Bottom trawling impacts, clearly visible from space

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Bottom trawling, an industrial fishing method that drags large, heavy nets across the seafloor stirs up huge, billowing plumes of sediment on shallow seafloors that can be seen from space.

As a result of scientific studies showing that bottom trawling kills vast numbers of corals, sponges, fishes and other animals, bottom trawling has been banned in a growing number of places in recent years. Now satellite images show that spreading clouds of mud remain suspended in the sea long after the trawler has passed.

But what satellites can see is only the “tip of the iceberg,” because most trawling happens in waters too deep to detect sediment plumes at the surface, say scientists speaking a symposium session called Dragnet: Bottom Trawling, the World's Most Severe and Extensive Seafloor Disturbance at the American Association for the Advancement of Science 2008 Annual Meeting. The session was organized by Marine Conservation Biology Institute.

Speakers at the session include Dr. Elliott Norse, President of Marine Conservation Biology Institute in Bellevue WA; John Amos, President of SkyTruth in Shepherdstown WV, Dr. Les Watling, Professor of Zoology at the University of Hawaii in Manoa HI; and Susanna Fuller, Ph.D. Candidate in Biology at Dalhousie University, Halifax NS.

“Bottom trawling is the most destructive of any actions that humans conduct in the ocean,” said Dr. Watling. “Ten years ago, Elliott Norse

and I calculated that, each year, worldwide, bottom trawlers drag an area equivalent to twice the lower 48 states. Most of that trawling happens in deep waters, out of sight. But now we can more clearly envision what trawling impacts down there by looking at the sediment plumes that are shallow enough for us to see from satellites," he said.

Dr. Watling will show startling video and images of the seafloor comparing untrawled and trawled ecosystems. They are available at www.mcbi.org.

"Bottom-trawling repeatedly plows up the seafloor over large areas of the ocean" said Mr. Amos. "Until recently, the impact was basically hidden from view. But new tools – especially Internet-based image sites, like Google Earth – allow everyone to see for themselves what's happening. In shallow waters with muddy bottoms, trawlers leave long, persistent trails of sediment in their wake."

To see a gallery of satellite images, and take a Google Earth "virtual tour" of trawl-caused sediment plumes, go to www.skytruth.org and navigate to the "Trawling Impacts" image gallery.

Susanna Fuller studies impacts of trawling on sponges in the Northwest Atlantic Ocean. "Seafloor animals such as glass sponges are particularly vulnerable to bottom trawling," said Ms. Fuller, a graduate student of Professor Ransom Myers. Dr. Myers, who died last year, had published a series of papers showing that overfishing has eliminated 90 percent of the world's large predatory fishes and is devastating marine ecosystems.

"What is amazing is the level of damage these types of animals have suffered, after the cod fishery in Canada was closed. We immediately started trawling deeper with no restrictions, and continue to do so," she said. "There are ways to catch fish that are less harmful to the world's vanishing marine life. We need to start protecting the seafloor by using

fishing gear, besides bottom trawls, especially in the deep sea. It's the only thing left," she said.

"For years marine scientists have been telling the world that fishing has harmed marine biodiversity more than anything else," said Dr. Norse. "And it's clear that trawling causes more damage to marine ecosystems than any other kind of fishing. Now, as the threats of ocean acidification and melting sea ice are adding insult to injury, we have to reduce harm from trawling to have any hope of saving marine ecosystems," Dr. Norse said.

Scientific findings about trawling impacts have led to increasing restrictions on this industrial fishing method. In 2005, the General Fisheries Commission for the Mediterranean banned trawling in the Mediterranean Sea below depths of 1,000 meters, and the United States closed vast deep-sea areas off Alaska to bottom trawling. In 2006, the United Nations General Assembly began deliberations on a trawling moratorium on the high seas, which cover 45% of the Earth's surface, and South Pacific nations effectively put an end to trawling in an area amounting to 14 percent of the Earth's surface.

There are tens of thousands of trawlers worldwide. They fish for shrimp and finfishes. Some bottom trawling operations catch 20 pounds of "bykill" for every pound of targeted species.

Source: SeaWeb