Ecotourism: The Boon or Bane for a Marine Sanctuary?

Timoteo Menguito was known as a fish whisperer—a man who spoke with fish—with a great passion for protecting the seas. He was so impassioned about protecting his finned friends that he was cited as an "Everyday Hero" in *Reader's Digest* in 2001.[1] Witnessing and experiencing the negative impacts of destructive fishing habits tormented Menguito because he knew the sea to be generous and full of life. Unlike others, he chose to act on his torment. Menguito, the acknowledged guardian of the Gilutongan Marine Sanctuary (GMS), was a fisherman and an original settler on Gilutongan Island. He was an early proponent of action to protect Gilutongan Island's fishing grounds and was instrumental in the establishment of GMS. Menguito's popularity as a leader was invariably connected with GMS, which by itself told the story of a community attempting to regain the abundances offered by the sea. Despite protective efforts, Menguito continued to see poverty plaguing the island; it was even devoid of fresh water sources for its inhabitants as of 2014. According to Gilutongan Island village elders, in the early fifties the water around Gilutongan Island was teeming with fish.[2] Sadly, coastal resources declined due to overfishing and the use of destructive fishing methods such as dynamite fishing.[i]

[i] Dynamite fishing or blast fishing was the practice of using explosives to stun or kill schools of fish for easy collection. This often illegal practice was known to be extremely destructive to the surrounding ecosystem because the explosion(s) destroyed underlying habitats, like that of coral reefs, which help support biodiversity.

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When citizens realized that poverty might forever haunt the island due to civilian disregard of the environment, many began to mend environmentally unfriendly habits. In a quest to better the environment, citizens of Gilutongan Island partnered with the Cebu Resource Management Office (CRMO), which provided observation tours in areas that were in the process of protecting and conserving natural resources. Subsequently, about 10 hectares (ha) of water off the western part of Gilutongan Island was established as a marine sanctuary, known now as GMS. GMS provided protection to the environment and its establishment as an ecotourism destination brought the community much needed funds. But Menguito saw that ecotourism came at a cost and brought its own challenges. He wondered how to balance the needs of the land and the needs of the people in a way that was mutually sustainable and beneficial.

Marine Protected Areas in the Philippines

The coastal ecosystems of the Philippines were some of the most productive and biologically diverse ecosystems found in the world. This diversity was associated with high productivity and fishery yields. Coral reefs and the associated seagrass beds were among the most productive coastal ecosystems. The first so-called municipal marine protected area (MPA) was established in the Philippines in 1974, at Sumilon Island located in Oslob municipality, Cebu Province. Since then, the establishment of MPAs has been widely promoted to improve the management of coastal resources within the Philippines. In general, most MPAs were located in relatively remote areas, with numerous reports and studies used to document the knowledge gained from planning and managing the MPAs.

The Philippines

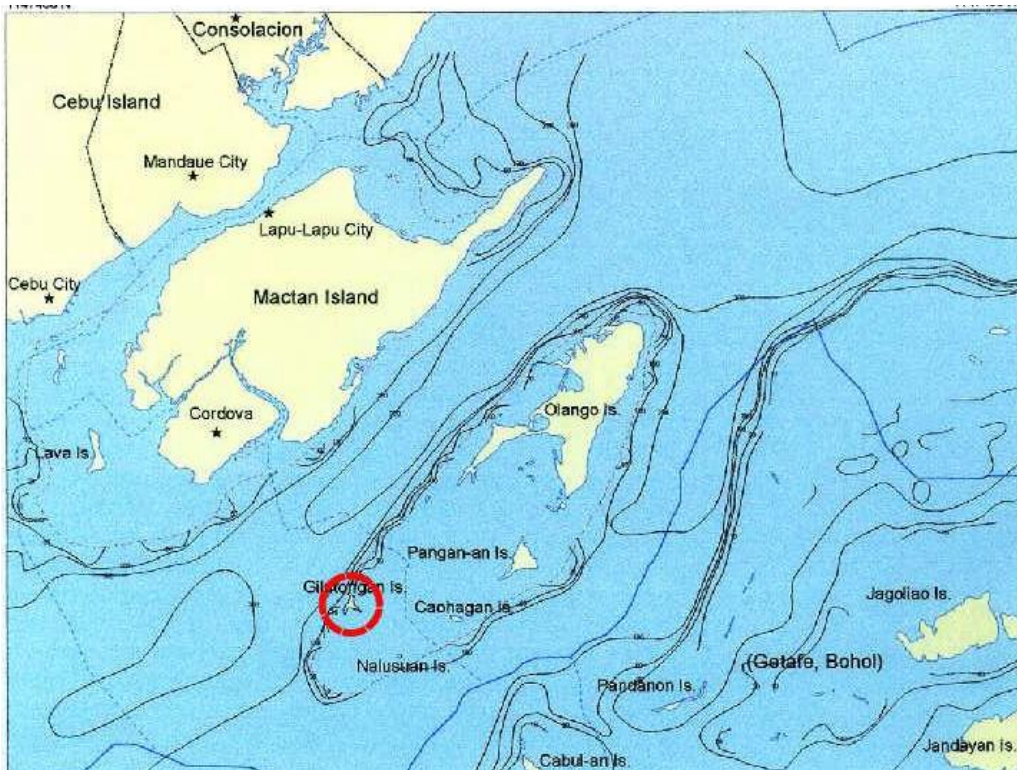
The Philippines is an archipelago in the Pacific Ocean with 7,107 islands with an estimated land mass of 30 million ha and 27,000 km^2 of coral reef and seagrass beds, equaling slightly more than 10% of the total Philippines surface area. These coral reefs and seagrass beds are significantly important to citizens in terms of fisheries for food security, coastal protection, tourism, education, research, and aesthetic value.

Unfortunately, only about 5% of coral reefs and seagrass beds were still in excellent condition. Recent valuation studies indicated that reefs in the Philippines contributed a conservative USD $1.35 billion to the national Philippine economy and that 1km^2 of healthy Philippine reef with some tourism potential produced annual net revenues ranging from USD $29,400 to USD $113,000.

Ecotourism

The high economic potential of ecotourism in the Philippines provided benefits for the Gilutongan Local Government Unit (LGU). Ecotourism worked to be mutually beneficial to tourists, who enjoyed leisure activities such as diving and viewing marine life, and LGU because of the contributed income to Gilutongan Island. However, did this economic stimulus translate to better living conditions for the habitable areas of Gilutongan Island? In the face of continual environmental degradation around Gilutongan Island due to increased tourism, many wondered if ecotourism was a viable income generating option for the long term sustainability of the Island.

Exhibit 1
Gilutongan Island



Source: Municipality of Cordova, Cebu (MCC). Gilutongan Marine Sanctuary Management Plan (2011-2016). Cebu: MCC, 2011. Print.

Gilutongan Marine Sanctuary

Gilutongan Island and the adjacent GMS (see **Exhibit 1**) are located about 5 km offshore of the island municipality of Cordova, near the major urban and tourist resort center of Metropolitan Cebu and Mactan Island[3] (see **Exhibit 2**). This increasingly urban area had an estimated population of 2 million plus.[4] Coastal tourism and recreational diving were an important part of the area's economy and a major source of local livelihood, with roughly 250,000 tourist arrivals annually.[5]

The 15 ha of GMS, expanded in the 1990s, was declared as a fish sanctuary by the Cordova Resource Management Board in 1991, becoming a popular site for recreational scuba diving.[6] Due to the lack of a legal status protecting the sanctuary, GMS unfortunately was also popular for fishing, spearfishing, and various forms of destructive fishing practices. In the absence of management measures, the area was often described as a "marine parking area," with boat anchor damage a major source of reef damage.[7] Baseline reef check surveys conducted in 1998 indicated that almost identical coral reef and fish conditions existed within and outside sanctuary boundaries.

Nearly all visitors to GMS originated from the Lapu-Lapu City areas of Mactan Island, where tourists hired boats and bought related diving services. As a result, the community of Gilutongan, as well as the Municipality of Cordova, gained no economic benefits from the fish sanctuary, with the small exception of limited income from unorganized vendor activities. The Sanctuary, located on the eastern side of Gilutongan Island, required that no marine life be removed from the reserve.[8] Its underwater visibility was considered good with plenty of fish diversity, which appealed to tourists.[9]

Exhibit 2
Cordova Island Adjacent to Cebu City

Source: "The History of Cordova." Blogger. n.p., 24 Aug. 2010. Web 5 Nov. 2014. <http://thehistoryofcordova-agapito.blogspot.com/2010/08/short-history-of-cordova.html>.

Management History of GMS[10]

GMS was the inaugural location for the Cebu Resource Management Project. Initially, the waters protection was well enforced by Menguito from 1992 to 1995, when he decided to leave his voluntary protection efforts. Thus, until 1998, GMS was unprotected which eventually led to a water cleanup and the establishment of the village Fisheries and Aquatic Resources Management Council (FARMC). Through the help of USAID and the Department of Environment and Natural Resources (DENR), a protective ordinance governing GMS was adopted by the Municipality of Cordova on March 24, 1999.

Several ordinance amendments later, GMS was increased to 15 ha of protected water and certain activities were outlined as acceptable, monitored, or prohibited, with given repercussions for violators. GMS was close to Metro Cebu, subjecting the waters to shipping and coastal construction stresses, both of which had to be managed appropriately in order for GMS to operate smoothly and maintain clean and clear waters.

Fishing and removing marine life of any type was strictly prohibited at GMS. Boating, wave runners, and jet skis were banned activities in sanctuary waters, while diving, snorkeling, and swimming were semi-regulated, but allowed. Menguito began working as a sanctuary keeper in 2000. A guardhouse with an expansive view of the entire sanctuary was strategically located in the middle of the shore side for the keepers use to aid in protecting the grounds. There were plans to renovate and update the guardhouse so that it could service its purpose better as of 2014.

The GMS management plan instituted by the GMS Protected Area Management Board included processes to collect fees and fines, create zoning for its waters, and develop regulations for visitors to abide by. The sanctuary earned about Php 25,000 (USD $550.00) monthly from diving and snorkeling fees and fines. As of 2014, community members were helping Menguito guard the precious waters. Monitoring the waters entailed the task of diving into the sanctuary for periodic data collection to determine reef fish populations. Guarding the reef was mostly done by male volunteers patrolling the sanctuary on boats, even at night, to protect it from poachers. Boat vendors selling souvenirs and snacks to GMS tourists also participated in guarding activities.

Biodiversity at GMS[11]

Fish abundances increased from 1992 to 1995 when the sanctuary was first established, but then decreased significantly when sanctuary protection was not strictly enforced. Target fish populations grew within the reserve with grounds enforcement. Batfish were a distinctive fish population found in GMS waters. Coverage of hard and dead coral both inside and next to the sanctuary fluctuated frequently from 1999 to 2001. Of the many small islands in the central Philippines, the coral reef at Gilutongan Island was one of the more famous and frequently visited dive sites.

Living Conditions in Gilutungan Island

Fifteen years into the ecotourism business, Gilutongan's population had not made significant leaps in terms of its human development index and gross domestic product (GDP). It seemed as though time had stood still for Gilutongan Island; residents found themselves in the same poor economic conditions that they lived with in 1999. Just as before, no fresh water supply was available to the island and potable water solutions were still needed and bought from the mainland. Potable water sold for up to Php 15 per gallon on Gilutongan Island. The bulk of the community water supply was obtained from rainwater harvesting. Each home owned oversized ceramic pots lined below roof gutters to collect rainwater (see **Exhibit 3**).

Exhibit 3
Rainwater Harvesting Jars

Source: This photograph was taken by the author in 2012.

Socio-Demographic Profile of Residents

Gilutongan Island was considered one of the poorest villages in the Philippines.[12] Gilutongan Island was inhabited by about 1,300 residents in 251 households. About 80% of residents did not own land and were known as squatters (informal settlers). The population density was about 200 residents per ha within settlement areas. The majority of the population had an educational level close to that of an elementary student. About 23% of the population was migrants and around 60% of the population was below 24 years old. Main occupations included small-scale fishing, seaweed farming, vending, operating convenience stores, and gleaning and gathering marine products (e.g., seashells, sea cucumber, collector urchins). Basic infrastructure, such as water and waste disposal, was lacking despite Gilutongan's close proximity to Cebu City, the second largest urban area in the Philippines.

Even with the economic boosts from ecotourism, citizens largely remained in the clutches of poverty. There were no existing programs for food production, food security, or infrastructural development plans to urbanize the area. Viable livelihood options for women were limited to the unregulated handicraft vending of shell products and drying fish and sea cucumbers (see **Exhibit 4**). The Island had only an elementary school, requiring all secondary education to be outsourced to the mainland. In addition, no stable health services were easily available.

Exhibit 4
Sea Cucumber Processing

Source: This photograph was taken by the author in 2012.

Menguito's Community Presence

The charismatic 50 year-old Menguito was highly respected and a ubiquitous presence in the community. Like many island dwellers he only had an elementary level education; but he was obsessed with constant educational development. Most of all, he had a passion for nature and went out of his way to promote a peaceful coexistence between man and the environment.

Protecting Gilutongan

Menguito's prime objective and advocacy was to protect Gilutongan from ecosystem collapse—as was the case almost three decades prior to GMS board definition. For years, Menguito volunteered to patrol GMS. Monitoring activities were conducted deep into the night, when most prowlers preferred to strike. At times, Menguito only needed to admonish the violators, but occasionally he had to battle wealthy and well connected violators, armed with only his wits. He risked his life to protect the sanctuary he loved so much.

Emerging Environmental Champion

As a project director for GMS, Menguito was responsible for motivating fellow fishermen to get involved in the sanctuary's protection. His bigger responsibility remained to motivate Gilutongan's population to protect the 11 ha Barangay[ii] Gilutongan. Most citizens derived income from the sea and Menguito wanted to help them take the leap from indifference to involvement with protecting GMS so that the knowledge gained from these efforts could extend into teaching families how to responsibly earn income from the surrounding waters.

ii A Filipino term for village.

Public Leadership Skills

Motivating people was not a challenge to Menguito, an environmental advocate and champion. Visitors seemed impressed by his confidence with public speaking. He could hold the attention of his audience with a simple presentation, whether he was presenting the results of a fish census or explaining to visitors the latest technique in seaweed farming. Such flair for public speaking came from hard work. Menguito used every opportunity presented to him to gain new knowledge and skills because he understood that his limited educational background was a constraint to his professional development and capacity to provide for his family. He listened to people and observed how they moved and spoke. He took advantage of training courses, opportunities at seminars, and cross visits to various locations, as provided by CRMO. Every opportunity to further his education meant another opportunity to reach out to the community to protect GMS.[13]

Tourism

Tourism at GMS focused on recreational activities such as SCUBA diving, snorkeling, and fish-feeding.[14] Revenues acquired through tourism summed up to more than Php 1 million per year. Of its revenues, 70% were collected by the municipality and 30% went to the barangay.[15] Tourist recreational diving on coral reefs had increased greatly, partly due to a larger number of licensed divers, an increased interest in coral reefs, and the relatively easy access to reef areas. To local communities, ecotourism was perceived as an opportunity to generate revenue and help protect reefs by providing an incentive to conserve them.[16] Marine tourism was considered one of the means to alleviate poverty on the Island. Although tourism was thought of as a low-impact alternative for marine resources utilization,[17] recent evidence confirmed that reefs became degraded as a result of poorly planned tourism or intensive tourist use.[18]

The continued growth of recreational SCUBA diving conflicted with the ecological values that MPAs were based on and, as a result, diver capacity rapidly approached the limit of ecological sustainability.[19] GMS was a popular international tourist destination for recreational SCUBA diving and snorkeling. With rising SCUBA diving frequency, there was concern about its potential impacts on the coral reefs inside the sanctuary. Between 2000 and 2003, there was a marked increase in the number of visitors to GMS. Although there was an increase in visitors, SCUBA divers were consistently 55% of total tourists. In 2003 alone, the number of SCUBA divers reached 25,929 (or 55 %) out of some 47,143 visitors.

Non-diving visitors included snorkelers, island hoppers, children and infants, and swimmers, which accounted for the remainder of GMS' attendance. A 20 meter wide buffer zone around GMS was demarcated using ropes and mooring buoys. Diving was only allowed within the buffer zone. As a small island sanctuary, there was only one dive site located outside the perimeter of the mooring buoys.

It was noted that resort dives constituted an important and growing component of the recreational diving industry in Gilutongan Island. These were non-certification courses (e.g., the Discover SCUBA Program)[20] designed to provide tourists with a carefully supervised introduction to diving. As expected, novice and inexperienced divers were likely to have an impact on sessile organisms by kicking them in an unintentional and uncontrollable manner with diving fins.[21] In reefs all over the world, divers kicked, grabbed, and broke corals, along with accidentally hitting marine life with high technology consoles that hung below divers as they swam. Poor diver etiquette, lacking buoyancy control, improperly secured gear, photography flashes, and blasts from fin kicks were the main causes of damage to corals.[22] Hence, it was important that tourists be supervised and assisted by experienced divers. Alternatively, for training purposes, novice divers and instructors used the patches of sandy bottoms outside the no swim zones at GMS to practice diving techniques to reduce the negative impacts on the reefs inside sanctuary boundaries.

The Economics of the Sanctuary[23]

GMS recently completed an ordinance under the Municipality of Cordova to charge an admittance fee of USD $1.25 for foreigner visitors and USD $0.60 for Filipino natives to enter the sanctuary. This revenue accrued to the municipality and the Island community in a sharing arrangement of 70:30, respectively. GMS received approximately 100 divers per day. This concerned Menguito, who desired that all divers be properly educated on how to treat the sanctuary. Luckily, Menguito was able to source funds for a visitor's center where divers received an orientation on the proper conduct of guests. The visitor center covered topics such as not feeding the fish and swimming only outside the core zone of the sanctuary so that fish populations were minimally disturbed.

Most tourism revenues accrued to operators based in Lapu-Lapu City, Mactan Island where resorts with about 1,500 rooms and several boat owners were located.[24] The only exception was one resort on Nalusuan Island, part of the Olango Island complex, that had 14 rooms. The average expenditure of scuba divers staying on Mactan Island that visited Olango Island for the day was estimated to average about USD $30 per diving day for gear and boat rental, plus USD $50 for room and food.[25] These amounts accrued to business owners on Mactan Island, not the impoverished on Gilutongan Island.[26]

The increase of visitors to GMS, which generated about Php 2.3 million in revenues in 2003 for the local government,[27] might have been due to a multitude of socio-economic factors. These factors included the proximity to an international airport, the presence of hotels and beach resorts on the nearby Mactan Island, promotions by local tour operators, and the continuing publicity of GMS by environmental journalists in the local and foreign media. The revenue generated supported the monthly salary of an environmentally committed caretaker in charge of maintenance and security of the Sanctuary. As of 2014, the main input to the island's economy from visitors depended on if they bought food or shell crafts from islanders. In addition, many of the boat operators and assistants came from Olango Island to support their families.

Stakeholders' Engagement and Community Environment

The process of establishing the MPA involved extensive local community and stakeholder participation, user surveys, planning and support, and specifically included local dive operators and resorts. A multi-sector called the Technical Working Group (TWG), formed by key stakeholders, helped define and address many of the complex management issues surrounding GMS and recommended measures to address these issues. Based on the results and recommendations of TWG, the management of the Gilutongan MPA was provided by local community members, led by a MPA Project Manager. Much needed MPA support was provided by the Barangay Council of Gilutongan, the Municipality of Cordova, DENR, Bureau of Fisheries and Aquatic Resources (BFAR), local universities (particularly the University of San Carlos), local dive operators, and Philippine Coast Guard Auxiliary (PCGA) members. The relationships among stakeholders ranged from harmonious, supportive, and complementary to conflicting.

Admission Fee Enforcement

The MPA manager believed that user or entry fees collected at Gilutongan Island were minimal and that admissions should be increased. A 1997 study on the willingness to pay for entry among tourists staying on Mactan Island recorded that there was a larger willingness to pay for admittance if the marine sanctuaries were well protected. Tourists would pay on average USD $5.34 to enter to scuba dive at GMS.[28] Coastal ecosystems in the Philippines were under severe stress from the combined impacts of human overexploitation, habitat destruction, pollution, sedimentation, and an overall general neglect.[29] In the Philippines, more than 75% of coral reefs were found to be degraded by human activities per surveys conducted in the 1980s and 1990s.[30] As coral reefs were destroyed, fisheries, tourism, coastal protection, and biodiversity values were lost.[31] These losses had the greatest impact on local fishing communities and local tourism establishments in the Philippines. Such losses reflected a general decrease in the recruitment of fish populations because of damaged reef areas that may have attracted fish if still intact.

In summary, the levels of recreational diving in Gilutongan far exceed the 5,000-6,000 dives per year. It was expected that as diving intensity increased, coral damage at GMS would also increase. A framework for the coastal resource management (CRM) process in Olango included an Island wide management committee, zoning for resource use, law enforcement, environmental education, community level assessments and planning, and provision for sustainable tourism development. This CRM process for Olango was long term and involved a number of parallel activities that engaged local residents, government, and other stakeholders throughout implementation. Although these ongoing activities did not require large investments, it did require the continued support and proper technical guidance, along with mentoring through local and national government institutions. Investments for infrastructure was now required for OIWS to maintain the visitor center, as well as planned tourist reception areas and the necessary boats and equipment for local law enforcement.

Issues and Challenges in Sustaining Tourism and Conserving the Sanctuary

Overfishing and Degradation of Reefs

GMS was endowed with rich fringing reefs. The fish biomass and density was considered high at 38,000 per ha. The seagrass beds, which also acted as the habitat of other marine life such as small cowries, were extensive.[32,33] GMS has a long history of overfishing and dynamic fishing that resulted in coral reef damage and declines in fish diversity and abundance. It took at least 3 to 5 years and up to several decades before coral reef ecosystems recovered, coupled with biodiversity improvements after poor fishing practices were enacted.[34] About 5 to 10 years after GMS was established as a marine reserve, the coral reef exhibited some recovery from poor fishing practices. For instance, a 2006 survey[35] revealed that the condition of live hard coral was considered good inside and fair outside the GMS boundary. The density of fish species inside and outside the Sanctuary, including target species (e.g., groupers, snappers, and jacks), increased with strict enforcement.

Table 1
Number of Visitors at GMS, 2009-2012*

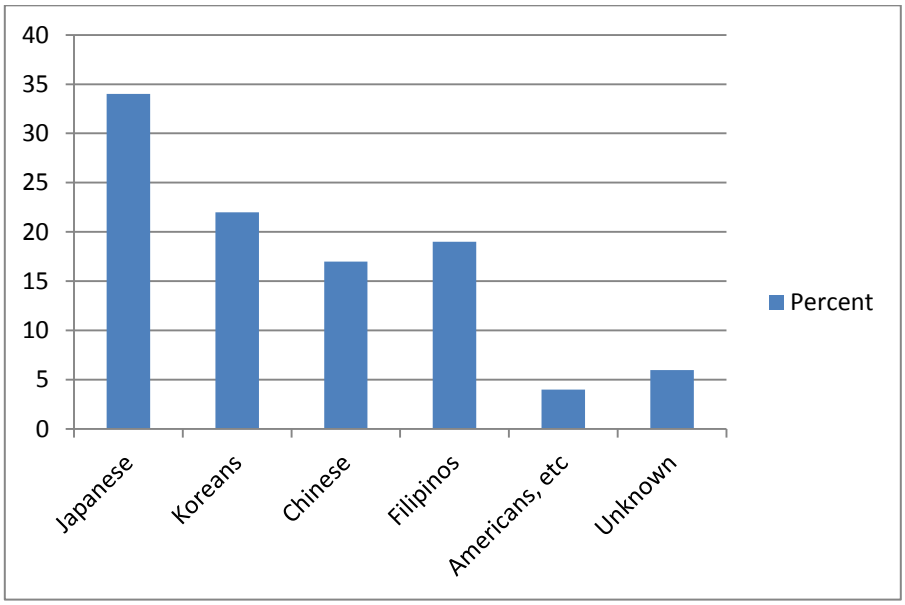
	Yearly Average	Monthly Average**
Total visitors	52,000-57,000	4,000-4,600
Number of snorkelers	42,000- 47,000	3,500-4,000
Number of divers	700-1200	58-100
Number of divers with video camera	600-670	50-56

*Computed from official reports with complete data in 2009-2010, and partial data from 2011 and 2012.
** Average monthly visitation was not consistent throughout the year.
Source: Municipality of Cordova, Cebu (MCC). Gilutongan Marine Sanctuary Management Plan (2011-2016). Cebu: MCC, 2011. Print.

Tourism Trend

Table 1 shows the average number of visitors at GMS from 2009-2012. The average volume of tourists was 52,000- 57,000 per year or an overall monthly average of 4,572. During peak months visitor density was potentially very high, such as in March 2009 when 6,123 visitors came to GMS. During low peak season (e.g., September- December), the average number of guests was 3,430 visitors. In the high peak season, about 10-20 boats with an average holding capacity of 7-10 persons per boat were anchored on the dive site at GMS at a time. The demand for diving and snorkeling continued to increase as of 2014. The tourism market at GMS was dominated by international visitors, which accounted for 81% of tourist traffic. The favorable foreign exchange rate, accessibility, and premium natural attractions drew many Southeast Asian tourists to the Philippines. Japanese followed by Korean tourists accounted for the greatest segment of foreign visitors (see **Exhibit 5**).[36]

Exhibit 5
Distribution of Foreign Market at GMS, 2009-2012



Source: Municipality of Cordova, Cebu (MCC). Gilutongan Marine Sanctuary Management Plan (2011-2016). Cebu: MCC, 2011. Print.

Tourism Income

Tourism income primarily came from diving and snorkeling fees, which were usually paid when tourists made reservations with accredited or registered tour operators and dive shops. All monetary collections from the recreational use of GMS were managed by the LGU through an Environmental User Fee (EUF) system established to finance the protection and management of GMS.

Table 2 shows the reported gross income from user fee tickets issued from 2000 to 2012.[37] The yearly average income for GMS was Php 2.4 million (USD $50,000), ranging from Php 300,000 (USD $6,000) to Php 5.9 million (USD $140,000) in gross total. The highest collection rate as of 2014 occurred in 2011. It was estimated that in addition to the tourism income and offsite and indirect benefits, the potential annual economic net revenue of GMS could be as much as USD $200,000 annually.[38]

In the Philippines, many divers were willing to pay more for a diving experience in marine reserves. For example, scuba divers at GMS were willing to pay an entrance fee of USD $5.34 per person and an additional donation of USD $5.31 for buoy maintenance.[39] An increase of user fee rates at GMS in 2008 did not affect the amount of tourists. The same observation was reported in 2010 in Bonaire National Marine Park (Netherlands, Antilles); where nature based tourists who supported environmentally friendly tourism were willing to pay more for a memorable tourist experience.[40]

Table 2
Gross Income from Environmental User Fees, 2000-2012

Year	Gross Income in Php	Gross Income in USD*
2000	316,850	7,582
2001	866,280	20,723
2002	1, 767,900	42,305
2003	1,997,325	47,796
2004	2,107,990	50,444
2005	2,744,305	65,671
2006	3,069,150	73,444
2007	3,834,767	91,765
2008	3,125,000	74,780
2009	3,645,866	87,245
2010	1,560,467	37,342
2011	5,874,869	140, 584
Total	29,142, 869	599,097
Average Yearly Income	2,428,572	$49,925

*This table was calculated using the foreign exchange rate as of 2012, with an average exchange rate of 42.20 Php = USD $1. The foreign exchange rate of Php to USD has continually declined over time, from 26 PhP = USD $1 in 1997 to 45 PhP = USD $1 in 2014.
Source: Data was compiled from the Municipal Planning Office, Cordova LGU.

Tourism Marketing

The Municipality of Cordova was now preparing for what officials described as an "influx of tourists and visitors" following an announcement to launch a massive promotion on the town's tourist destinations. Cordova Vice Mayor said the municipality was working toward a common goal of making Cordova another tourist destination in Cebu and that the completion of the town's tourism center was the first step in a series of programs aimed at promoting tourism. The vice mayor also stated that the town's marine resources were one of its greatest assets in the tourism industry. As of 2014, GMS was operated by a Korean group that actively engaged in an agreement with the municipality of Cordova following a guaranteed receipts scheme, whereby the Korean entity, Sun Resorts, managed the sanctuary and paid a guaranteed income of Php 400,000 a month, or close to Php 5 million annually.

Types of Leisure Activities Promoted and Permitted

Snorkeling was the most popular activity at GMS, making up 80% of its tourist activity. Scuba diving and underwater photography represented, respectively, 19% and 1% of visitors as shown in **Table 1**. Divers and snorkelers were daytime visitors, with an average 2 to 3 hour stay. Regardless of the season, the percent distribution of recreational tourists was consistent from 2009 to 2012.

Tourism Impacts on Coral Reefs

Corals became fragmented or pulverized by reckless diving, boat mooring, and other water based recreational activities (e.g., surfing, sail boarding, jet skiing). On the whole, the major impacts of diving and snorkeling at GMS, as shown in periodic reef assessments, included fin contact on corals, disturbance of sediments, and stony coral breakage.[41] Unregulated scuba diving and snorkeling in many other reefs shattered coral colonies, especially branching corals, leading to the loss of hard coral cover, a high mortality of associated marine organisms, and an increase in predation and algal growth over reef formations.[42] Even the mere presence of snorkelers and scuba divers was found to reduce fish densities in the Andaman Sea.[43] In Palau, divers with cameras and gloves were reported to exhibit much more damaging impacts on corals.[44] Aside from tourism, the main causes of coral reef degradation in the Philippines were sedimentation, pollution, and over-fishing.[45]

Collaboration and Public-Private Partnerships

Productive and harmonious collaboration was an effective governance strategy for MPA in the Philippines.[46] The management of small marine reserves was usually a joint effort of the local communities and the local and national governments.[47] Establishing public-private partnerships was also considered a green strategy for a more effective way of sharing and spreading the costs and risks of tourism development.[48] A private led entrepreneurial scheme set up in Indonesia, for example, was found to be effective in sustaining tourism and the conservation of MPA.[49]

Public-private entrepreneurial partnerships aimed at balancing marine based tourism and conservation in small protected areas seemed suitable in cases where the government was unable to effectively protect and manage these areas.[50] At GMS, a public-private partnership between the Municipality of Codova and a tourism entrepreneur (Hei Yang Sports Management Corporation) was initiated in 2011. In accordance with the usual public bidding process and in consultation with the Gilutungan Marine Sanctuary Management Board (GMSMB), a Memorandum of Agreement (MOA) on joint management was signed (see **Table 3**).

As part of the public-private partnership agreement, the tour operator managed and protected the buffer zone of GMS under a 3 year lease contract, which may be renewed every other 3 years. The tour operator was also responsible for marketing and promoting GMS as a marine based tourist destination to increase tourism. The MOA also stipulated that the local government shall not compete with the private partner on matters pertaining to tourism marketing and promotion. The lease contract amounts to Php 6 million per year (USD $145,000), less the expenses incurred by the tour operator in managing and protecting the sanctuary. The GMS Management Board was the ultimate decision-making entity on issues and concerns. However, an oversight and monitoring mechanism needed to be enforced to ensure that the agreements were sustained and consistent with the objectives of MPA management and sustainable tourism.

Table 3
The MOA Conditions Covering the Period of October 2011- October 2014.

Responsibility	Brief Description
Management of Buffer Zone ('Recreational Zone')	This function was delegated to the private partner. It included the control and regulation of visitor use, collection of fees, hiring of guards, zone protection and enforcement, construction, and maintenance of tourism facilities, tourism marketing and promotion.
Lease/ Rental Payment	Php 400,000 per month was payable to the Local Government Treasury, with the amount payable increasable whenever necessary and appropriate.
Environmental Regulations for Proposed Tourism Projects	Strict compliance with the Philippine EIA regulations, along with a refundable guarantee fund—called the Environmental Guarantee Fund—of no less than 1.25% of the contract amount shall be deposited by the proponent to the Local Government Treasury. The fund will remain as a trust and may be refunded to the proponent at the end of the contract.
Progress Report	Submission of monthly reports (financial and activity) to the LGU.
Penalty	For non-compliance with the provisions of the MOA, including the termination of the contract and, if applicable, no refund of the Environmental Guarantee Fund.

Source: Municipal Planning Office, Municipality of Cordova, as per Memorandum of Agreement between the Cordova Local Government Unit and Hei Yang Corporation. 2012.

Political Governance

As of 2014, the Protected Area Management Board for GMS was operating with Menguito serving as Project Director of GMS. The Board was chaired by the Mayor of Cordova, Mayor Arleigh Sitoy. The popularity of GMS as a premium dive site was considered both boon and bane because while tourism income was substantial, the risk to ecological integrity of its coral reefs had potential to be massive and irreversible. The introduced and well enforced management measures for GMS contributed to significant and rapid improvements to the site's environmental conditions. This was visibly reflected in the improved quality of reef conditions, increasing live coral coverage and fish populations, along with the size and abundance of larger target species of fish. Locally, the site was recognized to offer some of the best and most diverse reef and fish life, as indicated by the increasing popularity of the MPA.

To monitor MPA biophysical conditions, annual reef check surveys were conducted, involving trained community members, to survey reef conditions both within and outside GMS. These reef check surveys were supported by marine scientists from the University of the Philippines, Marine Sciences Institute, and the University of San Carlos. A summary of the reef check results were provided to community members, interested MPA visitors, cross-visit participants, as well as the village and municipal councils. In addition, these results were now directly compared with the results of reef check surveys conducted at nearby reefs to serve as a local standard of successful reef management. This direct comparison between local reef conditions played a valuable role in increasing the competitive spirit between local communities and local government units to improve the management and continuation of monitoring local reef conditions. The most recent reef check was conducted in 2012 and it indicated a stable condition of the coral cover.

Conclusion

The sanctuary, Menguito said, was a nature bank. Nature, however, had its own way in balancing the books. For traditional banks, deposits were necessary in order to withdraw funds later. In a marine sanctuary, deposits weren't needed, but were instead replaced with the need to care for biodiversity and the ecosystem in order for sustained growth. GMS was Gilutongan Island's nature bank. However, Menguito knew that outstanding issues needed to be resolved so that Island inhabitants could enjoy sustained tourism benefits like poverty alleviation and subsequently improved living conditions. The bigger struggle, Menguito noted, dwelled on how ecotourism benefits could be shared and be inclusive to all civilians so that poverty conditions were mitigated. The great irony was that while the seas were teeming with life that boosted ecotourism and encouraged revenue generating operations, Gilutongan Island dwellers continued to live on the crumbs of ecotourism—prolonging the question of whether ecotourism was a boon or bane business for GMS.

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