TITLE: COOPERATIVE RANDOM STRATIFIED VENTLESS LOBSTER TRAP SURVEY IN MASSACHUSETTS BAY – YEAR 2

Contract No: PZ06117

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Accomplishments and Milestones

We have just completed our second full season of a random stratified ventless trap survey in Massachusetts Bay. From May 1st, 2006 through November 9th, 2006 we completed a total of 49sea-days in which we sampled 50,957 lobsters from a total of 5,768 trap hauls.

We have also completed our proposed tag-recapture calibration work during this time period. We tagged 608 lobsters in June, 706 lobsters in August, and 597 lobsters in October. A proportional number of lobsters were tagged in each strata within each season. Recapture estimates will be used to adjust abundance estimates by season and strata.

Finally, we have made significant progress on our proposed sediment verification work. We developed a highly portable video drop camera system that can be deployed out of small vessels. With this system we have conducted a total of 16 sea-days in which we have photographed 55 out of 80 sampling stations. A total of 12 to 15 1 m^2 bottom photographs were taken at each station. To date we have taken approximately 2000 photos. Each photo will be classified by sediment type and used to verify the hydro-acoustic data used to classify the sediment strata at each station.

This survey has laid the foundation for a new fishery independent means of monitoring lobster abundance. In the spring of 2006 the ASMFC lobster technical committee adopted the survey design developed from this project for a coast wide, large scale, monitoring program. Preliminary data collected from this study was instrumental to fine tuning key survey design elements for the coast wide ventless trap survey. Most notably our

data justify the need for sampling with both vented and ventless traps to adequately sample a full size range of lobsters, as well as the need for both sediment and depth stratification to account for ontogenetic and seasonal shifts by habitat type.

Unexpected Difficulties

To date we have experienced few if any problems with the ventless lobster trap sampling or the lobster tagging portions of this project. However, we have experience a number of difficulties and delays with developing, obtaining, and deploying the drop camera system for the sediment verification work. Using commercial lobster boats (32' to 42') as the primary research platform made it necessary for us to develop a light weight portable camera system with minimal power requirements that was capable of taking high quality images. This proved to be a difficult task within our budget, but we were ultimately successful. We also experienced delays with the camera work related to repeated poor visibility conditions at some sampling stations and delays from having to send out portions of the camera system for repairs.

We will attempt to re-deploy the camera system at the sampling stations with poor visibility in the winter when visibility should be at its best. If this is not successful we will deploy a sediment grab to classify the sediment at the "poor" visibility stations.

Next Steps

Over the next six months we will focus on completing the sediment verification work. We have a total of 15 sampling stations to finish. We estimate that this should take an additional 3 to 5 sea-days. Once this is completed we will work on visually classifying the sediment grain size in each photo, and then using all the photos within each sampling station to verify the sediment classification at each station.

Simultaneously, we will also begin working on a detailed analysis of our two years of ventless lobster trap data. Upon completion we plan to submit at least two manuscripts based on this study to peer reviewed journals for consideration.

Impacts

Our random stratified ventless trap survey has generated a great deal of interest in cooperative research within the Massachusetts lobster industry. This interest has laid a foundation between the commercial lobster industry and the Massachusetts Division of Marine Fisheries which has led to the addition of new cooperative research projects that are currently underway. Presentations of our preliminary data have been received very well by the industry. It appears that this study has fostered better industry "buy-in" into the science of monitoring lobster stocks, which hopefully will lead to better "buy-in" into the management process.

This project has had positive impacts on the science community as well. It has led to a re-examination of the tools used to monitor lobsters stocks and initiated an interest to improve those tools. Since the inception of this study, Maine, New Hampshire, Rhode Island and New York have all implemented random stratified ventless trap surveys based on the survey design from this project. This marks the first time ever that a completely standardized fisheries independent survey for lobster has been conducted among states with viable lobster fisheries.

Robert P. Glenn December 1, 2006