

Keeping Whales Free from Fishing Gear

NEW "ON-CALL" BUOY FOR LOBSTER TRAPS COULD HELP PREVENT ENTANGLEMENTS *by Véronique LaCapra*



More and more whales are becoming snarled in fishing gear, often dying slow, painful deaths. Two Woods Hole Oceanographic Institution engineers have invented a lobster trap device that they say would help whales avert entanglements and, at the same time, might allow currently restricted waters to be safely reopened for lobster fishing.

In New England's offshore lobster fishery, long vertical ropes or "lines" connect the traps on the bottom to floats on the water's surface, so fishermen can locate their trawls and drag them back up.

"The number of vertical lines in offshore areas is fairly staggering—about 20,000," said WHOI engineer Keenan Ball, who designed the new device with WHOI engineer Jim Partan.

"If you're a whale in busy fishing waters, chances are high that you'll get entangled," said WHOI biologist Michael Moore. Scars tell the tale: Some 83 percent of endangered North Atlantic right whales and about half of endangered humpbacks between Cape Cod and Nova Scotia bear the lasting marks of wounds caused by ropes or nets, according to studies by the New England Aquarium and the Center for Coastal Studies.

Animals often drag the heavy gear around for months, gradually losing weight, said Moore, who has performed necropsies on more than 20 whales that have died from entanglements. The ropes slice into flesh and bone, causing infections, injuries, and partial amputations. Whales snarled in gear can have trouble swimming and breathing, and those that survive may not have the energy reserves needed to reproduce. Entanglements are particularly disastrous for endangered species such as the North Atlantic right whale, of which only about 500 individuals remain.

The 'on-call' buoy

New England's offshore lobster fishery operates at the edge of the continental shelf in waters as deep as 1,000 feet and currents as fast as two knots. Under those conditions, fishermen need gear with strong links and lines to drag heavy trawls with as many as 50 traps back onto a boat.

Most of a lobster trawl doesn't pose an entanglement hazard to marine life: The traps and sinking groundlines that connect them all sit on the ocean bottom. The risk comes from the vertical lines, which need to be 2,000 to 3,000 feet long to be able to keep surface floats above water in fast-moving currents.

Illustration by Eric S. Taylor, WHOI Graphic Services



Tom Kleindinst, WHOI

WHOI engineers Keenan Ball (left) and Jim Partan are developing an “on-call” buoy for lobster trawls to help prevent whale entanglements. When in use, this bright yellow spool would have 2,000 feet of line wrapped around it. It is buoyant in the water and will float to the surface when released from its anchor (not shown).

Partan and Ball call their new device an “on-call” buoy. It looks like a giant spool of bright orange thread. On land, the 3.5-foot-high spool with 2,000 feet of line wound around it weighs 340 pounds, but in water, it’s buoyant and floats near the bottom attached to the lobster traps. With a timer or an acoustic signal, the device can be activated to unspool its line and float up to the surface for retrieval.

“Our system is to try to store the vertical line on the seafloor—keeping the lines out of the way of large swimming animals—until the fishing vessel crew releases it and is on site and ready to haul it in,” Partan said.

Patent pending

Beyond protecting whales, the on-call buoys could have other potential benefits for lobster fishermen. They would prevent the loss of costly gear to entanglements. And the buoys might eventually open the door to allowing fishing during the three months each year when some New England offshore waters are closed to make it safer for whales to feed and reproduce.

“That’s a huge loss of revenue to fishermen,” Ball said. “So if there’s a system that may allow them to fish in these otherwise closed-off waters, that would be beneficial to the local community, as well as being able to protect the whales.”

With the help of WHOI’s Office of Technology Transfer, Ball and Partan have filed a provisional patent application for their invention and plan to file for a non-provisional patent.

They say the next step will be to try out the on-call buoys, first off the WHOI dock, then from a boat. If all goes well, they’ll turn their invention over to local lobster fishermen to really put it to the test. ▲

This research was supported by The Consortium for Wildlife Bycatch Reduction at the New England Aquarium under NOAA/NMFS Grant Award NA10NMF4520343.

