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Privately Owned Fisheries May Help Shore Up Stocks

By [CORNELIA DEAN](#)

Giving people ownership rights in marine fisheries can halt or even reverse catastrophic declines in commercial stocks, researchers in California and Hawaii are reporting.

The idea goes against the grain among people who believe that anyone with grit and skill should be able to get in a boat, put to sea and make a living fishing. But that approach, even with licensing requirements and other restrictions, has produced fishing efforts so intense that by some estimates, the world's commercial stocks will collapse in a few decades.

By contrast, the researchers write in Friday's issue of the journal *Science*, allocating ownership shares of a particular fishery to individuals, cooperatives, communities or other entities gives them a reason to nurture the stock. In this arrangement, scientists set acceptable catch levels, and other authorities allocate shares, species by species, region by region.

As a local stock grows, shares in it — called catch shares or individual transferable quotas — become more valuable, just as shares of a company's stock become more valuable as the business prospers. Those who have shares in a catch have a powerful incentive for doing everything they can to protect the stock.

"You get this very positive, very striking result," said Christopher Costello, an economist at the University of California, Santa Barbara, and the lead author of the report.

Benefits of the approach have been seen before. In Alaska, a catch-share system adopted in 1995 has transformed an intense race to catch the last allowable fish into a sustainable and profitable fishery. But the researchers said their study was the first global assessment of this kind of rights-based management.

Other researchers said the new study was likely to be influential as officials who manage fisheries around the world considered how to stave off disastrous declines.

Ray Hilborn, a fisheries expert at the [University of Washington](#), praised the new work but said: "There is nothing surprising in it. A lot of us have been arguing that various forms of catch shares or dedicated access is essential."

Dr. Costello and his co-authors, Steven D. Gaines, an ecologist at Santa Barbara, and John Lynham, an economist at the [University of Hawaii](#), looked at data from more than 11,000 commercial fisheries around the world, of which 121 had established ownership share systems from 1950 to 2003. Collapse rates were so much lower in the share systems, they concluded, that they saw "the potential for greatly altering the future of global fisheries."

For example, Dr. Gaines said, the Alaska halibut fishery — that is, fishing for halibut in Alaskan waters — is regulated by the North Pacific Fishery Management Council, one of eight regional regulatory councils established by Congress. Each year the council, with the advice of scientists, sets the size of the yearly catch in the fishery.

For the purposes of the study, Dr. Gaines said, the researchers considered 64 large marine ecosystems, like the Gulf of Mexico, and studied the management of individual fish species in each.

The researchers said they drew on the work of scientists at Dalhousie University, in Nova Scotia, who have reported that most of the world's most important fishing stocks are in precipitous decline. In particular, they relied on data gathered by Boris Worm. He and colleagues reported in 2006 that if current fishing practices continue, all the world's major commercial stocks will have collapsed by 2048 — that is, they will be at 10 percent or less of their historic maximums.

This gloomy prediction has been controversial, but there is wide agreement that many commercial fisheries are in steep decline. Using the standard Dr. Worm used, the researchers found that more than a third of commercial fisheries had collapsed by 2003. The figure for fisheries managed with some form of a catch-share system was half that.

The authors of the new report said it would be premature to draw a straight line between rights-based management and restored stocks. For one thing, they said, the approach is common in just a few areas, like Alaska, Iceland, New Zealand and Australia, so it is possible, they wrote, that differences in the kinds of fish caught or other regional factors might “generate misleading results.” Or the fisheries might have been better managed in the first place and less vulnerable to collapse.

“That is definitely a weakness in the design” of the study, Dr. Hilborn said, but the only way to know would be to randomly assign various fisheries to different management schemes, “and you cannot do that in the real world.”

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