

Global Warming 'Could Kill Most Reefs By 2100'
by Peter Pockley
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An Australian scientist has identified global warming as the most likely culprit for last years' widespread coral bleaching, and predicts that similar events are likely to occur annually in most tropical oceans within 30-50 years.

The warning came this week from Ove Hoegh-Guldberg of the University of Sydney, who has studied for the past 15 years how the normally brilliant colours of corals turn white. He predicts that coral reefs "could be eliminated from most areas by 2100."

The potential impact on economic activity on reefs, especially fishing and tourism, is substantial. There are also implications for policies to curb global warming. The predictions is likely to have particular impact in Australia, where the government remains skeptical of a link between increasing temperatures and environmental degradation.

Corals obtain food through the algae that live symbiotically within them. Bleaching occurs when the algae are expelled owing to damage by light as higher than normal temperatures, leaving stark, white skeletons.

Hoegh-Guldberg and Sandra Ward of the University of Sydney, and Peter Harrison of Southern Cross University, obtained results from six tanks placed on Australia's Great Barrier Reef. Corals were studied as the temperature of the sea water was artificially increased.

Once above the ambient 26-28 degrees Centigrade, there was almost none., there was a 10 percent decrease in the rate of fertilization. At 32 degrees Centigrade, the rate of reproduction dropped dramatically to forty percent, and at 34 degrees Centigrade there was almost none.

Other evidence linking warming with bleaching came from satellite measurements of the temperature of the sea surface, gathered by the US National Oceanographic and Atmospheric Administration. During last year, the worst on record for bleaching, wherever the temperature was only one degree above ambient, mass death of corals occurred.

Now, in what is claimed to be the first application of computer models to coral reef research, Hoegh-Gulberg has projected how the climate will change in regions where corals grow. He claims to have shown that, unless global warming is arrested, coral bleaching will occur more frequently, and more intensely, until by 2030 it will appear every year.

Every coral reef examined showed the same drastic trend, with consistency between the major oceans, although the rate of bleaching onset differs. Caribbean and Southeast Asian

reefs would be hit first with annual bleaching by 2020, whereas central Pacific reefs would not be affected for another two decades, it is predicted. The Great Barrier Reef sits between the two extremes with annual bleaching being predicted by 2030.

"The rapidity and extent of the changes, if realized, spell catastrophe for tropical marine ecosystems everywhere, and suggest that unrestrained warming cannot occur without the complete loss of coral reefs on a global scale," says Hoegh-Guldberg

The study was accepted last week for publication in the Australian journal, *Marine and Freshwater Research*. The research was financed by the environmental organization, Greenpeace.

Some remain skeptical about the predicted frequency of coral bleaching events on the Great Barrier reef. "To conclude that coral bleaching is due to global warming is highly uncertain at this stage," says Malcolm McCulloch, an Earth scientist at the Australian National University.

But Terry Done, of the Australian Institute of Marine Research, describes the report as quite credible." - Peter Pockley