



- CCC CARRIED OUT AN ASSESSMENT OF THE REEFS IN THE COASTAL WATERS OF BARANGAY SANTO ROSARIO IN FEBRUARY 2017.



- SAND WAS THE DOMINANT SUBSTRATE WITH HARD CORAL ALSO IN ABUNDANCE. THESE ABUNDANCES INDICATE AN AREA THAT IS CAPABLE OF SUPPORTING A MORE DIVERSE REEF STRUCTURE IF GIVEN A PROTECTION STATUS.



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Barangay Santo Rosario Proposed MPA

The coral reefs of Barangay Santo Rosario are clearly exposed to detrimental impacts that are resulting in low abundances of fishes and a reduced complex habitat. A lack of large commercial species should also prompt protective actions to be taken to improve the associated fisheries.

The Current Status of the Santo Rosario Reef

Following CCC surveys, it was found that the average fish abundance was low, at 42.21 ± 5.78 per 500m^3 . The average commercial fish abundance was 0.58 ± 0.28 per 500m^3 , with no Grouper or Snapper recorded at all throughout the survey. All Parrotfish recorded were between 0-10cm; a clear indication that the population has been overfished.

69% of recorded butterflyfishes were obligate (diet is predominantly coral), suggesting that the hard coral found within the coastal waters of Santo Rosario is sufficient to support this community of butterflyfishes.

Invertebrates were recorded at an average of 199.33 ± 22.67 per 100m^2 and demonstrated a high level of diversity. However, commercially important species such as sea cucumbers and lobsters were absent.

Hard coral composition was recorded at 21% throughout the survey area with Sand dominating (49%).

21% of the site was classed as 'Highly Impacted' by general trash and 46% had a 'Medium Impact' rating. Coral-specific damage was also recorded as high with 33 incidences across the site; this damage having a heavy correlation with the predation of *Drupella* sp. and the Crown-of-Thorns Seastar.



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 Santo Rosario's Coral Reef

The results obtained by CCC suggest that the surveyed reef at Santo Rosario has the capacity to support a higher assemblage of reef fish if assigned MPA status and top-down stressors are removed.

The small size of commercially important fish species, as well as the low biomass and amount of discarded fishing gear, is indicative of a system that has been overfished.

Fish must reach a specific length (cm) before they become sexually mature and can therefore produce offspring. Removing too many juvenile fish, as well as large adult spawning fish, will cause the population to decrease as exploitation surpasses recruitment. As fish become smaller, more must be caught to maintain catch levels, thus increasing effort. This increase in effort causes fish to become even smaller and also becomes more costly for fishermen.

By protecting a proportion of the reef, commercially important fish are able to grow, become sexually mature and produce offspring. Through the "spill-over" effect, this will lead to a higher abundance,

size and diversity of organisms in the area, improving the livelihoods of fishermen and reducing catch efforts.

Key Recommendations:

- CCC recommends an initial site clean up with an associated marine debris survey, alongside the establishment of the MPA.
- 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, and to ensure ecological benefits are obtained.
- Fishermen should be involved in the establishing and monitoring process in order to ensure continual success of the MPA.
- Coastal management regimes should be created to control threats originating outside of the MPA.

Ghost Fishing: Derelict Fishing Gear



Derelict fishing gear is lost or thrown away fishing gear that is no longer under the fishermen's control. As a result, this discarded fishing gear, such as nets and traps, continues to catch and kill fishes, invertebrates, and even turtles! This is where the term "ghost fishing" comes from and is common throughout the ocean, not just on coral reefs.

Derelict fishing gear will continue to catch individuals for a long time, until the gear becomes damaged, broken or removed. As the gear is no longer under the control of fishermen, and is not being emptied, the captured individuals will die through starvation, predation or suffocation (in the case of turtles). Furthermore, discarded nets will roll across a reef during rough weather and destroy the fragile, but essential, coral reef structure.



Coral Cay Conservation

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