

# Cooperative research aids shrimp grate advance

BOOTHBAY HARBOR, ME - Shrimp fishermen have an opportunity right now – this season – to target the lowest count, best priced shrimp without ever catching and bringing onboard the smaller, younger year-classes.

As part of a cooperative research project with a team from the Maine Department of Marine Resources (DMR), Boothbay Harbor fisherman Kelo Pinkham has a third-generation, easy-to-use version of a modified Nordmore grate available for interested fishermen to try.

“It gets rid of the small shrimp,” he said. “I figure that if I’ve got to be back there picking them over, I only want to catch the good ones.”

Pinkham will even throw in \$500 from project funding to help cover the cost of sewing the grate in and taking it off. All he asks in return is a little feedback on how the device worked.

With financial support from the Northeast Consortium, Pinkham and the DMR team designed a compound grate that’s hinged into three sections so that it spools right around the net reel.

The top section is comprised of nonparallel bars spaced 5/32" to 1/2" apart. The remaining length, made up of two hinged sections, has parallel bars with spacing of approximately 3/4".

The design allows small shrimp to pass through the small bar spacing at the top and exit the net through an escape panel, while the market-sized shrimp pass through the larger bar spacing further along the grate and flow into the codend.

The hinged design allows the grate to be longer than a typical grate without making it any more difficult to wrap the net around the reel on haul back.

This grate system provides the benefit of shrimp size selectivity, and it also significantly reduces the bycatch of several species of flatfish, cod, hake, herring and other commercially important groundfish.

In addition, the compound grate system can be used during the normal shrimp season without a special permit.

## Change with times

Pinkham, captain of the 36' Jeanne C, has spent the best part of 30 years fishing out of Boothbay Harbor. At the age of 11, he began weekend duty working summers, weekends, and school vacations as a deckhand aboard the Gladys B.

He continued shrimping and groundfishing part-time up until he graduated from high school and then set to fishing full-time. He recalls the booming groundfish fishery of the late '70s, when Boothbay fishermen made their money trawling rather than lobstering.

“For 20 years, fishermen out of Boothbay never fished more than 20 miles



Kelo Pinkham's hinged compound shrimp grate at use aboard the Jeanne C, right. Above, floats are needed to support the weight of the stainless steel grate and to keep the escape panel open.

from the harbor,” he said. “About 10 years ago we started needing to go 25-30 miles just to find a fish.”

At that point, Pinkham needed to make a decision. “I had to either buy a 50' boat and go fishing for four or more days, or go with the lure of lobstering,” he said. He opted for day-trip fishing.

“Being home with my kids, even if at 8 pm or 9 pm every night, was more important,” he said.

It was around then that he purchased the Jeanne C. For quite some time, he was the smallest full-time dragger fisherman in Maine, a fact he takes particular pride in.

## Design evolution

Just about four years ago, Pinkham became interested in improving the size selectivity of shrimp trawl gear. Small shrimp, important to the future of the shrimp fishery and unwanted by local processors, were being landed in high numbers.



A clean box of large shrimp landed by Pinkham using his compound grate.

Looking for a better way, Pinkham connected with Dan Schick of the DMR, who, at the time, was evaluating a double grate design with a Kennebunkport fisherman.

The strategy of the double grate design was to eliminate groundfish from entering the codend with the first grate, which had 1" bar spacing, then reduce the catch of undersized shrimp with a second, smaller

grate with 7/16" bar spacing.

During the selection process, nontarget species were directed toward an escape panel placed just ahead of the grate in the extension piece.

Pinkham had a hard time obtaining a special permit for the fine-mesh twine used in the second funnel of the double grate, so he decided instead to add a small bar space section to the top of the initial grate.

With this design, the second grate and fine-mesh funnel were no longer necessary, and the device still reduced the catch of small shrimp.

The single grate design had a couple of advantages. Pinkham recalled that, in addition to the fine-mesh problem, he, as well as other fishermen, couldn't imagine getting two grates around the net reel.

“With doors banging around and two grates, there (was) twice as much chance to have something go wrong,” he said

## Cooperative research

Pinkham had used the single grate design for three years, when DMR's Lessie White approached him regarding his gear innovations. A shrimp processor had told White that he was impressed by the size and quality of the shrimp Pinkham had been landing.

At about the same time, Pinkham attended an information workshop hosted by the Gulf of Maine Research Institute about how to get cooperative research funding through the Northeast Consortium.

Newly interested by the prospect of more organized research, Pinkham went back to Dan Schick and together they submitted a proposal to the Northeast Consortium in 2002 and, as luck would have it, got funded that same year.

Together, Pinkham and the DMR team studied the one-piece separator grate that they had designed. The experimental grate design combined the proven ability of the double Nordmore grate system to release small shrimp with the ease of



Ken La Valley photos

handling just one grate in the net.

However, the results of the 2002 work were not as good as he had observed with his previous design. Pinkham thought the diamond mesh codend and lengthener – selected by the DMR because it was the worldwide standard – in conjunction with the 7/16" bar spacing he had used for three years, reduced the size selectivity of the grate.

So in 2003, the cooperative research team submitted another proposal to the Northeast Consortium. This time they tested the 7/16" bar spacing grate and the new nonparallel bar grate with a bar spacing tapering from 5/32" to 1/2", with the addition of a square mesh codend and/or lengthening piece.

The team is now in data analysis mode, but its preliminary look at the number appears to reveal increased selectivity compared with that observed in the 2002 design.

Three years into grate research, Pinkham is still enhancing the grate design. He just never stops and is never satisfied with mediocre selectivity. His goal is to reduce the catch of undersized shrimp by at least 80 percent and virtually eliminate the bycatch of groundfish species.

Anyone interested in testing out the compound grate this season should call Pinkham at (207) 633-6315.

Ken La Valley

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