



Why Marine Protected Areas Need Expansion?

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Philippine coral reefs provide many ecosystem services to our people, including an estimated 20% contribution to the total capture fisheries. They are also home to more than 500 species of corals, about 600 species of macrobenthic algae and about 2000 to 3,000 marine fish species that contribute to the mega-biodiversity status of the country, and is one of the reasons why it has become a tourist attraction.

A coral reef with a good coral cover and a moderate to high rugosity/profile provides at least 15 metric tons of fish yield per square kilometer per year.

Unfortunately, less than 10% of the 25,000 sq km of Philippine reefs are in the state of good health and have “good to excellent” coral cover, thus severely reducing their fishery production potential.

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It is not surprising, therefore, to find that degraded reefs have at present very low fish abundance and very low fish biomass— ca.5 to 20 tons/sq km—in contrast to pristine reefs in the 1930s and 1940s, which had about 100 tons/sq. km on the average (e.g. Tubbataha Reefs).

Under such conditions, small-scale fishers cannot be expected to have substantial fish catches. Catch rates of hook and line fishers at the present time in coastal areas without MPAs average 0.5 kg/person/per hour. This contrasts with catch per unit effort of 1 to 1.5, or even more, kg/person per hour in areas immediately outside the boundaries of no-take MPAs.

Fully protected no-take MPAs, are a popular and widely accepted strategy for marine resource protection and management, according to our research results, and are recommended to be embedded in fished areas by eminent fishery scientists such as Dr. Daniel Pauly of the University of British Columbia, Canada.

No-take MPAs build up large biomass and large fish abundance over decades of full protection. Our experience shows that fish biomass in MPAs such as Sumilon and Apo Islands reach 100-160 metric tons per sq km, approximating those of pristine reefs in the early 1900s.



The larger catch per unit effort of hook and line fishers and the stable fish catch of 15-20 metric tons at Apo fished area is in part due to the spillover of adult fish from the no-take reserve to the fished area, based on our research findings. But this spillover can take place only if large biomass of fish exists in the no-take MPA. In fact, not only adult fish but also fish larvae are exported from the no-take reserves to areas outside of these no-take MPAs.

For many areas in the country, fish abundance and biomass are low, and there is a need to set up no-take MPAs or networks of them throughout the country for the purpose of building up large biomass and abundance of fish on no-take MPAs that can cause the export of adult fish outside the MPAs for fishers to catch.

At this time only 5% of the 25,000 sq km of Philippine coral reefs (=1,250 sq km) have varying levels of protection from fishing. The biomass and abundance of fish in the 1,600 MPAs in the country at present is mostly unknown, except those in the Visayas, where only about 30% of the 564 MPAs have relatively moderate to high fish biomass and fish abundance. Those with fairly high biomass are most probably exporting adult fish to fished areas and helping increase fish catches of fishers.

What ultimately is needed is to establish at least 20% or 5,000 sq km of fully protected areas over time in order to keep the integrity of our coral reef ecosystem stable and to attain the full potential for reef fishery production and biodiversity conservation.

This paper suggests that 10% of the total area of coral reefs be declared no-take MPAs during the next 5 years.

It is very important that governments (local and national) invest in the establishment of no-take MPAs and networks of marine protected areas to avert a fishery crisis in the future.

MPA establishment requires the collaboration of government and local communities in order to attain success.

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