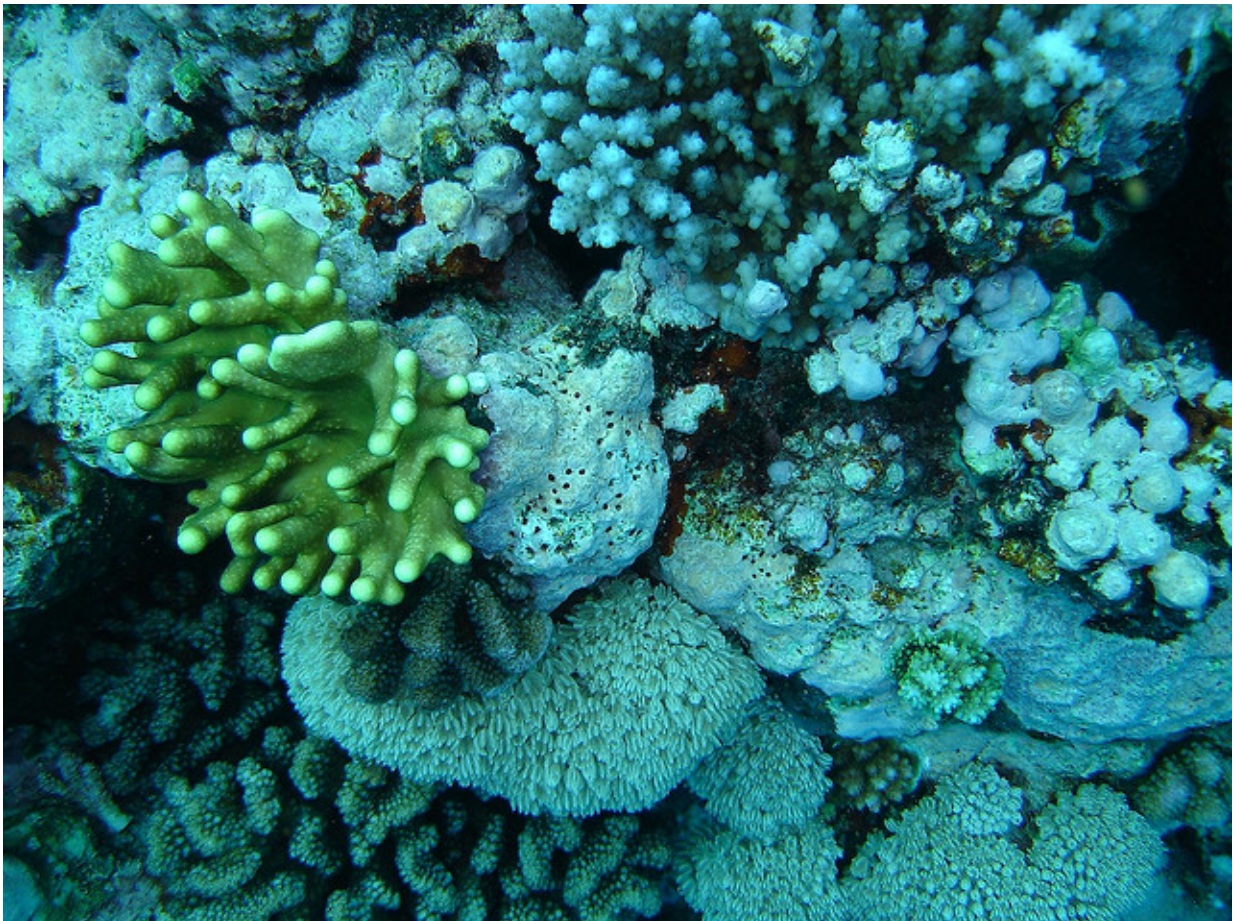


# How much coral reef does the world have? A global perspective needed

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Credit: Flickr/Cory Doctorow

Coral reefs are struggling in many areas of the world due to overfishing,

pollution, climate change, and other stressors. Despite the best efforts of scientists and conservation practitioners worldwide to assess and quantify these declines, how the total amount of coral reef area, or 'reef structure', is changing remains unknown.

Reef structure is important as fish habitat and as a foundation upon which new corals can grow. In a new perspective paper published in the journal *Conservation Biology*, Dr Elizabeth Madin and Dr Joshua Madin argue that an accurate assessment of the condition of coral reefs globally will require combining estimates of local ecological change with broad-scale estimates of how much [reef](#) structure actually exists.

"It's important to have that full global picture so that we can establish a baseline of how much coral area actually exists in the world, then in future years check to see if and how much this is changing. Knowing how it is changing will give us a more accurate picture than we can currently have of how [coral reefs](#) globally are doing," said Dr Joshua Madin.

"In addition to current monitoring of what's living on top of the reef structure, starting to monitor the actual amount of coral reef area using modern technology will give us a barometer for global changes in this valuable resource."

There have been periods in the past referred to as 'reef gaps' during which calcifying organisms like corals could not keep up with the forces that erode reefs.

Said Dr Madin: "Unfortunately, [climate change](#) predictions suggest these same forces will again become more damaging – forces such as destructive cyclones, thermal bleaching and ocean acidification."

In the paper, the researchers argue that satellite imagery is now of such

high spatial resolution and relatively low cost that there is an unprecedented opportunity to create a first-ever baseline of global reef area. "Given the emerging technology of nanosatellites, this should only become easier and more cost-effective into the future," said Dr Elizabeth Madin.

"To establish a baseline against which future changes can be assessed, a global assessment of coral reef extent should be included in the list of global coral reef conservation priorities.

"A global-scale, coordinated, and long-term monitoring program coordinated by an international non-governmental organisation should be established to quantify these changes, especially in the world's shallow water reefs for which the technology to do so already exists," said Dr Madin.

**More information:** Madin, Joshua S; Madin, Elizabeth M P. The full extent of the global coral reef crisis. *Conservation Biology*, July 2015. [onlinelibrary.wiley.com/doi/10.../cobi.12564/abstract](https://onlinelibrary.wiley.com/doi/10.1111/cobi.12564/abstract)

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