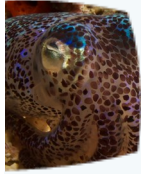




● CCC CARRIED OUT AN ASSESSMENT OF THE REEFS IN THE COASTAL WATERS OF BARANGAY MANGLIT CORAL REEF FROM JANUARY—FEBRUARY 2019.



● HARD CORAL WAS THE DOMINATING SUBSTRATE IN THE SURVEYED AREA WITH A HIGHER ABUNDANCE OF INVERTEBRATES OUTSIDE OF THE MPA AREA AND SIMILAR TRANSBOUNDARY FISH ABUNDANCE. ALONG WITH THE HIGH LEVEL OF DISCARDED AND LOST FISHING GEAR, THIS COULD INDICATE CONTINUED FISHING ACTIVITY WITHIN THE MPA BOUNDARIES.



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

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CORAL CAY
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Barangay Manglit MPA Assessment

The assessment of the MPA of Barangay Manglit showed signs of a healthy reef substrate and invertebrate abundance. However, there were supplementary indicators of caution for the fish population which suggests management of the MPA needs to be improved.

The Current Status of the Manglit Reef

Surveys showed that the dominating substrate of Manglit's reef was Hard Coral (46%); followed by Rock (17%) and Sand (11%). Suggests an excellent coral reef complexity with supplementary substrate that offers prospects of coral larvae settlement.

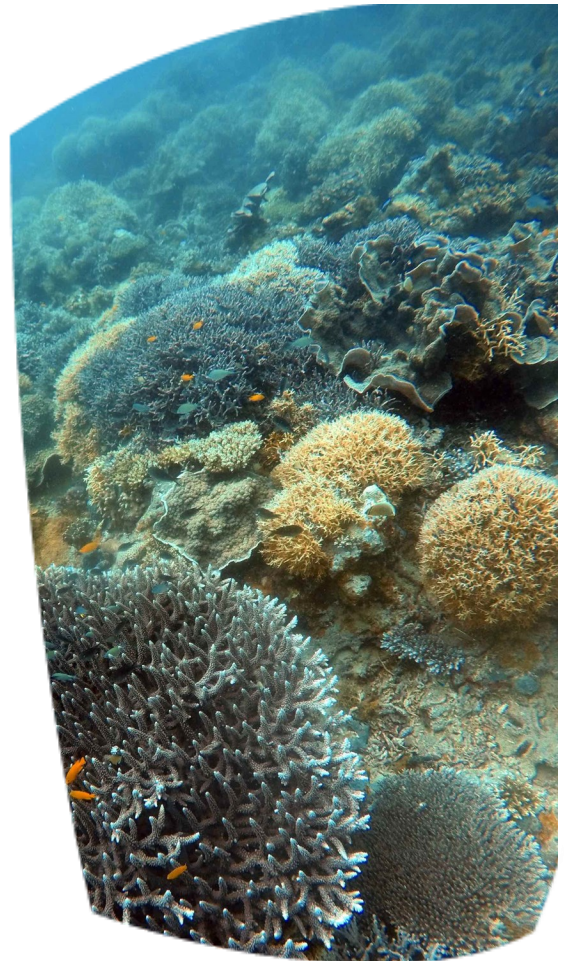
The average fish abundance per transect was 77.22 ± 9.09 per 500m^3 throughout the survey area. Both general and commercial fishes showed no significant transboundary differences in abundance. The most common size class ($<30\text{cm}$) of Parrotfish and Grouper inside the MPA indicated a juvenile population.

Invertebrate populations displayed a mean abundance of 98.31 ± 9.86 per 100m^2 with a significantly

higher abundance of target species outside the MPA. This excludes Giant Clams, which was higher in abundance within the MPA.

General trash was found at medium levels for 37.50% of the transects within the MPA and 50% outside. Discarded or lost fishing gear was recorded on 81.25% of the transects within the MPA and 56.25% outside, suggesting high levels of poaching within the MPA.

Despite the healthy levels of reef complexity in the MPA, the low abundance of fishes and high levels of discarded or lost fishing gear suggest a need for administrative improvement. Specifically, the number of fishermen needs to be determined, along with the employment of a Bantay Dagat.



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 Manglit's Coral Reef

The survey results suggest that Manglit's reefs would benefit from a 5ha expansion of the MPA along with an increase in restriction to improve the productivity of the MPA. As previously mentioned, the assemblage of the current hard coral structure could support a fish population of greater abundance.

The national average of hard coral cover within the Philippines is estimated to be 22%. For Manglit, this number was more than double (~ 45%). Previous studies show a correlation between structure complexity, cover of live coral and increased fish biomass. Thus, the result of this assessment could suggest a viability of increased fish abundance, should fishing restrictions be further improved, as the reef structure is present to support such population advances.

Further, the high prevalence of hard coral and rock suggests a foundation for an expansion of the current structural complexity, with substrate viable for future coral recruitment and settlement. The third most dominant substrate of the survey area is sand. This substrate is suitable for seagrass recruitment, which could provide further habitat complexity, increase water quality and substrate stabilisation.

The commercially important fish present were generally of the smaller size classes which could suggest size specific fishing activity within the area. The small fish

number and size, coupled with presence of fishing gear such as nets, hooks and lines, further suggests some level of illegal fishing practices.

Due to the evidence of illegal fishing activity within the MPA, it is recommended that the number of fishers be determined to understand the viability of further restrictions. Furthermore, it is suggested that a Bantay Dagat be employed to enforce legislation. Finally, community support should be further encouraged via education, so that there is an understanding of the aims and potential of the ordinance of the MPA.

Key Recommendations:

- To increase the MPA with a further 5ha to include transects of the survey that showed great fish and invertebrate abundance
- Improve community support through education and to improve the understanding of the aims and potential benefits of the MPA
- Employ a Bantay Dagat to enforce legislation, which would further carry employment and income (through boat payment) to the community
- Improve waste management within the Barangay along with active removal (e.g. beach cleans in the area).

Why is Seagrass important?



Seagrasses are the only flowering marine plant, well adapted to living in saline conditions. There are 13 known species in the Philippines, representing about 25 % of all known species. Most seagrasses have long, thin leaves growing up from one point with an undelaying interconnected root system joining neighbouring plants.

Seagrass meadows are found at relatively shallow depths, predominantly in shallow subtidal waters. The grass can attach to most substrates but generally depend on either mud or sand. Meadows stabilise and hold sediment, slow water movement and uphold sedimentation of particulate matter. They are important habitats as they provide shelter and refuge for many inhabitants and transitory juveniles. Seagrass meadows therefore attract various species of invertebrates, fishes and mammals.

Seagrass beds are threatened by increased human populations. Therefore, protecting current seagrass beds, or making space for new meadows to propagate, is of urgent matter.



Coral Cay Conservation

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