

# Global Warming and Coral Reefs

Science-based analyses of America's key environmental issues

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**Claim:** *Global Warming will destroy coral reefs.*

One of the **most false** and reddest of red flags around which climate alarmists rally these days is the devastation the ongoing rise in the air's CO<sub>2</sub> concentration is **predicted** to visit on coral reefs. They are particularly hard on global warming – man-made or natural -- in this regard, which they claim is responsible for the bleaching of corals that has occurred in many parts of the world over the past few years. True it is that coral reefs have suffered from human-induced ailments throughout the past few decades, but global warming likely is not one of them. Several scientific studies suggest this unfortunate phenomenon is more likely the consequence of a number of other human actions and that it is not in any way related to the historical increase in the atmosphere's CO<sub>2</sub> content. What is more, the persistence of coral reefs through geologic time provides substantive evidence that these ecological entities can successfully adapt to a dramatically changing global environment (Veron, 1995).

The earliest coral reefs date to the Palaeozoic Era, over 450 million years ago (Hill, 1956); while the scleractinian corals, which are the major builders of the reefs of today (Achituv and Dubinsky, 1990), appeared in the mid-Triassic some 240 million years later (Wells, 1956), when the earth was considerably warmer than it is currently (Chadwick-Furman, 1996). Although reef-building ceased for a time following the extinctions at the end of the Triassic, the Scleractinia came back with a vengeance during the Jurassic (Newell, 1971; Veron, 1995); and they continued to exhibit great robustness throughout the Cretaceous, *even when temperatures were 10-15°C higher than at present* (Chadwick-Furman, 1996).

At the end of the Cretaceous, 70% of the genera and one-third of the families of scleractinian corals disappeared (Veron, 1995) in the greatest biospheric extinction event in geological history. They developed again, however, throughout the Cenozoic, particularly the Oligocene and Miocene (Chadwick-Furman, 1996). Finally, throughout the past two million years of the Pleistocene, they survived at least seventeen glacial-interglacial cycles of dramatic climate change and sea level fluctuation, successfully adapting, over and over again, to these enormous environmental challenges (Kinzie and Buddemeier, 1996; Wilkinson, 1996; Pandolfi, 1999). In the words of Benzie (1999), this evidence suggests that "coral reef communities are relatively resilient, have survived previous global climate change, and appear likely to survive future changes." And this conclusion often leads one to wonder why corals should be succumbing to global warming now.

In the case of Australia's Great Barrier Reef, Jackson *et al.* (2001) list the offending anthropogenic activities as: (1) rising nutrient levels of coastal waters caused by runoff from agricultural activities on land, (2) increased sediment delivery to reefs, (3) tourists and the developers who build resorts and marinas for them, (4) huge catamarans and dive boats that take thousands of visitors to the Barrier Reef each day and dump their sewage in the sea on the way home, (5) sea life depleted to the point of exhaustion by over fishing, (6) physical damage caused by the barbed hooks and scything nets used in fishing, (7) the nets of prawn trawlers stirring up the growing load of sediments, (8) the 6-10 tons of "bycatch" for each ton of prawn caught that are left to die, (9) outbreaks of the coral-devouring crown-of-thorns starfish caused by removal of its major predators, (10) the live reef-fish trade, (11) fishermen using dynamite and cyanide, and (12) various types of pollution. Clearly, the time has definitely arrived where the further intensification of any one of these and a number of other contributing factors could well spell the end for many corals, as we indeed are seeing happen in many parts of the world.

Faced with a biological crisis that is so readily traced to the demonstrable local, as opposed to global, activities of man, it seems only logical that ameliorative measures should concentrate on these known local affronts to reef health that have known local antidotes, rather than on speculative global phenomena such as a planetary warming by carbon dioxide from human activities.

## References:

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