

Coral face 'a stormy future'

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As global warming whips up more powerful and frequent hurricanes and storms, the world's coral reefs face increased disruption to their ability to breed and recover from damage.

That's one of the findings from a new scientific study of the fate of corals in the wake of large climate-driven bleaching and [storm](#) events.

"We have found clear evidence that coral recruitment - the regrowth of young corals - drops sharply in the wake of a major bleaching event or a [hurricane](#)," says lead author Dr Jennie Mallela of the ARC Centre of Excellence for Coral Reef Studies and Australian National University.

Using the island of Tobago in the Caribbean as their laboratory she and colleague Professor James Crabbe of the University of Bedfordshire, UK, backtracked to 1980 to see what had happened to the corals in the wake of nine hurricanes, tropical storms and bleaching events.

"In every case there was a sharp drop in coral recruitment following the event - often by as much as two thirds to three quarters. Not only were fewer new [coral colonies](#) formed, but also far fewer of the major reef building coral species recruited successfully."

"This finding mirrors our modelling studies on the fringing reefs of Jamaica, and on the Meso-American Barrier reef off the coast of Belize", says Prof. Crabbe.

Tobago lies outside the main Caribbean hurricane belt and therefore is

more typical of the circumstances of most coral reefs around the world. Nevertheless its corals are disrupted by a major storm or bleaching every three or four years - and the frequency of this may be growing.

"Climate researchers are seeing increasing evidence for a direct relationship between [global warming](#) and rising hurricane intensity as well as frequency," Jennie explains. "Global warming produces significant increases in the frequency of high [sea surface temperatures](#) (SSTs), and hurricane winds are strengthened by warm surface waters."

The high temperatures cause bleaching, while the storms inflict physical destruction on the corals as well as eroding the rocky platforms they need to grow on, or burying them in sand.

"Maintaining coral reef populations in the face of large-scale degradation depends critically on recruitment - the ability of the corals to breed successfully and settle on the reef to form new colonies. Our research suggests this process is severely disrupted after one of these major events."

If the disruption is sufficiently large it may threaten the actual survival of some of the larger and more spectacular reef building and brain corals, she says. "In the aftermath of a big storm or bleaching event, some of these important species appear not to have recruited at all.

"Healthy reefs usually have high numbers of coral recruits and juvenile corals, whereas degraded systems typically have far fewer young colonies."

The concern is that if major storms and bleaching become more frequent as the climate warms, the ability of individual reefs to renew themselves may break down completely, Jennie says.

"While our work was carried out in the Caribbean, it has general implications for [coral reefs](#) globally, and deepens our concern as to what may happen to them as global warming advances and the world's climate becomes more tempestuous."

More information: The research paper is Mallela, J., Crabbe, M.J.C., Hurricanes and coral bleaching linked to changes in coral recruitment in Tobago, and is published in the latest issue of *Marine Environmental Research* (2009).

Source: ARC Centre of Excellence in [Coral](#) Reef Studies

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