

Commercial Vessel Acoustic Survey of Coastal Herring Spawning Units, 2000-2004, Gulf of Maine: CTD data from the F/V Adventurer NEC-JA2005-2 from the Georges Bank (NEC-CoopRes project)

Website: <https://www.bco-dmo.org/dataset/2790>

Version: 1 Jan 2007

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Project

» [Northeast Consortium: Cooperative Research](#) (NEC-CoopRes)

Program

» [NorthEast Consortium](#) (NEC)

Contributors	Affiliation	Role
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Dataset Description

"Commercial Vessel Acoustic Survey of Coastal Herring Spawning Units, 2000-2004" CTD Data

Project Leader: *Shale Rosen*, Gulf of Maine Research Institute

Additional Participants:

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David Reingardt, F/V Thunder Bay; Wakefield, RI

Kevin Scheirer, Gulf of Maine Research Institute

Joel Wezowicz, Gulf of Maine Research Institute

Philip Yund, Gulf of Maine Research Institute

2005 report: [Inshore Gulf of Maine Acoustic Survey of Atlantic Herring](#)

Sentinel Spawning Grounds"

"The temporal and special characteristics of spawning herring aggregations in coastal Gulf of Maine waters have been studied during the fall since 1998. The program has attempted to estimate the biomass of herring spawning in these waters during the fall months to establish an index of spawning stock biomass. Surveys have been conducted from Cape Ann, Massachusetts to Cutler, Maine. Each year, techniques have been refined for implementing acoustic surveys and collecting representative biological samples on fishing vessels.

In March 2005, the Northeast Consortium funded and facilitated an independent peer review, which concluded that acoustic surveys are an appropriate way to survey herring in this area and recommended continuation of the project. It also recommended that future surveys focus on estimating biomass using a broad-scale systematic survey approach, as well as developing an annual "sentinel" acoustic survey of the important spawning grounds. This project continues with additional funds from the Northeast Consortium granted in 2005. The panel's recommendations are being incorporated into the work, with surveys focused on identifying and quantifying "sentinel" spawning grounds." *extracted from: Summary of Completed Cooperative Research Projects Funded by the Northeast Consortium, September 2006*

Methods & Sampling

Our goal is to complete the development of a cost-effective means of assessing and monitoring coastal spawning stocks of herring, building on our two years of successful pilot work with commercial fishing vessels. The immediate measurable outcomes from this project will include: 1) the production of a biomass estimate for the coastal spawning stock, 2) the development of a standardized survey protocol for future years, and 3) analysis of possible correlations between herring distributions and oceanographic variables. However, the longer-term objectives of this program (to continue this program as a regular monitoring effort and incorporate the results into future stock assessment procedures) extend well beyond the project year.

Data Processing Description

Herring play a key role in New England's fishing economy. Robust offshore herring abundance on Georges Bank offers a hopeful example of a fishery's potential to recover from commercial extinction. Yet the coastal herring spawning stock is thought to be in danger of depletion. Efforts to manage the coastal stock are hindered by the absence of independent information on abundance. Hydroacoustic survey techniques, which are widely employed in other countries, present a possible solution to this problem. The Gulf of Maine Aquarium Development Corporation (ADC) has recently tested an innovative, industry-based acoustic survey approach. Industry vessels have proven to be a cost-effective survey platform that may be superior to traditional research vessels for both shallow-water operations and the fish sampling that is a necessary component of acoustic surveys. The only problem during the pilot phase of this project has been that market pressures preclude commercial herring vessels from devoting sufficient time (circa 30 days) to completely survey the coastal stock during the narrow time window immediately prior to spawning. Our proposed solution is to utilize the acoustic survey capabilities of a groundfishing vessel. A scientific-grade, multiple-frequency echosounder and data logging system will allow that vessel to collect high-quality acoustic data. An acoustic net positioning system will make it possible to effectively deployed position a mid-water trawl for herring sampling. In addition, a CTD with a fluorometer will permit us to simultaneously sample hydrographic variables that may be used to predict herring distributions (and hence target future acoustic survey efforts). We will use a parallel transect design to survey pre-spawning herring aggregations along the Maine coast as they assemble from northeast to southwest during the late summer and autumn spawning season. Fish samples will be collected to determine species composition and permit accurate conversions between acoustic backscatter and herring biomass.

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Data Files

File**herr_spawn_ctd.csv**(Comma Separated Values (.csv), 4.94 MB)

MD5:c7f882e81d43177272df788418ee2af4

Primary data file for dataset ID 2790

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Parameter	Description	Units
cruiseid	cruise identifier, F/V Jennifer and Emily	
year		
cast	number of CTD cast	
day_local		
month_local		
time_local	24-hour clock	HHMM
yday_local	julian day	Jan. 1 = day 1
lat	north latitude	decimal degrees
lon	west longitude (negative)	decimal degrees
depth	depth of ctd measurement	meters
temp	temperature	degrees Celsius
sal	salinity	parts per thousand
fluor	fluorescence	milligrams per cubic meter

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Website	https://www.bco-dmo.org/deployment/57763
Platform	F/V Adventurer
Report	http://osprey.bco-dmo.org/pdf/Annala_05_HerringAcoustic_FINAL.pdf
Start Date	2006-08-21
End Date	2006-11-03
Description	<p>Methods & Sampling Our goal is to complete the development of a cost-effective means of assessing and monitoring coastal spawning stocks of herring, building on our two years of successful pilot work with commercial fishing vessels. The immediate measurable outcomes from this project will include: 1) the production of a biomass estimate for the coastal spawning stock, 2) the development of a standardized survey protocol for future years, and 3) analysis of possible correlations between herring distributions and oceanographic variables. However, the longer-term objectives of this program (to continue this program as a regular monitoring effort and incorporate the results into future stock assessment procedures) extend well beyond the project year.</p> <p>Processing Description Herring play a key role in New England's fishing economy. Robust offshore herring abundance on Georges Bank offers a hopeful example of a fishery's potential to recover from commercial extinction. Yet the coastal herring spawning stock is thought to be in danger of depletion. Efforts to manage the coastal stock are hindered by the absence of independent information on abundance. Hydroacoustic survey techniques, which are widely employed in other countries, present a possible solution to this problem. The Gulf of Maine Aquarium Development Corporation (ADC) has recently tested an innovative, industry-based acoustic survey approach. Industry vessels have proven to be a cost-effective survey platform that may be superior to traditional research vessels for both shallow-water operations and the fish sampling that is a necessary component of acoustic surveys. The only problem during the pilot phase of this project has been that market pressures preclude commercial herring vessels from devoting sufficient time (circa 30 days) to completely survey the coastal stock during the narrow time window immediately prior to spawning. Our proposed solution is to utilize the acoustic survey capabilities of a groundfishing vessel. A scientific-grade, multiple-frequency echosounder and data logging system will allow that vessel to collect high-quality acoustic data. An acoustic net positioning system will make it possible to effectively deployed position a mid-water trawl for herring sampling. In addition, a CTD with a fluorometer will permit us to simultaneously sample hydrographic variables that may be used to predict herring distributions (and hence target future acoustic survey efforts). We will use a parallel transect design to survey pre-spawning herring aggregations along the Maine coast as they assemble from northeast to southwest during the late summer and autumn spawning season. Fish samples will be collected to determine species composition and permit accurate conversions between acoustic backscatter and herring biomass.</p>

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Project Information

Northeast Consortium: Cooperative Research (NEC-CoopRes)

Website: <http://northeastconsortium.org/>

Coverage: Georges Bank, Gulf of Maine

The Northeast Consortium encourages and funds cooperative research and monitoring projects in the Gulf of Maine and Georges Bank that have effective, equal partnerships among fishermen, scientists, educators, and marine resource managers.

The Northeast Consortium seeks to fund projects that will be conducted in a responsible manner. Cooperative research projects are designed to minimize any negative impacts to ecosystems or marine organisms, and be consistent with accepted ethical research practices, including the use of animals and human subjects in research, scrutiny of research protocols by an institutional board of review, etc.

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Program Information

NorthEast Consortium (NEC)

Website: <http://northeastconsortium.org/>

Coverage: Georges Bank, Gulf of Maine

The Northeast Consortium encourages and funds **cooperative research** and monitoring projects in the Gulf of Maine and Georges Bank that have effective, **equal partnerships** among fishermen, scientists, educators, and marine resource managers.

At the 2008 Maine Fishermen's Forum, the Northeast Consortium organized a session on data collection and availability. Participants included several key organizations in the Gulf of Maine area, sharing what data are out there and how you can find them.

The Northeast Consortium has joined the Gulf of Maine Ocean Data Partnership. The purpose of the GoMODP is to promote and coordinate the sharing, linking, electronic dissemination, and use of data on the Gulf of Maine region.

The Northeast Consortium was created in 1999 to encourage and fund effective, equal partnerships among commercial fishermen, scientists, and other stakeholders to engage in cooperative research and monitoring projects in the Gulf of Maine and Georges Bank. The Northeast Consortium consists of four research institutions (University of New Hampshire, University of Maine, Massachusetts Institute of Technology, and Woods Hole Oceanographic Institution), which are working together to foster this initiative.

The Northeast Consortium administers nearly \$5M annually from the National Oceanic and Atmospheric Administration for cooperative research on a broad range of topics including gear selectivity, fish habitat, stock assessments, and socioeconomics. The funding is appropriated to the National Marine Fisheries Service and administered by the University of New Hampshire on behalf of the Northeast Consortium. Funds are distributed through an annual open competition, which is announced via a Request for Proposals (RFP). All projects must involve partnership between commercial fishermen and scientists.

The Northeast Consortium seeks to fund projects that will be conducted in a responsible manner. Cooperative research projects should be designed to minimize any negative impacts to ecosystems or marine organisms, and be consistent with accepted ethical research practices, including the use of animals and human subjects in research, scrutiny of research protocols by an institutional board of review, etc.

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