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The Great Barrier Reef May Be More Resilient To Climate Change Than We Thought

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(http://edge.alluremedia.com.au/uploads/businessinsider/2014/05/coral-reef.png)

Mark Kolbe/Getty Images

Analysing fossilised corals suggests the Great Barrier Reef was more resilient to past climate change than we thought, say scientists.

However, the researchers caution that temperature changes expected as a result of modern climate change will occur much more rapidly and could kill off the reef.

According to a study published in the journal Nature Communications (http://dx.doi.org/10.1038/ncomms5102), there are fears that an increase in average summer temperatures by more than 1°C will result in thermal stress, coral bleaching and death of the world's largest coral reef system.

Thomas Felis of the University of Bremen, Germany, and colleagues investigate the response of Great Barrier Reef corals at the end of the last ice age, when global temperatures rose significantly.

Through the analysis of fossil coral geochemistry, the team show that between 20,000 and 13,000 years ago corals survived and adapted to temperature changes of several degrees, much larger than previously recognised.

Researchers note, however, that Great Barrier Reef corals adapted to these temperature changes over a period of several thousand years and suggest that further work is required to determine the timescales required to adapt to future warming.

Professor John M. Pandolfi, from the ARC Centre of Excellence for Coral Reef Studies and the University of Queensland, says the paper shows there was remarkable variation in sea surface temperatures on the Great Barrier Reef between about 20,000 and 13,000 years ago.

However, it is still unknown how much further increases in sea surface temperatures will impact the survival of corals.

Professor Pandolfi says:

> "The temperature changes experienced by these corals occurred in the absence of any human impacts, so we are still uncertain about how multiple stressors that include both increases in SST (sea surface temperatures) and local stressors such as degraded water quality might interact to inhibit the thermal tolerances observed in the absence of humans."

Watch the video of the expedition which gathered data for the study. The cores were drilled during an expedition of the International Ocean Discovery Program IODP in early 2010:

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