

UC SANTA BARBARA

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Good News, Bad News

When it comes to coral reefs, there's good news and bad news, according to one of the largest global studies of these imperiled habitats. While overfishing has led to coral reef degradation, it seems certain reef "bright spots" still manage to flourish.

Researchers from 34 different universities and conservation groups, including the [Moorea Coral Reef Long Term Ecological Research site \(MCR LTER\)](#) overseen by UC Santa Barbara, conducted more than 6,000 reef surveys across the globe. They discovered 15 places where, against all odds, coral reefs were home to more fish than expected based on their exposure to pressures such as human population, poverty and unfavorable environmental conditions. The researcher's findings appear in the journal [Nature](#).

"Given the widespread depletion of coral reef fisheries globally, we were really excited to find bright spots that were faring much better than we anticipated," said [Andrew Brooks](#), deputy program director and science coordinator for the MCR LTER site. "Bright spots are not necessarily pristine reefs but, rather, ones that have more fish than they should, given the pressures they face."

According to Brooks and his colleagues, coral reefs are in decline and current strategies for preserving them are insufficient. "We wanted to know why certain reefs were successful and whether there were lessons we could learn about how to avoid the degradation often associated with overfishing," said Brooks, a project scientist at the Marine Science Institute.

The team's analysis identified places not previously known to be successful in locations not necessarily untouched by man. Bright spots were typically found in the Pacific Ocean in places like the Solomon Islands, parts of Indonesia, Papua New Guinea and Kiribati. These successful areas shared several things in common: strong local involvement in how the reefs were managed, local ownership rights and traditional management practices.

"These bright spots offer hope and some solutions that could be applied more broadly across the world's coral reefs," Brooks said. "Specifically, investments that foster local involvement and provide people with ownership rights can foster the development of creative solutions that help defy expectations of reef fisheries depletion."

The investigators also identified 35 "dark spots," where fish stocks were in worse shape than expected. These, too, had defining characteristics: intensive netting activities and easy access to freezers so fish could be stockpiled before being sent to market.

Dark spots were more globally distributed and found in every major ocean basin. However, the researchers noted, dark spots highlight development or management pathways to avoid.

The good and bad news derived from this coral reef data holds the promise of a new approach to conservation. If the lessons learned from the success of bright spot reefs were applied globally, they might promote better habitat conditions worldwide.

While this type analysis has been used in fields such as human health and wellbeing, this study marks the first time such an approach has been rigorously developed for conservation.

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.