

Scientists blame El Nino, warming for 'gruesome' coral death

April 6 2016, by Seth Borenstein



This photo provided by the University of Victoria, taken in July 2015, shows different species of coral alive and colorful at the Pacific island of Kiritimati. The coral on the sea floor around Kiritimati looked like a boneyard in November 2015. Stark, white and lifeless. But there was still some hope. In April, color returned with fuzzy reds and browns, but that's not good news. Algae has overtaken the lifeless coral on what had been some of the most pristine coral reefs on the planet. (Kieran Cox/University of Victoria via AP)

The coral on the sea floor around the Pacific island of Kiritimati looked like a boneyard in November—stark, white and lifeless. But there was still some hope.

This month, color returned with fuzzy reds and browns, but that's not good news. Algae has overtaken the lifeless coral on what had been some of the most pristine coral reefs on the planet, said University of Victoria coral reef scientist Julia Baum after dozens of dives in the past week. Maybe 5 percent will survive, she estimated.

"What it really looks like is a ghost town," Baum said. "It's as if the buildings are standing but no one's home."

Kiritimati is where El Nino, along with global warming, has done the most damage to corals in the past two years, experts said. While dramatic images of unprecedented total bleaching on Australia's Great Barrier Reef are stunning the world, thousands of miles to the east conditions are somehow even worse.

"This El Nino has its most powerful grip right at this spot," said Georgia Tech climate scientist Kim Cobb in a telephone interview from the island 2,000 miles south of Hawaii.

About 36 percent of the world's coral reefs—72 percent of the U.S. reefs—are in such warm water they are under official death watch, and that could rise to up to 60 percent of the world's coral by July, said Mark Eakin, the coral reef watch coordinator for the U.S. National Oceanic and Atmospheric Administration. Eakin said Kiritimati was the worst he's seen, with America Samoa a close second.



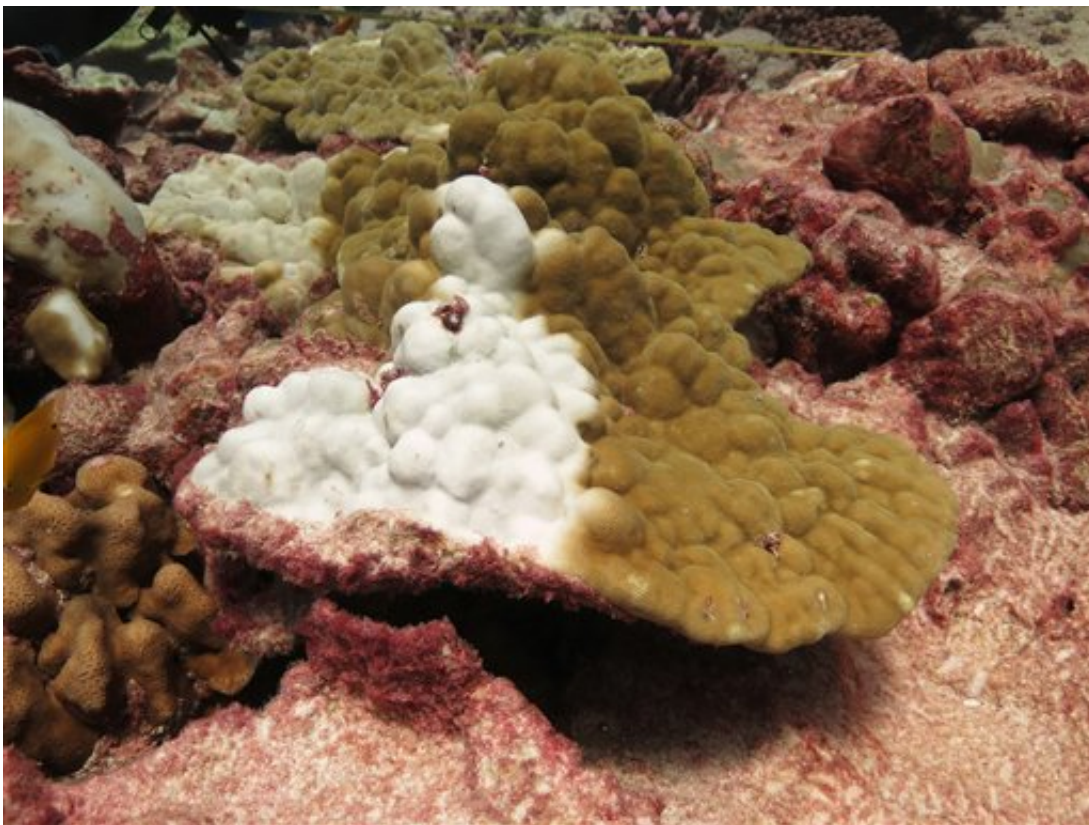
This photo provided by the University of Victoria, taken in April 2016, shows much of the coral is dead, overgrown with algae at the Pacific island of Kiritimati. The coral on the sea floor around Kiritimati looked like a boneyard in November 2015. Stark, white and lifeless. But there was still some hope. In April, color returned with fuzzy reds and browns, but that's not good news. Algae has overtaken the lifeless coral on what had been some of the most pristine coral reefs on the planet. (Danielle Claar/University of Victoria via AP)

"It is unprecedented," Baum said. "This is absolutely the most intense response, the most dramatic death of a coral reef from an El Nino event."

The island has been on the highest level of alert for coral stress since June 2015. NOAA's Eakin wasn't part of the Baum-Cobb team, but when he saw their photos, he emailed Baum: "I was simply aghast at the pictures. I expected the worst, but still wasn't prepared for those."

He called it "gruesome."

It's the heat that's killing the coral. In December, temperatures at Kiritimati peaked at 88.5 degrees (31.4 degrees Celsius) and have been about 5 to 7 degrees warmer than normal. That's the kind of temperature spike that can be the difference between life and death for coral, Eakin said.



This photo provided by the University of Victoria shows a half-healthy, half-bleached small stony *Porites* coral, which is the type of coral that is doing the best at Kiritimati. The coral on the sea floor around Kiritimati looked like a boneyard in November 2015. Stark, white and lifeless. But there was still some hope. (University of Victoria/Julia Baum via AP)

Water temperatures around the island are nearly a degree Fahrenheit warmer than the last big El Nino, in 1997-98, and the damage is far worse, likely an assist from man-made warming on top of the natural transitory warming from El Nino, Cobb said.

Coral reefs are important for fishing; nearly half a billion people rely on coral reef marine life for food, Eakin said.

"Coral reefs cover only one-tenth of one percent of the sea floor but are home to 25 percent of all marine species," Eakin said in an interview.

Baum has hope that something can survive because of what she calls "little miracle corals," the small amount of one particular species that seems to be surviving so far. Perhaps over a couple decades it can repopulate this once bright reef, she said.



This photo provided by the University of Victoria shows dying Pocillopora or cauliflower coral. The coral on the sea floor around Kiritimati looked like a

boneyard in November. Stark, white and lifeless. But there was still some hope. (University of Victoria/Danielle Claar via AP)

In Australia, where "100 percent of the corals are snow white on some reefs," it is hard to imagine that Kiritimati is worse, said Terry Hughes, an Australian professor who heads the country's National Coral Bleaching Task Force. One area to the north "is absolutely blitzed," he said.

In the past, El Nino warming of the Pacific didn't cause such mass bleaching events in Australia. But the effects of recent, major El Ninos have coincided with water that's already warmer because of man-made climate change, Hughes said.

"The link between bleaching and global warming is incontrovertible," Hughes said.

Coral can survive mild or short-term bleaching and recover, but if it goes too long or is too severe, they die from bleaching or disease, Eakin said.

Climate scientist Cobb said 7,000 years of coral fossils in Kiritimati don't show such a big die-off. It moved Cobb to tears on one dive.

"They are older than me," 50 to 60 years old, Cobb said. "To see them succumb was really an emotional event."

More information: Julia Baum's lab work on Kiritimati: kiritimati.weebly.com/

NOAA's Coral Reef Watch: coralreefwatch.noaa.gov/satellite/index.php

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