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Citing Benefits of No-Take Areas, Scientists Call for New Networks of Marine Reserves

There is now compelling scientific evidence that no-take areas -- or marine reserves -- conserve both biodiversity and fisheries, and could help replenish depleted fish stocks, according to a consensus statement signed by 160 marine-science academics from around the world. Released February 17 at the annual meeting of the American Association for the Advancement of Science (AAAS), the statement is the culmination of a three-year, international effort to advance scientific understanding of marine reserves.

"All around the world there are different experiences, but the basic message is the same: marine reserves work, and they work fast," said Jane Lubchenco (Oregon State University, USA), a past president of AAAS and a leader of the three-year effort. "It is no longer a question of whether to set aside fully protected areas in the ocean, but where to establish them."

The consensus statement recommends that marine resource managers use reserves as a "central management tool" for achieving long-term fishery and conservation benefits. It concludes that networks of reserves, rather than isolated single reserves, will be necessary to buffer against environmental variability and catastrophes.

Increases in population density, biomass

The academic effort to develop a better scientific understanding of marine reserves grew out of the 1997 AAAS meeting, where scientists reviewed the state of the oceans and identified research priorities. Following that meeting, several researchers formed a team, based at the National Center for Ecological Analysis and Synthesis (University of California, Santa Barbara), to examine the effects of reserves on fish populations.

The team's study of more than 100 reserves from around the world indicated that after one to two years of protection, these reserves averaged a 91% increase in population density, 192% increase in biomass, and 23% increase in species diversity as compared to reference sites. The consensus statement also noted that in the few studies that have examined the effects of reserves on fish populations in adjacent waters, the size and abundance of exploited species has increased.

"The results are startling and consistent," said Robert Warner of the University of California, Santa Barbara, a leader of the academic effort.

The consensus statement follows the release last November of another document from scientists in support of marine reserves. A committee of the US National Research Council (NRC) released a 150-page report urging marine resource managers to increase their use of marine reserves as a supplement to conventional management tools ([MPA News 2:5](#)). The report, *Marine Protected Areas: Tools for Sustaining Ocean Ecosystems*, assessed the scientific basis of techniques for locating, designing, and implementing reserves.

Megan Dethier (University of Washington, US), who assisted with the first draft of the consensus statement, said the statement's brevity -- three pages -- reflected its intended purpose. "We wanted to make a [statement] that was short and direct enough to be readily usable by the press, NGOs, etc., to help 'spread the word', rather than a complex scientific document that would not be 'picked up' in the way that this one clearly has been," said Dethier.

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BOX: Consensus statement is online

An electronic version of the consensus statement on marine reserves is available online at the following websites:

<http://www.compassonline.org/frame.html> or <http://www.nceas.ucsb.edu/Consensus>

BOX: Conclusions of the Consensus Statement

- Reserves conserve both fisheries and biodiversity.
- To meet goals for fisheries and biodiversity conservation, reserves must encompass the diversity of marine habitats.
- Reserves are the best way to protect resident species and provide heritage protection to important habitats.
- Reserves must be established and operated in the context of other management tools.
- Reserves need a dedicated program to monitor and evaluate their impacts both within and outside their boundaries.
- Reserves provide a critical benchmark for the evaluation of threats to ocean communities.
- Networks of reserves will be necessary for long-term fishery and conservation benefits.
- Existing scientific information justifies the immediate application of fully protected marine reserves as a central management tool.

From "Scientific Consensus Statement on Marine Reserves and Marine Protected Areas," released February 17 at the 2001 meeting of the American Association for the Advancement of Science (AAAS), San Francisco, California, USA.

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