Co-op research nets alternative lobster bait

ORONO, ME – American lobster is one of the most valuable commercial fisheries along the Atlantic coast. According to the National Marine Fisheries Service, lobster landings increased from 62 million pounds in 1990 to over 92 million pounds in 2006. The industry relies heavily on fish for bait. In fact, the Lobster Institute estimates that, between the US and Canada, lobstermen use somewhere between 700 million pounds and 800 million pounds of herring annually to bait traps.

The Maine Lobstermen’s Association has tracked the increase in bait prices over the last several years. The association’s figures show a steady climb and then a 30% jump just between 2006 and 2007 alone. For some Maine fishermen, this has meant the difference between paying 30 cents and $1 to bait each trap. Over this same time, fuel prices went up as well. The boom in bait prices has been blamed on area closures and inconsistent landings. If that’s the case, the decreasing supply of bait at a reasonable cost and increasing fuel prices will continue to cause economic challenges to the Gulf of Maine lobster fishery.

Alternatives

According to Bob Bayer, University of Maine scientist and director of the Lobster Institute, the need to secure an alternative bait or extend the supply of bait has never been more pressing. Bayer cited the supply of herring as a constant challenge faced by lobstermen in the Gulf of Maine.

“Supplies are often just in time and herring (inventories) are being stretched to adjust to declining landings,” he said.

Alternative bait research is not new. Bayer has been experimenting with alternatives since the 1970s. After extensive research on lobster attractants, Bayer’s research focused on the use of soy-based alternative baits. “We thought we had the ideal formulation developed by Dr. Juan Carlos Souza,” Bayer explained.

However, they found that the soy formulations had binding and consistency problems. Then, working with Lobster Products Inc., the Lobster Institute developed a soy-based bait that worked, but the production was too inconsistent and costly to be practical. Not giving up, the Lobster Institute recently partnered with Patricia Pinto of Saltwater Marketing, Ron Rompala of Blue Seal Feeds, and Herb Hodgkins of the Maine Lobster Pound Association. With funding from the Northeast Consortium and the Maine Technology Institute, the team decided essentially to start over and look for an appropriate binder-attractant combination that would be both successful as a bait and cost effective for the industry.

Prototype tested

The key issues the group hoped to address by developing a bait alternative were: the increasing costs and limited supply of herring; the limited shelf life of herring; and the fact that herring currently used as bait could be marketed for human consumption, which would add value to the herring catch.

During the early rounds of the project, several “recipes,” so to speak, were developed and tested in the laboratory for their durability in saltwater. The formulas that showed the most promise were then field tested by a limited number of commercial fishermen.

These baits were evaluated for their ability to attract lobsters and their durability in traps. A total of five different binding formulations were tested in this way.

“The feedback we received from fishermen provided important information for us to continue refining formulation and improving upon them,” Bayer said.

In the end, a prototype bait was chosen and field tested by commercial lobstermen from Beal’s Island to Kittery.

Results

The bait alternative, which is a made up of a proprietary blend of fish protein and marine plant products, is currently available to the industry under the name “Clawdia’s Secret™.” Bayer pointed out that the bait is currently fishing at about 70% of the rate compared to herring bait alone, but lasts 12 to 14 days.

The alternative bait can be used as an extender in combination with herring to help stretch out the supply and/or when a prolonged soak-time is desired, he explained.

Shell disease concern

Recently, herring bait has been linked to increased susceptibility of lobsters to disease, in particular, shell disease. This research was conducted by Michael Thusy of the New England Aquarium and raises concern about the long-term health effects of lobsters exposed strictly to herring bait.

Over the short-term, lobsters fed a 100% fish diet grew rapidly. In fact, they grew faster than any other diet that was evaluated. However, the study suggested that, over the long-term, an all-fish diet impacted the health of the lobster and actually resulted in a higher risk of disease. This work was recently published in the January 2008 issue of Diseases of Aquatic Organisms.

When asked his thoughts of the possible link between shell disease and herring bait, Bayer said, “The link between shell disease and herring bait may not be appropriate since lobsters are picky eaters and choose a varied diet to meet their nutritional needs.” In other words, it may be true that an all-herring diet would be harmful to the health of the animal, but Bayer observed, eating nothing but hamburgers wouldn’t be healthy either.

In their natural environment, lobsters find additional resources to meet their dietary requirements. Bayer said, adding that it will be interesting to see how scientists’ understanding of the relationship between lobster diet and shell disease increases with further research.

Ken La Valley

Ken La Valley is an extension specialist with University of New Hampshire (UNH) Cooperative Extension/New Hampshire Sea Grant who is working to connect commercial fishermen interested in cooperative research with scientists who want to work with fishermen. He encourages anyone with ideas to get in touch.

La Valley can be reached at: UNH Cooperative Extension, 214 Nemsiah Hall, 151 Main St., Durham, NH 03824; phone (603) 862-4345; or e-mail <ken.lavalley@unh.edu>.