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Size matters: scientists call for large ocean wilderness parks

Leading international marine scientists have called for the protection of more, large marine wilderness areas in a bid to shield the world's dwindling stocks of fish from destruction.



Credit: scienceimage/CSIRO

Working in the world's largest unfished marine reserve, the remote Chagos Archipelago in the central Indian Ocean, scientists from Australia and the US have shown there is a dramatic difference in the numbers, size and variety of fish compared with smaller marine parks.

Their findings in two new reports provide the world's first clear evidence that large-scale marine wilderness reserves are better for conserving fish than the far more common, small marine protected areas (MPAs) that many governments and fishing communities are presently implementing.

'The bottom line is that we found six times more fish in the Chagos "no take" area than we did in even the best-managed Marine Reserves elsewhere in the Indian Ocean,' says lead author of the reports, Dr Nick Graham of the ARC Centre of Excellence for Coral Reef Studies and James Cook University.

'There was also a dramatic difference in types of species that dominate with a far richer variety of predatory and large-bodied fish species with big home ranges in the Chagos,' adds his colleague, Dr Tim McClanahan, of the Wildlife Conservation Society.

Coral cover in the Chagos area was almost complete, having recovered rapidly from a major bleaching episode, in 1998.

The Chagos Archipelago, also known as the British Indian Ocean Territory, and its entire 640,000 square kilometre area was designated a no-take zone in April 2010, making it the largest such marine reserve in the world. It is in the central Indian Ocean due south of the Maldives.

'In recent times there have been bold moves by nations such as Britain, Australia and the United States to set aside much larger areas of open ocean in an effort to try to conserve fish stocks that appear to be dwindling all around the planet,' Dr Graham explains.

'What wasn't clearly known before now was whether there is a significant difference in conservation impact of large remote unfished reserves of thousands of square kilometres, as opposed to the much smaller ones of tens of square kilometres that are typical of populated coastlines. Well, now we know the answer.'

The researchers say it is important to have large areas of oceans protected from human impacts, not only to preserve fish stocks and protect vulnerable marine species – but also as an undisturbed baseline for understanding the changes that human population pressures and climate change are bringing to the oceans as a whole.

'There seems little doubt that formal legislative protection of some of the world's last remaining marine wilderness locations, such as the Chagos protected area, is a critical step to maintaining some near-pristine legacy areas in the oceans,' they say.

The researchers acknowledge that marine reserves closer to centres of human population require different kinds of management and need to be smaller, to ensure that people can still draw their livelihoods and food from the sea – and these smaller marine reserves also provide important conservation gains.

As world fish stocks decline, large remote wilderness reserves require careful protection against plundering by illegal and 'pirate' fishing concerns.

'Clearly marine wilderness does promote a unique ecological community, which smaller no-take areas fail to attain, and formal legislation is therefore critical to protect these last marine wilderness areas,' the scientists conclude.

Their findings and comments are in an article just published in the journal [Bioscience](#).

Source: ARC Centre of Excellence for Coral Reef Studies

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