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Coral Reefs Doing Better Than Expected in Many Areas

A new study found "bright spots" where corals are thriving, despite global bleaching events.



Local fishermen are often good stewards of the ocean, a new study finds. Here, villagers from New Britain Island, Papua New Guinea, work their waters.

PHOTOGRAPH BY DAVID DOUBILET, NATIONAL GEOGRAPHIC CREATIVE



By **Brian Clark Howard**

PUBLISHED JUNE 15, 2016



Despite the unprecedented extent of coral bleaching around the world, a [major new study](#) has also found "bright spots" where corals are doing significantly better than anyone expected. And the reason for the improvement is simple: it comes down to how much the coral reefs are fished by people.

This result has important implications for how reefs are protected, says [Jack Kittinger](#) of Conservation International, one of the study's authors.

"Most reef conservation to date has focused on protecting pristine reefs in marine protected areas, but we're finding that's not enough," says Kittinger. "We have to also think about connections to world markets."

The new study was published in *Nature* Wednesday and was written by 39 scientists from 34 institutions, from universities to conservation groups to [National Geographic's Pristine Seas Initiative](#). The report was timed to raise awareness ahead of the International Coral Reef Symposium in Hawaii June 19-24, an event that happens every four years and brings leading scientists together.

Coral reefs have been increasingly damaged by warming temperatures and rising seas, thanks to climate change. Making things worse this year is a warmer ocean, thanks to a cyclical El Niño. And overharvesting of fish can be like the final straw that breaks the camel's back.

On the other hand, those reefs that are more sustainably managed have a better shot at adjusting to the impacts of climate change over time, Kittinger says.

Anatomy of a Bright Spot

To better understand these impacts in detail, the team conducted more than 6,000 surveys of reefs in 46 countries. The scientists found that areas that experienced the most harvesting for the global marketplace showed the biggest loss of fish and other species, and therefore the most decline. Those denuded reefs—in 35 "dark spots"—tended to be scattered around the world, but include many examples in the Caribbean, off Africa, and near populated parts of the Indo-Pacific.

On the other hand, reefs that experienced more sustainable uses were in the best shape, resulting in 15 "bright spots." These were most common in the Solomon Islands, parts of Indonesia, Papua New Guinea, and [Kiribati](#). ([Learn more about conservation in Kiribati.](#))

What's more, the team drilled down on the bright spots they identified and found a few clear patterns, including a significant surprise. One of the most important was that those areas with traditional tenure rights tended to be the healthiest. Under this system, local people are allowed to harvest fish and invertebrates but outsiders are not. The benefits were most pronounced when the people were most dependent on this resource for their livelihoods.

"We thought this was counterintuitive," says Kittinger. "You might expect a high dependency on the reefs to mean high harvesting and therefore a dark spot, but we found the converse is true. What we saw is that people who are dependent on it are more likely to be better stewards, perhaps because if they crash that resource they are really in trouble."

On the other hand, areas where fishermen can come from all over tended to suffer from the "tragedy of the commons." Similarly, areas with loose management of fishing tended to see more reef damage than areas with better oversight.



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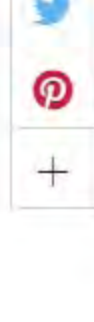


Fish and coral go hand in hand, as seen on this reef in Bali.

PHOTOGRAPH BY TIM LAMAN, NATIONAL GEOGRAPHIC CREATIVE



The connection between fish and reefs is inextricable, notes Kittinger. Fish keep algae in check by constantly feasting on their growth. If too many of the fish are removed by people, algae grow too thick and smother the corals.



Another factor that tended to be seen in bright spots is a reservoir of deep water near the reefs, where fish could grow and have a better chance of eluding capture.

Saving More Reefs?

Going forward, governments should regulate markets to encourage better stewardship of the ocean, the authors argue. Companies and consumers can also play a role by demanding more sustainable seafood, rejecting unregulated and pirate fishing, and insisting that local people's rights are respected.

"Reef conservation can be depressing, to it was great that we found some seeds of success where things are working," says Kittinger. "We need to double down on those."

But given the rapid decline of coral reefs around the world, "we really don't have much time to get it right," he says.

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