

PUBLIC RELEASE: 16-FEB-2003

## Scientists urge managers to limit use of destructive fishing gears

*Experts agree that bycatch and habitat destruction threaten survival of fisheries*

SEAWEB



### Media Contact

Jessica Brown  
[jbrown@seaweb.org](mailto:jbrown@seaweb.org)  
202-497-8375

<http://www.seaweb.org>

### More on this News Release

Denver, CO - Research presented today at the American Association for the Advancement of Science (AAAS) annual meeting shows that many fishermen, conservationists, and academics, despite frequent conflict over fisheries issues, agree that bottom trawling -- a common method to catch shrimp, fish, and other bottom dwelling sea life -- is the most ecologically damaging fishing gear. Scientists presented findings that, for the first time, document and rank the full suite of ecological impacts associated with all commercial fishing gears used in the United States. Scientists urged managers, fishers, and environmentalists to recognize that how we fish may be as important to the future of marine resources as how much we fish.

Ironically, even though scientific data demonstrate the collapse of fisheries around the world, destructive fishing practices carry on - out of sight and, hence, out of mind. Nearly one quarter of the world's catch is thrown back into the sea dead or dying each year because the fishing gear cannot discriminate between target catch and other animals that are undersized, unmarketable, or not worth the price of bringing to shore. Approximately 2.3 billion pounds of sea life were discarded in the U.S. in 2000 alone, and thousands of the ocean's most charismatic species including sea turtles, marine mammals, sharks, and seabirds, are killed each year by fishing nets, lines, and hooks. These deaths have implications for both marine populations and marine food webs. "Considering the documented decline in global fisheries, this kind of waste is unacceptable. But because this travesty is unseen by most people, it continues," says Larry Crowder of Duke University.

Experts agree that bottom trawls are one of the worst offenders, entrapping vast numbers of non-targeted animals. "The first time I was on a trawler, I was appalled to see that for every pound of shrimp caught there were 20 pounds of sharks, rays, crabs, and starfish killed. The shrimpers called this bycatch 'trawl trash' - I call it 'biodiversity'," says Elliott Norse of the Marine Conservation Biology Institute. "Of course I recognize in some trawls it could be only one pound, in others 100 pounds for every pound of shrimp."

But this "bycatch" is not the only collateral damage associated with fishing. Experts agreed that habitat destruction that some fishing gears cause is actually even more ecologically damaging than the harm caused by bycatch.

"On land we can see how animals rely on structure, how the trees of a forest are important breeding, feeding, and hiding places - but in the ocean we have to prove it from afar," states James Lindholm of the National Oceanic and Atmospheric Administration (NOAA). "We now know that structures on the seafloor are critical for the future of cod, rockfish, and other commercially important species. But it's only in the last 15 years that we've had the technology to see these habitats, to see that the seafloor is not just an endless flat expanse, and to begin to understand how we are altering deep sea marine habitats-- and fisheries --across the globe."

In most cases fishing is destroying these beautiful, wild undersea habitats before we've even had a chance to study them. "The way we fish is like hanging a huge net dragged from an blimp across a forest, knocking down the trees and scooping up the plants and animals, and then throwing away everything except the deer," says Norse.

The destruction of deep-sea, coldwater corals off the east and west coasts of the U.S. is just one example. Hundreds or thousands of years old, these living corals can be destroyed with a single pass of a bottom trawl, and are unlikely to recover in our lifetime, if ever. "The damage to our ocean floors is more extensive and perhaps even worse than tropical deforestation," says Norse. "We must bring these issues to the forefront of fisheries management before it is too late."

#### How we fish matters

Experts agree that not all fishing gears are equal. New work presented by Lance Morgan of the Marine Conservation Biology Institute synthesizes data on the ecological impacts of the 10 major commercial fishing gears used in the United States and provides an expert ranking for each gear type. The overall ecological impacts associated with bottom trawls, bottom gillnets, dredges, and midwater (drift) gillnets ranked relatively high, with bottom trawling topping the list as the most ecologically harmful gear type. The impacts from hook and line fishing, purse seines, and midwater trawls ranked relatively low on the scale. (To learn more about different fishing gear types, see the Monterey Bay Aquarium website, [www.mbayaq.org/cr/cr\\_seafoodwatch/sfw\\_gear.asp](http://www.mbayaq.org/cr/cr_seafoodwatch/sfw_gear.asp)).

"This is the first study to synthesize the science on these issues, but also to use social science methods to incorporate expert judgments. It gives managers a place to start in their deliberations concerning the relative levels of bycatch and habitat impacts from different fishing methods," says co-author, Ratana Chuenpagdee of the Virginia Institute of Marine Science.

"When you present knowledgeable experts --fishermen, conservationists, and academics --with science-based information about gear impacts, and ask them to compare these collateral damages without knowing the names of the gear involved, they give surprisingly consistent answers," says Chuenpagdee. "It's unusual to find such uniform agreement about anything, much less fishing practices. But when you take out personal bias linked to particular gears, there is surprising consensus across these different communities."

The authors hope that this finding will stimulate local, regional, national, and international conversations about how to reduce the collateral impacts of fishing. "Too often this problem has been overlooked or ignored because of the lack of comparative measures. Our results indicate that there is more common starting ground on these issues than people have thought," says Chuenpagdee,

The scientists stress that in many cases there are solutions, but change requires political will and action. They suggest that managers and fishermen consider "shifting gears" - phasing out or modifying destructive gears, moving fisheries toward more environmentally friendly options. Spatial management, where the use of certain gears is prohibited in sensitive habitats or popular breeding or feeding grounds of at-risk species, is another option.

Gear innovations, such as turtle exclude devices (TEDs) and streamers on longlines to scare away seabirds, have successfully reduced bycatch in some fisheries, but propagation of these "gear fixes," through the global fishery has been slow, and in some cases governments have failed to fully implement or enforce the use of even proven technologies. "Often the best solutions stem from fishermen themselves, but without political or financial incentive to promote development and use of 'gear fixes' or new operating procedures, destructive practices will continue," states Morgan.

But in the end, some gears may have to go. "We need to think about restructuring fisheries around not using trawlers. Trawling has to be curtailed and phased out as a way of interacting with the environment - it is just too destructive," says Daniel Pauly, University of British Columbia, a world-renowned fisheries biologist. "As a society, we make these types of judgments all the time - we don't have to do everything that we can do, in fact we have rules of restraint to prevent damage - we don't allow people to drive over the speed limit just to get somewhere faster, we don't allow machine guns to hunt deer, and we need not allow wasteful destruction of our marine resources."

Several U.S. states, including California, Alaska, Florida, and Virginia, already have regulations limiting the use of bottom trawls, but the scientists hope that this innovative approach to evaluating fishing gears and incorporating judgments by various interest groups will be applied in all areas, catalyzing new attention and action to reduce the bycatch and habitat destruction across fishing gear types.

"I eat fish that commercial fishers catch, I favor a strong fishing industry. But I also know that the way people fish is destructive and undermines the future of fisheries and fishermen alike," says Norse. "If we are going to have fish and sea turtles and seabirds and marine mammals in the future, we have to fish in way that dramatically reduces the collateral impact of commercial fishing operations. With all the knowledge and creativity of fishermen and scientists, we can fish better. We can, and we must - for the future of the oceans and the sustainability of fisheries."

###

MEDIA NOTE: The scientists will discuss their findings at the AAAS Annual Meeting in Denver on Sunday, February 16th at 8:30 a.m. Mountain Time. For assistance contacting the speakers during AAAS please call Jessica Brown at 202-497-8375.

Ratana Chuenpagdee: [ratana@vims.edu](mailto:ratana@vims.edu)

Daniel Pauly: [d.pauly@fisheries.ubc.ca](mailto:d.pauly@fisheries.ubc.ca)

Larry Crowder: [lcrowder@duke.edu](mailto:lcrowder@duke.edu)

Lance Morgan: [lance@mcbi.org](mailto:lance@mcbi.org)

James Lindholm: [James.Lindholm@noaa.gov](mailto:James.Lindholm@noaa.gov)

Link: [https://www.eurekalert.org/pub\\_releases/2003-02/s-sum021103.php](https://www.eurekalert.org/pub_releases/2003-02/s-sum021103.php)