

# Experience from Improving Management of an “Urban” Marine Protected Area: Gilutongan Marine Sanctuary, Philippines

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**Abstract** The first so-called municipal marine protected area (MPA) was officially established in the Philippines in 1974, at Sumilon Island (Oslob municipality, Cebu Province). Since then, the establishment of such MPAs has been widely promoted to improve management of coastal resources within the country. In general, most of these MPAs are located in relatively remote areas and numerous reports and studies have served to document the experience gained in planning and managing these types of MPAs.

In contrast, the Gilutongan Marine Sanctuary (Municipality of Cordova, Cebu) is located near a major urban and tourist resort center (Metropolitan Cebu / Mactan Island), with an estimated population of over 2 million within a 20 kilometer radius and some 250,000 tourist arrivals per year. A process of improving the planning, management and revenue sharing arrangements of an “urban, no-take” MPA is presented to support a community-based, co-managed MPA, involving the following key components:

- Multi-sectoral stakeholder collaboration
- Participatory assessments / monitoring
- Initiation of accreditation and user fees
- Organization of vendor cooperatives

Initial monitoring results, including direct and off-site revenue generation, highlight the excellent opportunities for concurrent ecological and economic benefits to key stakeholders in designing and managing the use of such “urban, no-take” MPAs.

**Key words:** “Urban, no-take” MPA, co-management, user fees, economic benefits

## Introduction

The first small scale or municipal marine protected area (MPA) was established officially in the Philippines in 1974 at Sumilon Island, within the Municipality of Oslob, in the Province of Cebu. Recent reports indicate that over 400 MPAs have now been established in the country, a majority of which can be described as municipal MPAs located in relatively remote areas and providing various types of “no take” restrictions primarily as a means of community-based fisheries management and marine conservation (Crawford *et al* 2000). Limited data exists to date on the actual management status of these established MPAs, many of which could be referred to as “paper parks” due to their general lack of local recognition, effective enforcement and/or noticeable environmental and socio-economic benefits.

A 10 hectare MPA was originally declared at Gilutongan Island (Municipality of Cordova, Cebu) in 1991 primarily to improve fisheries management of the coral reef located along the island’s western coastline. Prior to the interventions discussed in this paper, the Gilutongan MPA could be described as one of the country’s many “paper parks” due to its general lack of a legal status and enforcement. Gilutongan Island is located approximately 6 kilometers from Mactan Island and the nearby metropolitan area of Cebu City, which represents the second largest urban area in the Philippines in terms of population and a major coastal tourism destination (**Figure 1**). The Gilutongan site could be described as one of the country’s few “urban” MPAs as it is located within a 20 kilometer radius of a metropolitan area with some 2 million residents as well as its high level of recreational use and demographics as summarized in **Table 1**.

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General Location Map  
Olango Island and Satellite Islets

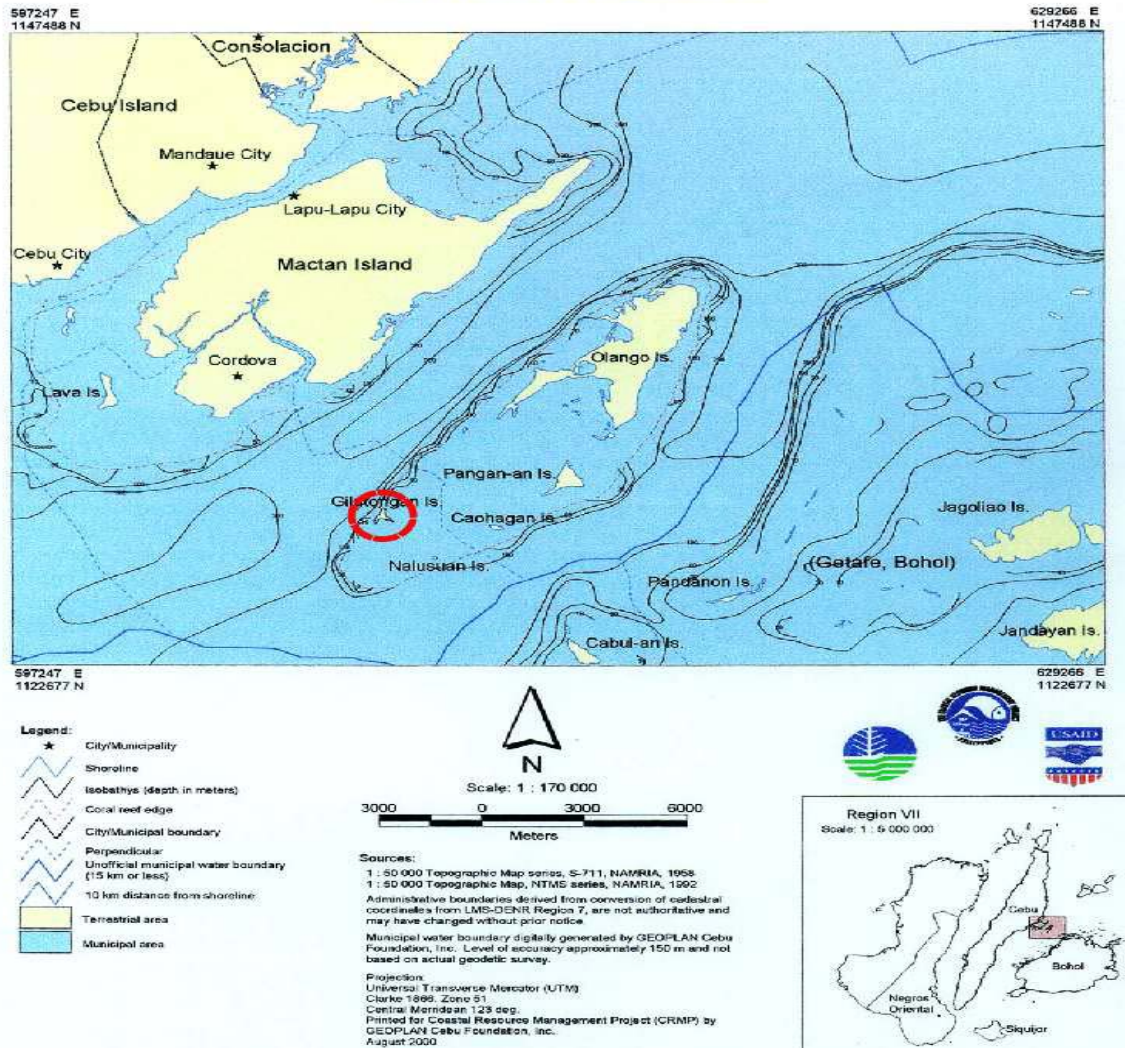


Table 1: Socio-economic Summary Profile: Gilutongan Island, Municipality of Cordova, Cebu, Philippines

**Total land area:** 11 hectares  
**Total population (1995):** 1,061  
**Average population growth:** 5.6 % per year (1970 to 1995); 9.7 % per year (1990 to 1995)  
**Population density:** 94 residents per hectare (total island), over 200 residents per hectare within actual resident area  
**Population origin:** 23% of the population are migrants  
**Age distribution:** 60% of population is below 24 years old  
**Average education:** Elementary school  
**Primary sources of livelihood:** Fishing, seaweed farming, tourist vending  
**Average reported income:** US\$ 50 – 100

The coral reefs fringing Gilutongan (Figure 2) and nearby islands of Olango and Mactan may also be considered as relatively unique on a global scale due to their close proximity to such a major urban area and present significant economic potential if properly managed.



Fig. 2 Gilutongan Island (marine sanctuary area is in foreground. Source: Sotto et al, 2001)

A recent study indicates that the annual economic net revenue of the Gilutongan MPA could be about US\$200,000 per year, including “off-site” benefits of tourism, with a significant increase in potential annual economic benefits with continued improvements in management (White *et al*, 2000). Based on this same study, estimated total management and monitoring costs could be in the range of US\$20,000 per year. The direct cost of establishing the MPA, including community organizing, planning and start-up costs, can be conservatively estimated at US\$50,000 over a two year period supported by the CRMP, national government agencies and the local government.

### **Problem Identification and Planning Process**

As part of the Olango group of islands, Gilutongan Island is directly included as one of the “learning areas” of the on-going Coastal Resource Management Project (CRMP), implemented by the Philippine’s Department of Environment and Natural Resources (DENR) through funding from the U.S. Agency for International Development (USAID). Initiated in 1996, the CRMP has facilitated an integrated planning process and activities, which was based on a Participatory Coastal Resource Assessment (PCRA) conducted between 1997–1998 (Walters *et al* 1998; Parras *et al* 1998). Basic PCRA techniques included participant observation by community workers, interviews with individuals and groups, household surveys, identifying and participatory mapping of resources and habitats, and issue identification and analysis. Critical issues reported by local residents during the PCRA included over fishing, habitat destruction, lack of law enforcement, a need for livelihood opportunities, poor environmental awareness, economic losses from environmental degradation, and lack of electricity and potable water.

Improved management of the Gilutongan MPA was identified as a practical and physical means to address many of these critical issues. While originally declared in 1991, the Gilutongan MPA had not been legally established by a municipal ordinance, no physical description of the MPA was provided by the original resolutions, and the process of declaring, managing or enforcing the sanctuary apparently involved only limited community participation, with no efforts made at community organizing and information programs.

As a result, the Gilutongan MPA had not been actively enforced since 1995 and could be described as a “marine parking area” due the

number of visiting boats anchored within the MPA. An estimated 3,000 scuba divers, skin divers and swimmers visited the 10 hectare site by boat each month, often involving some 10 – 20 boats anchoring within the area at a time. In addition to extensive anchor damage to reef corals, both subsistence and recreational fishing activities were reportedly rampant within the “sanctuary”, including spear fishing with scuba as well as occasional blast and cyanide fishing.

A participatory, baseline assessment of reef conditions conducted by the CRMP in 1998 within and adjacent to the MPA reported few target fish or invertebrates. While live hard coral cover was reported at an average of 48.5 % inside the sanctuary, many of these corals were in a broken condition and an additional 24% of the bottom cover was reported as dead coral, including corals affected by recent bleaching events. Standardized, line intercept “Reef Check” methods were applied, comparing five 50 m long transects placed at 6 – 7 m depths in and adjacent to the Sanctuary. Target fish and invertebrates were measured within 10 m and 5 m wide belts along the 50 m transects, respectively (Uychiaoco *et al* 2000).

### **Consultative Planning Process**

Under current Philippine laws and decentralized system of governance, the local government unit (LGU), in this case the municipality of Cordova, has direct administrative jurisdiction and management responsibilities for coastal resources within an area extending up to 15 kilometers from their municipal shoreline (White *et al*, 2000). Various national government agencies also share mandates and responsibilities within the coastal areas officially designated as “municipal” waters. Concerned non-government organizations (NGOs) and the private sector are also widely recognized for their often active MPA roles.

Thus, “community-based” approaches to improving MPA management can take an increasingly wider planning framework within an “urban” setting such as Gilutongan. This may be particularly true in cases such as Gilutongan Island where lack of land tenure and rapid population growth may be issues that complicate typical, community-based approaches. As a result, a modified “co-management” approach was recommended and applied that recognized the increased role and importance of stakeholders who are not physically based or resident on the island. These specifically included Mactan Island-based dive and boat

operators and beach resorts, national government agencies and concerned NGOs.

To assist in securing LGU commitment, a presentation of the PCRA and baseline reef assessment results was provided by the CRMP to the local community and municipal government, supported by a cross visit to a representative, community-based MPA that was being actively enforced. Lead by the municipal mayor, a multi-sectoral Technical Working Group (TWG) was then organized and supported under the CRMP, consisting of representatives of the community, LGU, key national government agencies, concerned NGOs and the private sector, particularly nearby resorts and dive operators.

A progressive series of consultative workshops were held over a period of nine months, leading from a definition of the group's vision, mission and goals for the MPA, identifying major issues, drafting specific ordinance sections and conducting a public hearing on the island of proposed management measures and MPA organization. To assist in identifying major issues and management options, a user's survey was designed and conducted for all major dive operators on Mactan Island, as summarized in **Table 2**. Concurrently, selected community and LGU members were supported by CRMP for training activities on integrated coastal management (ICM), alternative livelihood initiatives (seaweed farming), reef monitoring, scuba diving, and mooring buoy design and installation. In general, the cost of these TWG meetings and activities was jointly provided by the participants, with significant support provided by local resorts and dive operators.

**Table 2:** Summary Results of User Surveys, 16 Major Mactan Island-based Dive Operators

- Dive / boat operators visit the MPA an average of 13 times per month, but the environmental quality / attraction has declined over the years
- MPA management needs to be improved. Main problems include uncontrolled vendor activities; uncontrolled boat and jetski traffic within the MPA area; crowded, uncontrolled conditions for visitors, and broken corals from boat anchor damage
- The number of MPA visitors should be limited to improve management
- Payment of "user's fees" was supported to improved sanctuary management

Recent reports (Crawford *et al*, 2000) continue to document the complexity of MPAs as currently applied within the Philippine context. Over the course of supporting the Gilutongan MPA initiatives, the following issues and approaches were also identified:

- MPA and zone terminologies – there was a need to simplify, clearly translate and provide examples of commonly used MPA terminologies, such as "core" and "buffer" zones. Emphasis was placed on the purpose and objective of the MPA and it's zones, rather than the specific terms to be applied.
- Diverse topics, such as the amount of user fees – it proved beneficial to address diverse topics in separate meetings and as supplemental ordinances.
- Regulated uses and management issues – a "pro's and con's" approach evolved to help resolve difficult issues, such as accreditation of dive / boat operators, limited or restricted MPA entry and use, and management structures.
- Detailed structures and plans – while addressing immediate issues, allow more detailed plans / management measures to develop as experience is gained in managing the MPA.

### Summary of Enacted Management Measures

Two new municipal ordinances aimed at strengthening management of the Gilutongan MPA were enacted in 1998 and 1999 as a direct result of this consultative process. These municipal ordinances served to:

- Legally establish the MPA, define all terms and objectives, and provide a physical description of the MPA, increasing it's area from 10 to nearly 15 hectares, and establishing a 20 meter wide buffer zone around the sanctuary, including adjacent land areas
- Provide a list of MPA prohibitions, namely no use of boat anchors, no spearfishing or any other kind of fishing activity, no collection or destruction of marine life and no boating, "Wave runner" or "Jet ski" use. Human activities, such as scuba diving,

snorkeling and swimming, are allowed subject to regulations to be established by a management body under the Mayor's Office.

- Establish registration and accreditation requirements for dive, boat and tour operators, user fees, collection system and sharing arrangement for all net revenues generated from collected fees and penalties as follows: 70% to the municipality and 30% to the local community ("barangay"). Under this arrangement, the municipality assumes most administrative costs of operating and managing the MPA.
- Establish penalties for violation of any prohibitions

The enacted management measures for the Gilutongan MPA include several relative innovations within the Philippine context to better address its urban character and concerns. These include consideration of a shoreline setback / buffer zone for any development, establishment of user fee supported by willingness to pay (Arin, T., 1997) and user surveys, and defined revenue sharing arrangements. In the process of establishing user fee amounts, an important consideration was to help standardize fees with those currently established for similar use in MPAs in the general area, which are serviced by many of the same dive / boat operators. As a new concept in this area, minimal user fees were proposed to help establish their broader acceptance, taking into account the weak dive tourism market in recent years. It was also recognized that such fees can and should be increased with time to better reflect both diver's willingness to pay for a well maintained and managed MPA and the expected need to continue to limited the total number of visitors through progressive increases in fees.

### Summary of Results to Date

Since the two new municipal ordinances for managing of the Gilutongan MPA were enacted in 1999, a number of results have been recorded to date, signifying that the potential for the rapid improvement and expanded benefits of an MPA with appropriate planning approaches and management measures, dedicated local

leadership, active support of key stakeholders and effective enforcement. Recorded results include

- Full-time enforcement with regulated use of the designated area by a reduced number of visitors that may be closer to the MPA's carrying capacity (an average of 300 visitors per month, as compared to some 3,000 visitors per month before user fees were implemented; **Figure 3**).
- Co-management of the Gilutongan MPA now involves the following key stakeholders:
  - Municipal government: overall operations and management
  - Barangay government: on-site supervision of day-to-day operations
  - Community members: on-site enforcement, organized vendors cooperative
  - National government agencies: supporting role, initial funding and enforcement
  - Other key stakeholders: technical, financial and material support
- Average direct revenue generation of P20,000 (approximately US\$500) per month from accreditation and user fees (**Figure 3**).
- Supplemental income has reportedly increased to over 200 members of the island's vendor cooperative, representing members from nearly every household on the island. These vendors are allowed to "work" at the MPA on a rotational basis and play an important role in assisting enforcement of MPA regulations during daytime.
- Highly visible improvement in overall environmental quality between 1999 to 2000 as measured by live coral cover (25% increase) and in abundance of target fish (+70% increase; **Figure 4**).
- An increasing number of international and national visitors are now visiting the MPA on educational "cross-visit" tours. These include a recent Philippine – Indonesian MPA focus group (Balgos *et al*, in prep), the results of which are summarized as **Table 3**.

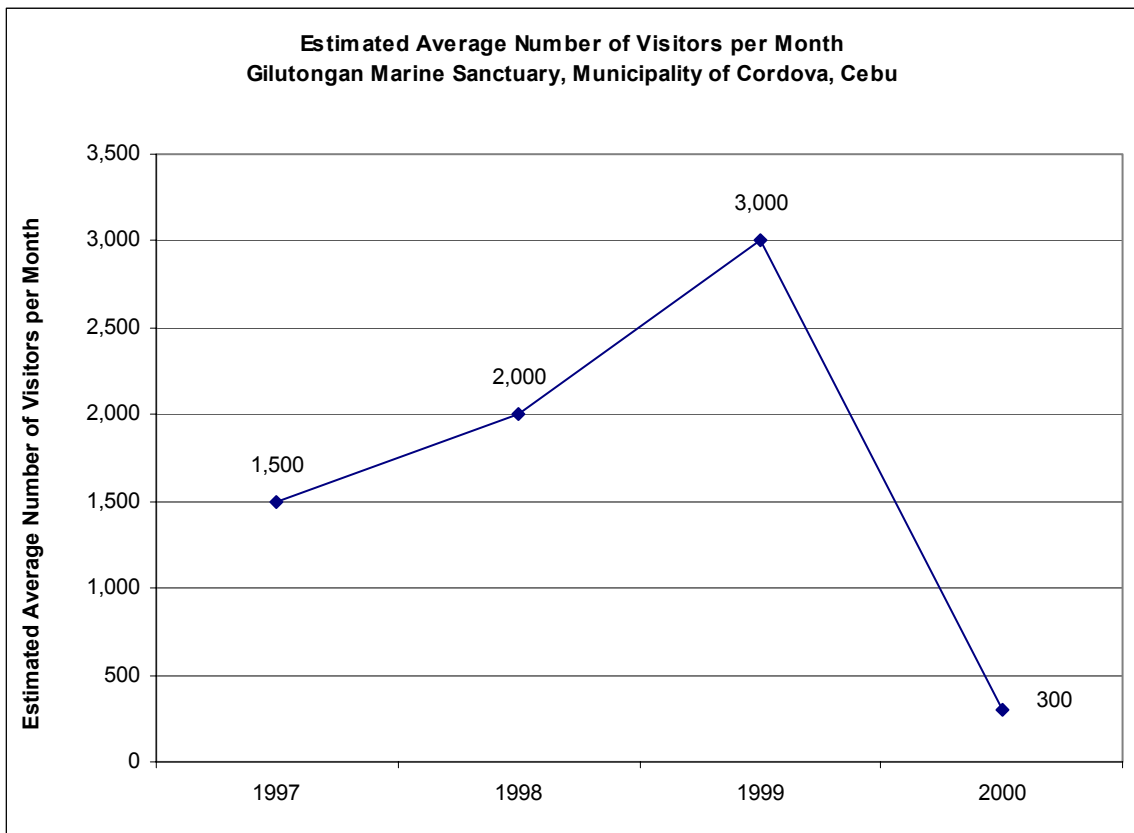
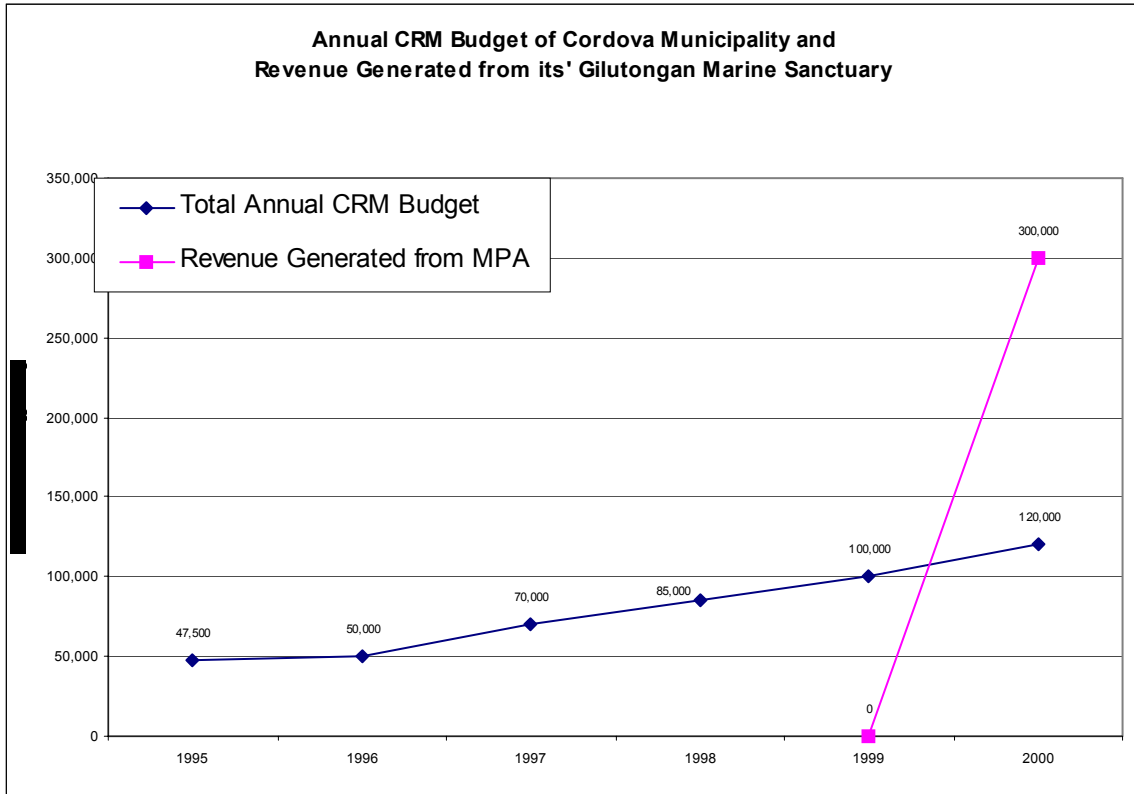
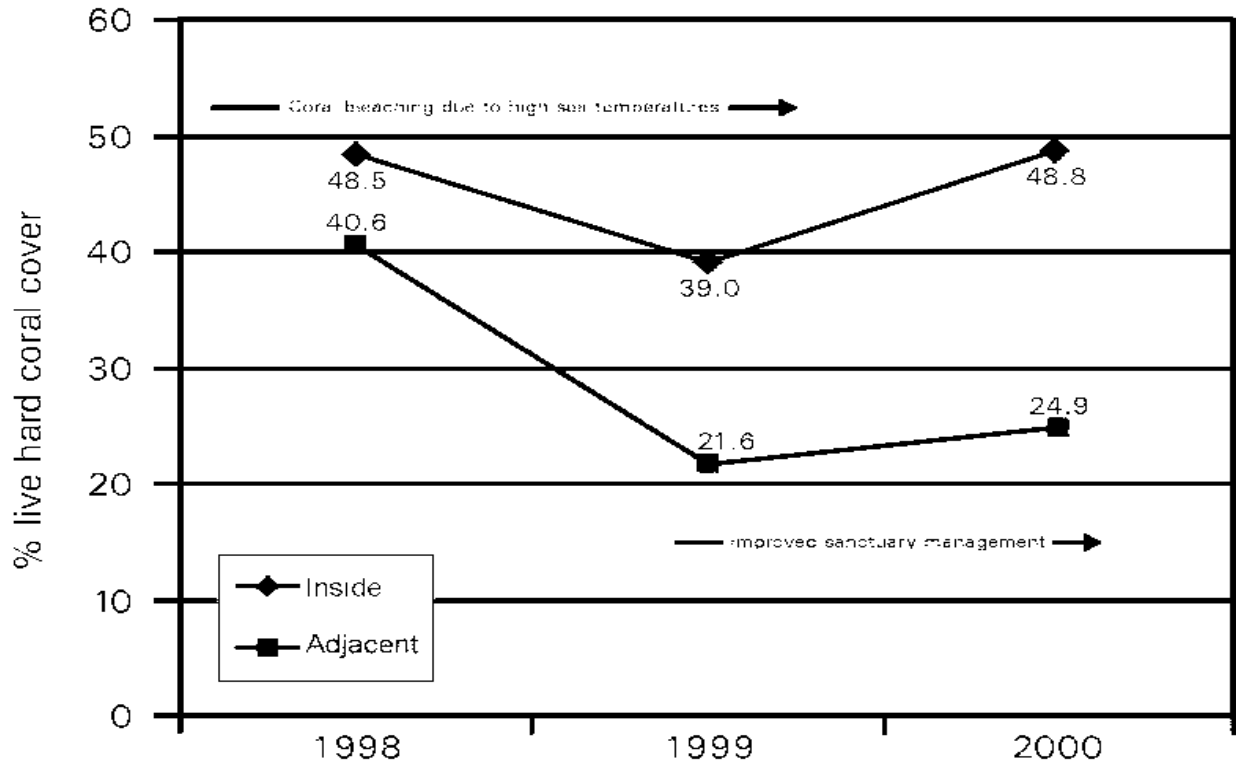


Fig. 3. Better managed use – Direct revenue generated and average number of visitors per month, Gilutongan Marine Sanctuary, Cordova, Cebu (Source of data: Municipality of Cordova; T. Menguito)

Live hard coral cover inside and adjacent to the sanctuary



Fish abundance (target species) inside and adjacent to sanctuary

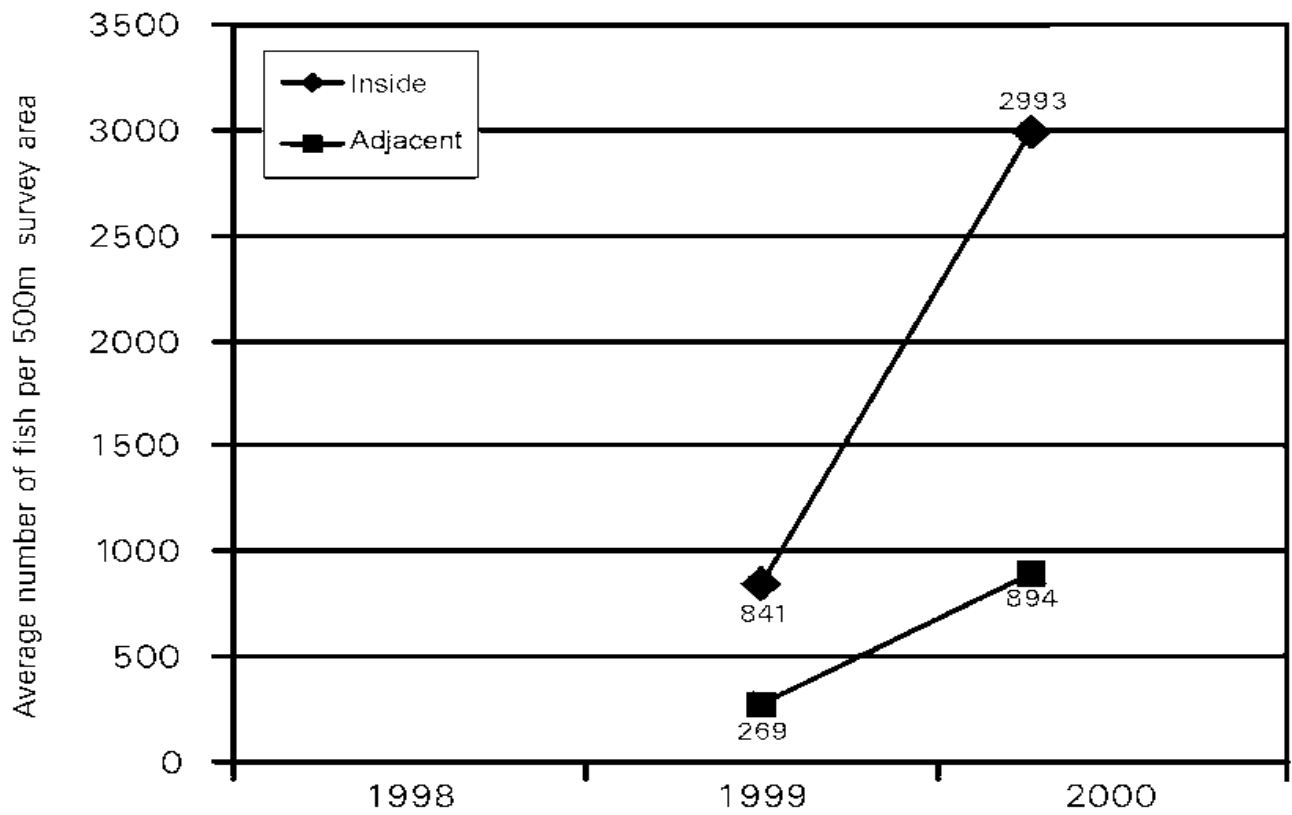


Fig. 4. Biophysical Results, 1998 – 2000, Gilutongan Marine Sanctuary, Cordova, Cebu (Source: Uychiaoco et al, 2000)

**Table 3:** Summary Observations, Philippine–Indonesian Workshop on Community-based MPAs (Balgos et al, in prep)

**Weaknesses:** limited community participation, equity concerns, revenue sharing arrangement not yet in place, limited community education, no formal information available to most MPA users

**Strengths:** community compliance, fishing and destructive visitor practices (use of boat anchors) stopped, monitoring on-going, user fees being collected, vendors cooperative strengthened and directly involved, popular demonstration site for cross-visits, the municipality now views the MPA, as one of it's key assets

**Needs:** further develop sense of community ownership through a facilitated process (community organizing, information programs), mobilize community council, train more people to manage and guard the MPA, develop information program / materials for community and users

### Lesson's Learned and Recommended Next Steps

The experience gained in improving the management of an “urban” MPA as described for Gilutongan Island has included the following:

- Participatory approaches to problem identification (PCRA), reef assessment and ICM planning served to strengthen community and stakeholder involvement and commitment. Formal training of key community members in scuba diving proved very helpful.
- An integrated, multi-sectoral approach can serve to identify and address complex issues.
- There maybe “pros and cons” to many issues and proposed MPA management measure in the multi-stakeholder / co-management MPA process.
- Success takes time and committed efforts but important results may be visible in 1 – 2 years.
- Significant resources are available to the LGU by organizing and tapping concerned stakeholders, particularly the private sector and civic organizations who share a vested interest.
- Introduction of accreditation and user's fees should be supported by adequate information programs to enhance general acceptance.
- Strengthen local participation and involvement through community organizing, information programs and planning / managing the use of MPA

generated revenues to emphasis the direct linkage between improved MPA management and economic benefits.

The learning process of improving management of the Gilutongan MPA is on-going and could involve the following recommended next steps:

- Strengthen local participation and involvement through the Barangay Fisheries and Aquatic Resources Management Council (BFARMC)
- Support island-wide ICM planning
- Continue to introduce viable livelihood initiatives to enhance community MPA benefits, such as environment-friendly vendor activities and products.
- Initiate expansion of MPA management measures to include adjacent reef areas
- Increase information programs and materials for stakeholders and visitors
- Recognize and address the critical need to manage population growth and migration to the island

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