Research Articles and Glossaries:
"Protecting Ocean Habitat from Bottom Trawling"

If bottom trawling happened on land instead of at sea, someplace where we could see it and where cameras could film it, perhaps it would provoke the same sort of public outcry that strip-mining does. But unlike the raw, torn earth laid bare by strip-mining, the similar devastation of the ocean floor caused by bottom trawling is hidden beneath thousands of feet of water. In some cases, the damage could be irreparable.

Bottom trawlers drag giant weighted nets along the ocean floor, ripping up or scooping out whatever they encounter, including ancient coral forests, gardens of anemones, and entire fields of sea sponges. Unwanted and undersized fish hauled up by bottom trawlers are thrown back dead or dying—in some areas, as many as four pounds of fish are discarded for every one pound brought to market.

Today's technology is bringing bottom trawlers into areas ships couldn't reach before. Trawling nets, huge weighted bags, can be 200 feet wide and 40 feet high, weigh as much as 1,000 pounds, and can be sunk to depths of 5,000 feet or more beneath the water's surface. Heavier, stronger gear allows trawl nets to plow over rocky bottoms, destroying the underwater corals, sponges, and rock structures that provide important habitat for fish. Advanced navigation technology brings trawl nets deeper and farther from shore, into areas populated with slow-growing deep-sea fish and corals, which are especially slow to recover from repeated trawling.

Bottom Trawling in International Waters

On the high seas, unregulated bottom trawlers operating in waters well off the coast are laying waste to huge swaths of the ocean floor. Seamounts—volcanic mountains and hills that rise from the ocean floor but do not break the surface—are being damaged by these industrial fishing practices, and the wealth of flora and fauna clustered around sea mounts is being wiped out in the process. Many rare, ancient, and even unknown species—some of which hold promise for biomedical research or are critical to undersea biodiversity—are at risk, including:

- Cold-water corals, which are as exotic and colorful as their warm-water counterparts. Red tree corals form ancient forests, stretching up to 7 feet tall and 25 feet wide, providing shelter for fish, shellfish, and sea stars. Corals on seamounts can live up to 8,000 years and tend to take branching, tree-like forms, making them particularly susceptible to trawl damage.
- Sponges, which form giant fields in the deep, creating stretches of habitat up to a mile long and 50 feet high.
- Fish, including orange roughy, which take decades to mature and can live for 125 years.

- New species of flora and fauna tucked away on seamounts and other deep-sea habitats. Just like the creatures of the Galapagos Islands, many seamount species have evolved in isolation, resulting in unique species. Scientists studying a cluster of seamounts near New Caledonia have determined that nearly one-third of the species there have never been seen anywhere else.
- Novel chemical compounds that hold promise for the treatment of cancer and other diseases after their discovery by scientists investigating the biomedical properties of deep-sea organisms.

Bottom Trawling in U.S. Waters

Closer to U.S. shores, bottom trawling can be just as destructive. Bottom trawlers have taken a huge toll on sport and commercial fish such as Pacific rockfish, a family of more than 60 species of colorful fish uniquely adapted to the rocky reefs, rugged canyons, pinnacles, and kelp forests of the Pacific coast. Marketed as Pacific red snapper or as rock cod, they are popular with fishermen and diners. Once greatly abundant, several populations are now so depleted that scientists consider them at risk of extinction.

Rockfish have several characteristics that make them susceptible to overfishing, and particularly to bottom trawling. Some rockfish species live as long as 100 years, are slow to mature and may reproduce successfully only once a decade. Because different species school together, powerful trawl gear catches the vulnerable types along with the more productive, and these deep-dwelling fish cannot survive the trauma of being brought to the surface and then tossed overboard.

Natural Resources Defense Council. "Protecting Ocean Habitat from Bottom Trawling." Available at: http://www.nrdc.org/water/oceans/ftrawling.asp. Accessed on October 23, 2013.

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"Protecting Ocean Habitat from Bottom Trawling" Glossary

Protecting Ocean Habitat from Bottom Trawling	
irreparable	can't be repaired
unregulated	not controlled by regulations or laws
swaths	Areas