Northeast Consortium 2009/10 Mid-Year Progress Report

POTYEAR: Determining the Seasonality of Cod Pots

Award Number: 09-048A

Period of Performance: 6/30/2008 - 6/30/2011

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Names in **bold** played a key role in project design and implementation.

Major Accomplishments and Milestones

The project is nearing completion. So far, we have completed 31 days at sea, resulting in 398 pot-hauls and catch and measurement of 545 Atlantic cod. Atlantic cod made up 79% of all organisms caught in pots. Floy tags have been applied to 401 cod, with 13 DST tags attached to spawning or mature cod, with 14 fin clips collected for genetic analysis. Thirty-two fish have been recaptures of previously tagged individuals. We have now successfully deployed pots in all months described in the proposal.

Since the annual report of June 2009, we completed two periods of field testing: June and November 2009. Weather shortened the November fieldwork by one day. Filming could once again not be conducted due to poor weather. Data from these trips have been entered into the project database.

As part of data processing, a procedure for merging and importing data from temperature loggers was developed. Data are first imported into Microsoft Access, and then analyzed in R, the open-source data visualization and analysis program. This procedure allows us to incorporate bottom temperature into the database for exploration and analysis. An example of the value of this

technique is the identification of temperature anomalies which occurred during the June trip, likely due to unusual Northeast storms (Figure 1).

Procedures for mapping pot locations were also developed using R that result in GIS-like plots (Figure 2). These plots are also useful for data auditing, identification of factors affecting catch, and for presentations and reports.

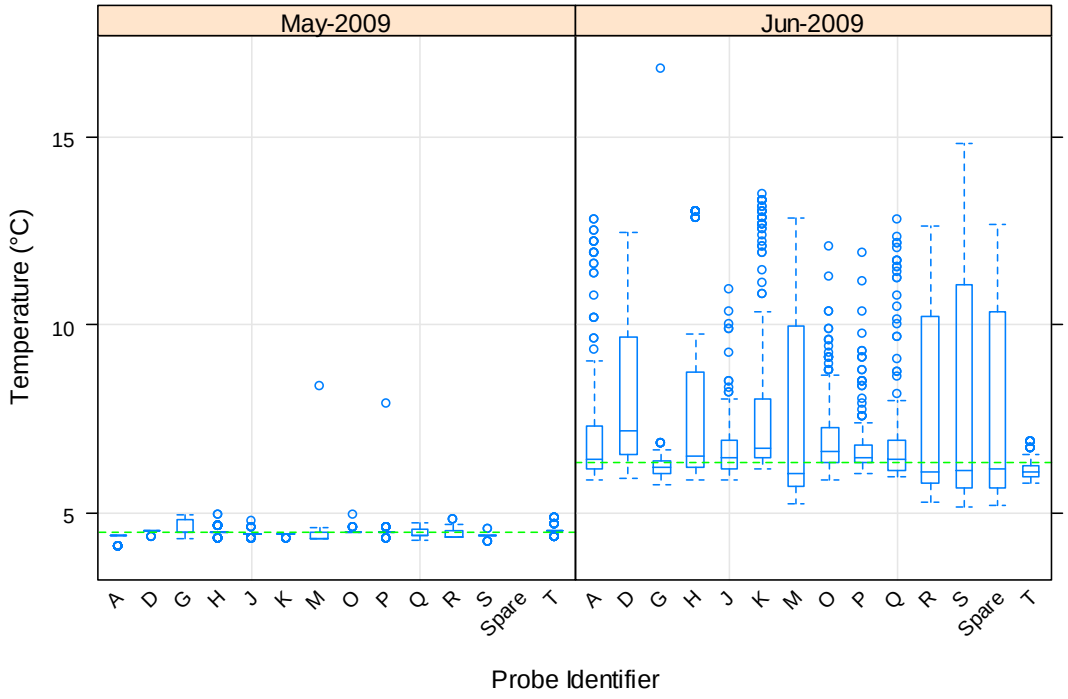

Figure 1: Boxplots of bottom temperatures (°C) of individual pots during May and June 2009. Green dashed line is panel median. Variability and change in bottom temperature in June was identified by large interquartile ranges in June, especially compared to the stability of temperatures in May as illustrated by the small boxes. Note also the difference in median bottom temperatures between months.

A pot (#932, floating Norwegian style) that had been lost in the first deployment (December 2008) was recovered with little or no damage in October by Marcella during lobster fishing.

Unexpected Difficulties and Project Alterations

We have had unfortunate luck with filming of cod behavior due to either bad weather or poor visibility, collecting little or no footage so far. To attempt to collect behavior footage, we plan to use remaining funds in the grant to pay for vessel time in April or May 2010 to conduct a multi-day filming effort underwater. We are confident that dedicating time to filming will improve our chances of success. We may also collect additional catch comparisons.

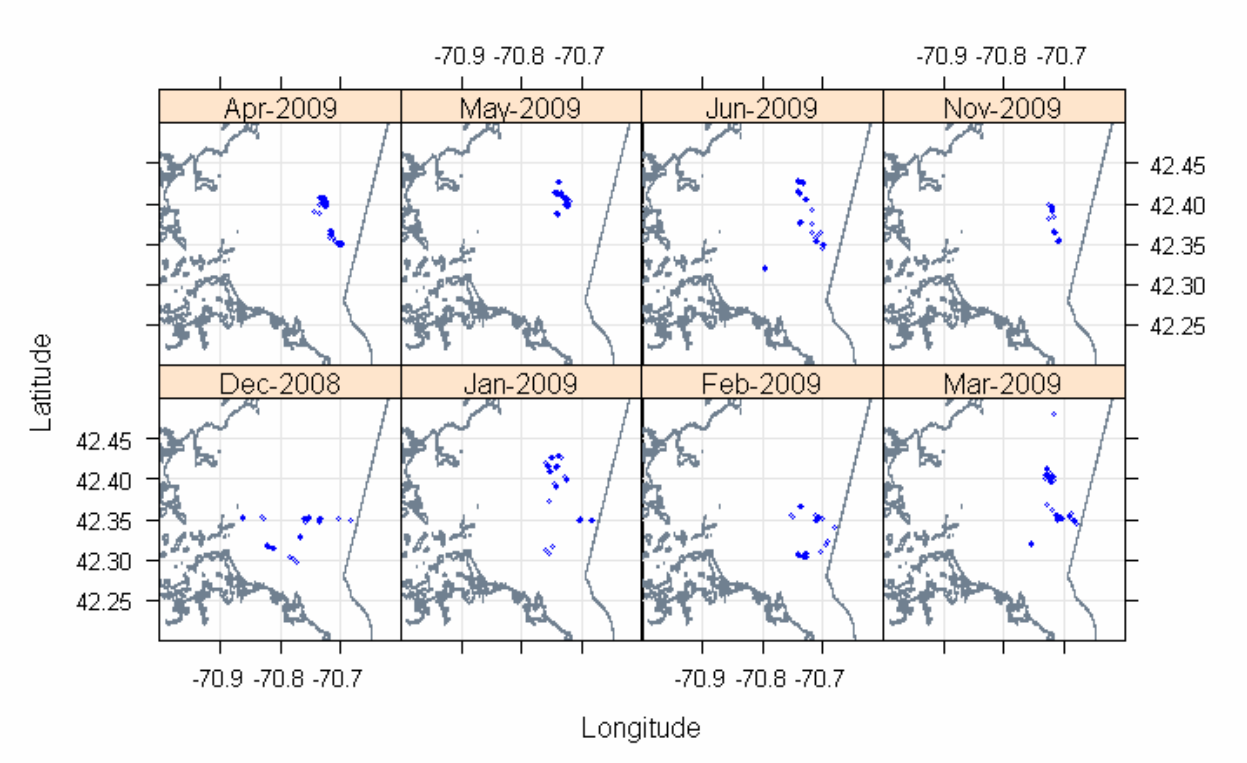

Figure 2: Locations of pot testing by month (in blue) in Boston Harbor. Gray line marks the state waters limit; darker points represent multiple sets in the same location.

Next Steps (Tasks for the next six months)

We anticipate that the project will be completed in the next six months, with the required final report to the NEC within 90 days following. During that time, we will prepare for and complete the filming described above, conduct video analysis, data exploration and analysis, and draft and complete the final report.

Field deployment will require typical logistical arrangements: moving and storage of pots following the completion of the study; bait preparation; deployment and downloading of temperature data; coordination among project members; data handling.

Impacts

Interest in cod potting as an alternative harvest method remains high. Pol was invited to a one day meeting on the future of cod potting in Massachusetts held by Jim Knott of Riverdale Mills. Phone calls from interested fishermen continue.

We believe we have identified both a pot type and a time of year when pots are best set. We are still considering future activities with cod pots. Preliminary research results are beings shared internationally through the ICES community.

Fuller awareness of the impact of this work will come after all information is analyzed and disseminated.