Coral stress 'like never in history'

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Large scale coral die-offs are now occurring more frequently than at any time in the last 11 000 years, according to a new study by Australian-based scientists.

Investigations by Associate Professor John Pandolfi, of the ARC Centre of Excellence in Coral Reef Studies and The University of Queensland, of fossilized reefs in Papua New Guinea show how often the reefs were ‘wiped out’ by disastrous events in past times.

"What we found was in stark contrast to what we see in the modern day," says Ass. Prof. Pandolfi. "The frequency of reef [die-off] events in the fossils is at least an order of magnitude less than it is today," he says.

Studying the fossil reefs of the Huon Peninsula, which are now cliff faces rising up to 25 metres above the beach, A/Prof. Pandolfi and his team were able to see where large scale disturbances had occurred in the history of these reefs which dated back as far as 11 000 years ago.

"The sequence of fossils is like a three dimensional movie of what happened in the reefs’ past," says Pandolfi.

Over the 6000 years recorded in the fossil strata the team found 4 devastating events which resulted in the death of most of the reef – indicating such events had occurred about once every 1500 years.

"The cause of some of these events was volcanic, but others may have been due to bleaching, disease, or something else - we just don’t know.

Regardless, what is clear is that the frequency of die-off was so much lower than it is today," says Pandolfi of his findings.

The results, published in the scientific journal 'Geology', sound a warning bell to modern day reef management practices as today's reefs face more stress than ever.

But while the ancient reefs warn that we are seeing abnormal die-off rates, they also show that the reefs of the past recovered rapidly after these events, taking as little as 100 years to be repopulated by the corals that normally occurred there.

Although they are struck by more high impact events, some of today's reefs are still proving to be able to 'bounce back' to good health – with a little help.

"The recovery of the Great Barrier Reef from the devastating impact of the crown of thorns starfish took less than a few decades, at least in part due to comprehensive reef management," says Pandolfi,"…but this rate of recovery isn't seen in other parts of the world….some reefs still haven't recovered from [events in the last century]," he says.

With the help of the ARC Centre of Excellence in Coral Reef Studies, A/Prof. Pandolfi plans to continue studying fossil coral reefs around the world in order to help build a bigger picture of how the world's reefs have survived devastation in the past – so that managers can help them continue to survive into the future.

Source: James Cook University

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