

Great Barrier Reef Extinction

Could the Great Barrier Reef Go Extinct?

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Great Barrier reef, Cairns, Queensland.

Photo by Leonard Low. The Great Barrier Reef, off Australia's east coast, may be visible from space, but the growth of the coral there has been declining dramatically over recent years. One of the most detailed studies ever undertaken, carried out over 15 years, blames a combination of rising water temperature and an increase in acidity of the sea.

Coral reefs are rich in biodiversity, being home to many varied fish and invertebrates, as well as other creatures such as turtles, but they are also very stable ecosystems. Even slight environmental changes can therefore have catastrophic effects, not just for the coral but for the creatures which live on the reef. What has been happening, according to the authors of this new study, which has just been published in the journal *Science*, is the result of climate change.

The world's oceans are now absorbing excess carbon dioxide from the atmosphere at a faster rate than ever, leading to the production of carbonic acid and causing the pH of the sea to fall. This in turn is making it harder for the corals to create their calcium carbonate skeletons, and weakening them too.

The rising sea temperature in the upper layers of the ocean is also damaging the beneficial zooxanthellae algae that provide some of the nutrients used by the coral. This leads to bleaching, with the corals becoming white -- as the distinctive algae which are responsible for their coloration are destroyed.

It is possible to compare the growth cycle of coral in a similar way to trees. By looking at the rings evident in huge *Porites* coral, scientists found that there has been a 14 percent decline in growth since 1990. When examining specimens up to 400 years old, they also discovered there has never been such a marked slowdown before, throughout this entire period. If the trend continues unchecked, then the coral forming the Great Barrier Reef will have stopped growing completely by around 2050, spelling disaster for the entire ecosystem.