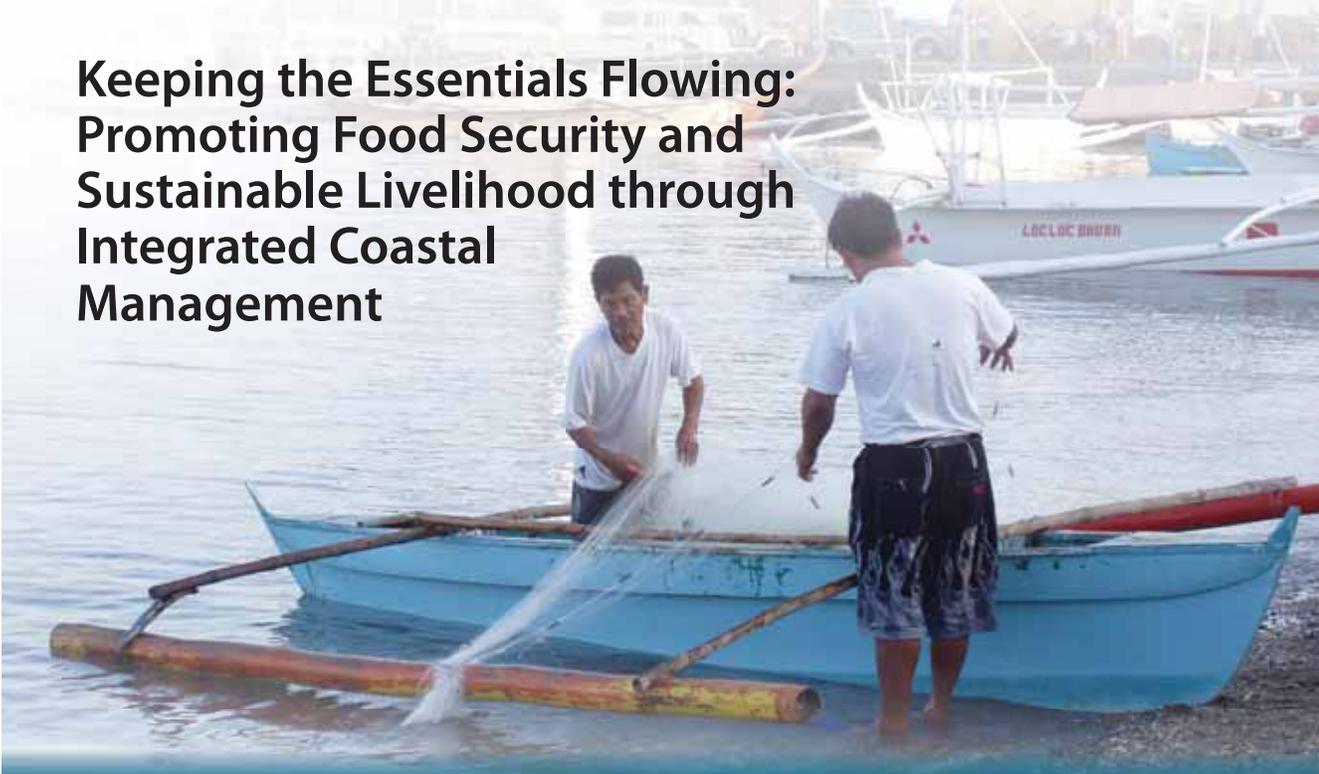


# Keeping the Essentials Flowing: Promoting Food Security and Sustainable Livelihood through Integrated Coastal Management



*"I do not have parcels of land for my children to inherit. I pass on to them the knowledge and lessons that I have learned in a lifetime of fishing...lessons about conserving and protecting the marine and coastal resources. Experience has taught me there is a greater wealth from the sea if its resources are sustainably managed."*

These are the heartfelt sentiments of Doroteo Cruzat (Mang Jury), a fisher who was taught his craft in the waters of Mabini, in the Province of Batangas, Philippines, when he was 10 years old. For Mang Jury, together with his father and seven brothers, fishing is the sole means of livelihood, security and income for the family. Mang Jury recalled that, in the mid-1970s, they were able to catch 10 kg of fish per day – enough for his family's consumption, with the rest being sold to cover other expenses. The Cruzat family was truly living off the natural bounties of the sea.

The situation changed, however, when commercial fishers started encroaching the municipal waters of Batangas in the early 1980s. Illegal and destructive fishing became a common sight. Mang Jury recalled that local fishers were fortunate if they were able to catch half of their catch from previous years. To compensate, they often followed the blast fishers to gather any remaining fish, which the illegal fishers would leave behind, after a blast incident.

Initially, local fishing communities weren't concerned about the impact of blast fishing as long as there was enough fish on the table. But as time went by, even that became a problem. Commercial fishers were harvesting all the fish in their municipal waters, using illegal gears,

such as *basnig* (bag net) and *pukot* (ring net). In addition, the coral reefs that were the principal fishing grounds of the local fishers were being destroyed and degraded as a result of blast fishing and anchorage of commercial fishing boats. The future of fishing in Mabini, and that of the Cruzat family in particular, became bleak.

## Seeds of hope

In the late 1980s, Haribon Foundation, a nongovernmental organization (NGO), came to Mabini and introduced the concept of marine protected areas (MPAs). MPAs, as explained to the locals, were designated areas where all forms of fishing would not be allowed. This was necessary in order for the fishing stocks to recover and grow. Eventually, the outcome would be more fish to catch. Fishing would only be allowed outside the designated perimeter of the MPA.

At first, there were apprehensions and resistance from the fishing community. The perception was that this restriction would limit their fishing area and they would have less access to fishing sites. After a long process of awareness building and consultation, the community's perception changed and Twin Rocks in Mabini, the first marine sanctuary in Batangas Province, was established in 1991.



Global Environment  
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Project Services



Partnerships in  
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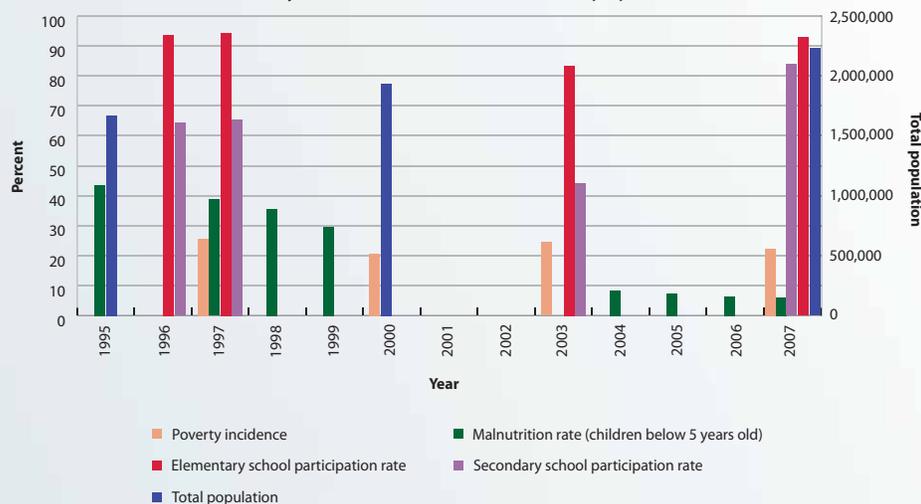
Mang Jury and the rest of the fishing community were encouraged to help maintain the MPA as members of Bantay Dagat (Sea Watch)<sup>1</sup>. A series of capacity-building activities were conducted in the community to provide the members with information on the environment and fishery laws, as well as the values of and threats to the marine coastal resources. For Mang Jury, the transition was not an easy decision. It took four years before he became convinced to join the Bantay Dagat. He then realized that even if he did not get paid for the extra work he would devote to Bantay Dagat, he needed to protect the resources, not only for his family's benefit but for the benefit of all fisher-families and their children's children.

### Securing the future

Mang Jury has been serving as a member of Bantay Dagat for 10 years now. Again, he catches about 10 kg, sometimes 50 kg, of fish a day. These fishes are bigger and economically important, such as *gulyasan* (skip jack), *tulingan* (frigate tuna) and *tambakol* (yellow fin tuna), instead of *tamban* (Indian sardines), *galunggong* (round scad), *dilis* (anchovies) and *pusit* (squid) that he caught during the time of blast and commercial fishing. The results of a five-month (December 2006 to April 2007) fish catch monitoring program conducted by the World Wide Fund for Nature (WWF) Coastal Resources and Fisheries Conservation Project supported Mang Jury's observation. The study revealed that *gulyasan* registered the most frequently caught fish, totaling 22,265 kg in Tingloy and 2,776 kg in Mabini (WWF-Philippines, 2007).

Mang Jury proudly attested that there is no more blast

Poverty, malnutrition, education and population



Number of fishing families in Batangas	9,107 (2003)	15,935 (2007)
Fisheries production	20,133 MT (2005)	26,257 MT (2007)

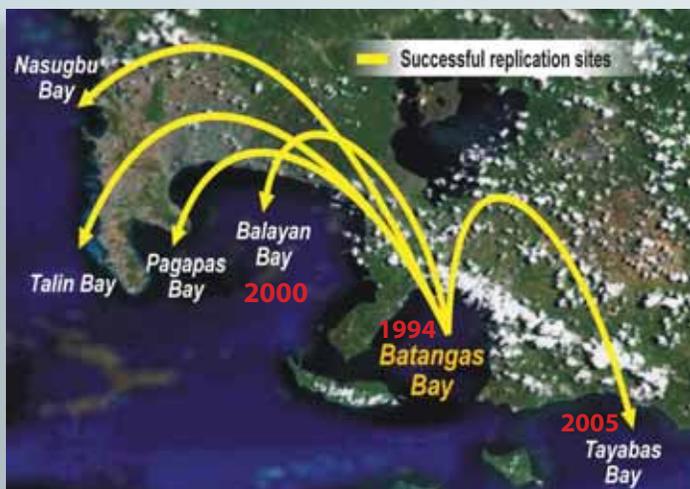
From 1995 to 2007, the population of Batangas Province increased by almost 600,000 people. Despite this large increase, economic and social conditions in Batangas Province improved as evidenced by the decrease in poverty incidence, decrease in the proportion of undernourished children below five years old, and higher elementary and secondary school participation rate (Provincial Government of Batangas, Philippines and PEMSEA, 2008).

fishing in Mabini, and any commercial fishers who dare enter the municipal waters are immediately apprehended. The local fishing communities in Mabini realize the responsibility and implications of being stewards of the sea, and are quick to report and take action against violations.

The once-degraded coral reefs have recovered. This has resulted in an additional source of income for the community by boosting ecotourism in the area, particularly through dive sites. Local fishers earn extra income by ferrying divers to the coral reefs. As Bantay Dagat members, these fishers also police the actions of the divers, ensuring that they abide by the regulations established for sustainably managing the reefs, as well as pay dive fees, which are used to support the operations of Bantay Dagat and other environmental management programs of the municipalities of Mabini and Tingloy.

Sightings of charismatic species like dolphins, manta rays, sea turtles and whale sharks have also increased in the waters of Batangas. This indicates a better state of their natural habitat and less stress from illegal activities in the area.

Mang Jury said, "I will continue to fish the waters of Batangas and would not mind being a fisher my entire life. As long as I remain industrious and continue to preserve the marine environment, my family will not go hungry. The sea is the main source of our livelihood and sustains the education of my children." Unable to go to school himself, he sees to it that the wealth of the sea continues to provide for the education of his two daughters, one a college sophomore and the other a high school senior.



<sup>1</sup> The Bantay Dagat is a civilian fisheries patrol force made up of volunteers who try to keep a 24-hour watch on municipal waters up to 15 km from the shore.

**SEMP and ICM Plans in Batangas Province**

Year	Description	Coverage	Status
1996	SEMP (1996-2020)	Batangas Bay Region (BBR)	Adopted by the 12 municipalities and 2 cities in the BBR
2004	ICM Plan (2004-2023)	Balayan Bay and Adjacent Bays Region (BABR)	Adopted by the 12 municipalities in the BABR and by the Provincial Development Council (PDC) in 2005
2005	SEMP (2005-2020)	Batangas Province	Adopted by the Provincial Legislative Body in March 2007
2006	Verde Passage Management	Framework Plan (SEMP is a major component)	Formulated and adopted by the TWG (EO 578) in 2006

Mang Jury further noted, “But, no matter how much we protect the resources of our community, these could not have paid off if our neighbors would not protect their resources as well. For as long as the different municipalities have the same principles and objectives, these conservation efforts will work.”

*The following case study presents the evolution of the implementation of integrated coastal management (ICM) in Batangas Province and how this holistic management framework has put together the various efforts towards conserving coastal resources and achieving sustainable livelihood for Mang Jury and the fishing communities.*

**A Tale of Two Bays: Parallel Coastal Management Initiatives**

Conservation efforts in the Province of Batangas, particularly in Balayan Bay, to address the declining fish resources and fast-degrading habitats date back in the late 1980s. Several NGOs (e.g., Haribon Foundation, Center for Empowerment and Resource Development) came to the aid of Mabini and Tingloy, lobbying for the establishment of the first MPA in the province in 1991. The NGOs also started organizing different people’s or fishers’ organizations (e.g., *Samahang Pangkaunlaran ng San Teodoro, Inc.* and *Samahan ng Mangingisda para sa Kaunlarang Pangkapaligiran*), as well as mobilization of the Bantay Dagat.

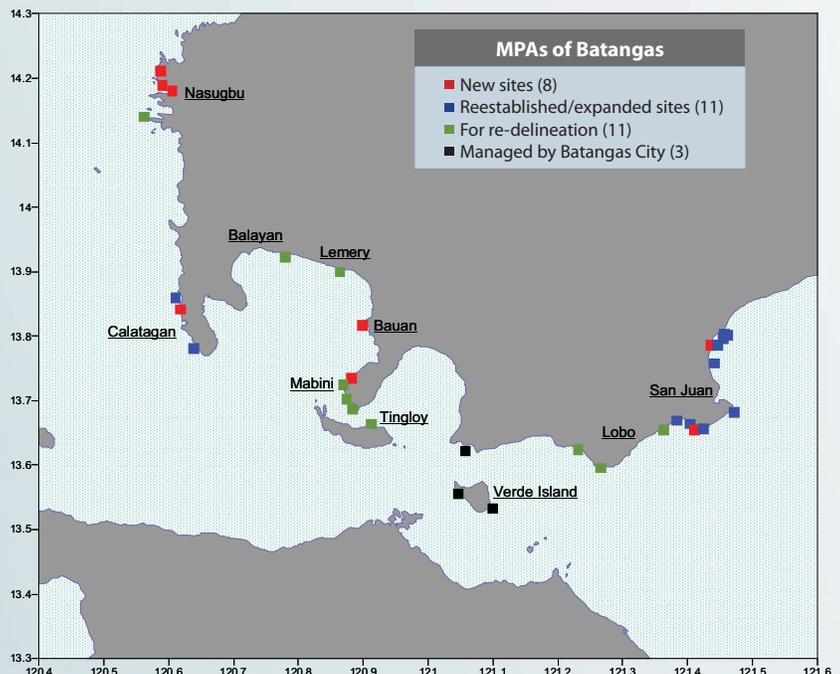
At around the same time, in the adjacent Batangas Bay, integrated coastal management (ICM) was being introduced (1994) as part of the Global Environment Facility/United Nations Development Programme/International Maritime Organization (GEF/UNDP/IMO) Regional Programme

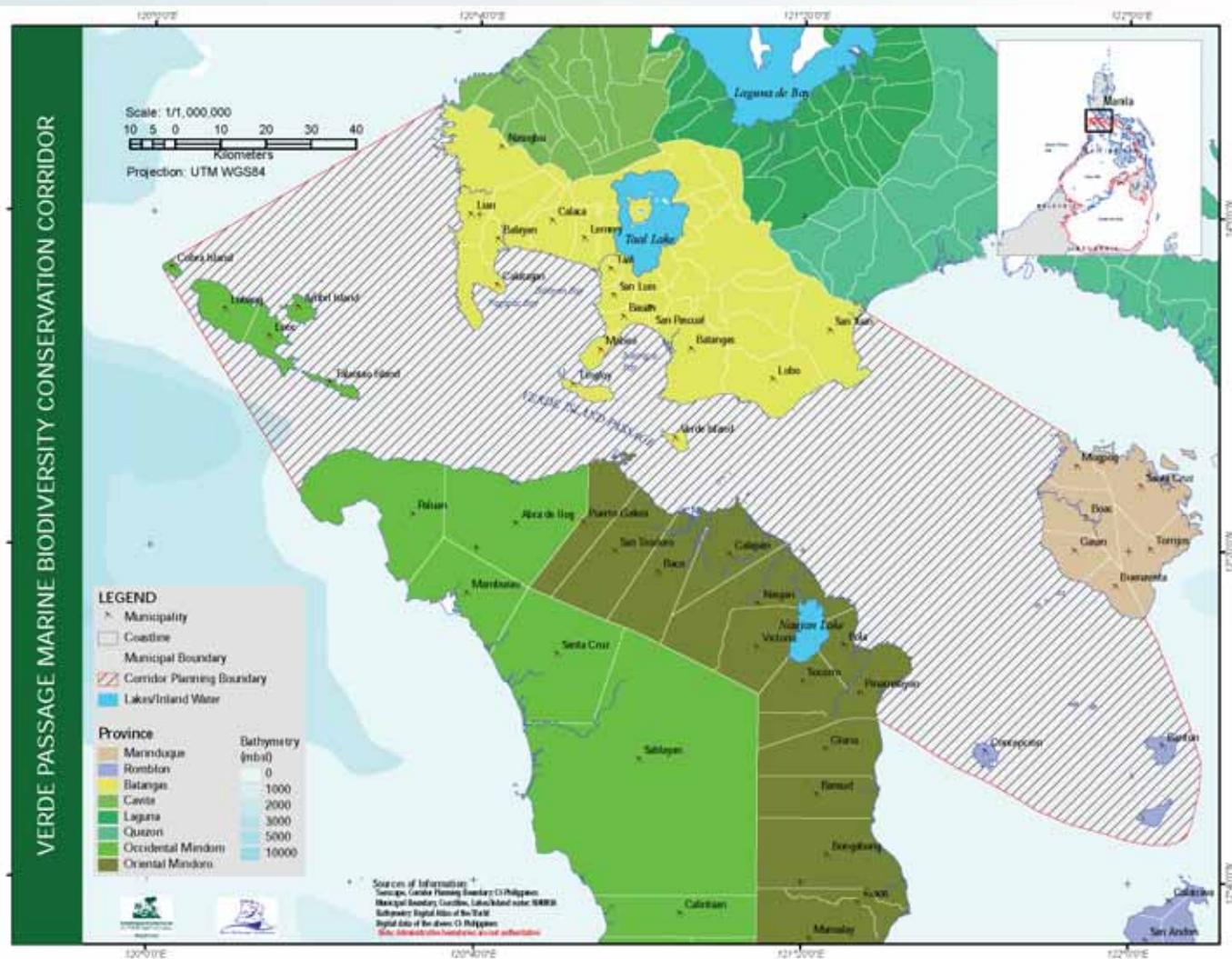
**Mang Jury further noted, “But, no matter how much we protect the resources of our community, these could not have paid off if our neighbors would not protect their resources as well. For as long as the different municipalities have the same principles and objectives, these conservation efforts will work.”**

for the Prevention and Management of Marine Pollution in the East Asian Seas (now the Partnerships in Environmental Management for the Seas of East Asia or PEMSEA). This effort was focused on the development and demonstration of ICM as a management framework for pollution prevention and management of the Batangas Bay region. At that time, Batangas Bay was being developed as an international deepwater port and industrial area. The focus of the ICM project was to facilitate environmental protection and management of the bay area using ICM as a management process for strengthening interagency and multisectoral coordination and cooperation in the planning and development of the Batangas Bay region.

One of the major outputs of the Batangas Bay project was the Strategic Environmental Management Plan (SEMP 1996-2020), which served as the road map for the development of the bay without compromising the marine and coastal environment and natural resources. The SEMP provided the platform by which the various sectors came together with a common vision for the development of their coastal areas.

Putting in place the legal and institutional mechanism for translating the SEMP into action was also one of the major achievements of the project. The Batangas Bay Region Environmental Protection Council (BBREPC) was established through Provincial Ordinance 001 (1996). The Council serves as the governing and policymaking body for the implementation of the SEMP. This multisectoral body also provides the forum for coordination, conflict resolution,





information exchange and cross-sectoral relations among government and nongovernment stakeholders in the bay, including fishers.

At the operations level, the Provincial Government-Environment and Natural Resources Office (PG-ENRO) was created through Provincial Ordinance No.03-95 (December 1995). The PG-ENRO serves as the lead coordinating agency for SEMP implementation, the focal point for monitoring and evaluating progress among stakeholders with regard to the objectives and targets identified in the SEMP, as well as the technical arm of the Council.

### A united front

By 1998, the problem of commercial fishers encroaching the municipal waters of Mabini and Tingloy was becoming critical. Fishing pressures were having spillover effects in the established MPAs with commercial fishing boats coming from the neighboring coastal municipalities (e.g., Batangas City, Bauan, Balayan and Lemery). In addition, the growing industrialization and shipping activities in the coastal area posed increasing risks of land- and sea-based pollution to the conservation areas. On top of this, the tourism industry was beginning to show interest, which added further conflicts among the traditional and commercial fishers (Tongson, 2003).

Similarly, other coastal municipalities were beginning to set up MPAs in their areas together with partner people's organizations and NGOs. These MPAs, like those in Mabini and Tingloy, were individually and sectorally managed. There was no mechanism to coordinate and integrate the efforts of the different local government units (LGUs) to address the growing threats to their respective protected areas from external sources.

The WWF-Philippines recognized that the conservation efforts in Mabini and Tingloy would not be effective or sustainable without an integrated baywide approach in Balayan Bay. It was at this time that the effective implementation of ICM in Batangas Bay came to the forefront. The benefits of the multisectoral process, the long-term strategic road map (SEMP), and the institutional mechanism providing policy direction, coordination and operationalization of the SEMP provided the necessary governance structure that was lacking in the existing MPA arrangements.

Concurrently, the Provincial Government recognized that rapid growth and development were potential threats to the marine and coastal resources of the area, and to the coastal communities that depended on these resources. The Provincial Government decided to expand the ICM

program to the other bays, thereby providing broader management coverage.

A partnership was forged between WWF-Philippines and the Provincial Government to support the replication of the ICM model developed in Batangas Bay to Balayan Bay and adjacent bays. The resulting ICM plan was adopted by the 12 coastal municipalities and the Provincial Development Council in 2005.

The scaled up ICM program now covers the entire coastline of Batangas. The SEMP was updated incorporating the management of the three bay regions (Batangas Bay, Balayan Bay and adjacent bays, and Tayabas Bay) and was adopted by 34 local governments on 22 March 2007 through Resolution No. 129. Similarly, the institutional mechanism for its implementation has been strengthened to address the broader geographical scope and management issues. In September 2008, through Provincial Ordinance No. 5, the three-tiered Batangas Environmental Protection Council was adopted, which now serves as the multisectoral body to guide the implementation of ICM. The new Council integrates the three baywide ICM Boards and Municipal ICM Councils. The PG-ENRO still serves as the secretariat and technical arm of the Batangas Environmental Protection Council in the implementation of the SEMP.

As MPAs were already under the broader implementation of the provincewide SEMP, through the PG-ENRO, coordination among LGUs was facilitated. The coastal LGUs now share the same guiding principles and objectives in managing their resources.

### ICM in the Global Center of Marine Biodiversity

In 2005, the Conservation International (CI)-Philippines<sup>2</sup> initiated a marine biodiversity program in the Verde Island Passage Marine Biodiversity Conservation Corridor as part of the Sulu-Sulawesi Seascape Project. The Corridor is bordered by the provinces of Batangas, Oriental and Occidental Mindoro, Marinduque and Romblon. Fortunately, the mechanism for the implementation of

biodiversity conservation in Batangas had been in place as part of the implementation of the Batangas Province SEMP led by the Provincial Government. The SEMP then became the platform for CI-Philippines to implement its program in the Verde Island Passage Marine Corridor. The Batangas Province SEMP is now a major component of the Verde Passage Management Framework Plan.

The existing MPAs in Batangas are within the bounds of the Verde Island Passage, thus creating a network of MPAs promotes the ecological integrity of the area. The network aims to enhance the effectiveness and functionality of the MPAs in promoting sustainable livelihood for fishers and protection of coastal resources.

The CI-Philippines and the WWF-Philippines then became partners of the province in the establishment of the network of MPAs. This network facilitates the sharing of information, experiences and resources; the resolution of conflict; the assistance to other LGUs in the establishment of their own MPAs; and the consolidation of law enforcement efforts. As part of the SEMP implementation, the PG-ENRO, also takes the

Network of MPAs in Batangas (August 2009).

Municipality	Area of MPA (hectares)	Number of MPAs
Balayan	6	2
Batangas City	6	3
Bauan	136	1
Calatagan	165	3*
Lemery	3	1
Lobo	40	3
Mabini	79	4
Nasugbu	113	4
San Juan	704	11*
Tingloy	4	1
Total	1,256	33

\*Includes one mangrove protected area

Source: PG-ENRO, 2009.



<sup>2</sup> When WWF-Philippines finished its project implementation in Batangas in June 2008, the CI-Philippines took over as the partner of the Provincial Government in the continuous implementation of the MPA and Bantay Dagat initiatives.

lead in organizing coordination meetings and capacity-building initiatives, between and among the network. The network was established in November 2007 through a Memorandum of Agreement between the Provincial Government, Batangas City, and the municipalities of Balayan, Bauan, Calatagan, Mabini, Lobo, San Juan, Nasugbu and Tingloy.

### Community volunteerism

The implementation of MPAs consequently needs the creation of a team to guard these from illegal destructive fishing practices and commercial fishers. Bantay Dagat is now the key partner of the local government in enforcing fishery-related legislation. Some Bantay Dagat members use their own boats for patrolling while operational expenses (e.g., fuel) are supported by regular budget allocation from the local government. Government agencies (e.g., the Bureau of Fisheries and Aquatic Resources) and NGOs (WWF-Philippines and CI-Philippines) also support their operations by providing patrol boats and hand-held radios for communication.

The Bantay Dagat was relatively successful in Batangas. It helped lessen illegal fishing and heightened the people's consciousness on environmental issues. This experience highlights the importance of mobilizing the community in enforcement and consequently making it a co-owner of and a partner in coastal management projects.

Similar to the concept of forming a network of MPAs, a network of Bantay Dagat in the coastal municipalities was also established to consolidate the coastal enforcement efforts in the province. Recently, 13 of the 15 coastal municipalities (Balayan, San Juan, Calatagan, Lobo, Mabini, Nasugbu, San Luis, Tingloy, Batangas City, Bauan, Lian, Calaca and Lemery) are already part of the Bantay Dagat Network. Over 300 volunteers are now patrolling the coastal waters of Batangas. A Memorandum of Understanding with the Philippine National Police was also signed to

### Number of Apprehensions for Fishery Related Violations in Batangas: 2000-2003 (Gutierrez, 2007); 2006-2007 (Trono and Gutierrez, 2007); and 2009 (PG-ENRO).

Year	Municipalities	Number of Bantay Dagat members	Apprehensions		Average per year	
			Illegal Fishers	Cases Filed	Illegal Fishers	Cases Filed
2000-2003	Mabini, Tingloy, San Luis, Calatagan, Nasugbu, Balayan	174	625	70	130	18
2006-2007	Mabini, Tingloy, Calatagan, Nasugbu, Lobo, Balayan, San Luis, San Juan, Batangas City	200	79; 9 divers	14	88	14
2009	Balayan, San Juan, Calatagan, Lobo, Mabini, Nasugbu, San Luis, Tingloy, Batangas City, Lian, Calaca, Bauan, Lemery	300				

#### Forming a Bantay Dagat Network

Mr. Rodrigo A. de Jesus (Mang Rod), Bantay Dagat Network chair, started taking on the network's leadership in 2003 and has seen how the network developed. Starting with the six coastal towns of Calatagan, Nasugbu, Mabini, Balayan, Tingloy and San Luis, the network today has 13 member municipalities.

In 1977, Mang Rod resigned from his farm managerial job and returned to his barangay only to be disappointed to see the rampant dynamite fishing activities. This alarming situation prompted him to form a people's organization aimed at combating illegal activities at sea. Together with other volunteers, they started patrolling the seas, unaware that they were implementing activities of Bantay Dagat. In 2003, they underwent training and were deputized as Bantay Dagat volunteers. At that time, fisherfolks in their barangay left their nets hanging as there was a substantial decrease in fish catch. Today, years after the establishment of two MPAs in Calatagan, he proudly uses those fish nets again.

With a perspective extending beyond his community, Mang Rod sees the Bantay Dagat Network as an instrument not only for law enforcement but also for service during search and rescue operations at sea. While volunteers receive a small incentive from the LGUs, Mang Rod is hopeful that the network be institutionalized so that volunteers could receive more incentives such as life insurance, medical benefits and scholarships for their children. As volunteers, they no longer have fear in their hearts but instead, carry with them the will and commitment to continue guarding the seas for the future generations.



facilitate the deployment of police during operations.

Through the coordinative efforts of the PG-ENRO and the support of the local government and nongovernmental organizations, continuous capacity building is being done to strengthen the operations of Bantay Dagat. This includes deputization of more members and conducting Advanced Fishery Law Enforcement and paralegal trainings. Mechanisms are also being explored to institutionalize and sustain Bantay Dagat operations as well as to provide incentives to members (e.g., life insurance, medical benefits, scholarships to children of members).

The long-term protection of coastal and marine resources requires broader support beyond the MPA boundaries and the Bantay Dagat initiatives. Being nested within the broader ICM program, effective coordination and facilitation happen, and a platform to engage the stakeholders at varying scales is available. Local and national governments, NGOs, private entities, academe and other sectors can work together to integrate and complement each other's efforts.

### Further readings

The following PEMSEA publications document the ICM good practices and

### Lessons Learned

- It is important to develop a strategic long-term road map (SEMP) for the sustainable development of an area. The SEMP provides the platform upon which the various stakeholders channel their contributions towards achievement of a common vision for the sustainable development of the marine and coastal areas of Batangas.
- The ICM program promotes multisectoral cooperation and partnerships with key players (e.g., NGOs) to create synergy and to strengthen various management efforts.
- The recognition of the achievements of a demonstration project (e.g., Batangas Bay Demonstration Project) in meeting its desired objectives provides a good foundation for replication. Likewise, a replicable program needs an identifiable and coherent set of program elements. It is also crucial that there is an operating mechanism (e.g., PG-ENRO) coordinating and guiding the expansion.
- As MPAs are threatened by various external factors, they function more effectively if they are managed within a wider geographical area and management scope. The governance mechanism established under the broader ICM framework provides the necessary governance structure for promoting the MPAs' objective for sustainable livelihood and biodiversity conservation.
- Resistance and apprehensions on management interventions can be resolved through enhanced public awareness. This includes awareness of the consequences of the people's actions, understanding of the need for management action, and promoting ownership and shared responsibility for the planned management interventions.
- It is important to educate and build awareness in order to mobilize the community for environmental stewardship (e.g., Bantay Dagat) and consequently make the community a co-owner and a partner in sustainable coastal development.

### MPAs in Coping with Climate Change

#### *On ecosystem resilience*

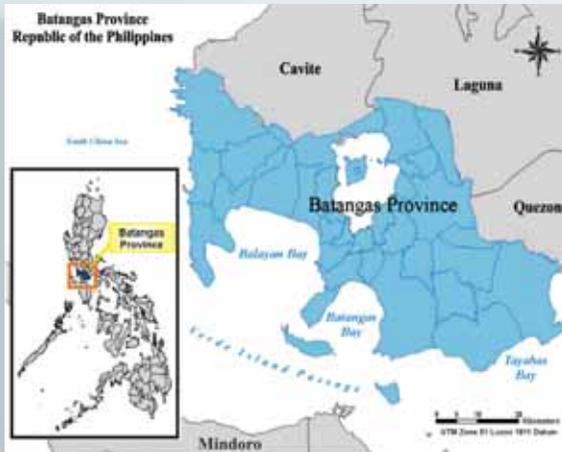
Dealing about the MPAs and climate change is a two-pronged discussion. Climate change poses considerable threats to protected marine seascapes but effective management of these MPAs in turn can help in building the resistance and resiliency of the ecosystem. They can ensure healthier ecosystems that may also withstand climate change and other stresses longer than highly disturbed or degraded ecosystems (IUCN-WCPA, 2008).

In the face of worsening climate impacts, protecting biodiversity makes perfect sense. Declared Mr. Jose Ma. Lorenzo Tan (of WWF-Philippines), "MPAs focus on much more than just the conservation of biodiversity: should we succeed in halting climate change, these pockets of marine resilience will provide the building blocks needed to restore natural mechanisms which provide food and livelihood for millions of people. It's a natural investment."

#### *As natural physical barrier*

Batangas Province is seeing the effects of climate change. Although, a scientific study is yet to confirm this, representatives from Calatagan and San Juan, during one of the meetings of the MPA and Bantay Dagat Networks, claimed that there seems to be a rise in the sea level in their areas. They reported that present water levels along the shore seem to be higher as compared to past levels. Mr. Jesse de los Santos of Calatagan, during the State of the Coasts survey in May 2008 also identified saltwater intrusion and instant sea surges as emerging issues in the area.

Protected areas play an important role in disaster mitigation in marine and coastal areas. Sea level rise and increased storm damage put coastal communities and small islands at risk. Building physical barriers against the rising sea is technically difficult and expensive. Conserving the natural protective barriers such as coral reefs and mangroves can therefore be regarded as the most cost-effective option for maintaining coastal integrity (Moberg and Roonback, 2003).



### Batangas Province

The province lies along the southwestern edge of Luzon Island and is part of the Southern Tagalog region. Batangas is bordered by the provinces of Cavite to the north, Laguna to the northeast and Quezon to the east. Its waters include three major bays: Batangas Bay, Balayan Bay and adjacent bays, and Tayabas Bay. The Verde Island Passage Marine Biodiversity Conservation Corridor, considered as the “center of global marine biodiversity,” separates Batangas from Mindoro Province.

### Key Facts about Batangas Province

Land area (km <sup>2</sup> )	3,165.81
Area covered by ICM (km <sup>2</sup> )	1,663.51 (53%) (2007)
Coastline length (km)	492
Municipal waters (km <sup>2</sup> )	7,000 (excluding Taal Lake)
Total number of cities/municipalities	34 (including 3 cities)
Coastal cities/municipalities	15 (including 1 coastal city)
Major bays	Batangas Bay
	Balayan Bay and Adjacent Bays
	Tayabas Bay and Adjacent Bays
Major rivers	Calumpang River
	Pansipit River
	Benangbang River
Total population (2007)	2,245,869
Population growth rate (%) (1995-2000)	3.02
Employment rate (%) (2003)	87.73
Sectoral employment (% of total employment) (2003)	
Agriculture	28.71
Industry	23.24
Services	47.32

the impacts of ICM implementation in Batangas:

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*Prepared by Daisy Padayao, PEMSEA, and Loreta Sollestre, Provincial Government-Environment and Natural Resources Office (PG-ENRO) of Batangas Province, Philippines*

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