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Gail Gallessich

Worldwide Marine Reserves Show Unexpectedly Rapid Response

Marine animals show an unexpectedly rapid and prolonged positive response to protection inside marine reserves, according to scientists at the University of California, Santa Barbara. Their findings will be published in the May issue of the journal Ecology Letters.

Reserves are defined as no-take zones where it is illegal to extract organisms in any way. "The exciting result is that once you put a reserve into place, in one to three years there is a dramatic response by the species in the reserve to that protection," said Ben Halpern, co-author and graduate student in biology at UC Santa Barbara. Halpern wrote the paper with Robert Warner, professor of biology at UCSB.

"People who are contemplating establishing a reserve can know they will see results in a short time," said Halpern. "From a political and social perspective, this is very good news."

The researchers reviewed 112 independent measurements of 80 reserves to show that the higher average values of density, biomass, average organism size and diversity inside reserves (relative to control groups) reach much higher levels within a short period of time, usually one to three years. The values are consistent across reserves of all ages, up to 40 years.

"Therefore biological responses inside marine reserves appear to develop quickly and last through time," stated the authors.

Halpern explained that the response is not only quick, but lasts for decades. "It's great from a management, political and conservation approach to know that these changes will last through time," he said. "While reserves remove some areas from fishing pressure, the premise is that increased production inside reserves will eventually benefit consumers outside reserve boundaries. We now can say with increased confidence that 'eventually' is a relatively short period of time."

The oldest reserves included in the study are one that is 40 years old, just off the coast of Vancouver, British Columbia, and a 39-year-old reserve in Exuma Sound in the Bahamas.

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.