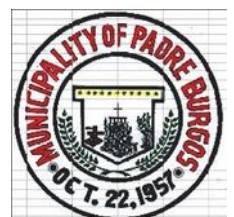


A comparison of the Marine Protected Areas of Padre Burgos and attitudes of the local community



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1 - Introduction to Coral Cay Conservation

CCC has carried out marine conservation projects all over the world, including in the Philippines, Belize, Honduras, Malaysia and Fiji. CCC successfully set up Marine Protected Areas and provided scientific data that has been used to manage local marine resources. The project in Danjungan Island in the Philippines between the years 1996-1999 was particularly successful and the reefs around the island recently received the accolade of Best Managed Reef of the World. Since 1995, CCC has worked with the Philippine Reef and Rainforest Conservation Foundation Inc. (PRRCFI) and local communities to survey and safeguard reef and rainforest areas in the Philippines. To date these have included coastal regions of the Southern Negros Occidental, Anilao, Palawan, Danjungan Island and the forests of North Negros. At the invitation of the Provincial Government of Southern Leyte, CCC began its survey work in Sogod Bay in September 2002. CCC is conducting a collaborative program to survey the region's coral reefs and provide training and conservation education opportunities for project counterparts. The aim is to develop local capacity and ensure the long-term protection and sustainable use of marine resources throughout Southern Leyte. We are hoping that we can build on our previous successes, extending our stay here in Southern Leyte.

The Philippines is renowned for its rich marine environment but with as much as 97% of its reefs at risk, immediate conservation action is needed. Children living in coastal areas are recognized as the future stewards of their marine resources and CCC is working closely with this local stakeholder group to raise awareness and increase understanding of the need for greater conservation efforts in the Philippines.

2 – Padre Burgos MPAs

In May of 2005, four Marine Protected Areas (MPAs) were installed in the municipality of Padre Burgos. The Barangays of Buenavista, Santa Sofia, Lungsoda'an and Tangka'an have all set aside a small part of their coastal reef to allow fish stocks to recover and conserve the rich marine life that each of the areas support.

The MPAs provide a vital habitat in which young fish can grow in relative safety before moving out onto the reef and even outside the MPA to be caught by fishermen. Diving is restricted in the MPAs and a small fee of 50 pesos has to be paid per diver. This income goes to managing the MPA. The increase in diving eco-tourism in Sogod Bay makes the MPAs a potential source of income in the near future. Already, the MPAs are proving their value, offering some fantastic diving and apparently increasing catches for local fishermen. This more than anything else, may help continue the momentum in preserving the rich marine resources of Sogod Bay in general and Padre Burgos in particular. The long term effects will lead to improved fish catch outside of the MPAs as has been shown in Sumilon Island; the first community based MPA that saw local fish stocks doubling within 10 years. Only with the full support of the community and upholding of the regulations and laws that apply within the sanctuary will the benefits become evident over the next years.



Fig. 2.1. Locations of four MPAs in Padre Burgos.

3 – Aim of this report

In August and September 2006 the four Marine Protected Areas (MPAs) of Padre Burgos were surveyed for fish and coral life. The results of each survey were presented to each barangay at council meetings and in written format. Now, we are able to compare the MPAs and present our additional findings regarding social attitudes. Bethan O’Leary, a Coral Cay volunteer student conducted social surveys of the fishing communities in September 2006. Those surveys have been analysed and we can now present the findings as a comparison of the four barangays.

For a complete breakdown of the MPA environmental survey methods and results, the reports for individual barangays should be consulted. These can be found with either the local Barangay Captains or Coral Cay Conservation.

4 – A comparison of MPA environments

Three factors were chosen for comparing the MPA environments between barangays. Before making direct comparisons between MPAs it should be noted that the reef environments of each MPA are naturally very different to each other and that some MPAs contain less corals is not necessarily a bad thing.

Fish Numbers

The graph below compares fish numbers inside and outside the MPAs. Sta. Sofia was the only barangay to have more fish observed inside the MPA. In Buenavista and Tangka'an the differences in fish counts between inside the MPAs were relatively low. Twice as many fish were observed outside the MPA at Lungsoda'an compared to inside. This latter result might be due to different conditions between survey dives such as currents and underwater visibility affecting the results, or illegal fishing inside the MPA. Illegal fishing at Lungsoda'an has been observed but is relatively uncommon as the MPA is directly in front of Sogod Bay Dive Resort and under regular observation.

It should be remembered that the MPAs are still less than two years old and it will take time for fish stocks to significantly increase inside them. If the local communities are made more aware of the need for MPA protection and local fishermen are encouraged to become more pro-active in keeping others out of their MPAs, fish stocks may increase sooner rather than later. These two factors combined with strong enforcement of MPA regulations will help to protect the livelihoods of the local fishermen for years to come.

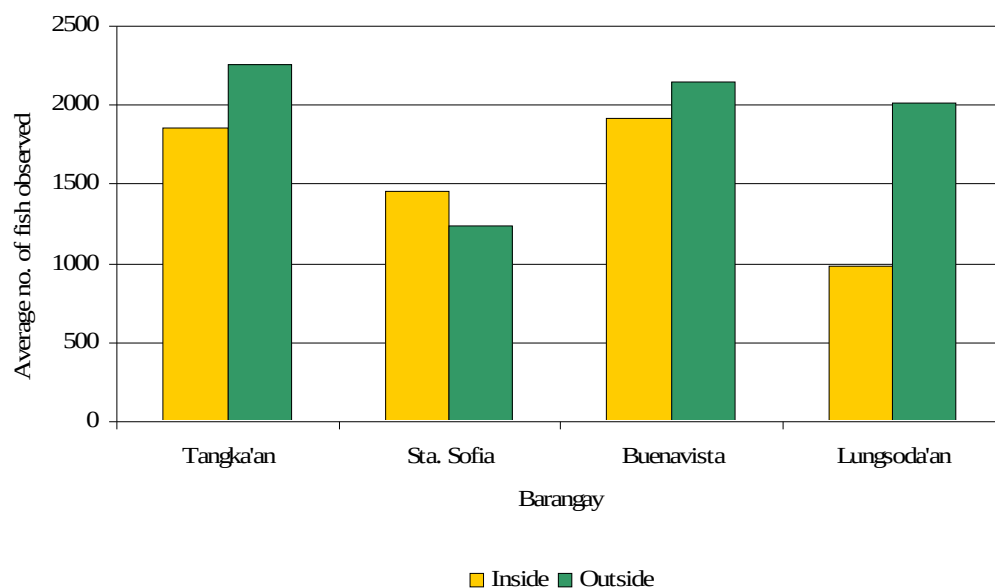


Fig. 4.1. The average number of fish observed on each 50m survey both inside and outside the MPAs of Padre Burgos in August and September 2006.

Hard Corals

When the MPAs were established, one of the factors used to decide on their location was the hard coral cover. Consequently it is not surprising that more hard corals are found inside the MPAs compared to outside. Hard corals are vital for the reef food chain and ultimately support all the fish life around the shores of Padre Burgos. Although fewer corals are found at Lungsoda'an, this is by no means a bad thing as

the natural environment in this MPA is one of a “patch reef” – a sandy sea bed punctuated with small patches of coral.

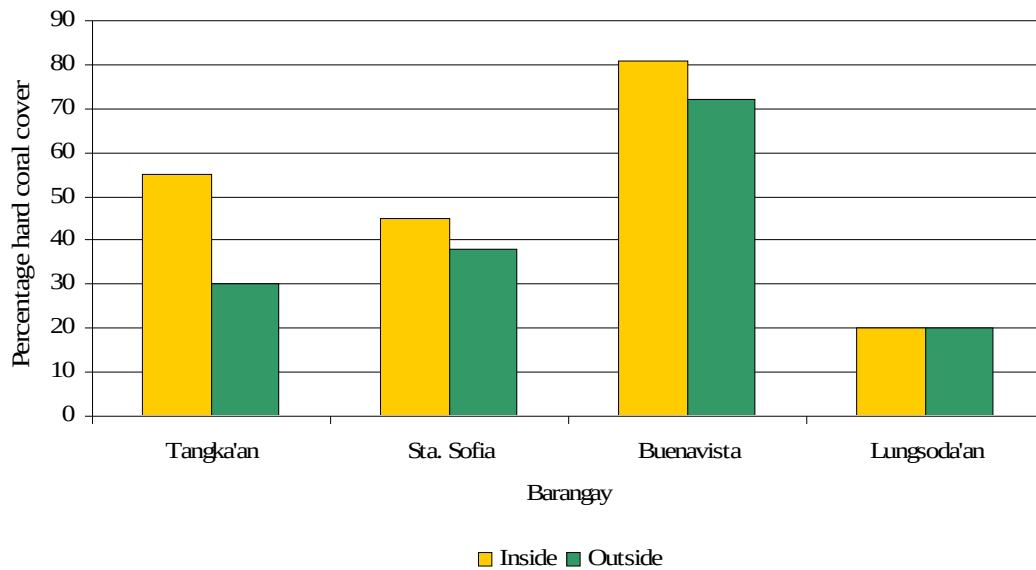


Fig. 4.2. The average percentage of hard corals observed on each 50m survey both inside and outside the MPAs of Padre Burgos in August and September 2006.

Coral Damage

Damage to the corals from both natural and man-made sources was assessed as part of the surveys. Here we present the total counts of coral damage observed inside and outside the MPAs. Storm damage and coral eating snail damage will always occur on coral reefs and is a natural process from which the reef can recover. However, further stress from human impacts can make it more difficult for the reef to recover from such damage.

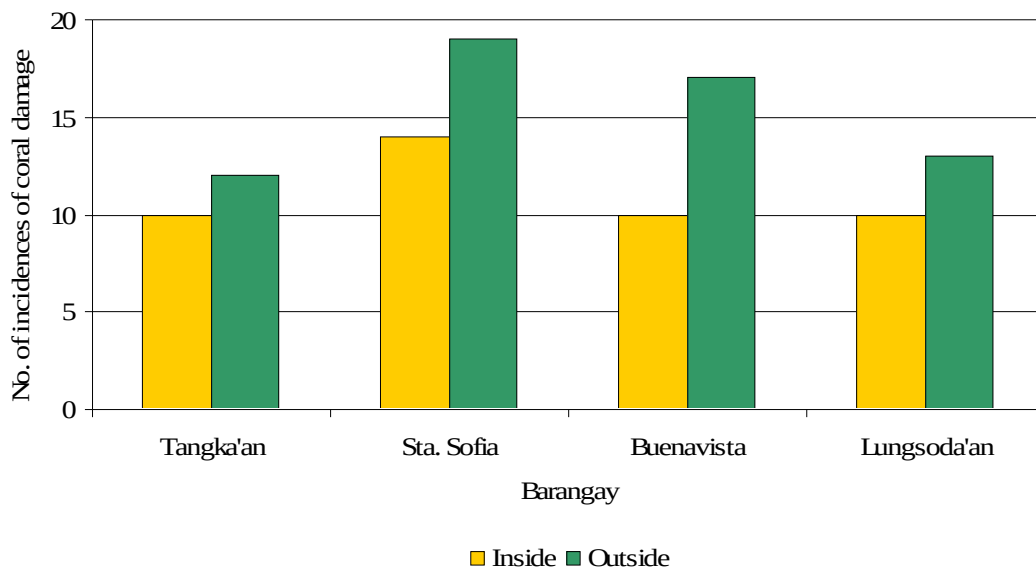


Fig. 4.3. Incidences of coral damage both inside and outside the MPAs of Padre Burgos in August and September 2006.

Most reef damage was observed outside the MPA at Sta. Sofia. Much of this damage was caused by anchor damage and trash which is likely to result from the close proximity to the main town, Padre Burgos and boat mooring sites. Damage inside all the MPAs was lower than damage observed outside and shows that the MPA designations help protect the reefs from humans. The higher incidence of damage inside Sta. Sofia MPA came mainly from increased trash sightings and again, is probably due to the proximity of the MPA to the main town.

The importance of educating local people to dispose of their garbage properly cannot be understated. Plastic trash and diapers will kill corals by smothering them and will kill animals such as whale sharks and turtles that think they are food and eat them. Tourists bring important revenue to such areas when they come to see these animals but high quantities of trash in the environment will ultimately drive the tourists and marine creatures away. Broken glass from bottles thrown onto the beach and reef also poses a serious risk to local children playing in the sea who can easily cut their feet on the sharp glass.

By decreasing the amount of coral damage the reef is exposed to, more corals will survive. With proper management of both waste disposal and the MPA, the amount of damaged coral inside the MPAs will decrease as time goes on. Corals are the homes for the fish so the more surviving corals, the more fish there will be for the fishermen to catch.

5 – Public Opinion

Community surveys were carried out at barangay meetings in August and September 2006 and involved local people and fishermen completing survey forms in Visayan. The majority of people surveyed were aged between 35 and 50 years old and 80% of participants were male. Nearly half the people surveyed relied on the ocean for their livelihood.

Participants were asked whether they were in favour of the MPA based in their barangay. Overwhelmingly, 95.8% of participants were in favour of the MPA in their Barangay with only 2 people against an MPA (Fig. 5.1). Both of these people were from Tangka'an and neither explained why they were against the MPA.

Four further statements were made about the MPA and the local people were asked if they agreed or not. The results are summarized overleaf.

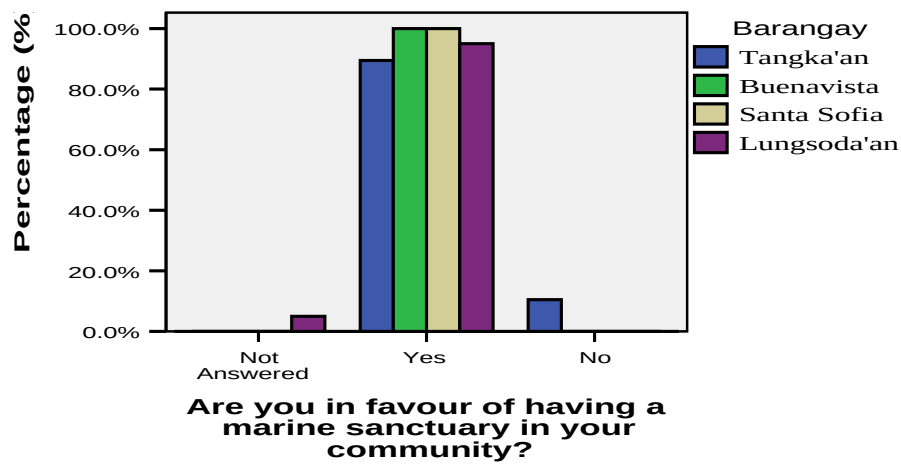


Fig 5.1. Percentage of participants in favour of their MPA

Statement 1: The marine sanctuary is helping to protect the coral reef.

Overall, 92% of people agreed that the MPA protects the coral reef (Fig. 5.2). This is strongly indicated in each barangay. Tangka'an shows the least satisfaction out of all four barangays with 11% of people in disagreement with the statement.

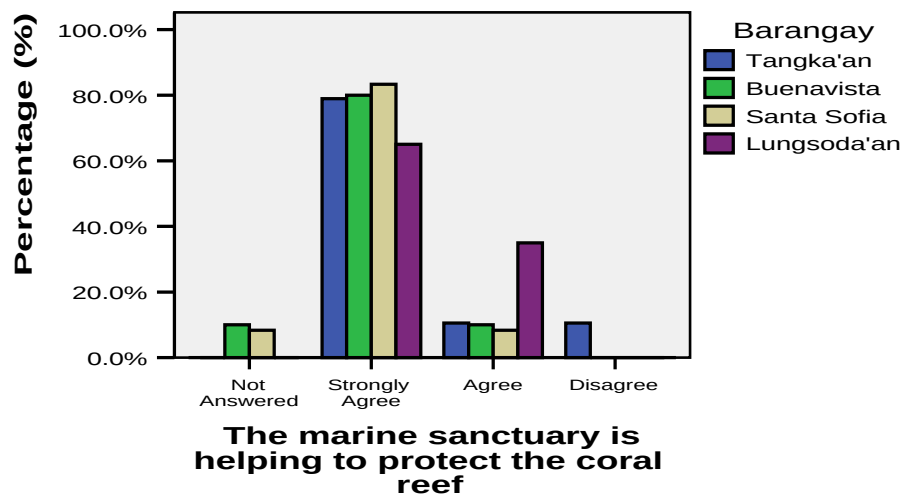


Fig. 5.2. Classification of results by Barangay

Statement 2: Your community has benefited from having a marine sanctuary.

94% of people agreed that their community has benefited from having an MPA in their area, with over half indicating a strong agreement with this statement (Fig. 5.3). Only 3% of people disagreed with this statement, again all from Tangka'an. These are the same people who disagreed with Statement 1.

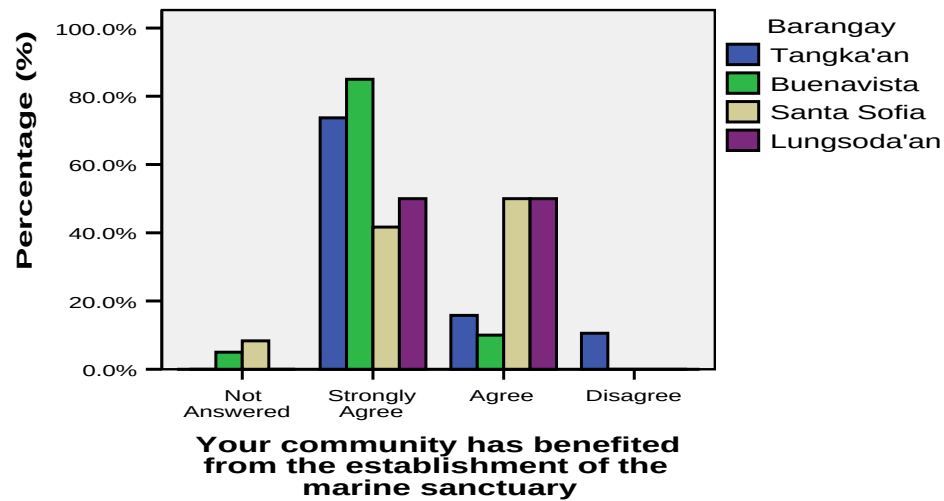


Fig 5.2. Classification of results by Barangay

Statement 3: From your experience, the fish catch in your area has increased.

Across the four barangays the results are consistent, with between 75-95% of participants either agreeing or strongly agreeing with this statement. However the spread of participants across these two categories varies distinctly between the barangays (Fig 5.3.). In Tangka'an the majority of participants (79%) strongly agree with statement 3, however Lungsoda'an and Buenavista have almost all (95%) of their participants within the agree and strongly agree categories indicating that overall more of the respondents from these areas believe that the fish catch in their area has increased.

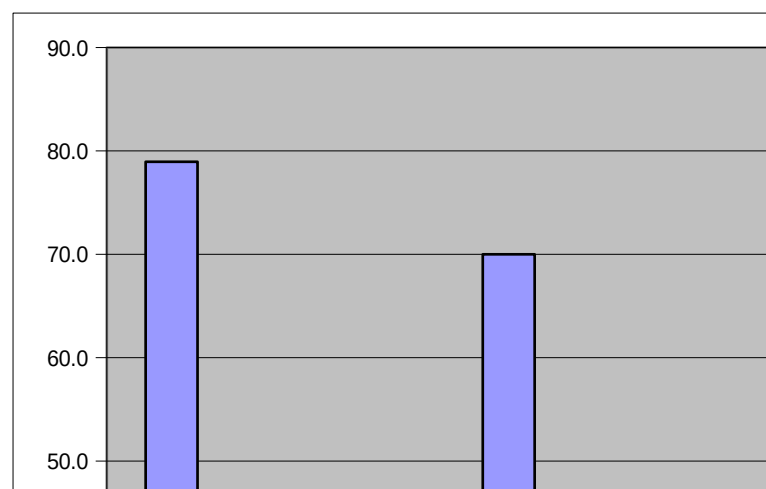
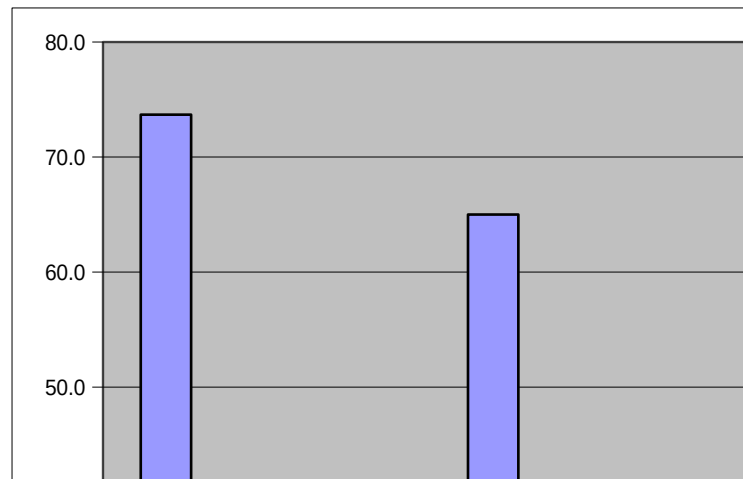


Fig 5.3. Classification of results by barangay

Statement 4: The marine sanctuary has caused this increase/decrease in fish catch.

84% of people agree that the cause of increased fish catch was the presence of the marine sanctuary, indicating a strong relationship between perceived increased fish catch and the presence of the MPAs.

Fig 5.4. Classification of results by barangay



MPA Management

People were asked to describe the standard of the current management of their local MPA on a scale from non-existing to excellent. Within each barangay the majority of participants considered the management of their respective marine sanctuaries to be 'good'. Lungsoda'an received the highest rating with 100% of participants rating their MPA management as either 'good' or 'excellent'. Tangka'an participants rated the current management of their MPA the lowest of all Barangays with just over half the participants (53%) stating that the management was between 'average' and 'non-existing'. All three other Barangays mostly rated their current management as being 'good', with 75% of Buenavista and Santa Sofia participants and 90% of Lungsoda'an participants judging the management system to be 'good'.

The majority of participants from Lungsoda'an (80%), Buenavista (85%) and Santa Sofia (75%) either agreed that the community had been involved with the decision making about their MPA. Only 42% of participants from Tangka'an believed the same thing. These results may be linked to the communities feelings about the management of their MPAs. Those who rate their management system well also perceive that they have been fully involved in the planning of the MPA.

Additionally, the local people were asked to indicate how they see their marine sanctuary will be 10 years on. Overall, between 94-97% of participants from all barangays indicated that they perceive their MPA will be successful in 10 years time

although some placed conditions on this success based on the level of management the MPA receives over that time period.

The table below summarises all of the above findings and ranks the MPAs according to public opinion.

MPA	Support for MPA	MPA has benefited community*	Increased fish catch due to MPA*	Perception of MPA management being good/excellent	Overall MPA management ranking	Community involvement in MPA management & decision making	Anticipated future of MPA
Tangka'an	90%	90%	68%	47%	4	42%	Successful (97%)
Buenavista	100%	95%	75%	90%	2	85%	Successful (94%)
Santa Sofia	100%	92%	59%	92%	3	75%	Successful (94%)
Lungsoda'an	95%	100%	80%	100%	1	80%	Successful (94%)
*Based on result from 'agree' and 'strongly agree' categories							

6 - Management Suggestions

It should be made clear that these results are already nearly 6 months old and it is clear that the management of some of the MPAs has improved during that time. The table above also shows that in general, the local populations believe their MPAs will be successful in the future. It is important for the barangays to inform the local people of the need for MPAs, the reasons behind them and any proposed changes to the management and/or penalty systems. With proper enforcement of regulations by both the Barangay Councils and the fishermen themselves, the true benefits will become more apparent in the near future.

Coral Cay has observed that the guard houses in all but Buenavista MPA are rarely manned. The importance of a guard on duty during both the day and night cannot be understated. A guard acts as a great deterrent to those trying to fish illegally within the MPA. Indeed, it is not surprising therefore that when the local people were asked to suggest ways of improving the MPA management, a permanent guard was the top suggestion (see overleaf).

Funding proposals have been submitted recently to secure one or two patrol boats for the municipality. These would greatly improve the MPA management as illegal fishers could be easily apprehended, especially in offshore MPAs such as Buenavista where it is hard to identify individuals.

Suggestion	Number of Mentions from Participants*
Permanent guard	24
Strictly enforce the rules and penalty system	6
Financial support for the guard	4
Clearly mark sanctuary with buoys and signs	4
Improve community awareness and support	2
Improve the support given by management agencies	2
Protect the mangroves and seagrass beds	1

The importance of education and generating community support for the MPAs is paramount. Without community support and understanding the MPAs cannot work. Proper management should not simply be through preventing illegal fishing but also encouraging people to dispose of their trash correctly and not dumping it into the sea, especially plastics. Plastics smother corals and fish eat the plastic. Both corals and fish will die resulting in environmental degradation and possible reductions in fish catches. Tourists and local people should also be educated not to stand on the corals. Again, this will kill them and result in fewer fish for the local fishing industry.

The MPAs of Padre Burgos are still young. They contain some of the finest coral reefs in the world and are already beginning to prove their worth in terms of increasing fishing catches and attracting tourists. Both the quality of the MPA environments and the management systems are improving all the time. If this trend can be maintained then the future is looking bright. The local people already appear to believe this – an important first step.

Acknowledgements

Thanks to the Provincial Government for inviting Coral Cay Conservation to Southern Leyte and permitting us to carry out such studies. Also to the Barangay Captains from Tangka'an, Sta. Sofia, Lungsoda'an and Buenavista for their support in establishing the MPAs in May 2005. Thank you also to Ma'am Inday Crisostomo and her team from the MAO office in Padre Burgos for assisting with the questionnaires and providing assistance with translations.