



## Coral Worse Off Than Believed

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The first large-scale analysis of the world's largest reef system indicates that coral destruction is faster and more widespread than researchers previously thought. Over the past 2 decades, coral has disappeared at five times the rate of Earth's rainforests.

### **Vanishing.**

Plating corals from the Great Barrier Reef.

Credit: AIMS Long Term Monitoring Program

Long considered a hotbed of biodiversity, the Indian and Pacific oceans are home to 75% of the world's coral reefs. For years, conservationists have been trying to document coral loss in the Indo-Pacific region, which encompasses Hawaii, Australia, and Southeast Asia, but its large size has frustrated efforts. All researchers had to go on were scattered reef studies, which no one has attempted to integrate due to the large number of national, international, and nonprofit groups collecting the data.

Undaunted, John Bruno, a marine biologist at the University of North Carolina in Chapel Hill, and colleagues spent 3 years compiling over 6000 independent surveys. In all, the data spanned 4 decades and recorded the status of more than 2600 reefs. The team then combed through data collected by the many different parties working in the area, searching for historical and geographic coral loss patterns.

The results were not pretty. Over 3000 square kilometers of living coral reef are lost each year, the team found, and the speed of destruction is no lower in protected habitats such as Australia's Great Barrier Reef. Conservationists had previously believed that accelerated declines started in the 1990s, but the researchers found reports of widespread loss dating back to the 1960s, when pollution, deforestation, and over-fishing trends began. Reefs vanished at an annual rate of 1% during the 1980s, with declines climbing through the 1990s to the current rate of 2%--nearly five times the pace of rainforest elimination, say the authors. Global warming, pollution, and over-fishing remain the likely culprits, the team reports online today in *PLoS One*. As each square kilometer of coral reef can generate hundreds of thousands of dollars in revenue for local economies through tourism and sustainable fishing--and because numerous species depend on coral for survival--the losses will have huge economic and ecological impacts, the authors conclude.

"Much of the previous information on the decline of reefs in the Pacific region has rested on pretty scant data," says Ove Hoegh-Guldberg, a biologist at The University of Queensland in Brisbane, Australia. "[This paper] systematically looks at reef decline and finds an unambiguous and highly significant statistical trend." Nancy Knowlton, a marine biologist at the Scripps Institute of Oceanography in San Diego, California, adds that the findings challenge widely-held beliefs about the global status of coral reefs. Prior to this study, researchers thought that Indo-Pacific reefs were in better shape than those in other parts of the world she says. "Here we learn that this guarded optimism was without basis... there are no bright spots."

### **Related sites**

- [The paper](#) on web [The paper PDF](#)
- [NOAA site on coral disease](#)
- [Researchers' site, with coral photos](#)