

Ancient Reef Survivors

We may have some additional reasons to believe coral reefs are more resilient in the face of climate change than some anticipate.

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In a new paper titled "Community dynamics of Pleistocene coral reefs during alternative climatic regimes," by Danika Tager, Jody M. Webster, Don Potts, Willem Renema, Juan C. Braga and John M. Pandolfi, to be printed in the latest edition of *Ecology* (91[1], 2010), the researchers examined coral community fossil structures from the Pleistocene area.

The paper and the research it is based on give us a look into what coral reef communities may have been like in the Pleistocene (2.588 million years ago to 12,000 years ago). It's interesting because, as one news report covering the release of the paper noted, it may indicated corals are more resilient than some in the scientific community argue they will be in the face of impending climate change.

The abstract from this paper states:

"Reef ecosystems built during successive periods of Pleistocene sea level rise have shown remarkable persistence in coral community structure, but little is known of the ecological characteristics of reef communities during periods of low sea stands or sea level falls. We sampled the relative species abundance of coral, benthic foraminifera, and calcareous red algae communities from eight submerged coral reefs in the Huon Gulf, Papua New Guinea, which formed during successive sea level fall and lowstand periods over the past 416 kyr." (kyr refers to 1,000 years, so in this case, 416 kyr means 416,000 years).

The authors continue:

"We found that dissimilarity in coral species composition increased significantly with increasing time between reef-building events. However, neither coral diversity nor the taxonomic composition of benthic foraminifera and calcareous red algae assemblages varied significantly over time."

Basically, the researchers examined specific information about what happened to coral communities during the Pleistocene. They found that, even though coral communities in this time period in Huon Gulf would have been exposed to much lower sea levels, over time the diversity of those coral communities did not vary significantly.

This suggests it is possible coral species have more resilience than we currently give them credit for. I've written on this topic before, as well (see my blog titled "Reefs Show Signs of Rallying").

Of course, the conditions in the time period measured were likely vastly different from what we believe corals are likely to face in the relatively near future. At the time, sea water levels were falling drastically, while today, sea water levels are rising, temperature is rising and ocean acidity is likely to increase.

Still, I think corals are generally tougher than we give them credit for.

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