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Fisheries

Researchers hope new traps and an alternative bait can improve whelk fisheries

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By Responsible Seafood Advocate

The effort supports the conservation of horseshoe crabs, which are important to human medicine

Researchers at the University of New Hampshire's Coastal Marine Lab are finding ways to make whelk fishing more sustainable by designing smarter traps and by developing a bait that does not use horseshoe crabs, a declining species that's become important to human medicine.

Fisheries for channeled whelk (*Busycotypus canaliculatus*) populations in the United States, along the Eastern Seaboard from Massachusetts down to Florida, are moving to stricter size and trap limits and some are closing temporarily. But the UNH team says modified whelk traps with escape vents can retain the greatest number of legal-sized whelks and let sublegal-sized whelks escape. It's a solution that's cost-effective for fishermen to do on their own.

"Some whelk fishermen already modify their traps with escape vents," explained Elizabeth Fairchild, a research associate professor in the department of biological sciences. "The Massachusetts Division of Marine Fisheries wants to see an escape vent added, so it's only a matter of time before they mandate the change and a configuration that fishermen will need to use."

Whelk fisheries may be more sustainable with traps that allow small whelks to escape and by developing new baits outside of horseshoe crabs. Photos courtesy of the University of New Hampshire's College of Life Sciences and Agriculture (COLSA).

A team at the UNH Coastal Marine Lab in New Castle, N.H., has been testing modified whelk traps with escape vents and bait recipes that use little to no horseshoe crab for the past two years. This whelk fishing season, which is from April to December in Massachusetts, they have worked with local fishermen to determine if modified traps result in less sorting of sublegal whelk and if new bait recipes work as well as – or better than – the horseshoe crab bait.

With the modifications, they hope to bridge the gap between the fishermen and the resource management agencies to find an effective solution.

An alternative to horseshoe crab would help conserve a species that's a key food source of migratory

A researcher prepares whelk bait – clam bellies and green crab held together by a binder – for a feeding trial at UNH's Coastal Marine Lab.

birds up and down the Eastern seaboard and a scientifically critical species used in the production of vaccines and other medicines due to the unique toxin-identifying quality of horseshoe crab's blue-colored blood.

Whelk and eel fishermen have used horseshoe crab as a preferred bait source for years and an alternative will need to meet several criteria to become widely used.

"Whelk fishermen all have unique recipes that they use for bait, however, the common denominator in all these is horseshoe crab, particularly female horseshoe crab," said Fairchild. "So we need new bait recipes that can be made using no or low-cost materials, like seafood waste, that won't cost more than what they are already using and – most importantly – that are as effective in attracting channeled whelk into the traps."

Channeled whelk don't normally eat horseshoe crab in the wild – they commonly predate on bivalves like oysters and clams – so it's a bit of a mystery why it works so well as a bait source, they said. At the Coastal Marine Lab, the UNH team has tested dozens of recipes, trying different combinations of everything from poultry byproduct meal and clam processing byproduct to invasive green crabs and surf clams that wash up on the beaches.

“Once we came up with our winning recipe consisting of clam bellies and green crab – held together by a binder – we tested its preservation, how it could be stored frozen and then thawed for use,” added Fairchild. Local fishermen have trialed the bait this season.

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