

# Caribbean coral reefs flattened

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Coral reefs throughout the Caribbean have been comprehensively 'flattened' over the last 40 years, according to a disturbing new study by the University of East Anglia (UEA).

The collapse of reef structure has serious implications for biodiversity and coastal defences - a double whammy for fragile coastal communities in the region.

It was already known that coral cover in the Caribbean was in decline, but this is the first large scale study showing exactly what this means for the architecture of the region's reefs.

Published online on Wednesday June 10 by the peer-reviewed journal *Proceedings of the Royal Society B*, the researchers found that the vast majority of reefs have lost their complex structure and become significantly flatter and more uniform. The most complex reefs have been virtually wiped out.

The researchers, working with colleagues at Simon Fraser University in Canada, analysed changes in the structure of reefs using 500 surveys across 200 reefs conducted between 1969 and 2008. They found that 75 per cent of the reefs are now largely flat, compared with 20 per cent in the 1970s.

There have been two major periods of reef flattening. The first occurred when a widespread disease killed about 90 per cent of the Elkhorn and Staghorn corals in the late 1970s. The second period has been underway

more recently and is thought to have been caused by an increase in the intensity and frequency of coral bleaching events, as a consequence of human-induced [climate change](#) increasing sea surface temperatures.

Lead researcher Lorenzo Alvarez-Filip, of UEA's School of Biological Sciences, said: "For many organisms, the complex structure of reefs provides refuge from predators. This drastic loss of architectural complexity is clearly driving substantial declines in biodiversity, which will in turn affect coastal fishing communities.

"The loss of structure also vastly reduces the Caribbean's natural coastal defences, significantly increasing the risk of coastal erosion and flooding."

Reversing declines in reef architecture now poses a major challenge for scientists and policy-makers concerned with maintaining reef ecosystems and the security and well-being of Caribbean coastal communities.

Source: University of East Anglia

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