

Coral study provides clues to reef damage in Madagascar

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Coral cores--These drill samples show luminescence under UV light, x-ray and normal light (l-r). The bands in the samples on the left and right correspond, and indicate massive discharges of organic matter from rivers taken up by the corals.

(Phys.org)—A group of international researchers, including one from UWA Oceans Institute, has used coral sampling to assess the impact of river run-offs in a bay in north-eastern Madagascar.

The research was carried out in a bay favoured by whales to rear their calves, in effect, making it a 'whale kindergarten'.

"The aim of the study was to test if we can use coral cores to assess the impact of various small mountain rivers on adjacent coral reefs in Antongil Bay, the largest bay on the island of Madagascar in the west

Indian Ocean," said Dr Jens Zinke, of UWA Oceans Institute.

"The bay is significant because every year up to 300 [humpback whales](#) come into this bay between June to October to raise their young and protect them from predators."

As part of the study, researchers drilled coral samples from the reef in the bay. By exposing the coral samples to various lights, luminescent bands - in effect, similar to the [growth rings](#) of a tree - provided a long-term record of river run-off reaching the coral reefs in Madagascar.

"For instance, the corals closest to the river plume at Nosy Mangabe island reserve showed clear signs of disease and distorted growth patterns," Dr Zinke said.

"Nevertheless, these reefs were adapted to sediment discharge for hundreds of years and survived several cyclone induced mass erosion events in the past."

The research findings will be used to help guide [conservation efforts](#) on the island and the management of its marine parks.

"With these results, we can inform conservation managers on the best choice of marine parks and the likelihood of adverse impacts on [coral reefs](#) and fisheries caused by high levels of [sedimentation](#) in reefs outside the bay near highly deforested plains," Dr Zinke said.

The study, Spatial linkages between [coral](#) proxies of terrestrial run-off across a large embayment in Madagascar, is published in the journal [Biogeosciences](#).

More information: [doi:10.5194/bg-9-3063-2012](https://doi.org/10.5194/bg-9-3063-2012)

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