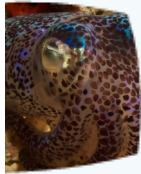




- CCC CARRIED OUT AN ASSESSMENT OF THE REEFS IN THE COASTAL WATERS OF BARANGAY NAPANTAO IN MARCH AND OCTOBER 2017.



- HARD CORAL WAS THE DOMINATING SUBSTRATE IN THE SURVEYED AREA AND THERE WAS A HIGH ABUNDANCE OF COMMERCIALY IMPORTANT FISH WITHIN THE MPA. THIS IMPLIES THAT THE REEF IS INDICATIVE OF AN AREA WITH HIGH CONSERVATION VALUE.



- ELECTRONIC AND HARD COPIES OF THE FULL TECHNICAL REPORT ARE AVAILABLE FROM OUR PROJECT SCIENTIST: LRCP@CORALCAY.ORG

CREATED BY STUART ROSS -SCIENCE OFFICER



Barangay Napantao MPA Assessment

The MPA of Barangay Napantao is dominated by suitable reef substrates and has high levels of commercially important fish. These are signs that the MPA is placed in an area of high conservation value. .

The Current Status of the Napantao Reef

Following CCC surveys, it was found that the dominating substrate of Napantao reef was hard coral (53%); followed by rock (15%). 12% of the reef was split between other substrates such as sand, rubble and soft coral. Outside the MPA the dominate substrate was also hard coral (40%), but was followed by sand (21%) and then rock (12%).

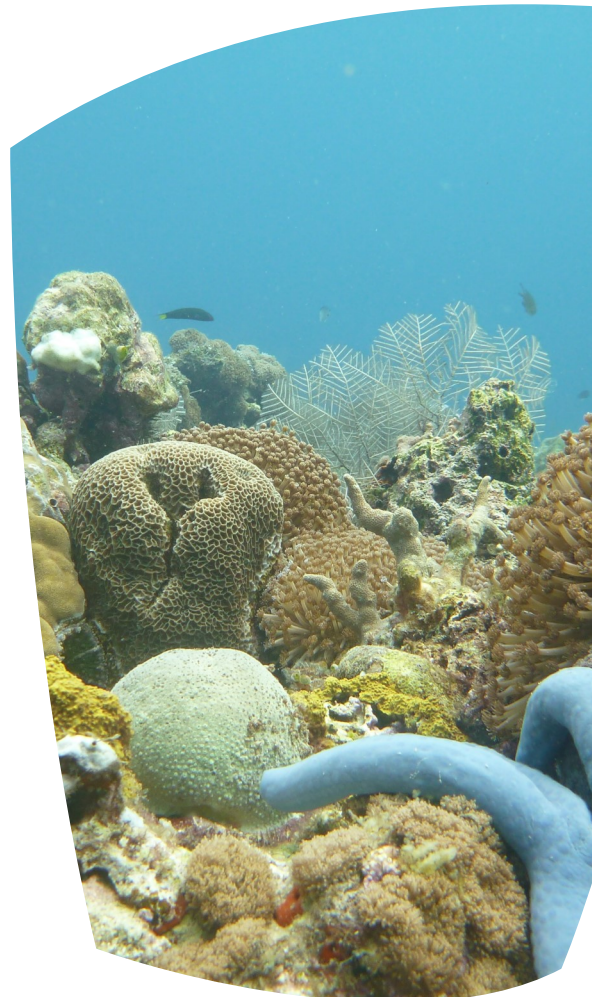
The average fish abundance per transect within the MPA was high, at 170.88 ± 43.14 per 500m³, as compared with outside the MPA (86.08 ± 16.94 per 500m³). There was a relatively high abundance (14.96 ± 2.37 per 500m³) and size class (48 individuals over 21cm) of commercially important fish inside the MPA as compared with outside, which had an abundance of 5.00 ± 0.94 per 500m³ and only 5 individuals larger than 21cm.

Invertebrate populations displayed a mean abundance of $133.29 \pm$

12.01 per 100m² within the MPA and 119.21 ± 10.59 per 100m² outside the MPA. There were very similar levels of diversity inside (1.86 ± 0.04 per 100m²) and outside (1.87 ± 0.05 per 100m²) the MPA.

Anthropogenic impacts were lower inside the MPA than outside, but general trash was still found on 54% of replicates inside the MPA and 87% of replicates outside the MPA. The amount of replicates with fishing trash were fairly similar inside (33.33%) and outside (29.17%) the MPA.

Coral damage was low with one case of boat/anchor damage outside the MPA. There were some counts of undescribed coral damage (10 times inside and 13 times outside).



Why Are MPAs Important?

Marine Protected Areas (MPAs) protect areas of reef from human impacts. Within an MPA, fish are protected and can grow larger, producing more offspring. This leads to 'overspill', increasing fish numbers outside the MPA. In the Philippines many very successful MPAs have been created including the famous Apo Island MPA. Not only do these well managed MPAs help to enhance fish stocks, they also provide income from tourism and other benefits such as protection of coastal habitats and communities from storms.

CCC's assessment of Napantao's Coral Reef

The survey results suggest that Napantao's reef is of high conservation importance because of its substrate composition coupled with the high levels of abundance, diversity and size of commercially important fish. The higher abundance and larger size of commercially important fish inside the MPA indicate that regulations are being enforced and followed.

The prevalence of hard corals and rock indicates that there is high potential for future coral settlement within the area. This is indicative of a reef that is healthy can support a large diversity of different marine fish and invertebrates. Conservation efforts should still be focused on the selected area as it has potential to increase its coral percentages throughout the next few years.

The commercially important fish found were generally of the smaller size classes which is an indication of overfishing. The small fish number and size coupled with presence of fishing trash within the MPA is a sign of illegal fishing practices. It is also possible that the low number of commercial fish is also caused by species leaving the MPA as the boundaries are not large enough to cover their entire home range.

The large biomass of commercially important fish within the MPA and the increase of fish stocks suggests that the regulations are being followed. The large size of commercially important fishes indicates that the MPA is being

managed well, with fish able to grow to maturity within the boundaries before being fished. The difference in biomass and abundances inside and outside the MPA is most likely due to the fishing pressures outside of the MPA. If regulations and boundaries are continuously enforced, then current fishing pressures appear to be sustainable.

Overall the Napantao MPA is a prime example of how a healthy and protected reef can lead to increased sustainable fish stocks. The only major recommendation that can be made is to mitigate the amount of trash entering the MPA and ocean. Trash can be harmful to many reef creatures and once it has entered the ocean it is hard to remove. The best strategy is effective trash management on land to avoid it entering the water to begin with.

Key Recommendations:

- A continued focus on MPA enforcement to prevent illegal fishing or poaching within the site.
- Efforts should be increased to pursue more effective means of managing waste to reduce trash entering and polluting the MPA.
- Continue to encourage fishermen to lead enforcement of fishing and harvesting practices.

GIANT clams



Nine Giant Clams were found within the Napantao MPA. The IUCN red list puts Giant clams as a species vulnerable to extinction. Giant clams are comprised of several species within the genus *Tridacna*. They are referred to as giants because they are the largest of any bivalves and can reach lengths of 120cm!

Giant Clams have a symbiotic relationship with bioluminescent algae that gives them their array of colours. The algae gets a home and the clam gets any additional nutrients the algae produces. This symbiosis allows giant clams to survive and thrive in nutrient deficient waters. Giant clams are also excellent filter feeders if waters are nutrient rich. The clam's shell adds to the hard substrate on a reef, helping future coral recruitment.

Giant clams are under threat because they are being removed from waters to be eaten as a delicacy in several countries. Over exploitation of these clams could lead to their extinction, so care should be taken to preserve the species.



Coral Cay Conservation

**CORAL CAY
CONSERVATION**



Expeditions

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