



A porpoise died after being tangled in lines intended for other species. But some progress has been made in reducing the unintended deaths.

Challenge to Fishing: Keep the Wrong Species Out of Its Huge Nets

By OTTO POHL

The most common way to trawl for shrimp is to dredge the ocean floor. As a result, fishermen catch a lot more than shrimp — 3 to 15 pounds of marine life, including fish, turtles and sharks, for every pound of shrimp.

Most of that marine collateral damage, known as bycatch, is simply dumped back into the water, dead and dying.

"Imagine towing a huge net over the landscape, scooping up all the animals and knocking down all the trees, and then plucking out one species and throwing the rest away," said Elliott A. Norse, president of the Marine Conservation Biology Institute, a research and advocacy group in Redmond, Wash.

"No one would ever say that's a good way to hunt raccoons," he said. Nor is the problem limited to shrimp. Worldwide, about 27 million tons of fish and sea life are caught as bycatch each year, according to the Food and Agriculture Organization of the United Nations. That is about a quarter of the total catch.

Experts say the practice endangers the survival of many species and threatens the ability of the oceans to support sustainable levels of fishing.

But solving what might seem to be a fairly straightforward problem of waste has become emblematic of the struggle to regulate a fractured fishing industry.

Strict regulations often encourage

fishing fleets to move elsewhere or to reflag their vessels to nations that do not enforce such regulations. Enforcement is difficult in any event, because most bycatch is dumped at sea by fishermen who are rarely motivated to keep precise records.

Many people in the fishing industry agree that the problem of bycatch, although real, is often exaggerated.

"Some environmental groups are creating an aura of crisis, when in reality the opposite is true," said Daniel Cohen, chairman of the National Fisheries Institute Scientific Monitoring Committee, which works with the National Marine Fisheries Service on bycatch problems.

Because of careful management, Mr. Cohen said, "we are seeing significant rebuilding of certain fish stocks."

Such efforts have produced much progress, experts broadly agree. An example is the campaign in the early 1990's to make tuna "dolphin safe."

The yellowfin tuna tend to congregate under dolphins, tuna fishermen had long noted, so they encircled the schools of dolphins with nets called purse seines, trapping and drowning the dolphins while hauling in the tuna.

Under pressure, the United States tuna industry virtually eliminated the problem by modifying its nets so dolphins could escape before the tuna was hauled aboard. The industry also reports success in reducing turtle bycatch.

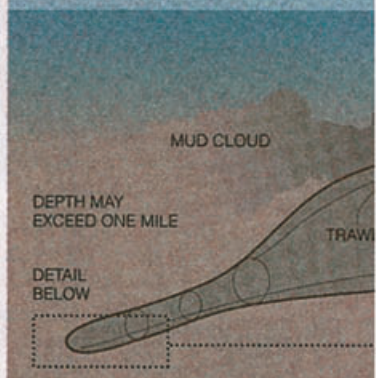
Similarly, shrimp trawlers plying the Pacific near Oregon recently found a simple way to reduce un-

Reducing Unwanted C

About a quarter of sea life caught through waste, or bycatch. Efforts are under way

LONGLINE IMPROVEMENTS

Many thousands of turtles and birds are killed by swallowing baited hooks dragged on lines behind fishing boats.



TRAWLING IMPROVEMENTS

Simple structures added to the back end of trawl nets, including those at right, can eliminate much of the bycatch.

PROTECTING TURTLES
A grill guides the turtle out an escape hole but lets small fish and shrimp pass through.

Sources: U.N. Food and Agriculture Organization, Go

wanted catches in their nets. They adjust the trawl opening, so that the horizontal rope forming the top edge of the trawl mouth sits back several feet.

"This seems to use the natural tendency of some fish to move upward as they start coming into the stream of the net," said Rod Moore, executive director of the West Coast Seafood Processors Association, a group in Portland that represents many fleets.

"Instead of hitting the top," Mr. Moore said, "there's clear space and they escape."

Yet many familiar species continue to fall victim to bycatch.

As many as 300,000 dolphins, porpoises and whales are killed each year in fishermen's nets, according to research published last month by members of the International Whaling Commission.

It is hard to stir enthusiasm to save lower profile but ecologically

Catch

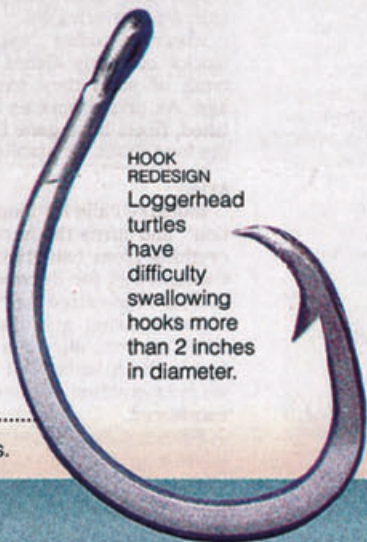
ough industrial methods is way to curtail the problem.

SHOOING AWAY ALBATROSSES
Installing a line of streamers above the hook line scares, and saves, many birds in the Antarctic.



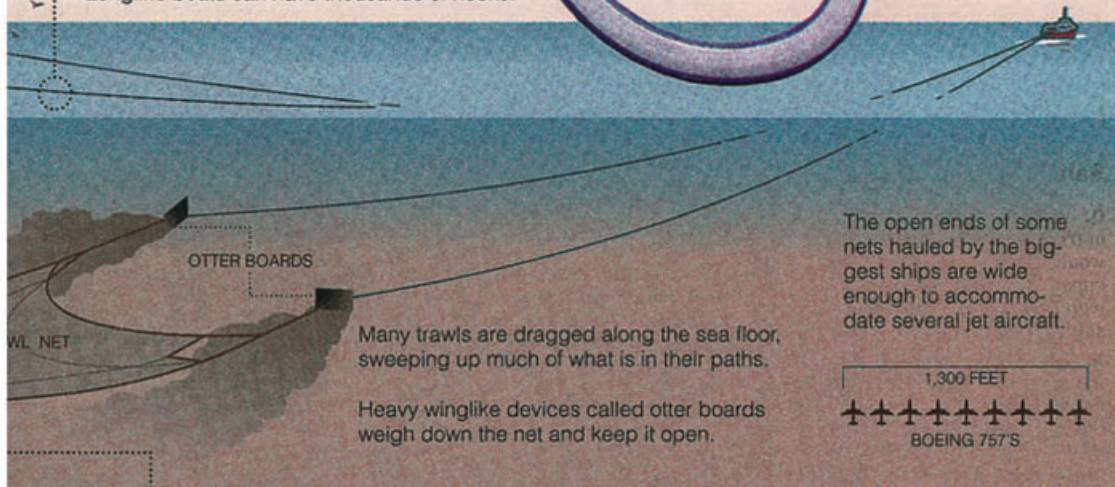
Shown actual size

HOOK REDESIGN
Loggerhead turtles have difficulty swallowing hooks more than 2 inches in diameter.



CHANGING BAIT In one project, Atlantic longliners sharply cut sea turtle bycatch by switching to broader hooks with inward-pointing barbs and from squid to mackerel as bait. Swordfish catches actually rose.

Longline boats can have thousands of hooks.



The open ends of some nets hauled by the biggest ships are wide enough to accommodate several jet aircraft.

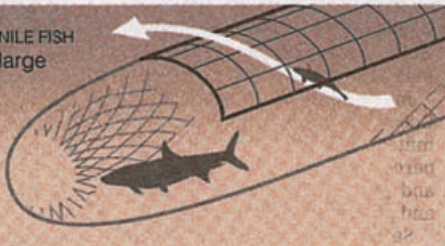
Many trawls are dragged along the sea floor, sweeping up much of what is in their paths.

Heavy winglike devices called otter boards weigh down the net and keep it open.



TLES hem

PROTECTING JUVENILE FISH
When catching large fish, a looser mesh at the top of the net allows smaller fish to escape.



Government of Scotland

Bill Marsh/The New York Times; hook photographs by the National Oceanic and Atmospheric Administration

important species, said Jill Jensen, assistant director of the Gulf Restoration Network in New Orleans, a coalition of environmental groups that are working to reduce bycatch in the Gulf of Mexico.

Rallying support to save unfortunately named species like the croaker and the grunt can be difficult, Ms. Jensen said, adding, "They're ugly, and they don't taste good."

Bycatch is also a problem for birds. About 100,000 albatrosses a year drown after being caught on the hooked bait put out by long-line fishermen.

Dr. Carl Safina, president of the Blue Ocean Institute, a conservation organization in Amagansett, N.Y., says streamers hung from the stern will scare off the birds.

"It's astonishingly cheap," Dr. Safina said, "but requires a combination of awareness and motivation on the part of fishing captains."

Although many areas of Alaska,

They call it bycatch, when the dolphins get caught along with the tuna.

Australia and New Zealand have rules to protect albatrosses, commercial fishing fleets often venture far into international waters to escape such regulations. In the distant Antarctic, the increased fishing of Patagonian toothfish, sold in America as Chilean sea bass, has become a significant cause of albatross mortality.

The imports, often illegal and usually cheaper, undermine the competitiveness of fishermen who comply with regulations.

For example, the American

shrimp industry has reduced its average bycatch, to 3 pounds from 10 pounds for each pound of shrimp, the Gulf Restoration Network, an environmental group based in New Orleans, said.

But American fleets are reluctant to take further measures, fearing that any competitive advantage against foreign fleets will be eroded.

That is a problem across the United States industry. Nelson R. Beideman, executive director of the Blue Water Fisherman's Association, a group in Barnegat Light, N.J., that represents long-line swordfish, tuna and mahi-mahi fishermen in the Atlantic, notes that the number of American boats has plummeted in his region.

"Most of our good people have already left," Mr. Beideman said. "They may still be fishing the same international waters. But they are fishing under foreign flags."