Great Barrier Reef: Bleaching 'kills 35% of area's coral'

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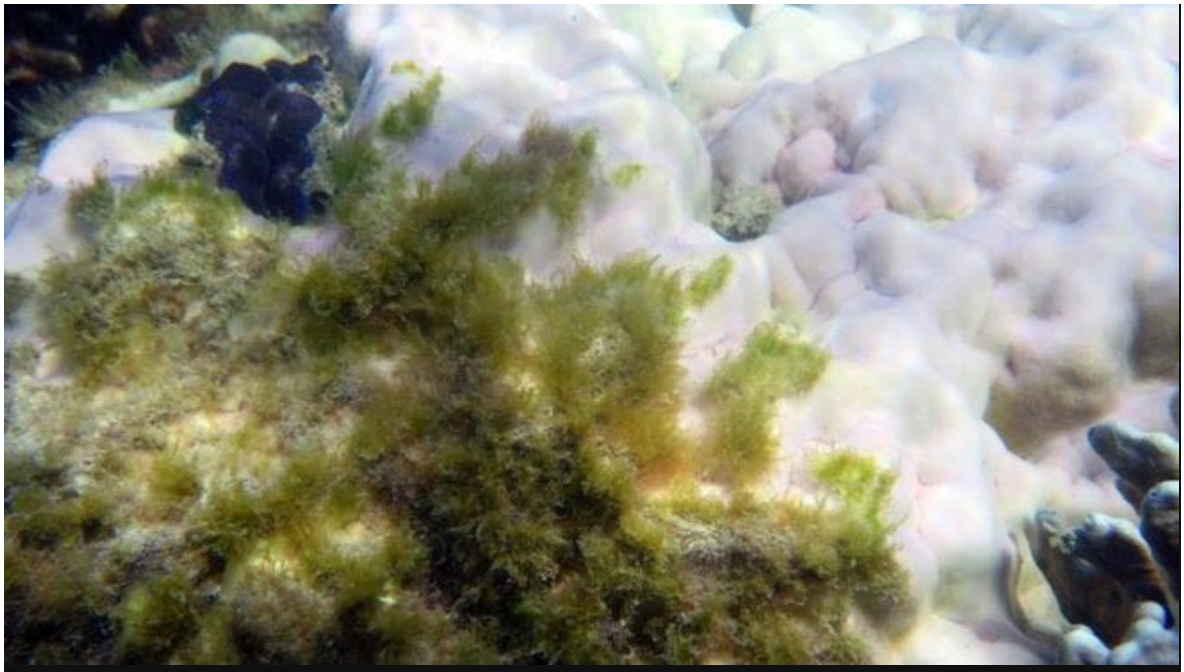
From the section

Australia



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The recovery of coral cover is expected to take a decade or longer, scientists say

At least 35% of corals in the northern and central parts of Australia's Great Barrier Reef have been destroyed by bleaching, Australian scientists say.

The experts from James Cook University (JCU) say it is the most extreme case of mass bleaching they have ever measured at the World Heritage Site.

Bleaching occurs when warmer water causes coral to weaken and lose the colourful algae that provide oxygen and nutrients.

It has been linked to climate change.

"We found on average, that 35% of the corals are now dead or dying on 84 reefs that we surveyed along the northern and central sections of the Great Barrier Reef, between Townsville and Papua New Guinea," Professor Terry Hughes, the head of the ARC Centre of Excellence for Coral Reef Studies at JCU, **said in a statement.**

"This year is the third time in 18 years that the Great Barrier Reef has experienced mass bleaching due to global warming, and the current event is much more extreme than we've measured before.

"We're rapidly running out of time to reduce greenhouse gas emissions."

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Image caption
The Great Barrier Reef is the world's largest living structure and can be seen from space.

The scientists warned that the recovery of coral cover is expected to take a decade or longer, but it would take much longer to regain the largest and oldest corals that have died.

Their study was released after months of intensive aerial and underwater surveys.

Mass coral bleaching

- Coral bleaching is caused by rising water temperatures resulting from two natural warm currents
- It is exacerbated by man-made climate change, as the oceans are absorbing about 93% of the increase in the Earth's heat
- Bleaching happens when corals under stress drive out the algae known as zooxanthellae that give them colour
- If normal conditions return, the corals can recover, but it can take decades, and if the stress continues the corals can die
- The current worldwide bleaching episode is predicted to be the worst on record

35 per cent coral death in parts of Great Barrier Reef

By Chris Mooney

8:59 AM Monday May 30, 2016

Coral gardens at the Ribbon Reef. Great Barrier Reef. Photo / Spirit of Freedom

We knew this was coming.

For months, coral reef experts have been loudly, and sometimes mournfully, announcing that much of the treasured Great Barrier Reef has been hit by "severe" coral bleaching, thanks to abnormally warm ocean waters.

Bleaching, though, isn't the same as coral death. When symbiotic algae leave corals' bodies and the animals then turn white or "bleach," they can still bounce back if environmental conditions improve.

The Great Barrier Reef has seen major bleaching in some of its sectors - particularly the more isolated, northern reef - and the expectation has long been that this event would result in significant coral death as well.

Now some of the first figures are coming in confirming that. Diving and aerial surveys of 84 reefs by scientists with the ARC

Centre of Excellence for Coral Reef Studies at James Cook University, in Australia - the same researchers who recently documented at least some bleaching at 93 per cent of individual reefs - have found that a striking 35 per cent of corals have died in the northern and central sectors of the reef.

The researchers looked at corals from Townsville, Queensland, all the way to New Guinea, said coral expert Terry Hughes, who led the research - and examined 200,000 corals overall, he said. The 35 per cent, the researchers said, is an "initial estimate" that averages estimates taken from different reef regions.

"It varies hugely from reef to reef, and from north to south," said Hughes, who directs the ARC Centre. "It basically ranges from zero to 100. In the northern part of the reef, 24 of the reefs we sampled, we estimate more than 50 per cent mortality."

Fortunately, the southern sector of the reef was largely spared, thanks to the ocean churning and rainfall caused by Tropical Cyclone Winston, which cooled waters in the area, Hughes said. In this region, to the south of the coastal city of Cairns, mortality was only about 5 per cent.

But while coral death numbers are far lower to the south, "an average of 35 per cent is quite shocking," Hughes said. "There's no other natural phenomenon that can cause that level of coral loss at that kind of scale."

He noted that tropical cyclones also kill corals at landfall, but typically over an area of about 80km. In contrast, the swath of damage from the bleaching event, he says, was "500 miles wide".

"This coral bleaching is a whole new ballgame," said Hughes.

The ARC Centre released a map to accompany its findings, demonstrating the areas sampled and the extent of coral death found.

The news comes just days after the Great Barrier Reef Marine Park Authority, an Australian government agency, similarly noted that "In the far north, above Cooktown, substantial coral mortality has been observed at most surveyed inshore and mid-shelf reefs."

There has already been widespread attribution of this record bleaching event to human-caused climate change. One recent statistical analysis, for instance, gave extremely low odds that the event would have happened by chance in a stable climate. It was caused by record warm March temperatures in the Coral Sea, more than 1.8 degrees Fahrenheit above average.

This coral bleaching is a whole new ballgame
Terry Hughes

The bleaching event is the third and worst such strike on the Great Barrier Reef - other major bleaching events occurred in 1998 and 2002. Thus, the reef has bleached three times in the past two decades.

"So the question now is, when are we going to get the fourth and fifth bleaching event, and will there be enough time, now that we have lost a third of the corals, for them to recover before the fourth and fifth event?" Hughes asked.

In the case of at least some of the corals, the answer is probably no. Some dead corals were 50 or 100 years old, making it hard to see how these kinds of animals could grow back before another shock to the system arrives.

Indeed, the aforementioned statistical analysis suggested that

by the year 2034, a March with sea temperatures as warm as occurred in 2016 could happen every other year, as the planet continues to warm.

And what is happening to the Great Barrier Reef this year is just one part of a much broader global episode.

"Unfortunately, there are islands in the central equatorial Pacific Ocean like Christmas Island where the effects have been even more catastrophic - over 80 per cent mortality," said Mark Eakin, who coordinates the National Oceanic and Atmospheric Administration's Coral Reef Watch.

"It is essential to remember that even those corals still alive have a higher risk of dying from disease and have lost at least a year's reproductive season and growth," Eakin continued. "Even the corals that 'only' bleach are severely harmed by events like this one."

The damage to the Great Barrier Reef - a major tourist icon - has led to intense climate-focused debate in Australia, which is on the verge of an election on July 2.

But for scientists, the idea that something abnormal is happening seems hard to escape. "We seem to have gone from an era when mass bleaching was unheard of, to the modern era where it has now occurred three times in 18 years," Hughes said.

- Washington Post