

1. [Home](#)
2. [Science](#)
3. [Science News](#)

AAAS: Coral reefs could disappear by the end of the century

The world's coral reefs could dissolve away by the end of the century as oceans become more acidic, research suggests.

By Richard Alleyne, Science Correspondent at the AAAS in San Diego

Published: 4:30AM GMT 24 Feb 2010



Oceans soak up carbon dioxide greenhouse gas from the atmosphere, but in doing so become more acidic Photo: AP

The reefs will stop growing and start disintegrating when the amount of carbon dioxide in the atmosphere reaches twice its pre-industrial level, scientists predict.

If current trends continue, this is expected to occur by the end of the 21st century.

Related Articles

- [CO2 levels may cause underwater catastrophe](#)
- [Climate change 'killing Coral Triangle'](#)
- [Coral reefs in danger of dying out in next 20 years](#)
- [Earth faces 'Waterworld' as global warming 'lasts centuries'](#)
- [British girl names coral reef in Maldives](#)

Research leader Dr Jacob Silverman, from the Carnegie Institution in Washington D.C. said: "These ecosystems, which harbour the highest diversity of marine life in the oceans, may be severely reduced within less than 100 years."

Reef-building corals are highly sensitive to the acidity and temperature of the seawater in which they grow, Dr Silverman told the annual meeting of the American Association for the Advancement of Science in San Diego.

Oceans soak up carbon dioxide greenhouse gas from the atmosphere, but in doing so become more acidic.

When the acid levels rise too high it prevents coral from extracting minerals from seawater to build their hard skeletons. Temperature also affects this process.

Dr Silverman's team studied the metabolism of a northern Red Sea coral reef to assess its sensitivity to environmental conditions.

The research showed that the ability of the coral to build new structures depended strongly on water acidity and to a lesser extent temperature.

This association could be calculated and predicted by a mathematical equation, which the scientists used to predict the fate of more than 9,000 coral reefs around the world.

Dr Silverman said: "A global map produced on the basis of these calculations shows that all coral reefs are expected to stop their growth and start to disintegrate when atmospheric CO₂ (carbon dioxide) reaches 560 parts per million (double its pre-industrial level), expected by the end of the 21st century."

Another speaker at the meeting highlighted a second threat to coral linked to global warming.

Dr Simon Donner said increasing ocean temperatures made reefs more susceptible to bleaching, caused by the loss of algae on which coral depend.

Corals have a symbiotic relationship with the microscopic algae that live in their tissues.

As well as giving coral its vibrant colour, the algae provide the reef creatures with most of their energy.

When sea temperatures rise too high the association between coral and algae breaks down. The coral then effectively expel the algae and turn white. Once this happens the coral is deprived of energy and dies.

Dr Donner, from the University of British Columbia in Canada, said: "Even if we froze emissions today, the planet still has some warming left in it. That's enough to make bleaching dangerously frequent in reefs worldwide."

Mass bleaching events were extremely rare 30 years ago but had become increasingly common in recent years, he said.

In 2006, severe bleaching struck the southern part of Australia's Great Barrier Reef, the largest coral reef system in the world.

Last year scientists reported that a "lucky combination" of rare circumstances had allowed the coral to recover from the disaster.