Experimental winter flounder trap study: trap deployment metadata collected from the F/V Jeanne C. NEC-KP2004-1 from the coastal Maine, 2005-2006 (NEC_ProjDev project)

Website: https://www.bco-dmo.org/dataset/3004
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Project
» Northeast Consortium: Project Development (NEC_ProjDev)

Program
» NorthEast Consortium (NEC)

Contributors	Affiliation	Role
Pinkham, Kelo		Principal Investigator
He, Pingguo	University of New Hampshire (UNH/OPAL)	Co-Principal Investigator
Copley, Nancy	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Dataset Description

Winter Flounder Traps: Exploring The Potential For Environmentally-Friendly Access To Groundfish In Coastal Maine

final report, by Kelo Pinkham and Catherine Salerno.

This dataset describes the metadata associated with the winter flounder trap study

Abstract:

The goal of this project was to explore the feasibility of a seasonal commercial winter flounder trap fishery in Maine's inshore waters. Experimental flounder traps with two different opening designs were tested. In one design, a standard crab hoop was used. In the other trap design, a smaller (restricted) opening was used in an attempt to exclude a higher proportion of bycatch, particularly legal sized lobsters. A total of 1160 traps were hauled over 33 trips during three different seasons: early summer, early winter, and late spring. The highest catch rates of winter flounder occurred in late spring although overall catch rates were low, an average of less than half of a pound of flounder per trap. The restricted opening design reduced the bycatch of legal sized lobsters compared to the traps with the standard opening during one field season, but results from the second field season were inconclusive. While catch rates in this experiment were not high enough to justify the development of a commercial fishery at this time, results were encouraging and should be used to direct further experimental testing. Future work should focus on setting the traps in areas of higher winter flounder abundance, exploring seasonal timing of a potential fishery, testing alternative bait types and refining trap opening design.

Methods & Sampling

METHODS

Gear Design and Construction

Trap design was based on a historical design, used previously in the Gulf of Maine to target winter flounder with slight refinements to the entry design reflecting more recent advances in trap design technology and understanding of flounder behavior. Kelo Pinkham built all traps used in the experiment with assistance from fellow Boothbay fisherman, Jim Lowe. In early 2005, thirty (30) traps were constructed from lobster crates fitted with a standard crab hoop acting as one long head (entrance). The crab hoop measures 8 inches across and 2 ½ inches in height. It was hoped that this hoop would allow flatfish, crabs and some finfish to enter while excluding most lobsters.

Prior research suggests that entry design is the most important variable in flounder traps. With this in mind, Pinkham decided to fit the experimental traps with a standard crab hoop, which measures 8 inches across and 2 ½ inches in height. This hoop should allow entrance of flatfish, crabs and some finfish while excluding most lobsters. These traps were tested in the first of 3 field testing components during the summer of 2005. Following the first field testing component, Pinkham also constructed and tested traps with a more restricted opening size of 1 ¾ inches (8" x 1 ¾"). During the second and third field testing components traps with both types of opening designs were tested.

Study Area

The winter flounder traps were set in coastal areas of mid-coast Maine in Booth Bay, Linekin Bay and Sheepscot Bay as shown in Figures 1 - 3. Water depths ranged from 1 to 24 fathoms. Bottom type was varied and included mud, sand and rocky habitats.

Field Trials

Field testing components occurred:

- Summer 2005: 02 June 2005 - 06 August 2005
- Winter 2005: 17 November 2005 - 31 December 2005
- Spring 2006: 03 May 2006 - 16 June 2006

Traps were baited with crushed mussels or a combination of mussels and herring in bait bags or jars and checked twice each week. For each trap hauled the date was recorded, soak time (days), location (latitude and longitude), and trap type (standard or restricted opening). Biological data collected included species identification, weight to the nearest hundredth of a kilogram and length to the nearest whole centimeter for each finfish species, and weight the nearest hundredth of a kilogram for crustaceans. In addition, environmental data was collected including water depth (fm), weather, wind speed (kt), and wave height (ft). Additionally, during the first field testing component, the sex and maturity stage of all winter flounder captured was determined. This information was not collected for the second field component since no winter flounder were captured. During the third field component this information was not collected since the traps were not fished by the project leader but by another fisherman who was not comfortable collecting this information.

During the first field testing component 30 traps were set. The traps were hauled during 10 trips between 02 June 2005 and 06 August 2005, with an average soak time of 8 days. All traps fished during this component were fitted with a standard crap hoop. Overall during this period, 253 hauls were made.

During the second field testing component 50 traps were set. The traps were hauled during 12 trips between 17 November 2005 and 31 December 2005, with an average soak duration of 4 days. Twenty-four (24) traps were fitted with the standard crab hoop opening, 25 traps had the restricted opening design. Overall during this period, 596 hauls were made. Traps with standard openings were hauled 297 times and traps with the restricted entry design were hauled 299 times.

During the third field testing component 30 traps were set. The traps were hauled during 11 trips between 03 May 2006 and 16 June 2006, with an average soak duration of 4 days. Seventeen (17) traps had the standard crab hoop opening, 13 traps had the restricted opening design. The project leader recruited Herbie Burnham, a fellow mid-coast lobster fisherman, to set and haul the traps and collect data for this field component. Overall during this period, 311 hauls were made. Traps with standard openings were hauled 164 times and traps with the restricted entry design were hauled 147 times.

Data Processing Description

ANALYSIS

Fish Length Frequency Distributions
Fish species captured in the traps included winter flounder, longhorn sculpin, Atlantic cod and shorthorn sculpin. Total length measurements to the nearest whole centimeter were collected for winter flounder, longhorn sculpin, and shorthorn sculpin; fork length was collected for the cod. Twenty-six (26) winter flounder in total were captured over the duration of the project ranging in size from 15 to 42 cm. Exactly half of these winter flounder (13) were at or above the minimum legal landing size of 30.5 cm. The length frequency distribution of all winter flounder captured is shown in Appendix I. Eight (8) longhorn sculpin were captured over the duration of the project. A chart displaying their length frequency distribution is also given in Appendix I of report (see link above). Two Atlantic cod were also captured during the fall sampling period. These cod measured 27 and 30 cm. Two shorthorn sculpins were captured as well; one at 20 cm and one at 23 cm.

Lobster bycatch
The restricted entrance trap design appeared to capture fewer lobsters than the control trap design although average catch per trap was fairly low for both designs (Table 11). No legal sized lobsters were captured at all in the traps with the restricted opening design in 446 traps hauled.

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Data Files

File
win_flounder_traps.csv (Comma Separated Values (.csv), 72.46 KB) MD5:96bd2ffe8c7cc13bfede9dd2133fdfac Primary data file for dataset ID 3004

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Parameters

Parameter	Description	Units
day_local	day of month, local time	
year	year, e.g. 2009.	
month_local	month of year, local time	
yrday_local	local day and decimal time, as 326.5 for the 326th day of the year, or November 22 at 1200 hours (noon)	
cruise_id	cruise identifier, e.g. en9402 = R/V Endeavor cruise 9402	
soak_time	duration that trap lay in position to collect animals	days
weather	description of weather: sunny, foggy, overcast, or calm	
wind_dir	cardinal wind direction	
wind_speed	wind speed	miles per hour
wave_hgt	wave height	feet
trap_num	trap id number	
trap_type	type of flounder trap: C = standard opening with crab hoop; R = restricted opening	
lat	latitude, in decimal degrees, north is positive	
lon	longitude, in decimal degrees, east is positive	decimal degrees
depth_w	water depth	fathoms

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Deployments

NEC-KP2004-1

Website	https://www.bco-dmo.org/deployment/57952
Platform	F/V Jeanne C.
Report	http://northeastconsortium.org/ProjectFileDownload.pm?report_id=863&table=project_report
Start Date	2005-06-02
End Date	2006-06-16
Description	frequent day trips to test fishing gear

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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.

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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 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.

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Funding

Funding Source	Award
National Oceanic and Atmospheric Administration (NOAA)	NA04NMF4720302

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