



Media only: Beth King (703) 487-3770, ext. 8216 kingb@si.edu
Monica Alvarado (703) 487-3772, ext. 8023 alvaradom@si.edu

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Media Web site: <http://newsdesk.si.edu>

A Recipe for Saving the World's Oceans from an Extinction Crisis

Jeremy Jackson, senior scientist emeritus of the Smithsonian Tropical Research Institute and the Scripps Institution of Oceanography, asserts in the Aug. 12 issue of the journal *Proceedings of the National Academy of Sciences*, that the following steps, if taken immediately, could reverse the demise of the oceans: Establish marine reserves, enforce fishing regulations, implement aquaculture, remove subsidies on fertilizer use, muster human ingenuity to limit fossil fuel consumption, buy time by establishing local conservation measures.

In 2001, Jackson and 18 co-authors published a landmark paper in the journal *Science*, “Historical Overfishing and the Recent Collapse of Coastal Ecosystems,” in which they made the case that environments that we perceive as relatively pristine have, in fact, been radically altered by centuries of human exploitation.

Jackson has been on the lecture circuit since then. “Our amnesia about what is natural is the greatest threat to the environment,” said Jackson, in the YouTube version of his talk “The State of the Ocean,” delivered at Middlebury College, in Vermont, in 2007.

Developing a media-savvy approach, Jackson worked closely with Nancy Baron, Ocean Science Outreach director of SeaWeb/Communication Partnership for Science and the Sea to publicize his work and the work of other ocean scientists.

Later, he collaborated with marine biologist-turned-filmmaker, Randy Olson of “Flock of Dodos” and “Sizzle” fame, to create *Shifting Baselines* videos for the Web—graphic demonstrations of the way our perception of what a “natural” environment is changes over time.

In this article, “Ecological Extinction and Evolution in the Brave New Ocean,” Jackson reviews a series of studies that bolster initial observations that exploitation and pollution of estuaries and coastal seas, coral reef ecosystems, continental margins and the open ocean continue unabated.

He predicts that overfishing will lead to extinction of edible species and have an indirect effect on other levels of the food chain. Larger dead zones and toxic algal blooms may merge along the coastal

zones of all of the continents. Disease outbreaks will increase. Vertical mixing of ocean waters may be inhibited resulting in disrupted nutrient cycles.

“Some may say that it is irresponsible to make such predictions pending further detailed study to be sure of every point. However, we will never be certain about every detail, and it would be irresponsible to remain silent in the face of what we already know.”

Despite Jackson’s bleak prognosis for a “brave new ocean,” he clearly identifies “lack of political will and the greed of special interests” as standing in the way of establishing sustainable fisheries and aquaculture, “Simply enforcing the standards of the Magnuson-Stevens Act and the U.S. National Marine Fisheries Service would result in major improvements in U.S. waters within a decade.”

“We have to begin somewhere,” says Jackson—who will continue to stir the pot.

The Smithsonian Tropical Research Institute, headquartered in Panama City, Panama, is a unit of the Smithsonian Institution. The institute furthers the understanding of tropical nature and its importance to human welfare, trains students to conduct research in the tropics and promotes conservation by increasing public awareness of the beauty and importance of tropical ecosystems. For more information, visit www.stri.org.

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Ref: Jeremy B.C. Jackson. 2008. Ecological extinction and evolution in the brave new ocean. PNAS, 12 August early online edition.