

Australia's Great Barrier Reef expedition to explore climate change-resistant coral



© Kerry Bell, ARC Centre of Excellence for Coral Reef Studies | Bleached coral Beaver Reef near Mission Beach, Australia

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A scientific research expedition, funded by the tourism industry, to a remote part of the Great Barrier Reef will look for climate change-resistant coral in a bid to understand how coral can survive.

Great Barrier Reef Legacy (GBR Legacy), a nonprofit organisation, will launch the 21-day trip in November, inviting more than 10 scientists, including Australia's Charlie Veron – known as the "godfather of coral", on the research boat.

During the expedition, Veron – former chief scientist at the Australian Institute of Marine Science – will search for "super corals", species that have the strongest capacity to cope with rising temperatures.

"There have been no research teams sent [to the remote northern part of the reef] since 2016 so no-one knows what the coral looks like after the last bleaching event – a mass mortality event when the coral loses its colour and can eventually die," Dean Miller, GBR Legacy's director of science and media, told FRANCE 24.

Founded last year, the organisation raised €20,000 through a crowdfunding campaign on Chuffed.org and received €107,000 from The Northern Escape Collection, a privately-owned tourism group. The latter has also loaned the use of a 32-metre boat for the expedition.

"It was an easy decision for [us] to support this initiative as we have been alarmed by the recent incidents of bleaching occurring over the last two summers and are very concerned about the health of the reef in general," said Hayley Morris, executive director of Northern Escape Collection. "We believe the more information the public know, the more pressure will be put on politicians to take actions to protect it."

Organisers hope the scientists can "unlock the secrets" of the surviving coral species, hoping this will shed light on "safeguarding" coral reefs in the future and dealing with climate change.

A bulldozing of coral

The Great Barrier Reef, a UNESCO World Heritage Site, lost nearly 50 percent of its coral in 2016 and 2017, according to Richard Leck, head of oceans at World Wildlife Fund (WWF) in Australia.

"After a cyclone or a tornado, the coral reef looks as if a bulldozer or a steamroller has gone over it," Leck told FRANCE 24. "It's truly staggering – you can't get a clearer idea of climate change than seeing coral literally changing white before your eyes. But within five to 10 years, you can often see incredible recovery. In terms of ocean legacy, it's important to understand if there are corals that can sustain extreme heat and how quickly they can recover."

MISSION BEACH REEFS 2017



© Bette Willis, courtesy ARC Centre of Excellence for Coral Reef Studies

Although coral whitens rapidly during a severe bleaching event, it takes a longer period of time for the ecosystem to undergo fundamental change. "Initially, it doesn't look so bad because there are still fish there," said Leck. "But over the months, the coral will fall over, get covered in algae and the fish that depend on it for their habitat in order to survive will leave. When the scientists return [months after a bleaching event], it's like going back to a wasteland, seeing algae or slimy rock in place of the coral."

Aerial surveys of bleaching events in 2016 and 2017

There have been four incidents when the Great Barrier Reef bleached significantly: in 1998, 2002, 2016 and in March/April 2017, the latter as a result of Tropical Cyclone Debbie.

Aerial surveys conducted in late 2016 and early 2017 show that bleaching last year was most intense in the northern third of the reef, while this year it was the middle third of the reef that was most affected.

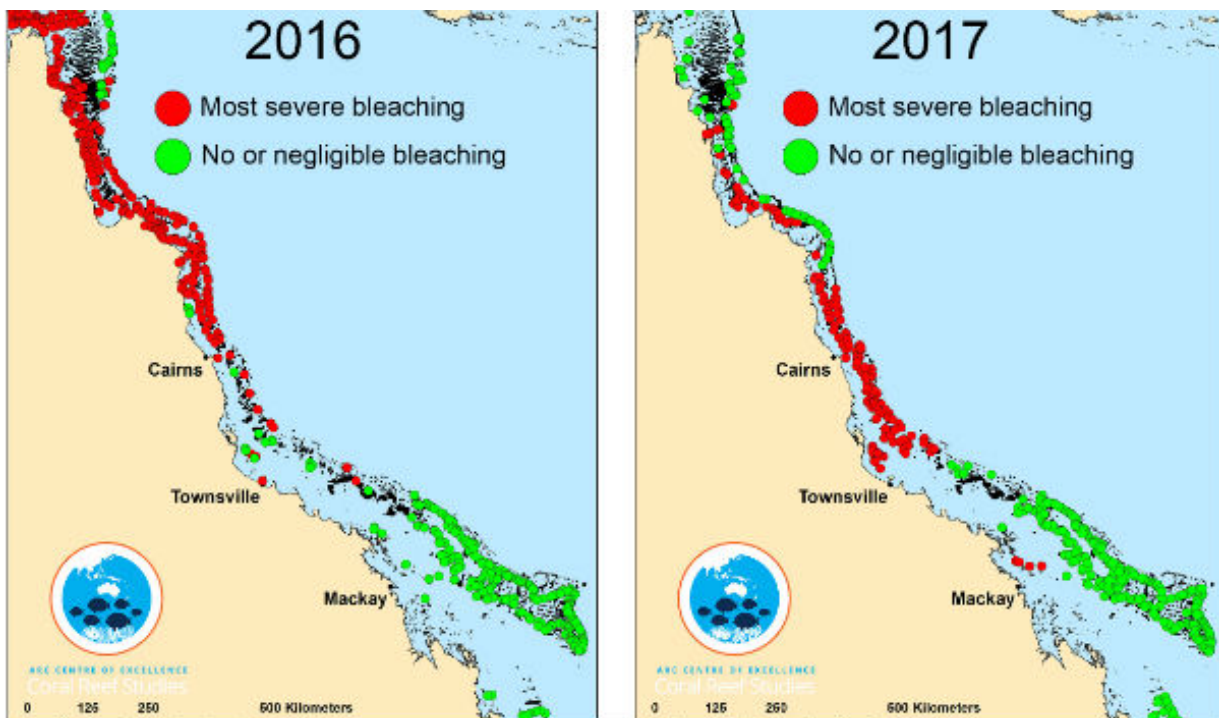
CAIRNS TOWNSVILLE BLEACHING 2017



© Ed Roberts, courtesy ARC Centre of Excellence for Coral Reef Studies

"The combined impact of this back-to-back bleaching stretches for 1,500 km (900 miles), leaving only the southern third unscathed," said Professor Terry Hughes, director of the ARC Centre of Excellence for Coral Reef Studies, who undertook both aerial surveys. "The bleaching is caused by record-breaking temperatures driven by global warming."

KEY GRAPHIC 2016-2017 CORAL BLEACHING MAP



© Courtesy ARC Centre of Excellence for Coral Reef Studies

"It takes at least a decade for a full recovery of even the fastest growing corals, so mass bleaching events 12 months apart offers zero prospect of recovery for reefs that were damaged in 2016," Hughes continued. "Ultimately, we need to cut carbon emissions and the window to do so is rapidly closing."

Coal or coral

The GBR Legacy's preparations come as Indian company Adani constructs a controversial coal mine in Queensland after getting the green light in June. Australia is the fourth-largest coal producer in the world and contains the fourth-largest coal resources, after the United States, Russia and China, according to News.com.au.

While the Australian government says that the Adani mine will generate investment, critics argue that extracting of huge quantities of coal will harm the Great Barrier Reef.

"First the Queensland premier, Anastacia Palaszczuk and now the prime minister, Malcolm Turnbull, have both betrayed the reef [...], said David Ritter, chief executive of Greenpeace Australia Pacific, which has been protesting against coal-mining.

SAVE THE REEF FROM COAL



© Peter Parks, AFP | A Greenpeace poster held by a protester outside the Commonwealth Bank's headquarters in Sydney at a demonstration against coal expansion on the Great Barrier Reef on February 13, 2015.

Miller of GBR Legacy quipped: "It's coal or coral in Australia." Yet he hopes that the interest from the scientific community regarding the November research expedition will help raise awareness of coral's cause.

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