

Title: To Explore the Potential for a Non-Trawl, Low Bycatch Means of Harvesting the Increasingly Abundant Haddock Resource

Principle Investigator: Dr. Kenneth J. La Valley
University of New Hampshire
NH Sea Grant/UNH Coop. Ext.

Industry Partner: Kelo Pinkham
F/V Bad Penny
Trevatt, ME

December 2008

Project Update

There are several factors that have come into play recently that make now the right time to pursue haddock fish trap/potting. These include, the recent increase in abundance of the Gulf of Maine haddock population, the recent unexpectedly low projection of cod abundance, and the inability of the current means of harvest to access these fish without the taking of excessive amounts of bycatch (species of greatest concern being Cod).

The currently mandated mesh size in the New England multi-species fisheries make the taking of haddock by trawl and gillnet very difficult and inefficient. As a consequence of the contrast in size between the highly protected cod and the haddock it is difficult to impossible to retain commercial quantities of haddock without a significant bycatch of cod. However, many gear researchers including Pinnguo He from UNH and David Beutel and Laura Skrobe from URI have been developing haddock separator trawls over the last several years with promising results. To mitigate the mortality associated with trawl and gillnet bycatch there has been a recent surge of interest in research evaluating the behavior of fish within and around fish traps, and the use of species selective bait both in New England and Maritime Canada.

The objective of our research is to modify and evaluate the use of the Pacific cod pot (Mike Pol, MADMF design), the Alaskan crab trap and a Norwegian cod pot design for use in the Atlantic haddock fishery. Modifications would result from video footage recorded during soaking of the behavior of haddock and fish in general, in and around the traps.

The Pacific cod pot design is 6' X 6' X 3' with a 48" mesh balloon increasing the trap volume and height of the trap to 81". The pot has two offset entrances with triggers and shallow leads, leading to a 9" X 18" tunnel eye. The trap was modified to be collapsible to accommodate the typical northeast inshore commercial fishing vessel. The Alaskan pot design is 6' X 6' X 3', with in-line triggered entrance funnels with similar leads to the Pacific design. The Norwegian design is innovative compared to the more standard Pacific and Alaskan designs. The Norwegian trap is a two-chamber design and is 3.5' X 3' X 5' with a soft-mesh balloon which increases the trap height to 6.5'.

The Norwegian trap has two entrances, each without a trigger or mesh lead. The trap is divided into two 30" chambers (one above and one below). The entrances lead to the bottom chamber of the trap. Bait is placed in the upper chamber. To reach the bait fish must pass through a mesh "trigger" which separates the two chambers into the upper section.

Traps were constructed and five experimental hauls were conducted during 2007. Fish traps were set approximately eight miles off of Rockport, MA. Traps were soaked for approximately 24 hours, and three baits were evaluated for their ability to target haddock and fish in general. These baits included surf clam, artificial haddock bait (as used by CCCHFA in haddock selectivity experiments in the hook and line fishery), and herring. Field trials had to be postponed as the result of delays experienced obtaining an Experimental Fishing Permit (EFP) from the National Marine Fisheries Service. As is the case with most fish trap fisheries, there is a strong seasonal correlation between catch rate and local population abundance. As the result of EFP delays, our initial field trials had to be conducted in October, 2006 at the end of Haddock movement out of the inshore area. During this time haddock landings from bottom trawl and hook and line vessels in the area were low. Therefore, we were not surprised that we did not encounter haddock in any of our experimental soaks. In response to low catch rate, we postponed continued field work until the Spring or Summer, 2007 with the anticipation that haddock catch rates would increase when high abundance returned to the area.

The traps were successful in catching fish, most importantly cod. Initial results appear to indicate that the Norwegian design and surf clam bait is the most promising combination. See Figure 1, a simple graph illustrating catch rate by fish species and trap design.

The final 5 field days were conducted from August 15-19th, 2007. Due to his continued research obligations with other investigators as well as vessel problems, the Industry Partner, Kelo Pinkham was unable to focus his efforts on the Haddock Pot project in the Spring or early Summer when haddock were known to be in the area in high densities. As a result we were unable to land haddock. Previous 2006 results indicated that the Norwegian pot design was effective in catching fish. Using these observations as well as information gained while attending and presenting at the GACAPOT workshop, we re-designed the Norwegian pot to float off bottom. Also an additional design was constructed, the floating frame pot. During the August field days we were able to calibrate and fine tune the design modifications.

Our current plan is to continue field testing the two-chambered Norwegian pot as well as the floating frame pot in 2008. Captain Carl Bouchard has agreed to continue the research, at no cost, as an additional industry partner. The necessary permits will again be obtained from the National Marine Fisheries Service. High densities of the targeted fish are critical for the success of pot fisheries and it is our expectation that we will show promising results and plan to have a final report submitted by the 6/2009 project end date.

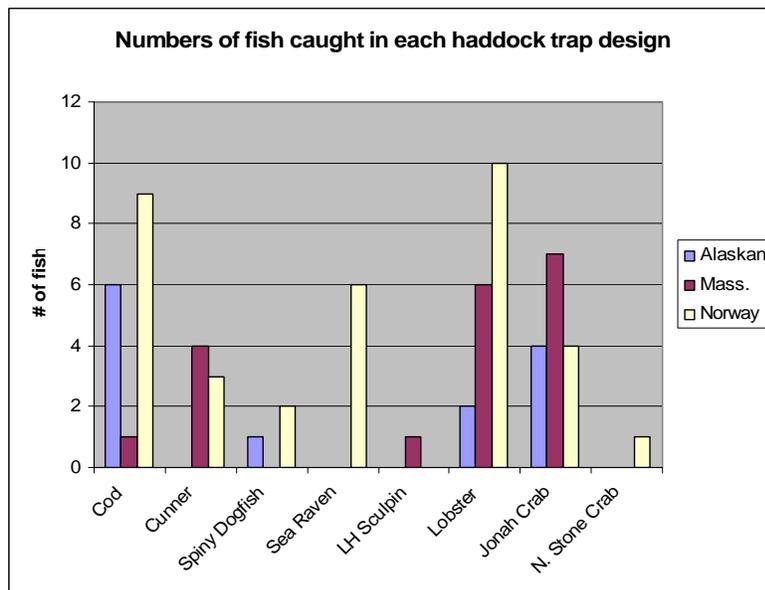


Figure 1. Fish trap landings by species and trap design.