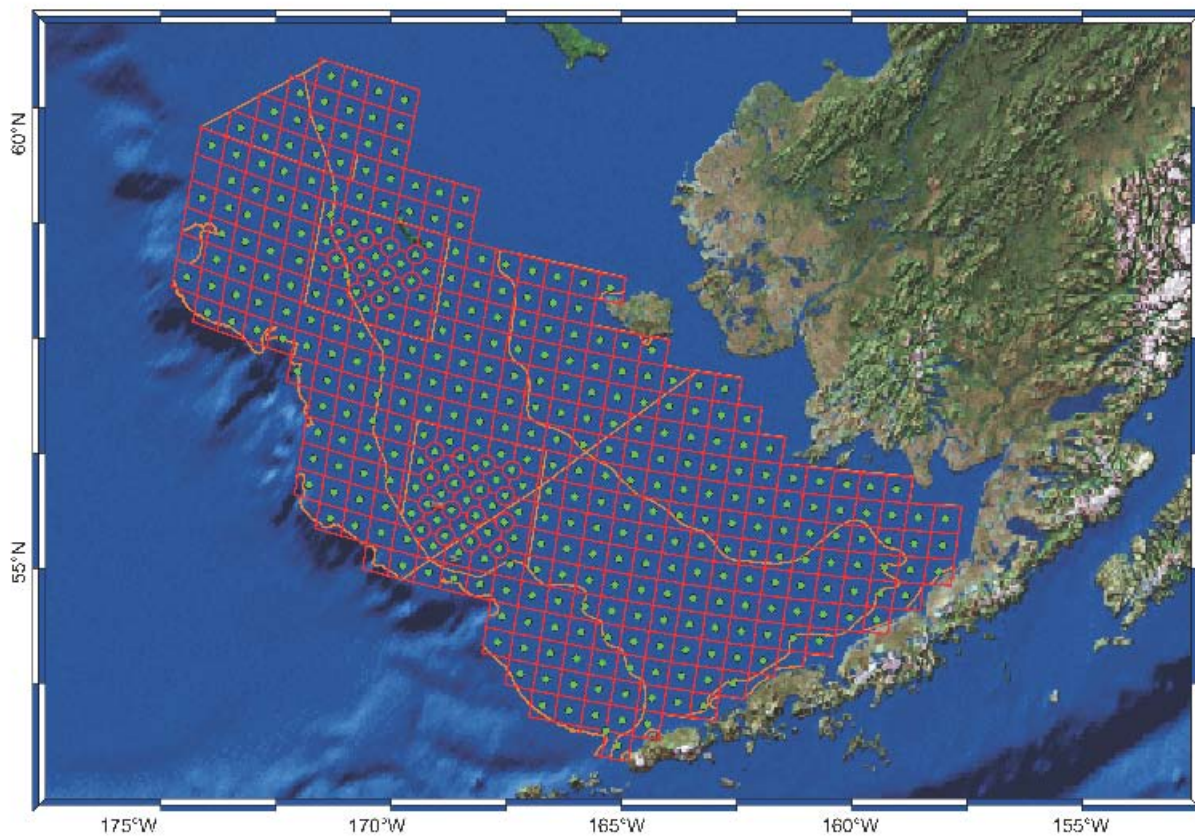


Figure 1. Map of eastern Bering Sea sampling grid and bottom trawl stations to be sampled annually between 2008 and 2010.

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References

Lauth, R.R. and E. Acuna. 2007. Results of the 2006 eastern Bering Sea continental shelf bottom trawl survey of groundfish and invertebrate resources. U.S. Department of Commerce, NOAA, Technical Memorandum NMFS-AFSC-176, 187p.

Stauffer, G. 2004. NOAA protocols for groundfish bottom trawl surveys of the nation's fishery resources. U.S. Department of Commerce, NOAA, Technical Memorandum NMFS-SPO-65.

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Budget Narrative – O2.25 Bottom trawl survey

Budget Narrative – Alaska Fisheries Science Center

Personnel: None

Travel: None

Others/Contractual/Service: None

Commodities: None

Student Services: None

Total Funds requested for AFSC: \$0

Other Support/In kind Contributions:

The project is partially leveraged with funds used for funding the AFSC eastern Bering Sea shelf crab and groundfish bottom trawl survey from 2008 to 2010 (total matching funds = \$3,240,000). The AFSC contracts two commercial fishing vessels for their annual trawl survey at a cost of \$750,000/year plus \$30,000 for shipping gear and other supplies. An additional \$300,000/year is spent on fuel costs for the survey charter vessels.

Total Match/In-kind: \$3,240,000