

# BLEACHED CORALS RECOVER IN THE WAKE OF HURRICANES

**Hurricanes can physically cool coral reefs but they can also save them, by cooling the surrounding ocean and reversing the effects of bleaching.**



In 2005, corals in the large reef off the coast of Florida were saved by four hurricanes. Tropical storms seem to be unlikely heroes for any living thing. Indeed, coral reefs directly in the way of a hurricane, or even up to 90km from its centre, suffer serious physical damage. But Derek Manzello from the National Oceanic and Atmospheric Administration has found that corals just outside the storm's path reap an unexpected benefit.

Hurricanes can significantly cool large stretches of ocean as they pass overhead, by drawing up cooler water from the sea floor.

And this cooling effect, sometimes as much as 5°C, provides corals with valuable respite from the effects of climate change.

### **Rising temperatures, dying corals**

As the globe warms, the temperature of its oceans rises and that causes serious problems for corals. Their wellbeing depends on a group of algae called zooxanthellae that live among their limestone homes and provide them with energy from photosynthesis. At high temperatures, the corals eject the majority of these algae, leaving them colourless and starving.

These 'bleached' corals are living on borrowed time. If conditions don't improve, they fail to recover their algae and eventually die. But if the water starts to cool again, they bounce back, and Manzello found that hurricanes can help them to do this.

Together with scientists from the Universities of Miami and the US Virgin Islands, he measured the extent of bleaching in reefs off Florida and the US Virgin Islands over the course of 2005.

By September, both reefs were suffering from equal amounts of bleaching. But while the situation continued to worsen in the storm-free Virgin Islands, the advent of four hurricanes in Florida turned the tide in the reefs' favour.

## Hurricanes vs bleaching



The storms – Dennis, Rita, Wilma and the infamous Katrina – each left behind an imprint of cooler water and the seas within 400km of their paths cooled by up to 3.2°C and stayed that way for up to 40 days. Two weeks after the fourth hurricane, Wilma, had passed, the corals had almost completely recovered.

Manzello's study shows that the benefits of hurricanes on coral reefs can sometimes outweigh the localised physical wear and tear they cause. The question now is whether this is an isolated incident or a common occurrence.

Manzello isn't sure. Based on the numbers of bleaching events and hurricane landfalls in Florida since the 19<sup>th</sup> century, the odds of both happening at the same time (as in 2005) is about one in seven. But the actual probability is likely to be higher especially since the same factors that cause bleaching, such as warmer water, also encourage the growth of hurricanes.

Even so, it would be extremely foolish to expect hurricanes to bail corals out completely – only conservation projects and addressing rising temperatures can do that.

Source: <https://notexactlyrocketscience.wordpress.com/2007/07/03/bleached-corals-recover-in-the-wake-of-hurricanes/>