

Establishment and Implementation of the Balingasay Marine Protected Area: A Community-Based Approach

**Severino G. Salmo III, Renato A. Turion,
Marie Antonette R. Juinio-Meñez, and Porfirio M. Aliño**

Marine Science Institute, College of Science

University of the Philippines, Diliman, Quezon City 1101 Philippines

Tel. No.: (632) 922-3921; (632) 920-5301 to 99 loc. 7428; TelFax: (632) 924-7678; E-mail: jon@upmsi.ph

ABSTRACT

A community-based approach in the establishment and implementation of a marine protected area (MPA) in Balingasay, Bolinao, Pangasinan is presented. The factors necessary to facilitate the successful establishment and implementation of a community-managed MPA include heightening of environmental awareness, community mobilization, and legal/institutional and financial assistance. A heightened environmental awareness encouraged the community to undertake resource management action. The formation of a people's organization, SAMMABAL (Samahan ng mga Mangingisda at Mamamayan ng Balingasay), was crucial in assessing environmental problems (e.g., overfishing) and identifying the establishment of an MPA as a management tool to address the problem. SAMMABAL was also instrumental in eliciting community support for the issuance of a municipal ordinance in the establishment of the MPA. Subsequently, the organization initiated the patrolling of the MPA. Institutions involved in the community-based management of the MPA also included the multi-sectoral council (BRMC – Balingasay Resource Management Council) and representatives from the barangay council and the municipal government. This institutional arrangement has proven to be very resilient, indicating a high probability of sustaining its successes despite some obstacles and shortcomings. Clear delineation of the role and functions of the institutions and the stakeholders was essential in advancing the initiative. This case study will draw on the lessons from the experience of a four-year community-managed MPA.

Keywords: community-based approach, environmental awareness, management tool, marine protected area (MPA), community mobilization, inter-institutional interaction, CBCRM

INTRODUCTION

The Balingasay-MPA (Marine Protected Area) is located in Bolinao, Pangasinan along western Lingayen Gulf, Northwestern Luzon (Fig. 1). This has two components: a marine sanctuary covering approximately 14.77 hectares and a marine reserve of approximately 200.86 hectares. In the marine sanctuary, all kinds of fishing access are prohibited while in the marine reserve

area, fishing is allowed but regulated (e.g., use of non-destructive/passive fishing gears, regulation of fishing net mesh size). The establishment of an MPA was conceptualized in October 1995, after the formation of SAMMABAL (Samahan ng mga Mangingisda at Mamamayan ng Balingasay) in September 1995. The establishment of the MPA was conceived by SAMMABAL in an attempt to improve the poor condition of their coastal resource, which was

characterized by low fish abundance, and deteriorating coral cover (Dizon and Miranda 1996). After attending a series of environmental education training and conducting barangay consultations, SAMMABAL, together with the Barangay Council, submitted a resolution to the Municipal Council of Bolinao in August 1997 seeking the establishment of the MPA. Through the subsequent lobbying of SAMMABAL, the Municipal Council adopted the resolution in October 1997, after a number of public consultations. As provided for by law, the municipal ordinance was submitted to the Provincial Council of the Pangasinan Provincial Government for review and ratification in May 1998. In November 1998, the Provincial Council recommended that the Municipal Council revise the ordinance to include the Municipal Government's role in the MPA management. Furthermore, the ordinance required the endorsement of the Municipal Fisheries and Aquatic Resources Management Council (MFARMC), as provided for by R.A. 8550. The municipal council, after getting the

endorsement of the MFARMC, modified the ordinance accordingly, and re-submitted it to the Provincial Council in May 1999. At present, the ordinance is still in the office of the Provincial Council pending its formal legislation. Regardless of the lack of formal legislation, SAMMABAL initiated the patrolling of the MPA in January 1998. Since then, the community, through SAMMABAL and with some assistance from the barangay council, has implemented the MPA. This paper presents the important features of the MPA as a case study, and draws lessons on the establishment and implementation of a community-managed MPA.

METHODOLOGY

Presentation and analysis of this case study is divided into two phases: establishment and implementation. The establishment phase covers preparatory activities involving environmental education, planning, legislation, and organizational development. The implementation phase covers training of the people's organizations for bio-physical monitoring and sourcing of external support and assistance. All information used in this case study were gathered from 1995 to 1999 mainly from barangay Balingasay through SAMMABAL, Balingasay Resource Management Council (BRMC) and the Barangay Council. Pertinent legal documents, (e.g., resolution, ordinance) were gathered from the municipal government of Bolinao while other technical information were obtained from the Community-Based Coastal Resources Management Project (CBCRMP) and the Marine Fisheries Resources Management Project (MFRMP). The CBCRMP, with funding from the International Development Research Center of Canada (IDRC), was implemented from 1995 to 1997 by the University of the Philippines Marine Science Institute (UP-MSI), the University of the Philippines College of Social Work and Community Development (UP-CSWCD), and the Haribon Foundation, an environmental nongovernmental organization (NGO). The MFRMP, on the other hand, was implemented by UP-MSI from 1998 to present with funding from The Royal Netherlands Embassy.

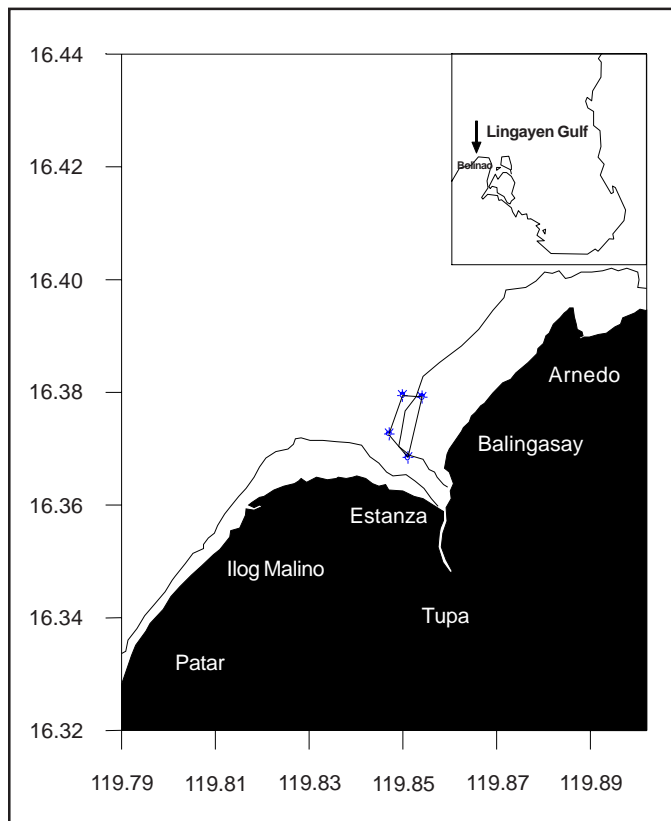


Fig. 1. Map of the Balingasay-MPA (inset: map of Lingayen Gulf)

RESULTS AND DISCUSSION

Establishment phase

The establishment of a community-managed MPA required much preparation. This started with the formation of the People's Organization (PO) SAMMABAL, in September 1995. This organization served as the core institution moving for the establishment of the MPA. SAMMABAL has about 100 members mostly fishers with some fisher-farmers, barangay officials, and local professionals. The organizational structure of SAMMABAL includes the Executive Committee as the operational executing body, the Board of Directors (BOD) as the legislative body, and the General Assembly as the ultimate decision-making body (Fig. 2). The Executive Committee constituted different sub-committees, each with its specific roles and functions. For instance, the Environment Committee was responsible for the conceptualization and implementation of the environmental management programs while the Livelihood Committee took care of the income-generating projects of the PO. The decision-making process of the PO started when a committee proposed a particular project which would then be endorsed by the Executive Committee to the BOD for approval. The

BOD, after evaluating the proposal, would in turn endorse it to the General Assembly for final decision. The proposal for the establishment of the MPA went through this process.

Prior to the establishment process of the MPA, SAMMABAL undertook a series of organizational strengthening activities from October 1995 to February 1996. These were the creation of a vision, mission, and goal; formulation of a constitution and by-laws; leadership training; paralegal training; and enhancement of networking and advocacy skills. Such activities enabled the SAMMABAL to be a vigilant advocate of coastal resources management. The establishment of an MPA was the priority activity of SAMMABAL. Concrete action was catalyzed by the heightened environmental awareness of its members brought about by a series of formal and non-formal environmental education and training activities facilitated by the CBCRMP. The training programs comprised three modules: (1) basic environmental education; (2) advanced environmental education; and (3) MPA management. The first two modules were attended by SAMMABAL members and representatives from the barangay council, while the third module, was attended by the members of the Environment Committee of SAMMABAL. The first module covered general

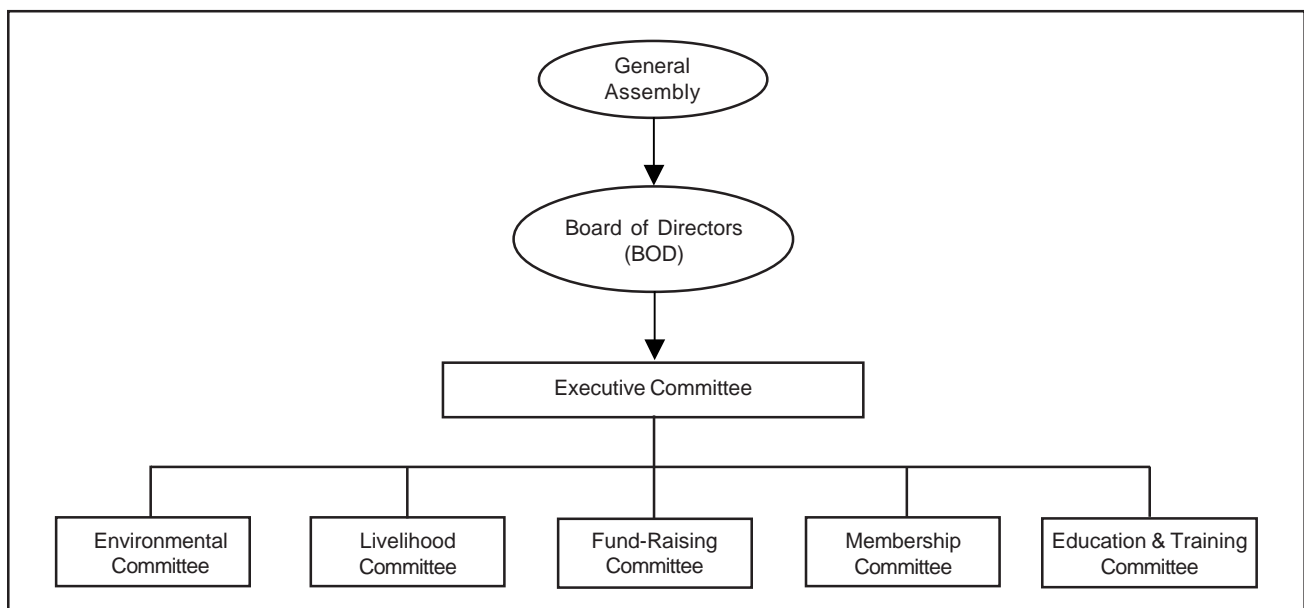


Fig. 2. Organizational structure of SAMMABAL

ecological concepts, i.e., components of the marine ecosystems and interconnectivity, and was held on February 24, 1996. An important highlight during this session was the identification of environmental problems. Different resource management options to address the identified environmental problems (e.g. Uychiaoco and others 1998), were discussed in an advanced environmental education session held on March 9, 1996. Among the potential options, the establishment of an MPA was chosen by SAMMABAL as the most appropriate management tool that could be employed to address the depletion of fishery resources (Russ 1996). The last environmental education session was held on April 1996, focusing on the details of MPA establishment, implementation, and management. To further help SAMMABAL appreciate MPA management, the CBCRMP sponsored an exposure trip to a community-managed MPA in San Salvador Island, Masinloc, Zambales on June 1996. This activity gave the SAMMABAL leaders first hand knowledge about the impressive environmental status which could be achieved by establishing an MPA. The testimonies given by members of the Samahang Pang-Kalikasan ng San Salvador (SPSS) during an experience-sharing session (Madamba-Nuñez 1998) further inspired them to establish their own MPA.

The identification of the proposed MPA site was based on the resource/resource-use map of the area prepared by SAMMABAL. This map featured the spatial and temporal distributions of different marine resources, together with the areal extent of different fishing gear operating in the area. Initially, three sites were considered by SAMMABAL. Preliminary cursory surveys narrowed the proposed sites to just one as it was the only site that had relatively good coral cover. The proposed MPA sites were evaluated by the CBCRMP by conducting bio-physical surveys using manta tow, fish visual census, and benthic life form monitoring. Results of the survey indicated that the proposed site had an average of 10% live coral cover and fish density of 161 fish individuals per 500 m². Other socioeconomic data, i.e., average fish catch, resource seasonality map, were gleaned from the Participatory Action Research (PAR) conducted by the CBCRMP in Barangay Balingasay from January to July 1995. The

PAR was conducted by the CBCRMP, during the pre-PO formation stage to gather socioeconomic and biophysical data. The activity facilitated the involvement of the community in identifying environmental problems and mobilizing them as a partner for coastal resources management. The information gathered were then presented to the Environment Committee and General Assembly of SAMMABAL. Despite the mediocre status of the proposed site, SAMMABAL was still willing to establish the MPA because of their belief that the area could be improved if it is properly managed. The exact extent and location of the MPA was selected and agreed upon by the General Assembly of SAMMABAL in August 1996. Ideally, the harmonization of ecological (e.g., habitat and resource status), socioeconomic (e.g., dependency of the fishers in the site), and practical (e.g., relative distance of the site for patrolling) considerations should be used in selecting the most appropriate site for an MPA (Kelleher and Kenchington 1991). However, in actual practice, socioeconomic considerations, most especially social acceptability, prevail in deciding the actual size and location of the MPA.

Legislation

After almost a year of conceptualization, training, and planning, SAMMABAL, with the assistance of the barangay council, conducted information campaigns in the entire barangay through one-on-one talks and distribution of leaflets in September 1996. After the information campaign, a series of community consultations and public hearings were launched by members of the PO to broaden mass advocacy in July 1997. In all the consultations, the majority favored the establishment of the MPA. After SAMMABAL explained the purpose of the MPA, how it would be managed, and the benefits which could be acquired from it, most residents agreed, including some fishers who were initially hesitant. With a strong mass-base support, SAMMABAL submitted a resolution to the barangay council. The barangay council in turn supported the initiative of SAMMABAL. A joint resolution between the barangay council and SAMMABAL seeking the establishment of MPA was submitted to the municipal council for legislation in August 1997. Prior to the

submission of the joint resolution, SAMMABAL also held consultation in three other neighboring areas – Barangays Tupa, Estanza, and Ilog Malino – to further strengthen community support for their initiative. In August 1997, The respective councils of these barangays issued a supporting endorsement for the establishment of the MPA to the municipal council.

The municipal council responded by sponsoring public hearing in September 1997. The public hearing was attended by fishers from barangays Balingasay, Estanza, Ilog Malino, and Patar. Because of the favorable response from the participants, the municipal council adopted and approved the resolution in December 1997. With this development, the MPA was immediately inaugurated. All expenses incurred in the said occasion were paid for by the Office of the Mayor and the Lingayen Gulf Coastal Area Management Commission (LGCAMC). However, in the Philippines' legal context, enforcement of a new law requires the issuance of a municipal ordinance, which, in this case, took nearly a year (Municipal Ordinance No.2 s1998, September 1998). However, even before the issuance of the municipal ordinance, SAMMABAL initiated the patrolling of the MPA, albeit quite irregular because of limited logistical supplies. In addition, the passage of R.A. 8550 (The New Philippine Fisheries Code) in September 1998, required an endorsement from the Provincial Council prior to the implementation of a municipal ordinance. The Provincial Council managed to sponsor an Environment Committee hearing in November 1998 which was attended by SAMMABAL and some officials from the Municipal Council. The recommendation of the committee was to return the ordinance to the Municipal Council of Bolinao for refinement so that all of its provisions will be in consonance with R.A. 8550, i.e., clearly defining the role of the municipal government in MPA implementation, and securing endorsement from the Municipal Fisheries and Aquatic Resources Management Council (MFARMC). The Municipal Council, upon completing all the requirements, re-submitted the ordinance to the Provincial Council in May 1999. Re-submission of the ordinance could not be done sooner because there was no MFARMC yet. The municipal government initiated the formation of the

MFARMC only in January 1999. Unfortunately, to this date the MPA ordinance has not yet been included in the agenda of the Provincial Council meetings.

Institutional arrangement

Clearly, SAMMABAL as an environmental organization, had the most significant role in the establishment of the MPA, from conceptualization to legislation and implementation (1995-present). Consistent with reports from other community-managed MPAs (White and Savina 1987), the crucial activities that enabled SAMMABAL to become a local CRM institution were the training programs attended by its members. These programs heightened their environmental and legal awareness, and improved their leadership and organizational management skills. Furthermore, SAMMABAL also networked with concerned government and non-government institutions at the municipal, provincial, regional, and national levels. SAMMABAL and the barangay council were the institutions that were most active in pursuing the establishment and implementation of the MPA.

However, the municipal ordinance stipulated multi-sectoral tasking in the implementation of the MPA. Based on the ordinance, SAMMABAL would serve as the implementing body that would directly oversee the patrolling and bio-physical monitoring of the area. Meanwhile, the multi-sectoral council Balingasay Resource Management Council (BRMC) would serve as the overall coordinating body responsible for administrative activities such as sourcing of funds and providing updates to the municipal government on the status of the MPA. Furthermore, the BRMC was also responsible for overseeing SAMMABAL. Fig. 3

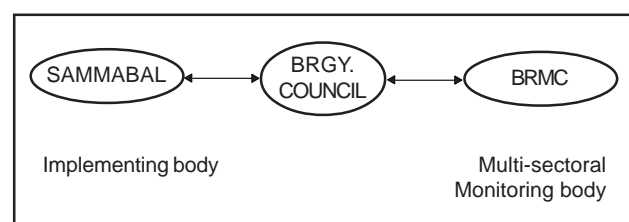


Fig. 3. Inter-institutional arrangement in the management of the Balingasay-MPA

presents the inter-institutional interaction arrangement in the implementation of the MPA. The interaction between SAMMABAL and BRMC brought about leadership conflicts at some instances. Fortunately the barangay council effectively served as a mediator between the two institutions. Intervention from the barangay council facilitated the sustenance of MPA implementation despite the occasional conflicts.

Implementation phase

Recognizing the importance of environmental awareness, SAMMABAL, BRMC, and the barangay council in Balingasay and neighboring areas undertook information campaigns through the distribution of leaflets and posters. While patrolling was initiated by SAMMABAL in January 1998, its conduct was irregular because of logistical constraints, e.g., insufficiency of patrol boats, binoculars, etc. Such constraints resulted in instances of encroachment into the MPA which diminished the objective of restoring natural stock. While there were some apprehensions, some of the apprehended encroachers claimed ignorance about the municipal ordinance declaring the MPA. Despite some of these difficulties, the MPA was still enforced because of the motivation and persistence of SAMMABAL members who, most of the time, contributed their personal resources (e.g., boat, time) so that patrolling could be conducted. They knew that visibility of enforcement was essential.

Institutional strengthening

After the organizational development phase, follow-up training programs were facilitated by the MFRMP to improve the capability of SAMMABAL and BRMC to implement the MPA. A training session on MPA management was held in February 1999 to equip the two institutions with the knowledge and skills needed to manage the MPA efficiently. This resulted in the preparation of an administrative, financial, and operational plan. Meanwhile, deputation of fish wardens was conducted in May 1999 to teach them, and Bantay-Dagat members in the barangay, the legal procedure for arresting encroachers in the MPA. Likewise, training on participatory bio-physical monitoring using manta tow, fish visual census, and landed catch monitoring (de la Cruz and Uychiaoco 1998) were conducted to

provide the community with the skills to monitor the changes and improvements occurring in the MPA.

External assistance

Considering all the difficulties encountered, SAMMABAL and the BRMC could not have been successful without external assistance. The efforts of the barangay council and the municipal government, as well as the assistance provided by LGCAMC and MFRMP contributed to the success of the Balingasay-MPA. The barangay council was working with SAMMABAL since the conceptualization phase. The municipal government provided some financial assistance for the operations, e.g., buoys, markers, gas and oil for patrolling. The other hand, the LGCAMC provided a grant for a motorized boat to be used for patrolling. Other logistical supplies such as binoculars, flash lights, etc. were provided by the MFRMP. They also facilitated training sessions and programs for institutional strengthening, and provided seed stock for reseeded activity (e.g., sea urchin).

Nonetheless mechanisms to make the MPA self-sustaining has been a major consideration. Interim partnerships with the private sector have been explored for the establishment of an environmental fund to support the cost of maintaining the MPA until the MPA can generate sufficient income (e.g., visitor’s fee).

Environmental impacts

Despite difficulties involving logistical constraints and inter-institutional dynamics, the Balingasay-MPA gained some successes in improving the environmental status of the MPA. As shown in Table 1, bottom coral cover increased from 10% in July 1996 to 27% in June 1999. Meanwhile, fish abundance also increased from 161 to 326 fish individuals per 500 m², or an estimated 51% increase. Although the increase in fish abundance was relatively low compared to what was reported for the

Table 1. Result of bio-physical monitoring in Balingasay-MPA

Parameter	July 1996	June 1999	% increase
% Coral cover	10	27	62.96
Fish abundance (fish individual per 500 m ²)	161	326	50.61

community-managed MPAs in Apo and Pamilacan Islands (i.e., 173% and 89% increase per 750 sq m in two years, respectively) (White 1988), such improvement was significant enough to demonstrate the regenerating potential of the MPA to the fishers. This improvement was perceived by the local fishers who reported that fish abundance was increasing in and adjacent to the MPA. Other parameters that were monitored by SAMMABAL were landed catch and fishing area to gear mapping. However the results of these two parameters have not yet been evaluated.

There was an increase in the density of sea urchins from practically zero in December 1997 to 0.11-2.14 individuals per square meter (average test diameter: 1.4-8.0 cm) in October 1999. Reseeding of cultured sea urchins was conducted at the MPA in December 1997. However the sea urchins monitored in October 1999 were mostly new recruits. This is significant because natural recruitment of sea urchins has not been recorded in Bolinao since the collapse of the sea urchin fishery in 1992 (Juinio-Meñez and others 1998).

CONCLUSION

An MPA that utilized a community-based approach was able to draw mass-based support from the local community through multi-sectoral participation facilitated by a PO (SAMMABAL) and other external support. This multi-sectoral participation was necessary and critical to the development and maintenance of the MPA, as in the case of the Sumilon Island Reserve (Russ and others 1994). However, too many sectors involved in MPA management (barangay to municipal level), resulted in a long legislation process. Despite the length of this process, the establishment of the Balingasay-MPA was relatively systematic and well-planned from conceptualization to planning, implementation, and monitoring. In MPA implementation, inter-institutional interaction among local institutions was necessary to provide complementary actions and a wide support base. At the same time, the participation of various local institutions created leadership conflicts, such as in the case of SAMMABAL and BRMC. Such conflict resulted in delays in conducting some of the necessary management activities.

The support of various external groups encouraged SAMMABAL to implement the MPA. The Balingasay-MPA also benefited from sufficient scientific/technical support from the MFRMP (e.g., providing seed stocks, sponsoring training for bio-physical monitoring). The scientific/technical support helped the PO to systematically manage the MPA. Despite obstacles and weaknesses, the Balingasay-MPA had some positive impacts. The immediate indicators were the increases in fish density and percent coral cover. If sustained in the longer term, increased fish productivity can improve the livelihood of the local coastal communities. More importantly, the process of establishing and implementing a community-managed MPA has empowered local institutions to become more responsible stewards of fishery resources.

ACKNOWLEDGMENTS

The authors wish to acknowledge the participation and cooperation of the people of Barangay Balingasay, especially the members of SAMMABAL and the officials of the barangay council, who shared their comments and thoughts in documenting this case study. Thanks is due to the municipal government of Bolinao for providing the necessary legal documents. Likewise, we want to acknowledge the International Development Research Center of Canada (IDRC) and The Royal Netherlands Embassy for providing financial support to the coastal management activities related to the CBCRMP and MFRMP in Bolinao, Pangasinan.

REFERENCES

- de la Cruz MT, Uychiaoco A. 1998. Monitoring the effectiveness of marine sanctuaries. *In: Participatory methods in community-based coastal resources management*. 3 vols. Silang, Cavite, Philippines: International Institute of Rural Reconstruction.
- Dizon JAC, Miranda GC. 1996. The coastal resource management experience in Santiago Island. *In: Ferrer EM, Polotan-dela Cruz L, Agoncillo-Domingo M, editors. Seeds of Hope*. Quezon City, Philippines: College of Social Work and Community Development, University of the Philippines. p 116-129.

Juinio-Meñez MAR, Macarawaris NND, Bangi HGP. 1998. Community-based sea urchin (*Tripneustes gratilla*) grow-out culture as a resource management tool. In: North Pacific Symposium on Invertebrate Stock Assessment. Can Spec Publ Fish Aquat Sci 125: 393-399.

Kelleher G, Kenchington R. 1991. Guidelines for establishing marine protected areas. A marine Conservation and Development Report. Gland, Switzerland: International Union for the Conservation of Nature. 79 p.

Madamba-Nuñez. 1998. Study tours. In: Participatory methods in community-based coastal resources management. 3 vols. Silang, Cavite, Philippines: International Institute of Rural Reconstruction. p 96-106.

Municipality of Bolinao, Pangasinan, 1998. Municipal resolution no. 32 s1998. An ordinance to declare and promulgate the municipal marine rehabilitation and replenishment area along barangay Balingasay, providing the implementing rules and regulations thereto.

Municipality of Bolinao, Pangasinan, 1998. Municipal ordinance no. 2 s1998. Adopting the implementing rules and regulations and providing penalty clause thereto,

for effective and efficient operation and management of the municipal marine rehabilitation and replenishment area at barangay Balingasay, Bolinao, Pangasinan.

Russ GR. 1996. Fisheries management: what chance on coral reefs? Naga: The ICLARM Quarterly.

Russ GR and Alcala AC. 1994. Sumilon Island Reserve: 20 years of hopes and frustrations. Naga: The ICLARM Quarterly.

Uychiaoco A, de la Cruz MT, Salmo III SG. 1998. Conservation and rehabilitation strategies. In: Participatory methods in community-based coastal resources management. 3 vols. Silang, Cavite, Philippines: International Institute of Rural Reconstruction. p 55-62.

White AT. 1988. The effect of community-managed marine reserves in the Philippines on their associated coral reef fish populations. Asian Fish Sci 2: 27-41.

White AT, Savina GC. 1987. Community-based marine reserves, a Philippine first. In: Magoon OT, Converse H, Miner D, Tobin LT, Clark D, Domurat G, editors. Coastal Zone '87. Vol.2. New York: American Society of Civil Engineers. p 2022-2036.