

# 'Are we there yet?': Fears that 'significant' coral mortality still to come



Peter Hannam

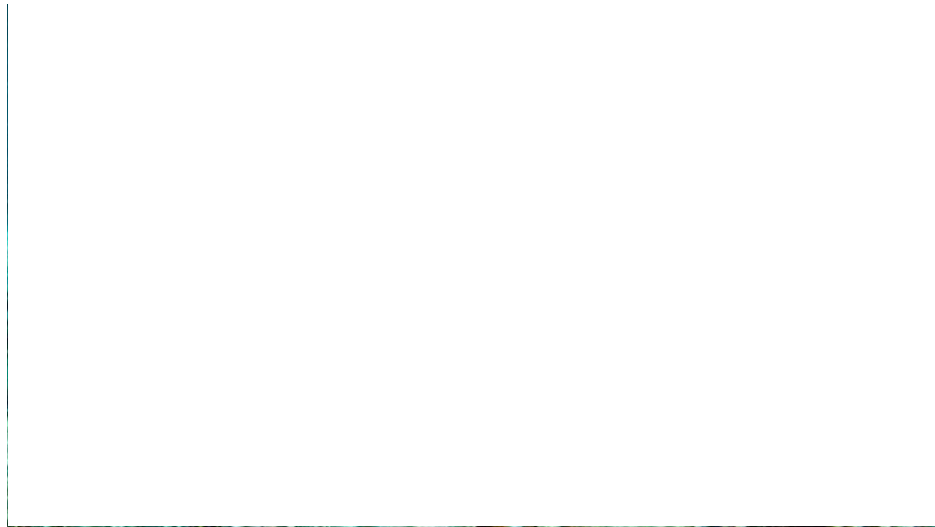
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The world is 33 months into its biggest recorded coral bleaching event with little sign of it ending, raising the prospect that coral mortality on the Great Barrier Reef will increase "significantly" from the quarter already lost in the past year, scientists say.

"Is this the global bleaching event that doesn't go away?", said Mark Eakin, coordinator of the Coral Reef Watch run by the US National Atmospheric and Oceanic Administration. "The patterns that we are seeing in the [forecast] models are looking very similar to what we saw in the last two years."



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### Great Barrier Reef's bleached coral up close

Parts of the Great Barrier Reef are enduring sustained periods of heat stress worse than at the same time during last year's record-breaking coral bleaching event, raising fears the natural wonder may suffer another hammering. *Vision supplied: Biopixel.*

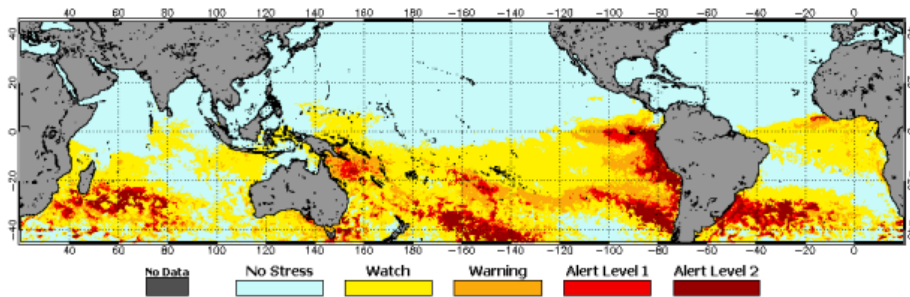
Dr Eakin's comments come as the first major study of the current bleaching event is published on Thursday in the journal *Nature*. The paper, of which Dr Eakin is one of 46 authors, examined the 2015-16 bleaching event compared with the two big previous ones in 1998 and 2002.

The current event alone killed two-thirds of the relatively pristine northern third of the Great Barrier Reef in 2016 and has returned now, particularly in the central region between Cairns and Townsville.

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(See NOAA's four-month Coral Reef Watch chart below showing bleaching alert threats.)



Although sea temperatures are less extreme than a year ago during an El Nino, evidence from some reefs – such as New Caledonia – suggests ongoing abnormally warm conditions can trigger bleaching from stressed corals, Dr Eakin said.

"We could be looking at bleaching on the Great Barrier Reef that's worse than last year," Dr Eakin said.



Eyes are on us: Coral bleaching has returned to the Great Barrier Reef - and other reefs - in 2017. Photo: James Cook University

"These are corals that are still suffering from last year ... We are not seeing the storms this year [that helped spare the southern end of the Reef] so this one has the potential for damage over a much larger area."

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area."

### Third year in a row

Some reefs in Thailand and Indonesia are now experiencing a third year in a row of bleaching, while Fiji, Niue, American Samoa and now Australian reefs are enduring a second year – all of it unprecedented, he said.



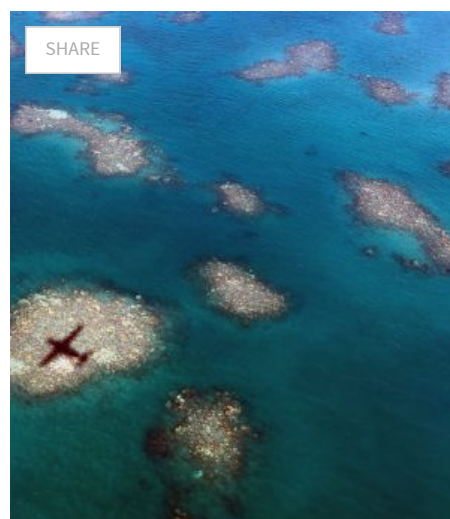
Coral bleaching off the Kimberley coast of Western Australia in 2016 - part of a global event that isn't over. Photo: James Cook University

Scientists from James Cook University and the Great Barrier Reef Marine Park Authority (GBRMPA) are this week beginning an aerial survey of the reefs to determine how much coral is bleaching again.

Bleaching occurs when stressed corals expel the symbiotic algae that gives them colour and also provides them with most of their nutrients.

"Normally after a bleaching event, corals grow more slowly for a couple of years and often don't reproduce for a year or more because they're weakened," said Terry Hughes from James Cook University and the paper's lead author. "We're seeing high levels of disease in corals that survived last year, so it's possible that a second blast of heat might make them bleach more easily than they would have otherwise"

Professor Hughes says it's ironic he's likely to be out over the Torres Strait beginning another reef bleaching survey just as the major paper is published. "We believe it's still building," he said, adding he expects the bleaching to peak next week. "It is very confronting that we're still analysing last year's mortality data – and here we go

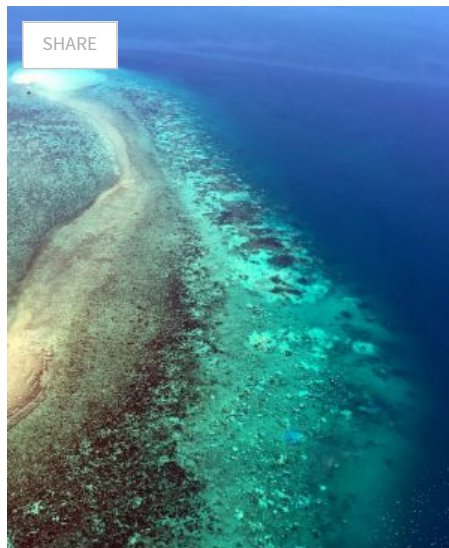


Coral bleaching in the Great Barrier Reef in 2016 was the worst on record. Photo: James Cook University

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"The threat of coral bleaching to Australia's coral reefs is often characterised as a medium or long-term issue," he said. "The whole point of our paper is that it's been a problem for 18 years and so far it's largely been ignored."

Another key finding was that water quality and different zones – such as no-take fish areas – offered no added protection if temperature thresholds were exceeded. "[E]ven the most protected reefs and near-pristine areas are highly susceptible to severe heat stress," the paper found.



Coral bleaching off northern Australia during the 2016 summer. Photo: James Cook University

## 9 per cent

During the three events, just 9 per cent of the Australian reefs surveyed have avoided bleaching, the paper found.

According to GBRMPA, 22 per cent of the reef has died during the current event – but that tally only goes up to last May, and the mortality didn't end then.

Scientists such as David Wachenfeld of the GBRMPA, who is also an author of the paper, are reluctant to speculate on how much worse the death rate will rise until the new survey is completed.

"Certainly there are reefs that are being severely affected this year there were not severely affected last year," Dr Wachenfeld said. "Unfortunately, I suspect very strongly that the footprint of coral mortality will be significantly expanded by what happens in 2017."

The scientists said that while much of the reef retains its stunning natural beauty, some species will fare less well than others, diminishing its rich biodiversity.

"The recovery time for coral species that are good colonisers and fast growers is 10–15 years, but when long-lived corals die from bleaching, their replacement will necessarily take many decades," the paper said.

## Prospects

While management of water quality and zone protection – the two main targets of spending by the Queensland and federal government – did not save the corals, they can "improve the prospects for recovery", the paper said.

NOAA's Dr Eakin said the likelihood that an El Nino will return by July this year with its tendency to lift water temperatures across the tropics was part of the reason to be fearful this event has some way to run.

Researchers have forecast that bleaching could become an annual event by 2050 or sooner, depending on greenhouse gas emissions, and whether global temperatures have ticked past 1.5 degrees above pre-industrial era levels.

"The real question many of us are asking is; are we there now?", Dr Eakin said.



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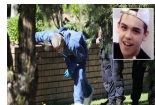
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