

Protection zones in the wrong place to prevent coral reef collapse

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(PhysOrg.com) -- Conservation zones are in the wrong place to protect vulnerable coral reefs from the effects of global warming, an international team of scientists warned today.

Now the team – led jointly by Newcastle University and the Wildlife Conservation Society, New York – say that urgent action is needed to prevent the collapse of this important marine ecosystem.

The research, published today in the journal *PLoS ONE*, is the largest study of its kind to have been carried out, covering 66 sites across seven countries and spanning over a decade in the Indian Ocean.

Current protection zones – or ‘No-take areas’ (NTAs) – were set up to protect fish in the late 1960s and early 1970s, before climate change was a major issue.

The team – which comprises of experts from the UK, Australia, the US, Sweden and France – found the small-scale zones were not working to protect coral reefs against the effects of climate change.

They conclude that while the existing zones should not be removed, new areas are needed in the right place to protect corals against the effects of rising temperatures.

And they say that managing the system as a whole is crucial if coral reef communities are to have any hope of surviving the effects of global

warming.

Lead researcher Nick Graham, of Newcastle University's School of Marine Science and Technology, said: "We need a whole new approach – and we need to act now.

"Our research shows that many of the world's existing no-take areas are in the wrong place.

"New protected zones are needed that focus on areas identified as escaping or recovering well from climate change impacts. But a major focus needs to be shifted towards increasing the resilience of the system as a whole – that means reducing as many other locally derived threats as possible.

"Coral dies when it is put under stress so what we need to be doing is reducing the direct human impact – such as over-fishing, pollution and sedimentation – across the whole area.

"By removing all these other stresses we are giving the coral the best chance of surviving and recovering from any changes in temperature that may occur as a result of global warming."

Previous work by the team focused on the long-term impact of the 1998 event where global warming caused Indian Ocean surface temperatures to increase to unprecedented and sustained levels, killing off (or 'bleaching') more than 90 per cent of the inner Seychelles coral.

Although many areas are showing signs of long-term degradation, Mr Graham said it was positive to see that some locations either escaped the impact or have recovered.

"This provides the key to conserving coral reefs in the face of climate

change,” he says. “We are not suggesting that we scrap the existing NTAs – in terms of protecting fish stocks they have been quite successful.

“But they are not effective against global warming and in order to ensure the long-term survival of this rich marine community that is what we need to address.”

Provided by Newcastle University

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