

Finding the right fit for ecosystem-based management in the Philippines

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Abstract. Spatial scales for ecological marine protected area networks do not necessarily fit into existing governance frameworks in the Philippines. The Philippines adopts a highly decentralized approach to coastal management including marine protected area (MPA) management. Each local government authority exercises management powers and responsibilities over their coastal zone which is measured from the shoreline to 15-km seaward of municipal waters. The local government initiatives have resulted in the establishment of over 300 MPAs in Central Philippines to improve marine habitats and enhance fishery resources, with only 20-30% of MPAs effectively managed with sustainable fishery benefits. With the increasing number of MPAs, the need for joint MPA management efforts in order to increase management effectiveness as well as protect areas beyond MPA boundaries has arisen. Thus, a definitive governance structure has been sought within the fisheries ecosystem scale following the ecosystem-based management approach. This paper will present the management strategies, outcomes and lessons of the Local Governance for Coastal Management Project for the Management of Coral Reefs and Fisheries in the Philippines since January 2002. The project has been working towards scaling-up the geographic scope to achieve the desired results in fisheries ecosystem management by expanding from a municipal up to a much broader collaboration at the inter-municipal, provincial and regional scale. It focuses on activities that address the needs in institution building and strengthening, fisheries management, habitat management, foreshore management, and coastal law enforcement. Creating marine protected area networks at adequate ecological scales do not fit into existing single municipal waters governance frameworks in the Philippines. Achieving ecosystem-based fisheries management will require developing new governance arrangements across municipalities and the cooperation of municipal leaders who recognize the need to manage fisheries at ecosystem scales.

Key words: ecosystem, governance, scaling-up, collaboration, management

Introduction

The Philippines adopts a decentralized approach to coastal management, which includes establishment and management of marine protected areas (MPAs). Each local or municipal government authority exercises management powers and possesses responsibilities over their coastal zone measured from the shoreline to 15-km seaward of municipal waters.

To improve marine habitats and enhance fishery resources, the municipal governments in Central Philippines have now established over 300 MPAs. Unfortunately, only 20-30% of these MPAs are effectively managed with sustainable fishery benefits (White et al. 2006). With the increasing number of MPAs, the need for joint management efforts in order to increase MPA management effectiveness at an ecological scale has arisen. There is likewise a need to protect areas beyond MPA boundaries in order to optimize benefits from these no-take zone areas.

At the same time, there is an increasing recognition of the need to manage no-take or restricted take MPAs at an ecosystem scale, following the ecosystem-based management approach. But the decentralized governance structure has posed a seemingly insurmountable challenge towards effective management of these MPAs.

Materials and Methods

This paper draws from the management strategies, outcomes and lessons of the Local Governance for Coastal Management Project for the Management of Coral Reefs and Fisheries in Central Philippines supported by the David and Lucile Packard Foundation since January 2002. It details the evolution of integrated coastal management practices in the municipal waters of a single municipality into an expanded management and governance arrangement by taking into consideration a fisheries

ecosystem covering multiple municipalities in Central Visayas, Philippines (Fig.1). In particular, the paper intends to show initial steps towards EBM starting from a municipal level MPAs with emphasis at scaling up to MPA networks with a facilitating inter-municipal governance structure. It captures the process of how the EBM strategy was used to address common issues that needed to be commonly addressed by a group of municipalities. Information obtained for this paper stemmed mainly from internal project reports and biophysical monitoring results of the project.

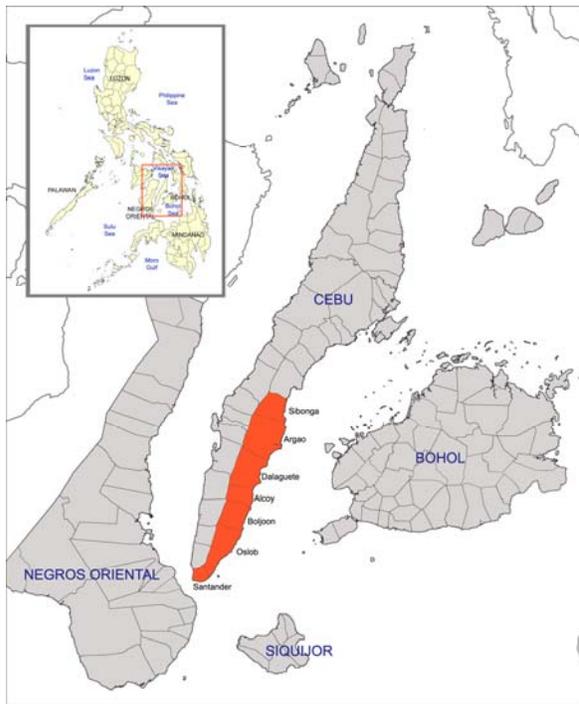


Figure 1. Southeastern Cebu municipalities, Central Visayas, Philippines

The Ecosystem Boundaries

The Philippines is considered to have coastal management programs functioning in 1/6 of 18,000 km of shoreline (White et al. 2004) with an emphasis on establishment of marine protected areas (MPAs) and fisheries management. The municipalities achieved most of the key coastal resource management (CRM) benchmarks such as:

- Adoption and implementation of a multi-year CRM plan providing overall framework and direction in managing the coastal resources of the municipality/city;
- Coastal environmental profile developed through secondary data compilation and baseline assessment (e.g., participatory coastal resource assessment, rapid assessment, scientific surveys) of coastal

resources and socioeconomic and environmental conditions;

- Annual programming and budget to sustain local CRM plans and programs, with trained staff and operating municipal/city CRM unit or office; and
- CRM-related organizations in the form of People's Organizations, Fisheries and Aquatic Resource Management Councils, or Technical Working Groups, formed and active.
- Shoreline/foreshore management measures planned

The municipalities have likewise initiated various CRM best practices, such as municipal water delineation, MPAs, mangrove management, fisheries management, local legislation identified in the CRM plan, coastal law enforcement, coastal environment-friendly enterprise development, revenue generation, and multi-institutional collaboration for CRM. These benchmarks/series of tools are considered the minimum that a municipality should implement if it adopts coastal and fisheries management as a basic service (DENR 2003).

Thus far, more than 1,000 community-based MPAs (Arceo et al. 2007) have been established all over the country.

The Study Area

In Central Philippines, particularly Southeast Cebu, eight coastal municipalities traverse an irregular coastline of about 118 km. The area is bounded on the east by the Cebu/Bohol Strait, a body of water separating the islands of Cebu and Bohol with more than 158.6 km² of coral reef ecosystem. The eight coastal municipalities have a >125,000 ha of total combined area of municipal waters.

Based on a comprehensive study on the fisheries profile by Green et al. (2003) seven fisheries ecosystems in Central Visayas were identified. These ecosystems were considered as discrete ecosystems wherein within each ecosystem are multitudes of habitats, such as mangrove forests, coral reefs, seagrass, mudflats, sandy beaches and others. These habitats are the main feeding grounds, nursery areas and spawning grounds of coastal-dwelling marine aquatic organisms. These ecosystems, also known as the Visayan Seas, are also considered as one of the marine priority conservation areas in the Philippines. Over 400 MPAs have been established so far in the 4 Provinces of Central Visayas (UPMSI Database 2007) to improve marine habitats and enhance fishery resources, with only 20-30% of MPAs effectively managed with sustainable fishery benefits.

The Cebu/Bohol Strait fisheries ecosystem was identified as one of these fisheries ecosystem in the

Central Visayas region. It was found to contain 1,500 identified aquatic and marine species moving around areas of up to 5,000 km². It also supports over 5,500 small-scale fishers, however, there are existing massive threats to coral reefs and associated habitats, foremost of which is the over-exploitation of coastal and marine resources.

Despite all these obstacles, the Southeast Cebu municipalities have established 22 MPAs, thus far, in the Cebu/Bohol Strait in about 300 ha. consisting of about .24% of the total combined municipal waters.

Rationale for the EBM approach and scaling-up of MPAs

With the increasing number of MPAs established in Southeast Cebu, the need for joint MPA management efforts between the eight municipalities in order to increase management effectiveness as well as to protect areas beyond MPA boundaries has arisen. These municipalities are primarily mandated to manage their respective municipal waters under Philippine fisheries laws. Sweeping and comprehensive powers were granted through local devolution for direct management of municipal waters, hence, these powers by themselves provide inherent challenges in terms of expanded management required within ecosystem boundaries. Joint management efforts of a single ecosystem go beyond MPA and/or municipal boundaries to include multiple municipal jurisdictions.

In previous years, the said municipalities have begun implementing their CRM plans, mostly focusing on establishment of MPAs and have likewise achieved key CRM benchmarks as indicated above. It was, thus, well-placed for “scaling up” to MPA networks as ecosystem based management commonly involves “scaling-up” from design of individual protected areas to planning for MPA networks.

In Search of a definitive EBM structure

Municipal waters in the Philippines are primarily managed by municipalities. However, one of the most frequently cited reasons for weak implementation of coastal management programs through subordinate units of government at provincial and local levels is the lack of resources and capacity to carry out the required tasks. In fact, most coastal municipalities/cities have limited financial and technical resources

To overcome these obstacles as well as to address the need for municipalities to 'scale-up' resource management and governance at a broader geographic scale, the eight coastal municipalities decided to sign a Memorandum of Agreement and create the Southeast Cebu Coastal Resource Management Council in 2005. This conforms to the current legal/institutional regime in the Philippines.

Philippine laws recommend integrated management of contiguous fisheries areas.

Specifically, the State policy espoused by the Philippine Constitution provides that “*Local government units may group themselves, consolidate or coordinate their efforts, services, and resources for purposes commonly beneficial to them.*” The Local Government Code of 1992 or Republic Act 7160 likewise grants genuine and meaningful local autonomy to municipalities whereby more powers, authorities and responsibilities are granted to municipalities in the management of their municipal waters. This includes the mandate for innovative and collaborative partnerships through appropriate ordinances in order to contribute funds, real estate, equipment and other kinds of property and appoint or assign personnel as may be agreed upon by the participating municipalities through a Memorandum of Agreement. In 1998, the Philippine Fisheries Code (Republic Act 8550) adopted the concept of integrated coastal management for the management of fishery and aquatic resources by municipalities and/or cities. It declares that it is the policy of the State to “*manage fishery and aquatic resources, in a manner consistent with the concept of an integrated coastal area management in specific natural fishery management areas, appropriately supported by research, technical services and guidance provided by the State.*”

In the same manner, the Fisheries Code maintains that municipalities which share or border common water resources may group themselves and coordinate with each other to achieve the objectives of integrated fishery resource management in contiguous fishery resources such as bays, lakes and gulfs which straddle several municipalities.

It is clear that there are existing legal precedents that mandate municipalities to collaborate and build on existing and on-going municipal initiatives for coordinated coastal and fisheries management. Thus, MPAs are now increasingly managed collectively thru a “cluster” of municipal governments. In Southeast Cebu, there are now 22 MPAs (ave. of 13.6 ha) in about 300 ha with no-take areas covering .24% of total combined municipal waters. And these are currently managed as a MPA network by the cluster of eight municipalities.

To ensure collaboration and collective responsibility, a coordinating body for all identified programs of the eight municipalities was formed through the Southeast Cebu Coastal Resource Management Council. It is composed of Mayors and Vice-Mayors of eight municipalities that functions as a policy-making and supervising body. A complete set of officers led by a Chairman is elected among the Vice-Mayors of the municipalities who shall hold

their positions for three years co-terminus to their term of office as elected officials.

To assist the Council, a management committee and a secretariat, composed mostly of technical staff from each municipality, was organized. In addition, a technical and legal advisory group coming from government agencies such as the Department of Environment and Natural Resources, Bureau of Fisheries and Aquatic Resources, and Philippine National Police, as well as NGOs such as the Environmental Legal Assistance Center and the CCEF, provides specialized support to the Council. The Council often calls on any of these government agencies and/or non-government organizations for technical inputs, legal advice, logistical support, and other forms of technical assistance. The management committee headed by an Executive Director administers the day-to-day activities of the Council while the secretariat serves as the record keeper and financial manager. Both the management committee and secretariat have provided an effective coordination and feedback mechanism to respective municipalities.

Significant Socio-Institutional and Bio-physical Outcomes

The Council, although still young and evolving, is now a venue for the discussion and resolution of important issues and activities. It focuses on activities that address the needs in institutional building and strengthening, fisheries management, habitat management, foreshore management, and coastal law enforcement.

Through the Council meetings, issues such as the banning of compressor fishing; protection of critical habitats from foreshore development; the reduction of fishing effort through fisherfolk, fishing gears and boat registration, regulating *pa-aling* (modified *muro-ami*) and banning *sagiwsiw* (modified drift gill net) fishing, and strict enforcement against intrusion of commercial fishing into municipal waters. The Council has likewise considered other concerns such as the oil seismic survey along Cebu Strait; regulating municipal tourism activities; and creating social networks among MPA managers. In effect, the multi-municipality MPA network has developed into a strong institution capable of effective coordination and management actions.

It has also successfully opened a venue for the provincial government to downstream support for coastal management at the inter-municipal levels. Some contextual issues such as weak formal institutions and three-year terms of municipal mayors (Christie, et al 2007) have been avoided as well. Periodic political and leadership changes have not affected coastal management programs with the

smooth transition, stability, and continuity of the Council and its functional committees.

Through the Council, municipal coastal management initiatives in the eight municipalities have been re-energized. MPAs are now effectively managed, with initial results from biophysical monitoring suggesting an increasing trend in percentage of live hard coral cover recorded inside MPAs (Figure 2) and fish abundance of commercially valuable fishes (target fishes) (Fig.3).

Biophysical reef monitoring of MPAs involves a participatory method in estimating fish populations and substrate composition with competent local community members. Surveys are conducted in the shallow reef (3-4m depth) and deeper portion of the reef (7-9m depth) both inside and outside the MPA boundaries for comparative changes due to protection.

The results of the monitoring surveys have been used as inputs for MPA management decision-making at the municipal government and municipal cluster levels.

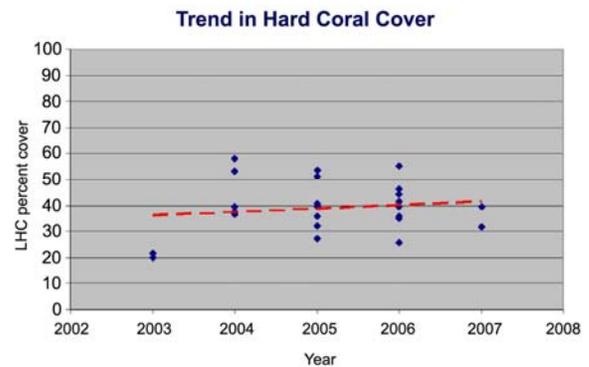


Figure 2. Trend in Hard Coral Cover of SE Cebu MPAs

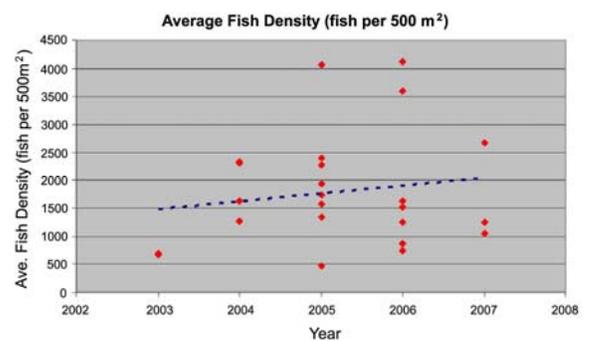


Figure 3. Trend in Average Fish Density of SE Cebu MPAs.

With improvements in reef status, management effectiveness of reef managers has likewise increased by at least one degree using the MPA Rating and Database System developed by the Coastal Conservation and Education Foundation, Inc. It is a

point-based rating system that is designed to aid MPA managers in evaluating their performance in terms of management, implementation, and enforcement (White et al. 2006). The extent of management is measured according to: enforcement, education, capacity development, biophysical monitoring, and sustainable financing, with Level I (MPA is initiated) up to Level V (MPA is institutionalized).

There has also been a significant reduction of threats to the coastal habitats through improved efficiency and cost-effectiveness of joint management actions (e.g., law enforcement). Municipal seaborne and coastal law enforcers (MUSCLE) have been formally organized with an institutionalized incentive scheme. To supplement the monitoring, control and surveillance of the MUSCLE, joint seaborne operations have also been supported by the Council. Currently, over 30 commercial fishing violators have been apprehended during joint law enforcement operations since April 2005. With the success of the SE Cebu cluster, other municipalities in the Province are now doing corresponding processes of clustering into inter-municipal governance arrangements.

Lessons: What will determine the right fit?

It is important to adjust natural resource governance regimes to the size and nature of the ecosystem, and to work within the range of administrative arrangements allowable to find the right fit. The administrative boundaries that fit the demands of EBM will vary according to the local context. In the Philippines, the right ecosystem fit depends on the manageability and consensus among leaders of municipal government units. It cannot be a “one ecosystem size for all” approach in EBM in the Philippines. What size is appropriate will depend on the nature of the resource(s) to be managed and the drivers that determine the status of the resource on the one hand, and the mutual decisions of the leaders to work together to manage these environmental, social and economic drivers that are affecting the system—in this case the fisheries ecosystem.

The extent of the Cebu/Bohol Strait fisheries ecosystem is limited to the municipal water boundaries of 8 municipalities. A separate management structure was organized by these municipalities in order to provide a platform for ecosystem-based management of this fisheries ecosystem. This inter-municipal management council – known as the Southeast Cebu Coastal Resource Management Council – has become the commonly-agreed upon and committed governing body for

“scaling-up” to EBM of the network of MPAs found therein, and hopefully the marine space in-between.

Conclusion

Spatial scales for ecological marine protected area networks do not fit into existing single municipal waters governance framework in the Philippines. Thus, to be effective in managing ecosystem boundaries, there is a need to expand and create a separate governing authority to govern multiple municipal governments. With ecosystem values foremost in the management considerations, governance regimes in the Philippines allows for such expansion or “scaling up.” Inevitably, ecosystem boundaries are usually set using a balance of ecological functions and appropriate governance considerations.

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References

- Arceo H, Alino P, Lumbab V, Nanola C, Portigo MF (2007).. Gaining Ground in Improving Marine Protected Areas: The Philippine Experience. Reefs Through Time, University of the Philippines Marine Science Institute, Cebu City, Philippines. 2007
- Christie P, Fluharty DL, White AT, Eisma-Osorio L, Jatulan W (2007) Assessing the feasibility of ecosystem-based fisheries management in tropical contexts. *Marine Policy* 31, Pp. 239-250. 2007.
- DENR-CMMO (Department of Environment and Natural Resources - Coastal and Marine Management Office) (2003) Monitoring and evaluating municipal/city plans and programs for coastal resource management. Coastal Resource Management Project of Department of Environment and Natural Resources, Cebu City, Philippines. 93p.
- Green SJ, Flores JO, Dizon-Corrales JQ, Martinez RT, Nunal DRM, Armada NB, White AT (2004) The Fisheries of Central Visayas, Philippines: Status and Trends. Coastal Resource Management Project of the Department of Environment and Natural Resources and the Bureau of Fisheries and Aquatic Resources of the Department of Agriculture, Cebu City, Philippines, 159 p
- White AT, Alino PM Meneses AT (2006) Creating and managing marine protected areas in the Philippines. Fisheries Improved for Sustainable Harvest Project, Coastal Conservation and Education Foundation, Inc. and University of the Philippines Marine Science Institute, Cebu City, Philippines. 83p..
- White AT, Deguit E, Jatulan W, Eisma-Osorio L (2006). Integrated Coastal Management in Philippines Local Governance: Evolution and Benefits. *Coastal Management Journal* 34:287-302