



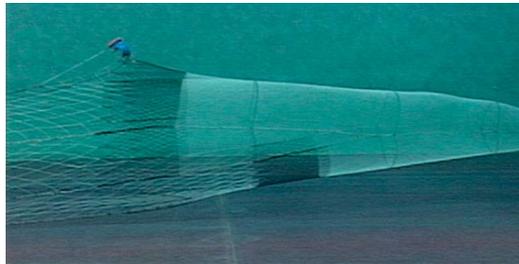
# 2007 Winner: The Eliminator

## Fishermen, Net Manufacturer and Fisheries Specialists Collaborate to Win \$30,000 Award

It may sound like the name of the destructive robot in the next big action movie, but the Eliminator is actually a lifesaver: It reduces bycatch of cod in the haddock bottom trawl fishery. Wide use of this device could be of great benefit to badly depleted cod stocks in haddock fisheries. Designed by New England fishermen in collaboration with fisheries extension specialists and a trawl net manufacturer, the new trawl's success turns on the fact that although cod and haddock are similarly shaped bottom fish, they exhibit different behaviors when entering a net.

The winning fishing gear takes advantage of these differences: Haddock swim upward when they encounter the net and are captured in the smaller mesh upper section, whereas cod and other groundfish caught in the tow swim downward and escape easily through the large mesh openings. By separating and releasing bycatch at the mouth of the net, the Eliminator reduces the potential for damage and mortality.

The trawl's unique design requires a four-seam net of large mesh measuring 95 inches (240 cm) through the lower face of the bottom belly, which quickly drops to 32 inches (80 cm) in the side panels and square and 8 inches (20 cm) in the top belly. A three-panel kite provides a vertical lift to between five and six fathoms of the headrope height, and the rockhopper sweep has only one 16-inch (41 cm) disc per bight at the center, making for a lighter sweep with less contact on the seabed.



“The collaborative design and development of the Eliminator trawl is a great example of industry, scientists and managers working together to develop innovative solutions to reduce or eliminate bycatch.”

David Beutel  
Fisheries extension specialist  
University of Rhode Island

“We applied our knowledge and understanding of fish behavior and fishing gear and adapted a large mesh squid net with a rockhopper sweep to generate a cleaner catch of haddock. As we tested and refined our idea we found the net had significant potential for reducing bycatch of cod, flounder, skate, lobster and dogfish, resulting in operational efficiencies for the fishing community and conservation of the marine environment.”

Jon Knight  
Net builder  
Superior Trawl

### Proven Results

Following flume tank trials of the experimental net at the Marine Institute at Memorial University in Newfoundland, the design team secured funding from NOAA's Fisheries Cooperative Research Partners Program to carry out field sampling. In the course of four fishing trips totaling 19 days, researchers did 100 side-by-side comparison hauls in a closed area of Georges Bank.

Results were impressive. The Eliminator's total haddock catch was equal to that of the traditional trawl net, but the Eliminator also reduced cod bycatch by 81 percent and flounder bycatch by 95 percent. In addition, the new fishing gear significantly reduced bycatch of skate, dogfish, American plaice and lobsters.

Photos, top to bottom: F/V Iron Horse, one of the vessels used to conduct side-by-side comparison hauls; Rockhopper sweep of the Eliminator trawl with one 16-inch disc per bight in the center; Operational test of the Eliminator, Marine Institute at Memorial University in Newfoundland, Canada

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### Benefits to Fishermen and Oceans

- Hauling in less bycatch improves work productivity, with a three-fold reduction in sorting time on deck.
- The design of the four-seam net provides opportunities for longer tows and cleaner fish, as the haddock are not damaged by the bycatch of spiny marine animals.
- The trawl's early release of nontarget marine life reduces their risk of experiencing damage or mortality.
- Longer tows allow fishermen to minimize hauling and setting, so fishing time is more efficient.
- Field tests indicate the catch falls within the possession limit guidelines for the Regular B-Days-at-Sea program, permitting fishermen additional time to selectively fish for haddock.
- The 24-inch (60 cm) spacing of the large discs on the rockhopper sweep provides room for bottom fish to avoid capture.
- The design of the rockhopper makes it lighter than current nets, so the gear has less contact on, and does less damage to, the seabed.
- Cod bycatch was significantly reduced in the field tests, while flounder and skate bycatch was virtually eliminated.

Photos, left to right: Catch from the Eliminator trawl; Jim O'Grady and crew on board the F/V Iron Horse



### The Winning Team

In 2003, New England fishermen James O'Grady and the father and son team of Philip Ruhle Sr. and Philip Ruhle Jr. approached Jonathan Knight of Superior Trawl in Wakefield, R.I., with an idea for an experimental net that targets haddock while reducing bycatch. Concurrently, the Rhode Island Sea Grant Fisheries Extension Program at the University of Rhode Island was looking for opportunities to work with the industry. Jon and the fishermen met with fisheries extension specialists Laura Skrobe and David Beutel, and the winning team was established.

Together, the group applied their practical experience, project management skills, and knowledge of fishery-related issues to testing, analyzing and refining the Eliminator. The result is an original, practical and cost-effective bycatch tool that benefits both the fishing industry and marine conservation.



Mike Osmond  
WWF California Marine Office  
171 Forest Avenue  
Palo Alto, CA 94301

smartgear.org  
smartgear@smartgear.org  
650-323-3506