

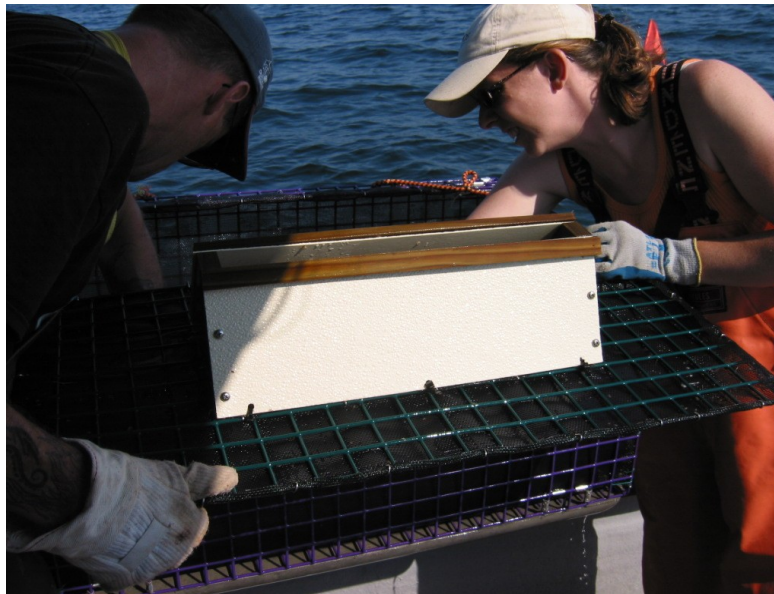
NORTHEAST CONSORTIUM

Annual Report: 2008

2006 Cooperative Research Award (07-072):

Development of a Juvenile Shrimp Trap for use in Establishing a Juvenile Abundance Index for the Gulf of Maine Northern Shrimp, *Pandalus borealis*.

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Kelo Pinkham played a key role in project design and implementation.

Project objectives and scientific hypotheses:

Our working hypothesis is that juvenile shrimp abundance will be adequately represented in a trap that has been modified with fine mesh liner and a predator/by-catch excluding vent placed in the top of the trap. We must first demonstrate that juvenile *Pandalus borealis* shrimp are indeed able to be caught with traps by comparing with a beam trawl that will sample the population as accurately as possible. Furthermore, the efficacy of the traps must be determined through video and experimentation for saturation.

Throughout work on this project the aforementioned were the working objectives. However, the documentation of where the populations of juvenile shrimp can be found has become an important objective. The reason for this is because the juvenile shrimp that we had found and set the experimental traps on were not caught in the trap after at least a 24 hour soak. Juvenile populations were also in too deep water to be able to set a camera on for observations of what the behavior was of the juveniles around the trap.

Methods and work plan:

No changes have occurred to the overall experimental design that was planned in the original proposal. However, we did shorten the tow duration to 15 minutes and also reduced the subsample of juvenile shrimp to 0.5 kg instead of 1 kg. A half a kilogram yielded sufficient numbers of shrimp for adequate size frequency distributions. We also altered some of the traps by placing the vent on the side to try a second design. To continue acquiring data on the distribution of juvenile shrimp we explored the regions with the beam trawl while still setting traps of the two designs.

Work completed to date:

Work to date has been completed for the trips planned for Kelo Pinkham and Bradford Parady. The partial list of dates is as follows:

Kelo Pinkham:	Bradford Parady
5/10/2007	6/11/2007
5/23/2007	6/15/2007
6/6/2007	6/2/2008

6/7/2007	6/3/2008
6/8/2007	6/12/2008
6/9/2007	6/22/2008
6/10/2007	7/11/2008
6/17/2007	7/18/2008
6/19/2007	7/31/2008
6/21/2007	8/4/2008
6/24/2007	8/15/2008
6/27/2007	8/20/2008
7/8/2007	8/21/2008
7/22/2007	8/25/2008
7/23/2007	8/26/2008
7/26/2007	8/28/2008
7/28/2007	8/29/2008
8/9/2007	8/30/2008
8/25/2007	8/31/2008
8/26/2007	
8/27/2007	
8/28/2007	
8/29/2007	

We intended work in both regions to be complete by the end of the 2007 season. However, the work in Boothbay was the only region that completed its work. After various issues and set backs in Kittery, the work was postponed until 2008. Kelo Pinkham was able to conduct 109 Beam trawl tows and 53 trap sets. Bradford Parady's total tow amount and trap set tally is still being entered.

Results to date:

Data is still being entered so there are no results to report to date but there are some interesting observations. From beam trawl tow data a distinct region of juvenile shrimp was found to be in the bathymetry of 30-40 fathom. The bottom types of that region were mud. Other bottom types such as gravel and mud/sand were sampled by Kelo and yielded no juvenile shrimp. In Kittery, the same bathymetry and bottom type were abundant with juvenile shrimp. The region in Kittery corresponded with a location that we sampled with a Sea Grant project in 2006 that was abundant with pelagic larval shrimp during March-May.

The beam trawl proved to be a very valuable tool for sampling the juvenile shrimp population and enabled us to learn more about their distributions. The traps on the other hand consistently failed to attract the juvenile shrimp. Both trap styles, side or top vent, did not yield any *Pandalus borealis* juveniles. The catch in the traps consistently was *Dichelopandalus* and not *Pandalus*. Data will follow in the final report.

Future work:

Field work is completed for this project so the analysis and publication of the observations is the next step.

Impacts and applications:

The original audience for this project was the ASMFC Technical Committee. The committee was interested in acquiring a tool to help in the juvenile assessment for the purpose of improving the committee's forecasting power of the fishery. However, the traps did not function as planned. Further improvements of the design could be tested but it is unknown if that would help their performance. The beam trawl on the other hand worked exceptionally well in sampling the population. It is not known if the Technical Committee would find the beam trawl a useful tool to employ for juvenile assessments since there is potential gear conflict with the lobster and fishermen. Traps were more lucrative because they would not create any conflicts and they could be tended by local fishermen trained in the sampling. Further trap designs could have been attempted but it was beyond the monetary scope of this project.

Partnerships:

Kelo Pinkham was extremely valuable to the success of this project. He designed and built the beam trawls that were used by both regions. His knowledge of the beam trawl use and refinement helped Brad Parady become efficient in the use of the trawl. Kelo's knowledge of the shrimp population in the Boothbay/Pemaquid region also enabled the discovery of the juvenile shrimp distribution. Brad's knowledge of the bottom in the Kittery area allowed us to explore all the suitable and unsuitable habitats for the juvenile shrimp without losing the trawl. Brad's expertise is in lobster but his working knowledge of the area and his keen interest to learn made him valuable as well.

Data:

Data has not been submitted yet to the database but will be as soon as it is fully entered and processed for results.