

Great Barrier Reef protected zones help fish in even lightly exploited areas

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The Agincourt Reef, Great Barrier Reef, Queensland, Australia. Credit: Robert Linsdell, Flickr

Protected zones of the Great Barrier Reef benefit fish even at the relatively lightly-fished northern reefs, according to a study published November 8, 2017 in the open-access journal *PLOS ONE* by Carolina Castro-Sanguino from the University of Queensland, Australia, and colleagues.

The Australian Great Barrier Reef Marine Park is the largest network of [marine reserves](#) in the world, and includes both 'no fishing' ('no-take') and 'no-entry' [zones](#) as well as fished areas. The authors of the present study analyzed the effect of such policies in the relatively lightly-fished northernmost regions. They measured, counted and calculated the biomass of commonly-fished species found at 31 northern, central and southern reefs in the area north of Cooktown, as well as assessing the seabed habitat at these sites.

The authors found that [fish](#) biomass was up to five times greater in protected zones which prevented fishing, whether they had 'no-take' or 'no-entry' policies. The most remote northern reefs had greater fish biomass than more southern zones, regardless of the zones' policies, and the authors speculate that poaching may be common in southern reserves. They also found indication that fishers may frequently operate at reserves' boundaries to exploit the increased [fish biomass](#) in these reserves.

The specific seabed habitat of different reefs had a strong effect on the amounts and types of fish found, making it impossible for the researchers to discern any distinct effects of 'no-take' versus 'no-entry' policies. Nonetheless, they did find clear differences in biomass between protected and unprotected areas, despite this region being generally fished relatively lightly. They state that this illustrates the high sensitivity to fishing of many species, reinforcing the case for their protection.

"Even in remote [reef](#) habitats, marine reserves increase the biomass of exploited fish but detecting these benefits can be challenging because the state of corals also varies across some management zones and these patterns also affect fishes," says Castro-Sanguino. "We also conclude that fishing is most intense near reserve borders leading to a reduction of biomass just outside reserves."

More information: Castro-Sanguino C, Bozec Y-M, Dempsey A, Samaniego BR, Lubarsky K, Andrews S, et al. (2017) Detecting conservation benefits of marine reserves on remote reefs of the northern GBR. *PLoS ONE* 12(11): e0186146.
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