

**Project Title:** *Inshore Gulf of Maine Survey of Atlantic Herring Sentinel Spawning Grounds*

**Contract number:** NA05NMF4721057

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**Major Accomplishments and Milestones:**

Seven sets of 5-day long acoustic surveys were conducted between August 21, 2006 and November 3, 2006. A chart indicating the location of survey legs is indicated in Figure 1. All surveys were conducted at night, when herring are off bottom and visible to acoustic equipment.

Biological samples were also collected from any schools observed in locations where it was possible to set the vessel's midwater trawl. It was impossible to collect a biological sample with midwater trawl in areas with fixed gear (lobster traps); when fish were very close to bottom; or in shallow areas. Gillnets were set (unsuccessfully) in an attempt to collect samples from these areas.

In total, 30 samples of herring were successfully collected. This represents significant increase in sampling success over past years (previous best of 10 samples). Approximately 100 fish were retained from each sample, yielding a total of nearly 3,000 individual herring. Each of these individuals will be measured for total length, weight, spawning condition, and gonad weight. Approximately two-thirds of the samples have been processed to date.

In addition to collecting samples for the acoustic survey, the participants retained samples for the National Marine Fisheries Service's morphometric investigations of Atlantic herring and the University of New Hampshire's Large Pelagics Research Lab which is interested in the quality of herring which serve as forage for tuna.

Calibration of the acoustic equipment was conducted in a more rigorous manner than in past years, including both pre- and post-survey calibrations and calibration at multiple depths in order to verify the time varied gain (TVG) curve used to compensate for transmission loss of acoustic energy in water and make the return echo level independent of a target range.

**Unexpected Difficulties and Project Alterations:**

Very few unexpected difficulties were encountered during the surveys, and the only significant alteration was the addition of five days of surveys in order to be confident the period of surveys fully encompassed the spawning season in the area. These additional days were funded out of remaining charter funds remaining from 2004 surveys, and pending contributions from the herring industry.

**Next Steps (tasks for the next six months):**

Analysis of the acoustic data (editing the data to isolate acoustic returns from herring and processing the data to yield biomass estimates) will commence in mid-December. Processing of the remaining biological samples should be complete by the end of December. Results will be supplied in the project's final report by June 2007.

**Project Impacts:**

Project results will inform the management of Atlantic herring in the Gulf of Maine, particularly with respect to spawning closures and the relative importance of the Jeffreys Ledge area as a spawning ground. Preliminary data analysis indicates a relatively low amount of spawning activity in the area in 2006, despite the area's reputation as a significant location for spawning in the past.

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Dr. John Annala

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Date

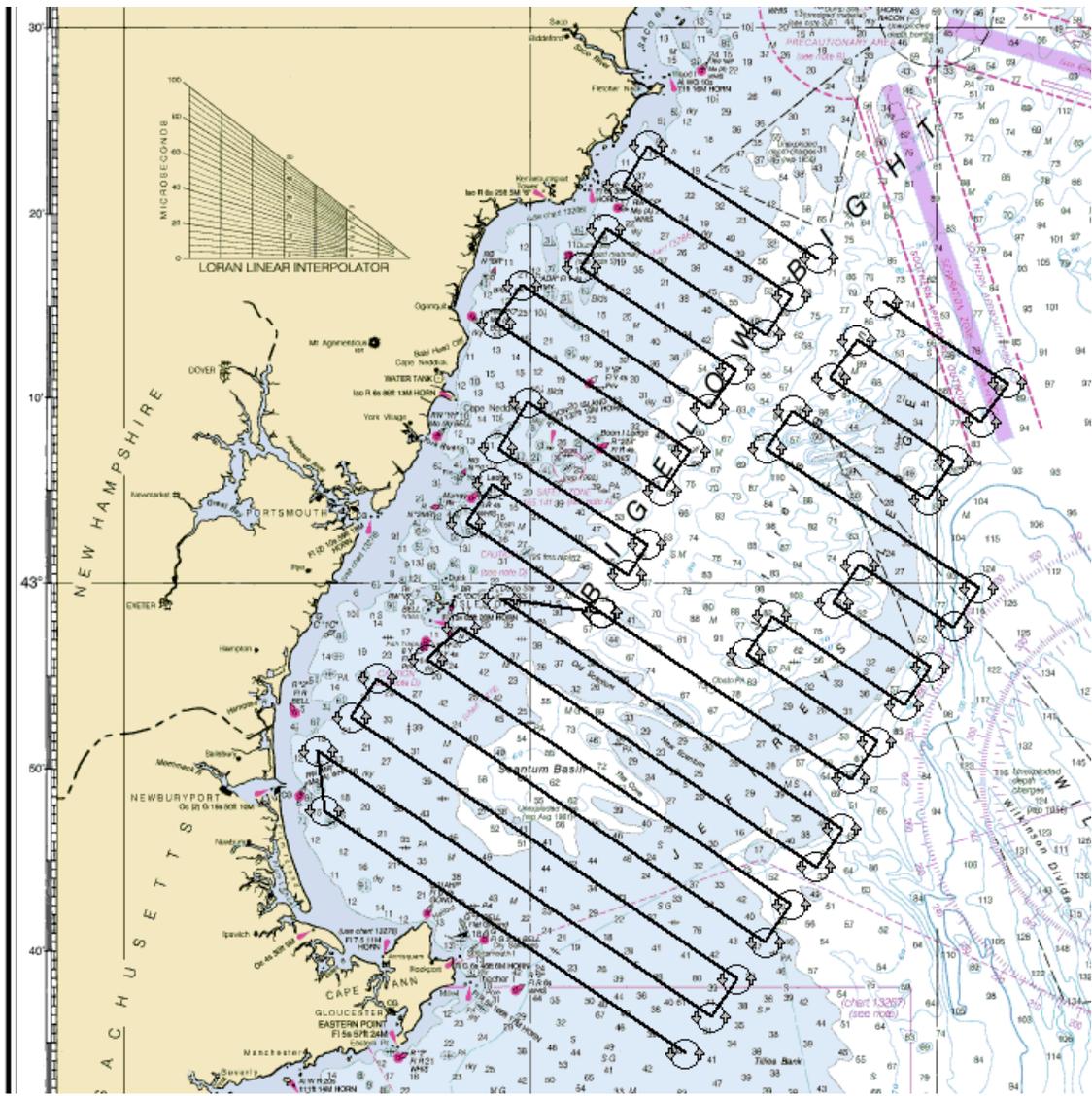


Figure 1. Survey track followed for each acoustic survey. Total length of all survey legs is 431 nautical miles, which required five nights of surveys to complete. The entire area was surveyed seven times between August 21 and November 3.