



- CCC CARRIED OUT AN ASSESSMENT OF THE REEFS IN COASTAL WATERS OF PANDAN THROUGH OUT THE MONTH OF AUGUST IN 2016.



- SAND WAS THE DOMINANT SUBSTRATE IN THE SURVEYED AREA, FOLLOWED BY ROCK AND THEN RUBBLE. THESE MORE STABLE SUBSTRATES SUGGEST POTENTIAL FOR FUTURE CORAL RECRUITS. BUT THIS WILL REQUIRE A LOT OF TIME AFTER PROTECTION STATUS IS ESTABLISHED.



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

CREATED BY JORDAN WILLIAMS - SCIENCE OFFICER

Barangay Pandan Proposed MPA

The coral reefs of Barangay Pandan have been affected by top-down reef community impacts from anthropogenic and local environment stressors. An establishment of an MPA has potential to promote positive improvement in the coral reef community if these top down stressors are removed.

The Current Status of the Pandan Reef

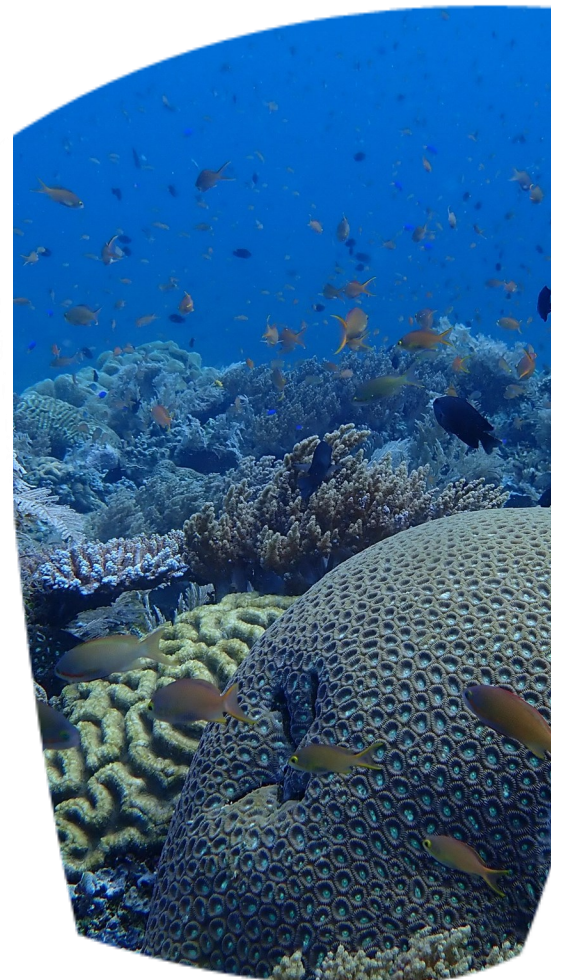
Following CCC surveys, it was found that hard coral had a minimal presence in the area (3.2%) while the dominant substrates were sand (42.%) followed by rubble (18.9%) and then rock (17.5%). Bleaching, recently killed coral and coral diseases were recorded as low across the site

The average total target fish abundance per transect was high in comparison to other surveyed reefs in Liloan, at $N = 45.42 \pm 5.14$ per 500m³. Butterfly fish were recorded at $N = 0.54 \pm 0.15$ and commercial important fish were recorded in small sizes (>21) at $N = 0.58 \pm 0.29$ per 500m³. This indicates a highly active overfished area, in need of protection.

Of the commercially important fishes such as Grouper, Snapper and Parrotfish, herbivorous fish (Parrotfish) displayed the greatest abundance throughout the surveyed area.

Invertebrate populations displayed a mean abundance of $N = 158.08 \pm 0.15$ per 100m². However many commercially important species were absent suggesting historic harvesting.

Overall direct anthropogenic impacts were low, but direct impacts like fishing trash and general trash were recorded across the site at low, medium and high ratings.



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 Pandan's Coral Reef

The survey results suggest that the surveyed reef at Pandan is in a difficult position of supporting a higher assemblage of reef fish and invertebrates even if assigned MPA status and top down stressors are removed, the recovery process will be very long.

The minimal hard coral cover is concerning as it suggests a simple, undiversified reef ecosystem that is struggling to support a diverse reef community of reef fishes and invertebrates. However, the presence of stable substrate such as rock and rubble show potential for future coral recruits which could improve the reefs diversity.

Of the commercially important fish, herbivorous Parrotfish had a higher recorded biomass than Groupers and Snappers. Parrotfish play a profound role in exposing reef substrates for coral settlement by limiting macroalgal growth. Therefore, it is important that they are protected to allow for coral reefs to grow. By protecting a proportion of reef, commercially important fish are able to grow, and breed successfully.

The current location of the proposed MPA would take a long period of

time for recovery. However, it would assist in creating a connective network between other established MPAs within Sogod Bay.

Key Recommendations:

- Further discussion with Barangay Captain to establish if a different site would be better suited for MPA location
- The marked Marine Protected Area boundary should include a NTA (no take area), surrounded by a 50m Marine Reserve buffer with restricted fishing activity.
- High MPA enforcement will be necessary to prevent illegal fishing or poaching within the site.
- Fishermen should be involved in the establishing and monitoring process in order to ensure continual success of the MPA.
- Coastal management regimes should be introduced to control anthropogenic induced reef damage.

Drupella: What do they do?



Drupella are small gastropods that feed on live coral tissue. Their shells appear to off-white to brown, but when overgrown with red coralline algae they appear pink or purple. Drupella prefer to feed on fast growing coral species such as *Acropora* and *Pocillopora*, and can commonly be found in large groups clustered together.

Occasional outbreaks are natural when water quality decreases, for example an increase in nutrients from sediment runoff, or a decrease in predators (Triggerfish, Snappers and Porcupinefish). If conditions become too favourable for Drupella they can cause significant mortality on coral reefs.

But the presence of these gastropods can actually benefit a reef by targeting coral colonies that are struggling to survive in the current conditions. By consuming these corals competition is encouraged and the stronger, more adaptable species will survive. Therefore, reef can become healthier and stronger with active predation eliminating weaker or diseased colonies.



Coral Cay Conservation

**CORAL CAY
CONSERVATION**



Expeditions

www.coralcay.org

Project Scientist email:

lrcp@coralcay.org

In Partnership With

The Provincial
Government of Southern
Leyte, Philippines



The Municipal
Government of
San Francisco