



CAN-032-Coral Bleaching-GBR

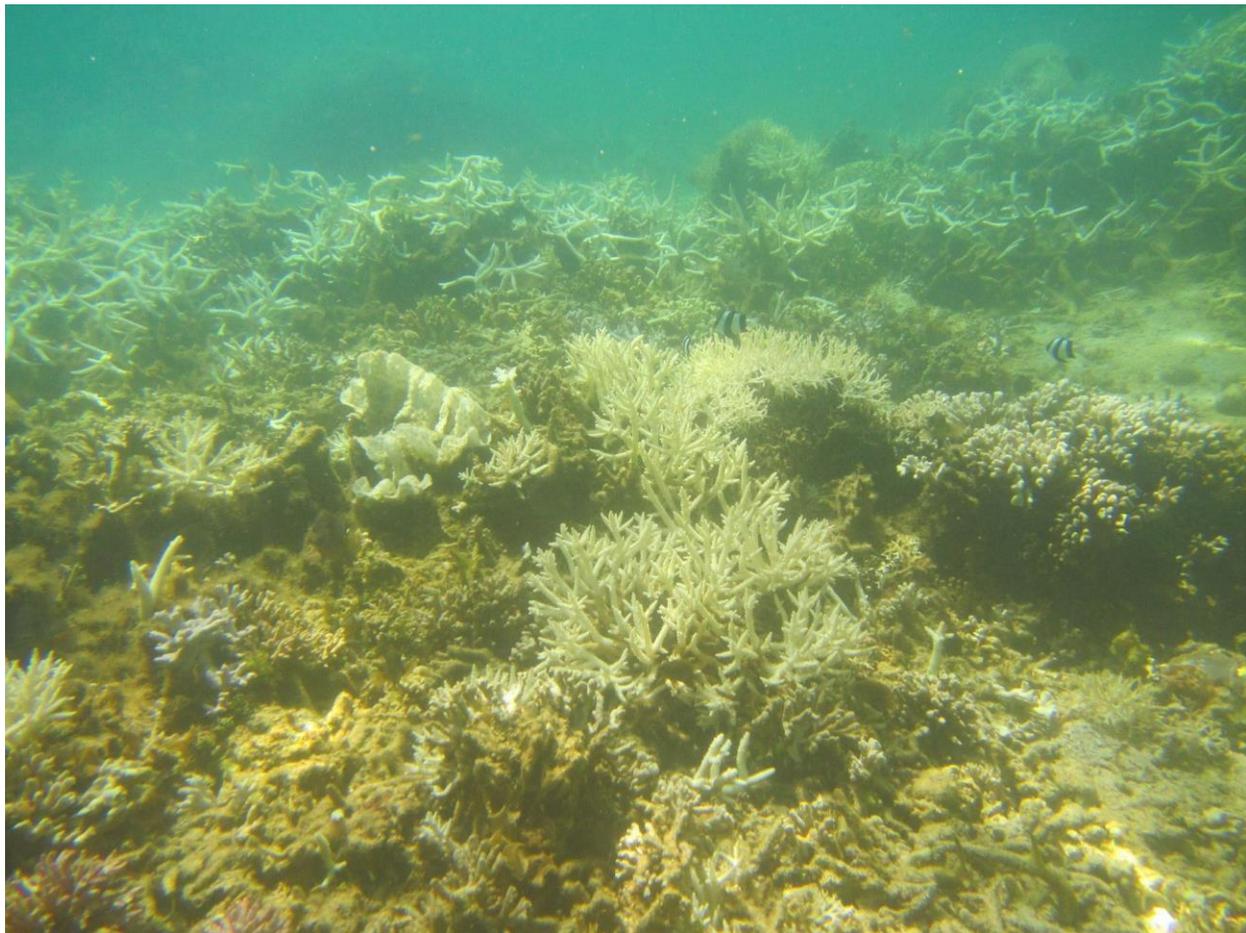
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Vic Ferguson

The World Federation for Coral Reef Conservation 281.971.7703 P.O. Box 311117 Houston Texas 77231 11.19.13

Devastating global coral bleaching event could hit Great Barrier Reef next

Australia's world heritage-listed reef is threatened by warmer waters that have killed off coral in Fiji but the full impact depends on the weather



Severe coral bleaching in Votua Village's marine protected area, pictured in February 2016. Photograph: Courtesy of Reef Explorer Fiji Ltd

[Michael Slezak](#)

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The third [global coral bleaching event](#) to be recorded is snaking its way around a warming globe, devastating reefs and now threatening the world-heritage listed Great Barrier Reef.

This week it was announced the bleaching event, which began in 2014, is already the longest in history and could extend well into 2017. "We may be looking at a two- to two-and-a-half-year-long event. Some areas have already seen bleaching two years in a row," says Mark Eakin, coordinator of the [Coral Reef Watch](#) program at the US National Oceanic and Atmospheric Administration.

Corals around Hawaii have been hit twice by the event already, with Fiji last week smacked by a gust of warm water that devastated coral and killed tonnes of fish, just before Cyclone Winston tore through the island nation. Fiji had already been hit by the same extended bleaching event last year.

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"Research shows that the frequency of mass bleaching events is increasing because of global warming. The corals are being hit again and again," Eakin says. The big problem with that is that coral reefs need time to recover. If they get hit too frequently, they can disappear, being taken over by algae and seaweed.

And now the warm water that's bleaching the world's coral is stretching to the doorstep of the world's biggest coral reef system. "It's crunch time for the [Great Barrier Reef](#)," says Tyrone Ridgway from the Global Change Institute at the University of Queensland in Australia.

What the weather brings now will change everything. Authorities are praying for clouds and rain.

When waters warm beyond what coral can cope with, they expel the algal squatters that feed them energy and give them their brilliant colours, leaving them white and weak. If that lasts too long, the corals starve, become infected with viruses, and die.

In 1998, the world woke up to the possibility of such a global bleaching event when the biggest El Niño on record shot a splurge of hot water around the globe, bleaching one sixth of the world's coral. Half the reefs on the Great Barrier Reef were affected.

It happened again in 2010. Then in October last year, the US National Oceanic and Atmospheric Administration [declared we were in the midst of the third recorded global bleaching event](#).

Scientists predicted that 38% of the world's coral reefs would be affected and up to 5% could be lost forever.

This one started when [a strange patch of warm water nicknamed "the blob"](#) emerged off the coast of Mexico and California. It was made worse when an El Niño started to emerge in the Pacific Ocean, warming waters, but failed to properly kick in. And it was capped off when a near-record breaking El Niño finally did emerge in late in 2015, sending hot waters right across the equatorial Pacific, baking corals anywhere in its path.

Deviations from normal sea surface temperatures (left) and sea surface heights (right) at the peak of the 2009-2010 central Pacific El Niño, as measured by NOAA polar orbiting satellites and NASA's Jason-1 spacecraft, respectively. The warmest temperatures and highest sea levels were located in the central equatorial Pacific. Photograph: JPL/NASA/NOAA

Back in October when the event was announced, NOAA provided a projection for the period from February to May this year, showing what parts of the world should expect some bleaching (alert level 1) and those where widespread bleaching and coral death was expected (alert level 2).



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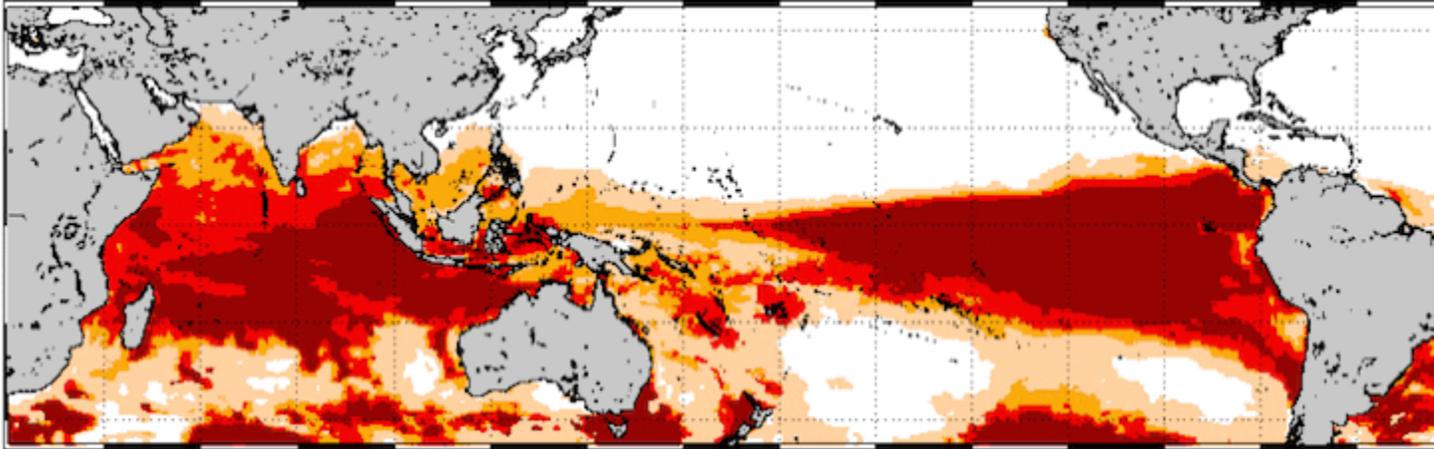
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Things looked grim. Huge swaths of the world's oceans were painted a dark shade of red, indicating alert level 2.

Now that we've reached that period, the projections are tightened, and NOAA is painting a slightly less devastating picture.



Animated gif showing the difference between the bleaching alerts predicted in October and those predicted now. Photograph: NOAA

"Climate models will never provide exact forecasts as they are based on multiple runs and real life only gets one," explains Eakin.

Throughout the tropics, where most coral reefs live, the forecasts remained similar.

In the Great Barrier Reef "the intensity hasn't necessarily manifested itself as badly as it might have been forecast," says Ridgway.

"But saying that, the next three to four weeks will be the crunch time as to whether the reef bleaches," he says.

And early signs are worrying. "There are reports of bleaching on some of the flats on the central Great Barrier Reef and we have seen bleaching on Heron Island."

So Ridgway is hoping for bad weather. "Now if we get good weather – nice still conditions – for the next few weeks over the reef that will help ramp up the heat. If we get wild weather like storms, that will help mix the water and keep the temperatures at bay."

Scientists in Australia are rushing to document what happens if the reef bleaches.

"In our global warming experiment, we're not experts," says Ove Hoegh-Guldberg a professor at the University of Queensland and the chief scientist with XL Catlin Seaview Survey. That project aims to capture the reefs before and after the bleaching, and learn exactly what factors influence it.

Hoegh-Guldberg says it's too early to say what will happen with the Great Barrier Reef and whether it will be as bad as 1998 or not. He was recently at Heron Island and saw the bleaching begin. "I was quite surprised by how advanced it was," he says.



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Bleached coral around Heron Island on the Great Barrier Reef. Photograph: Ove Hoegh-Guldberg/University of Queensland

He says each El Niño is different, and each one happens in an increasingly warmer world. Studying what happens this time will help reef managers understand and predict the process.

While Australia's famous reefs are touch-and-go, other places, where the populations are rely even more on the reefs for their livelihood, have less reason for hope.

Eakin says the greatest worry is for places including Kiribati, the South Pacific and the Indian Ocean, which remain on the highest alert. Bleaching has now happened on Fiji and he says the latest reports are that reefs in New Caledonia are bleaching now.

Then, as the Northern Hemisphere moves towards summer, bleaching could spread into the Northern Pacific and the Caribbean.

"Basically, it's heating up in a quite scary way," says Richard Vevers, executive director of XL Catlin Seaview Survey. "When you look at the bleaching forecast globally, there's some horrific looking illustrations of the level two alert predicted over the coming months."

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*The only thing necessary for the triumph of evil is that good men do nothing"....**Edmund Burke***