Three years ago, Boris Worm at Dalhousie University was the lead author on a study published in *Science* magazine that predicted the total collapse of global fisheries by the middle of this century under a business as usual scenario. That study drew a lot of media attention, but also criticism from other fisheries experts. Now Worm and 19 co-authors, including Ray Hilborn, one of the most vocal critics of that earlier paper, have a new more optimistic paper in the latest issue of *Science*.

You'll need a subscription to read the full paper, but here's the abstract:

> After a long history of overexploitation, increasing efforts to restore marine ecosystems and rebuild fisheries are under way. Here, we analyze current trends from a fisheries and conservation perspective. In 5 of 10 well-studied ecosystems, the average exploitation rate has recently declined and is now at or below the rate predicted to achieve maximum sustainable yield for seven systems. Yet 63% of assessed fish stocks worldwide still require rebuilding, and even lower exploitation rates are needed to reverse the collapse of vulnerable species. Combined fisheries and conservation objectives can be achieved by merging diverse management actions, including catch restrictions, gear modification, and closed areas, depending on local context. Impacts of international fleets and the lack of alternatives to fishing complicate prospects for rebuilding fisheries in many poorer regions, highlighting the need for a global perspective on rebuilding marine resources.

The new study focuses on ten important marine ecosystems for which good data were available. Until the 1990s, most of those ecosystems were overfished. Since the 1990s, fishing pressure has declined substantially in several locations, although the authors conclude that fishing levels are only truly sustainable in New Zealand and off the western US. They find that a variety of management tools have been effective in reducing overfishing; the "feasibility and value of different management tools depends heavily on local characteristics of the fisheries, ecosystem, and governance system." The overall message is one of hope — historic overfishing trends can be reversed, tools are available to manage fisheries sustainably, and many stocks do respond when fishing pressure is reduced.

Worm et al. do acknowledge that there are real barriers torebuilding stressed fisheries, even in wealthy nations. Rebuilding can require dramatic reductions in

harvest for a period of years or even decades. That carries real economic costs, which can lead to political resistance from local communities. But those communities may be even worse off if they try to delay that pain. A report prepared for the Pew Environment Group by John Gates makes the case that rebuilding depleted fish stocks can provide substantial economic benefits for coastal communities.