Comparison of Catch and Bycatch with the Addition of Escape Holes to Otter Trawl Nets in the Northeast Shrimp Fishery from F/V Ocean Reporter NEC-BL2003-2 in the Gulf of Maine from January to March 2005 (NEC_ProjDev project)

Website: https://www.bco-dmo.org/dataset/3088
Version: final
Version Date: 2006-07-01

Project
» Northeast Consortium: Project Development (NEC_ProjDev)

Program
» NorthEast Consortium (NEC)

Contributors	Affiliation	Role
Michael, Alan		Co-Principal Investigator
Lee, Bill		Captain

Table of Contents

Dataset Description

Comparison Of Catch And Bycatch With The Addition Of Escape Holes To Otter Trawl Nets In The Northeast Shrimp Fishery

Project Leader: Bill Lee, F/V Ocean Reporter

Final report

Small escape holes made from cut pieces of 6-inch PVC pipe were sewn into the net in front of the Nordmore grate in a standard shrimp net used in the northeast fishery. Preliminary tests had provided video of fish escaping through these holes during active trawling. A series of tows, with and without these holes in the nets were made from the vessels the Ocean Reporter and the Marina Rose. Seven other participating boats from Rockport, Massachusetts and Hampton, New Hampshire towed standard gear at the same time and in the same general area. Catch and bycatch was weighed and identified to provide a direct quantitative comparison of the percentage bycatch with and without the escape holes.

Mean catch rate for vessels using nets without rings was 235.5 lbs shrimp/hr with a bycatch rate of 16.7 lbs/hr or 6.6%. For the two vessels with escape rings installed in the nets, the catch rate was 228.6 lbs shrimp/hr with a bycatch of 27.5 lbs/hr or 10.7 %. The data was confounded by the large variation in bycatch rates among vessels and the limited number of tows. The experimental vessels encountered schools of pelagics (whiting or herring) on some days which heavily influenced results. One vessel, the Marina Rose appeared to show a significant reduction in bycatch rate from 19.4% without the rings to 9.4% with the escape rings installed. The other vessel, the Ocean Reporter had a bycatch rate of 7.5% without rings and 11.3% with the rings. A high catch of pelagics on several days during the tests with rings influenced results from this vessel.

A further complication to the study was a discrepancy in bycatch rates between vessels operating out of

Hampton, New Hampshire and those out of Rockport, Masachusetts. The New Hampshire vessels had lower overall bycatch rates, which could be due to the area trawled, or performance of the gear. A similar study in the previous year had documented a lower catch of pelagics by the New Hampshire vessels. Future studies should involve a larger number of tows from one or two vessels.

Methods & Sampling

Rings from white PVC pipe were cut and installed in a standard otter trawl used to catch shrimp (Figure 1). This net was used in the normal commercial fishing mode. For each trawl (typically 2 - 3 hours) the location, depth, speed and duration of tow was recorded. At the end of each tow, the catch (lbs) of shrimp was evaluated and the bycatch identified, and weighed. Other vessels performed commercial shrimp operations in the same area at the same time using the standard otter trawl currently used by the fleet. Captains were offered a nominal fee to report catch and bycatch in the same manner. The data was converted into catch per unit effort and a comparison made, between the two trawls on catch rates and relative amounts and types of bycatch. A biologist met with respective captains to provide them with data sheets and instructions on the collection of data. These vessels operated in the same general area of Ipswich Bay and, in many cases, on the same day(s) as the Ocean Reporter.

Most tows were made in an area off Rockport Massachusetts at depths ranging from 56 to 76 meters. Three vessels out of Hampton, New Hampshire reported their catch from a little further north for a total of 13 boat/days. Average tow duration and speed for the fleet using the otter trawl was 2.2 hrs at 2.5 knots. On the Ocean Reporter, the trawl was towed at speeds from 2.5 - 3.0 knots for an average of 1.6 hours.

Data Processing Description

The data was summarized at ADM Associates, converted to catch-per-hour towed, and examined for differences in catch rates of shrimp and bycatch. Bycatch was separated into three categories; groundfish (hake, skates, flounders etc), pelagic fish (herring, whiting) and others (invertebrates such as starfish, crabs and scallops)

[table of contents | back to top]

Data Files

File
shrimp_by.csv (Comma Separated Values (.csv), 3.77 KB) MD5:9b3e567563f39f1be64e5d87db792a22 Primary data file for dataset ID 3088

[table of contents | back to top]

Parameters

Parameter	Description	Units
modification	experimental treatment	
date_local	local date	
boat_name	vessel name	
no_of_tows	number of tows taken during cruise	
time_towed	duration of tow	hours
wt_shrimp	weight of shrimp	pounds
wt_shrimp_hr	weight of shrimp caught per hour	pounds per hour
wt_bycatch	weight of bycatch	pounds
wt_bycatch_hr	weight of bycatch per hour	pounds per hour
pct_bycatch	percent of bycatch in the sample	%
wt_groundfish	weight of groundfish in sample	pounds
wt_pelagic_fish	weight of pelagic fish in the sample	pounds
wt_other_species	weight of other fish in sample	pounds

[table of contents | back to top]

Deployments

NEC-BL2003-2

Website	https://www.bco-dmo.org/deployment/57978
Platform	F/V Ocean Reporter
Report	http://northeastconsortium.org/ProjectFileDownload.pm?report_id=682&table=project_report
Start Date	2005-01-04
End Date	2008-03-08

[table of contents | back to top]

Project Information

Northeast Consortium: Project Development (NEC_ProjDev)

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.

Priority areas for Northeast Consortium funding include selective fishing-gear research and development. The development of selective fishing gears that enhance gear selectivity, target healthy stocks, reduce bycatch and discard, reduce or eliminate technical barriers to trade, minimize harvest losses, and improve fishing practices. Studies of new and developing fishing gears and technologies aimed at reducing environmental impact is funded under Project Development.

[table of contents | back to top]

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 Fisheremen'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.

[table of contents | back to top]

Funding

Funding Source	Award
National Oceanic and Atmospheric Administration (NOAA)	unknown NEC_ProjDev NOAA

[table of contents | back to top]