Coral reefs of western Indian Ocean at risk of collapse: study

December 6 2021, by Nick Perry

The findings warn that reefs along the eastern coast of Africa and island nations like Mauritius and Seychelles faced a high risk of extinction unless urgent action was taken.

Rising sea temperatures and overfishing threaten coral reefs in the

western Indian Ocean with complete collapse in the next 50 years, according to a groundbreaking study of these marine ecosystems.

The findings, published in the journal *Nature Sustainability* on Monday, warned that reefs along the eastern coast of Africa and island nations like Mauritius and Seychelles faced a high risk of extinction unless urgent action was taken.

For the first time, researchers were able to assess the vulnerability of individual reefs across the vast western reaches of the Indian Ocean, and identify the main threats to coral health.

They found that all reefs in this region faced "complete ecosystem collapse and irreversible damage" within decades, and that ocean warming meant some coral habitats were already critically endangered.

"The findings are quite serious. These reefs are vulnerable to collapse," lead author David Obura, founding director at CORDIO East Africa, a Kenya-based oceans research institute, told AFP.

"There's nowhere in the region where the reefs are in full health. They've all declined somewhat, and that will continue."

The study, co-authored with the International Union for Conservation of Nature, assessed 11,919 square kilometres of reef, representing about five percent of the global total.

Reefs fringing picturesque island nations like Mauritius, Seychelles, the Comoros and Madagascar—popular ecotourism destinations heavily reliant on their marine environment—were most at risk, researchers said.

'Double whammy'

Coral reefs cover only a tiny fraction—0.2 percent—of the ocean floor, but they are home to at least a quarter of all marine animals and plants.

Besides anchoring marine ecosystems, they also provide protein, jobs and protection from storms and shoreline erosion for hundreds of millions of people worldwide.

Obura said healthy reefs were "very valuable" and their loss would prove "a double whammy".

"For biodiversity, but also all sorts of coastal economies that depend on reefs," he said.

Climate change posed the biggest threat to coral health overall in the western Indian Ocean, where scientists say seawater temperatures are warming faster than in other parts of the globe.

Oceans absorb more than 90 percent of the excess heat from greenhouse gas emissions, shielding land surfaces but generating huge, long-lasting marine heatwaves that are pushing many species of corals past their limits of tolerance.

But along the east coast of continental Africa from Kenya to South Africa, pressure from overfishing was also identified in this latest study as another major scourge on reef ecosystems.

This underscored the need to urgently address both global threats to coral reefs from climate change, and local ones such as overfishing, Obura said.

"We need to give these reefs the best chance. In order to do that, we have to reduce the drivers, reverse the pressure on reefs," he said.

In October, the largest ever global survey of coral health revealed that dynamite fishing, pollution but mainly global warming had wiped out 14 percent of the world's coral reefs from 2009 to 2018.

More information: David Obura et al, Vulnerability to collapse of coral reef ecosystems in the Western Indian Ocean, *Nature Sustainability* (2021). DOI: 10.1038/s41893-021-00817-0