Groundline rope height (m) above seafloor between lobster traps from F/V Time-n-Tide NEC-LL2006-1 in the Gulf of Maine, off Jonesport, Maine from 2007-2007 (NEC_ProjDev project)

Website: https://www.bco-dmo.org/dataset/3414
Version: 1
Version Date: 2011-01-25

Project
» Northeast Consortium: Project Development (NEC_ProjDev)

Program
» NorthEast Consortium (NEC)

Contributors	Affiliation	Role
Ludwig, Laura	Gulf of Maine Lobster Foundation (GoM-LF)	Principal Investigator
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Dataset Description

This project sought to examine the effect of bottom currents on lobster gear in nearshore eastern Maine waters, to establish whether bottom currents there are strong enough to significantly reduce the profile of floating rope used as groundline between traps, thus reducing the risk of whale entanglements in lobster gear.

Assessment of the current meter data indicates that the current off Jonesport, Maine, where all the equipment was deployed, measured at the bottom of the ocean on level with the traps (1-2m off bottom), is often over 30 cm/sec and has little to no 'slack' period between tides. Analysis of the sensor data showed the floating groundlines at or below 2m (one fathom) of arc height over a 20 fathom length, and overall the measurements suggest that the flow of current is significantly stronger near the ocean bottom than anticipated, which would tend to depress the floating line more than would be estimated assuming much lower flows.

See final report

Associated dataset: groundlines current data

Methods & Sampling

Datasets from three measuring devices were collected during five months of field-work. Depth and groundline height data was extrapolated from Star-Oddi pressure sensors deployed on a 20-trap trawl each month; current velocity and directional data was recorded by a Sensor Data 6000 current meter deployed near the lobster trawl; and three months' worth of data from acoustic Doppler current profilers (ADCP), rigged in a

customized 3' lobster trap directly into the trawl, gave more detailed information about the velocity and direction of current acting on the groundline.

Notes for documentation:
June: no Doppler trap data
July: traps 4 and 5 have 20 m depth difference
major difference before and after July 26 haul: difference in trawl taughtness?
August: traps 4 and 5 have 20 m depth difference
no data for groundline line 5-6, therefore no Traps 5-6
loggers on flow meter and anchor removed on 8/27
odd activity on 8/27 prior to haul
Sept: Trap 9 shallow, 23m different from abutting traps 8 and 10, leading to large negative readings
groundline 4-5 = 7/16" Polysteel groundline
all other: 7/16" Danline
09.24.07 14:30:00 - flow meter removed
09.25.07 07:05:00 - flow meter reset
09.29.07 13:40:00 - Haul and reset trawl 9/29
10.02.07 07:35:00 - removed flow meter
Nov.: gear not hauled until removed from water for season
Trap 7 in shallow water, ~26m shallower than Traps 6 and 8, leads to high negative numbers
All rope 7/16" manline except:
Traps 10-11: 7/16" Polysteel
Traps 11-12: 7/16" Danline
Traps 13-14:1/2" Polysteel

Data Processing Description

All data were processed by staff from the three organizations (GOMLF, MER, and Maine Oceanographic Services) with expertise in the standard preparation and data processing procedures recommended by the instrumentation manufacturers and by established practice.

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Data Files

File
groundlines_height.csv (Comma Separated Values (.csv), 2.65 MB) MD5:a1875eadaa5a9d90815acacfff613d60 Primary data file for dataset ID 3414

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Parameters

Parameter	Description	Units
date_local	local date	mm/dd/yyyy
day_local	day of month; local time	1 to 31
month_local	month in local time	1 to 12
time_local	local time: 24 hour clock	HHmm
year	year of sampling	YYYY
yrday_local	local day and decimal time as 326.5 for the 326th day of the year or November 22 at 1200 hours (noon)	1 to 365
lat1	eastern-most latitude in decimal degrees: North is positive and negative denotes South	decimal degrees
lon1	eastern-most longitude in decimal degrees: East is positive and negative denotes West	decimal degrees
lat2	western-most latitude in decimal degrees: North is positive and negative denotes South	decimal degrees
lon2	western-most longitude in decimal degrees: East is positive and negative denotes West	decimal degrees
traps_#to#	height above bottom of groundline between traps	meters
traps_12toDoppler	height above bottom of groundline between trap 12 and the ADCP	meters
SD6000	height above bottom of the SensorData6000 current meter	meters
comments	comments pertaining to data	text

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Instruments

Dataset-specific Instrument Name	Acoustic Doppler Current Profiler
Generic Instrument Name	Acoustic Doppler Current Profiler
Generic Instrument Description	The ADCP measures water currents with sound, using a principle of sound waves called the Doppler effect. A sound wave has a higher frequency, or pitch, when it moves to you than when it moves away. You hear the Doppler effect in action when a car speeds past with a characteristic building of sound that fades when the car passes. The ADCP works by transmitting "pings" of sound at a constant frequency into the water. (The pings are so highly pitched that humans and even dolphins can't hear them.) As the sound waves travel, they ricochet off particles suspended in the moving water, and reflect back to the instrument. Due to the Doppler effect, sound waves bounced back from a particle moving away from the profiler have a slightly lowered frequency when they return. Particles moving toward the instrument send back higher frequency waves. The difference in frequency between the waves the profiler sends out and the waves it receives is called the Doppler shift. The instrument uses this shift to calculate how fast the particle and the water around it are moving. Sound waves that hit particles far from the profiler take longer to come back than waves that strike close by. By measuring the time it takes for the waves to bounce back and the Doppler shift, the profiler can measure current speed at many different depths with each series of pings. (More from WHOI instruments listing).

Dataset-specific Instrument Name	Pressure Sensor
Generic Instrument Name	Pressure Sensor
Dataset-specific Description	Star-Oddi pressure sensors
Generic Instrument Description	A pressure sensor is a device used to measure absolute, differential, or gauge pressures. It is used only when detailed instrument documentation is not available.

Dataset-specific Instrument Name	Sensor Data 6000 Current Meter
Generic Instrument Name	Sensor Data 6000 Current Meter
Dataset-specific Description	A vector averaging field current meter.
Generic Instrument Description	The Model SD-6000 MINI current meter is a vector averaging field current meter with recording capacity for up to 6,000 measurements of current speed, direction and temperature. The instrument can be programmed to carry out measurements at given intervals from each minute to each 3 hour via PC or by holding a magnet outside marked points on the instrument.Information is communicated to and from SD-6000 via an infra-red emitter/photodiode pair mounted inside the instrument's transparent top cap. An optoconverter (SD-40) which is positioned over the instrument top cap during communication with a PC converts optosignals to standard RS-232. Download of data to a PC takes a maximum 30 seconds after which data can be immediately processed and displayed. SD-6000 can also be used as a remote monitoring instrument supplying data in real time via a cable.

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Deployments

NEC-LL2006-1

Website	https://www.bco-dmo.org/deployment/58163
Platform	F/V Time-n-Tide
Report	http://nec.whoi.edu/pdf/Ludwig2006_groundlines_final.pdf
Start Date	2007-06-09
End Date	2007-12-07
Description	GOMLF, in consultation with MER and GoMOOS, worked with a commercial lobsterman in Jonesport, Maine, to deploy a variety of measuring devices near or on his lobster gear that would measure bottom current velocity and direction as well as the arc of the floating groundline on the gear. GOMLF designed the project to take place in Downeast Maine because the combined coastal current and tide in that area is known to be strong enough to pull 60” poly-balls under the surface, and because lobstermen in that area suspected that the strong current below the surface lowered their floating groundlines in such a way as to reduce the risk of entanglement. The field work began in June 2007 and was scheduled to run for six months.

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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
NorthEast Consortium (NEC)	07-090

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