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# Overfishing Could Take Seafood Off the Menu by 2048

By [David Biello](#)



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In 1994, seafood may have peaked. According to an analysis of 64 large marine ecosystems, which provide 83 percent of the world's seafood catch, global fishing yields have declined by 10.6 million metric tons since that year. And if that trend is not reversed, total collapse of all world fisheries should hit around 2048. "Unless we fundamentally change the way we manage all the oceans species together, as working ecosystems, then this century is the last century of wild seafood," notes marine biologist Stephen Palumbi of Stanford University.

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Marine biologist Boris Worm of Dalhousie University in Halifax, Nova Scotia, gathered a team of 14 ecologists and economists, including Palumbi, to analyze global trends in fisheries. In addition to data from the U.N. Food and Agriculture Organization stretching back to 1950, the researchers examined 32 controlled experiments in various marine ecosystems, observations from 48 marine protected areas, and historical data on 12 coastal fisheries for the last 1,000 years. The latter study shows that among commercially important species alone, 91 percent have seen their abundance halved, 38 percent have nearly disappeared and 7 percent have gone extinct with most of this reduction happening since 1800. "We see an accelerating decline in coastal species over the last 1,000 years, resulting in the loss of biological filter capacity, nursery habitats and healthy fisheries," notes team member Heike Latze, also of Dalhousie.

And across all scales, from very small controlled studies of marine plots to those of entire ocean basins, maintaining [biodiversity](#)--the number of extant species across all forms of marine life--appeared key to preserving fisheries, [water](#) filtering and other so-called ecosystem services, though the correlation is not entirely clear. "Species are important not only for providing direct benefits in terms of fisheries but also providing natural infrastructure that supports fisheries," explains team member Emmett Duffy of the Virginia Institute of Marine Sciences. "Even the bugs and weeds make clear, measurable contributions to productive ecosystems."

Although the trend is grim, the study of protected areas offers some hope that marine ecosystems can rebound, according to the paper presenting the analysis in the November 3 issue of *Science*. The 48 studied showed an overall increase of 23 percent in species diversity and a fourfold increase in available catch. "It's not a miracle. It's something that is do-able, it's just something that requires a big chunk of political will to do it," Worm observes. "We have a 1,000-, probably 10,000-year habit of taking the oceans for granted and moving from one species to the next, or replacing it with a technological fix like aquaculture. To me, the major roadblock is we have to change our perception of what the ocean is." Should we fail, we may lose the ocean's bounty entirely.

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