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## Technology blamed for fish decline

April 7, 2002

BIJAL P. TRIVEDI  
National Geographic Today

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Cold War era technology - such as sonar, satellites and global positioning - now used by the commercial fishing industry may be accelerating what researchers call a dramatic decline in fish stocks around the world, according to an unpublished study by scientists at the University of British Columbia in Canada.

"Fishermen can now drop nets into holes and crevices with astounding accuracy or hover precisely over sea mountains and essentially scoop out every last fish," said Daniel Pauly, a professor of Global Fisheries at UBC's Fisheries Center in Vancouver, British Columbia.

UBC scientists estimate that in the last century the amount of North Atlantic fish harvested for human consumption - or tablefish - has decreased by 85 percent, from about 76 million tons to 11 million tons.

"And this decline is accelerating," said Pauly, who led the study.

Tablefish continue to decrease at more than 2 percent per year, and represent a declining proportion of the total fish catch for the North Atlantic, said Villy Christensen, a research fellow at UBC.

The total fish catch for the North Atlantic peaked in the mid-1970s with close to 21 million tons. One quarter of this catch was tablefish. In 1999 the total catch fell to 14 million tons, but tablefish accounted for less than 9 percent. Pauly's team believes that anecdotal evidence closely ties this rapid decline to the use of these new technologies on an industrial scale.

After the Cold War ended more than 10 years ago, the Navy declassified sonar-mapping technologies far superior to their civilian counterparts. The United States Geological Survey then used that technology to produce detailed three-dimensional maps of the ocean floor.

These maps "reveal intricate details of underwater landscapes, which are then open to exploitation," said Callum Roberts, of the University of York in England, at a meeting of the American Association for the Advancement of Science last month in Boston.

During the Clinton administration, the military also declassified a more sensitive version of Global Positioning System technology than was previously available to civilians, said Roberts.

- [•Gushers and Dusters](#) With sonar maps fishermen can identify the best regions to fish, while the improved GPS directs their ships precisely to that spot. Researchers point to the rapid depletion of orange roughy, which worsened during the period some of this enhanced technology was released.
- [•Emergency shelters go back to the basics](#)
- [•Make changes so your 2002 taxes will be easier](#) Trawling for orange roughy increased in the mid-1980 when aggregations were discovered around the sea mountains near New Zealand. On a good day a 20-minute trawl yielded 60 tons of roughy, according to Roberts. But by the mid 1990s these fish stocks had been reduced to 20 percent of their pre-fishing levels.
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- [•Movers & Shakers](#) Large fish, such as swordfish and bluefin tuna, are attracted to fronts where cold and warm ocean waters meet. Satellite data can guide the fishermen to these fronts for large-scale fishing. In the lucrative bluefin tuna trade, one fish can fetch \$10,000 or more in Japanese markets.
- [•Get your business in The Advocate](#)
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- [•Car rental can be a global act](#) Pauly and his colleagues tried to determine the impact of fishing on the world's marine ecosystem over the last century and paint a global picture of fish populations. The first phase of their study, funded by the Pew Charitable Trusts, focused on the North Atlantic.
- [•SEC says no to Enron bonuses](#) The researchers painstakingly collected thousands of reports on fish catches, called landings, from ports around the world for the last century.
- [•Construction keeps architectural history alive](#) "But the landings don't tell you where these fish come from, or where the fishing fleets have been," said Pauly's colleague Reg Watson, also a UBC researcher..
- [•Couples should consider women's needs when retirement planning](#) Watson and Pauly used the composition of the catch to estimate where the fish originated.
- [•Soybeans rise on speculation](#) The researchers found that the total number fish hauled from the North Atlantic has almost doubled since the 1950s and increased fivefold from levels harvested in the early 1900s.
- [•History hints at long wait for Wall Street recovery](#) The result has been the collapse of fisheries in the North Atlantic and around the world, says Pauly.
- [•High gas costs send wholesale prices soaring](#) A study of more than 90 marine fish populations revealed that many species that suffered more than a decade of declines greater than 45 percent did not rebound, even after 15 years, said Jeffrey Hutchings, of Dalhousie University in Halifax, Nova Scotia.
- [•Airlines raising leisure fares](#)
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- [•House bill adds worker protections to pension laws](#) "We need to close at least 30 percent of the North Atlantic Ocean to fishing," said Pauly.
- The most effective method to stem the tablefish decline: create marine reserves where all fishing is prohibited and the habitat is protected, say the UBC scientists.

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A less controversial solution would be more Marine Protected Areas where only certain species of fish are protected. Such areas along the east coast and Gulf of Mexico have been credited with increasing the stock of scallops, haddock and yellowtail, said Steve Murawski, of the Northeast Fisheries Science Center in Woods Hole, Mass.

But creating these protected areas is often a contentious process.

Many New England fishermen support MPAs, and even marine reserves, but their attitude is "not in my backyard," said policy analyst Michael Pentony, of the New England Fishery Management Council.

"There are many New England communities whose entire identity is tied to commercial fishing," said Pentony. "Along the North East Coast you can potentially wipe out a town if you close a fishery."

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