

# 'Wicked' problems devastate pristine Coral Reef

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(Phys.org)—Human activity - rather than climate change - has been found to be the main cause of catastrophic devastation to a southern Indian Ocean coral reef system similar to Australia's iconic Great Barrier Reef.

Assistant Professor Dr Jens Zinke, from The University of Western Australia's Oceans Institute, examined the once-pristine Grand Récif of Toliara (GRT) which stretches about 19km off south-west Madagascar.

It was regarded previously as having the richest biodiversity system in the Indian Ocean with more than 6000 species identified, and seen as the equivalent to Australia's [Great Barrier Reef](#).

"It's quite devastating what happened to the reef, it was a really beautiful place in the 1960s and '70s, but somehow it became totally degraded," Dr Zinke said.

The study found the reef had been beset by a 'wicked' series of problems in the past 50 years, including a one degree rise in [average temperature](#), lower rainfall, [overfishing](#) and destructive fishing practices, and other activities associated with human population growth.

"These sorts of pressures have been labelled 'wicked' problems because they are complex, persistent and challenging to solve," Dr Zinke said.

Land-based problems such as hinterland deforestation and loss of fertile soils aggravated by a drying climate had driven people from the land to sea in search of a living.

"People who were once dependent on agriculture shifted to become fishermen for their livelihood - with catastrophic consequences for the [coral](#) system," Dr Zinke said.

Major problems were caused by fishing with [mosquito nets](#) which are harmful for corals and [seagrass](#), and octopus fishing, in which corals were trampled and broken.

The study also found that restrictions such as "no take" zones didn't work. Consultation was the key to getting cooperation.

"A lot of people tried to do something about it and enforced fishing restrictions," Dr Zinke said.

"But the problem got worse because people thought they were not involved and didn't understand what was happening.

"Instead, we found there has to be a community-based stakeholder process to get people to change the way they live and fish, and so protect the environment and give them a better future."

The study was published in the latest issue of the online journal *Ecology and Society*.

**More information:** [www.ecologyandsociety.org/vol17/iss4/art47/](http://www.ecologyandsociety.org/vol17/iss4/art47/)

Provided by University of Western Australia

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