

Apo Island Marine Sanctuary

Unlike many of the marine protected areas in the Philippines, Apo Island Marine Sanctuary is more than just a paper park. Studies have demonstrated the benefits of the reserve for conservation and for local community livelihood, making the sanctuary a model community-managed marine reserve.

Apo Island Marine Sanctuary is one of the oldest protected marine reserves in the Philippines and is part of the Apo Island Protected Landscape and Seascape. This site has inspired the establishment of other MPAs not only in the Philippines but also in other countries for its exemplary management and biodiversity. However, two recent typhoons have ravaged the area, resulting in around 99% coral cover loss as estimated by the Silliman University Institute of Environmental and Marine Sciences (SUIEMS).

Known around the world as one of the best examples of a community-managed marine reserve, Apo Island in Dauin, Negros Oriental is a small, steep volcanic island surrounded by narrow fringing coral reefs. The waters around the island are home to at least 650 species of fish and 400 species of corals.

Fishing is the major source of livelihood for the island's people who benefit from the abundant marine life teeming in the waters around the reserve.

There was a time, however, when fish had not always been abundant. Eking out a living through fishing had become more and more difficult. Three decades ago, unsustainable fishing practices had almost finished off what was left of the area's fish stocks.

The establishment of the reserve

Years before Apo Island became the earliest community-based marine reserve in the Philippines, fishermen in the island were involved in destructive and illegal fishing methods such as *muro-ami* and dynamite fishing. The previous situation in Apo Island is indicative of the rampant illegal and destructive fishing practices still prevailing in many parts of the country.

In response to the rapid degradation of the country's coastal waters, Silliman University's Marine Lab in nearby Dumaguete City established several coral reef conservation projects in 1978. One such project was set up in Apo Island.

Coral reef protection in Apo Island began informally in 1982 under the Silliman University's Marine Conservation Development Program. In a visit to Apo Island, project staff broached the idea of protecting the reefs to address the problem of dwindling fish catch in the area.

The establishment of a sanctuary where all fishing was prohibited was initially met with a lot of resistance. The project therefore started small and its progress was closely monitored. Fish catch was routinely recorded and the townsfolk were regularly shown photographs of what was under their sea to show them the benefits of the project.

The marked improvement in fish catch caught the interest of the fishermen so that in 1985, the island community and local council formalized the sanctuary, declaring waters surrounding the island up to 500 meters from the shore a marine reserve. A portion of the coast in the south-eastern part of the island was turned into a no-take fish sanctuary. The community, who were once skeptical of the sanctuary were now participating in guarding and defending their marine resources.

Later in the 1990s, the protection of Apo Island Marine Sanctuary was covered under the National Integrated Protected Areas System (NIPAS), and the entire island eventually became a protected area.

Benefits to the community

The primary benefits the local community gets from the marine reserve is increased fish catch in less fishing time (more catch per unit effort). Biomass of large predatory fish has increased 8-fold in the reserve, and biomass and species diversity have also increased.

It is worth noting that neighboring towns have also benefited from the success of Apo in terms of increase in fish biomass. Many "new and emerging marine reserves" in the region and the rest of the Philippines have also learned from the success of Apo Island. Apo Island has hosted countless study tours from community representatives and local government officials from within the country and abroad who are starting or have started establishing similar marine reserves in their localities.

Impacts of climate change

Unfortunately, in the past 2 years, Apo Island's coral reefs were severely damaged by typhoon Sendong in 2011 and Typhoon Pablo in 2012. Researchers from Coastal Conservation and Education Foundation (CCEF) and SU-IEMS who surveyed the sanctuary estimated coral damage at 99% due to strong surges caused by the typhoons. Coral reef fish abundance also declined by 50%.

But aside from damage from surges, coral reefs and other critical marine habitats and organisms such as those in Apo Island, face serious threats from climate change. Climate change causes coral reef loss and degradation which in turn impact fisheries and tourism. Rising sea temperatures causes coral bleaching, where corals turn white and eventually die. Meanwhile, carbon emissions which cause global warming also end up at sea and turn sea water acidic. The phenomenon, called ocean acidification, impairs the ability of corals, mollusks, plankton and other sea creatures to build their calcium carbonate shells or skeletons. Lower calcification rates affect the growth and strength of corals and can cause the populations of plankton—a vital base in the marine food chain—to decline.

According to the recent World Bank Report *Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience*, "projections indicate that all coral reefs in the South East Asia region are very likely to experience severe thermal stress by the year 2050, as well as chemical stress due to ocean acidification."

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