

# **WORKING PAPER**

## **Marine Sanctuaries as a Community-Based Coastal Resources Management Model for North Sulawesi and Indonesia**

**Prepared for the Coastal Resources Center, University of Rhode Island,  
Proyek Pesisir, Jl. Madiun No. 3, Menteng, Jakarta, Indonesia 10320**

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# MARINE SANCTUARIES AS A COMMUNITY-BASED COASTAL RESOURCES MANAGEMENT MODEL FOR NORTH SULAWESI AND INDONESIA

## The Marine Sanctuary Concept

Adapting global experience to the Indonesian context of coastal resources management has been suggested by Dahuri *et al.*, (1996). The successful Apo Island marine sanctuary in the Philippines (White, 1989; Calumpong, 1993) is an example of one model which Proyek Pesisir is attempting to adapt and test in North Sulawesi. The purpose of a community-based marine sanctuary is twofold. First, it provides a biological function of biodiversity protection and serves as a protected spawning and nursery ground for marine organisms. Secondly, and particularly important to the local community, is the economic function of sustaining or increasing reef-related fish production, and in some cases, acting as a marine tourism destination for divers and snorkelers. Global experience on approaches to developing collaborative and community-based management of coral reefs (White *et al.*, 1994) is also a basis for the process being followed in the establishment and management of the first community-based marine sanctuaries in North Sulawesi. The specific steps in the process are as follows:

1. Community Socialization
2. Public Education and Capacity Building
3. Community Consultation and Village Ordinance Formulation
4. Village Ordinance Approval
5. Implementation

## Establishment of a Community-Based Marine Sanctuary in Blongko Village

The process of establishing and implementing a community-based marine sanctuary in Blongko village - one of three Proyek Pesisir field sites in North Sulawesi has been ongoing for one year. While initial efforts have been placed at developing a marine sanctuary in Blongko, the process has also been started in the other North Sulawesi field sites as well. In Blongko, the steps in the planning and implementation process listed above have progressed the furthest and are described below.

Community Socialization: This process started with the selection of Blongko as a field site, followed by the formal assignment of a full time extension officer to the site in October, 1997. The extension officer established a project office within the village office, and conducted a series of meetings and discussions with various social and religious groups to inform them about the project goals and process. During this initial period, the extension officer also prepared an ecological and human history of the community (Kasmidi, 1998) by interviewing elderly residents and other key informants about changes in population and settlement patterns, and changes in long-term conditions and use of coastal resources. This helped community members get to know the extension officer and visa versa and helped them obtain a better understanding of the management

issues within the community. Through this process the villagers also provided a historical perspective of how the present state of the environment and community had come about. In addition, a technical team conducted initial baseline surveys of the reefs and mangroves in the village, and the extension officer initiated a systematic socioeconomic survey of the community to document baseline conditions.

Public Education and Capacity Building: The idea of making six hectares of the coast containing a fringing coral reef and mangrove forest into a marine sanctuary came about after a representative of Blongko village visited the marine sanctuary at Apo Island in the Philippines. This was followed by a reciprocal visit by the Apo Island Barangay Captain and member of the women's cooperative to observe Blongko and exchange ideas. The *Kepala Desa* (head of the village) in Blongko and the community quickly understood the Apo Island group's description of how their community-driven marine sanctuary effort was developed and implemented. The extension officer held numerous public education events on marine and coral reef ecology and the marine sanctuary concept. Training was also conducted on coral reef mapping and monitoring. This information was then incorporated into the marine sanctuary planning process (see community consultation section below). Realizing the potential benefits of increased fish production from a sanctuary, and the value of the local fishery to their community in supporting the livelihoods of future generations, the community engaged in efforts with Proyek Pesisir staff to identify a proper site, and to develop a local ordinance to regulate the proposed protected area. Within a few months, the community fully supported the marine sanctuary concept. This was a major milestone in the process of establishing the marine sanctuary.

As part of developing the community capacity to manage a marine sanctuary, a grant program was created as part of the project strategy. Communities could prepare simple two to three page proposals for funding grants provided by the project to address simple coastal management issues which did not require large sums of money or a long duration to complete. The objective behind these "early actions" was to help build support for the marine sanctuary planning effort, and test implementation strategies. Proposals were approved if they followed the procedures and met established criteria which include public participation in the proposal development, widespread community support for the proposal, and community contributions (labor, materials or partial financing). These early actions in Blongko and other communities have typically been small scale, only several hundred dollars, and have been for actions such as construction of latrines and wells in Blongko, construction of a community meeting and information center, mangrove replanting, and small scale drinking water supply development. Blongko is currently preparing proposals for installation of signboards and sanctuary boundary markers. Community groups who implement the grants are trained in simple accounting and financial reporting procedures, and are required to submit a finance report and technical report upon completion of the grant project. Expenditure reports are posted in the village office for full public disclosure and accounting books are open to public review by anyone in the community. The early action program was instrumental in developing trust with the community, and demonstrating the project desire to listen to community needs, and commitment to move to action, not just talk and plan. The

extension officer at the field site has remarked that by helping to address concrete needs of the community as seen from their perspective, they became more willing to listen to project ideas concerning the establishment and management of a marine sanctuary. Other actions that the Blongko extension officer is helping to facilitate which have focused on community economic development concerns include: conducting a study tour in the Manado vicinity on coastal tourism and associated business opportunities such as handicraft making, seafood restaurants and homestays; opportunities for improvement in and organization of a women's fish marketing group, and coordination with the local fisheries agency on provision of fishing vessel engines.

Community Consultation and Village Ordinance Formulation: After the extension officer conducted a series of formal and informal meetings and small group discussions, an ordinance was drafted by a local legal consultant based on inputs provided by the community. Additional meetings were held to discuss the draft ordinance and modify the contents. One stakeholder group - reef gleaners - never attended the formal meetings, but it was proposed that no walking over the reef flat would be allowed, which would impact their ability to reach gleaning areas on the other side of the sanctuary. The extension officer had to make special efforts to meet with gleaners informally and discuss this proposed prohibition. After much discussion, the gleaners agreed with this proposal as they had an alternative trail behind the mangroves they could use with minimal inconvenience to reach the other side of the sanctuary.

Site selection was also another area of important discussion and decision making. A series of three community training programs on coral reef monitoring and mapping using the Manta Tow technique were conducted where the community themselves mapped the coral condition along their community. Fraser, *et al.*, (1998) showed that the community generated data was not statistically different from professionally collected data. This map was used as the basis of discussions for selecting the actual marine sanctuary site. The first area recommended by the technical team as the best site was on a far point which had the best coral cover and fish abundance. The community however, rejected this location as it was often visited by bomb fishers from outside the community and was typically a resting location for fishers returning from offshore fishing trips. Other alternatives were considered. A spot in front of the village was proposed, but this area had tidal fishponds (locally called "*bonor*" and constructed from coral rock) on the reef flat. The technical team was concerned this might have a negative impact on the sanctuary concept. Finally a third site was selected by the community with moderately good coral cover and within sight of the village.

The technical team recommended that the marine sanctuary only consist of a core zone as a way of keeping management and the language in the ordinance simple. However, the community was concerned that light boats used for night fishing of anchovies, if fishing too close to the sanctuary, would attract small fish out of the sanctuary, thereby having a negative impact on its function. Therefore, the community decided to include a buffer zone around the sanctuary which prohibited the use of light boats within 100 meters of the core zone boundary. This is one of several cases where the community decided on a stricter set of regulations than was recommended by the technical team.

An especially interesting event occurred which helped reinforce the marine sanctuary concept among the fishers in the village. One Blongko fisher was out at a fish aggregating device approximately three hours from shore when he met a Philippine fishing boat. One of the Filipinos spoke Indonesian and they started a conversation about fishing. The Blongko fisher mentioned the marine sanctuary concept being proposed and the visit of Apo Island residents to their community. The Filipino fisher from General Santos City was aware of the success of the Apo Island marine sanctuary and encouraged the Blongko fisher to support the establishment of the sanctuary in his village. The Blongko fisher previously was willing to go along with the sanctuary concept, but after this chance meeting at sea, became a strong supporter and advocate of the sanctuary.

Village Ordinance Approval: Final community approval of the ordinance took place at an all-village meeting called specifically for this purpose in September, 1998. Copies of the final ordinance were made and distributed to every household in the village prior to the meeting. The final ordinance contains sections detailing the following:

- Legal basis of a community-based marine sanctuary and the goals of a marine sanctuary.
- Location of the marine sanctuary.
- Responsibilities of the management group and community in sanctuary management.
- Allowable activities in the marine sanctuary and buffer zone.
- Prohibited activities in the marine sanctuary and buffer zone.
- Penalties for violations.
- Attached map of the marine sanctuary location.

The approved village ordinance is being submitted to district and regent officials for their concurrence and toward gaining additional strength and support for implementation and enforcement. Provincial, Regency, and District officials have been kept informed concerning the sanctuary development throughout the process. High level delegations from Provincial and National agencies have also visited Blongko and expressed their support and encouragement in promoting the sanctuary concept and continuing this initial experiment in Blongko. The entire process, from the initial assignment of the extension officer at the field site to ordinance approval, has taken one year.

Implementation: Even before the village ordinance was completed, initial implementation activities were started and being planned. Already an information/meeting center is under construction; placement of boundary markers is underway; information signs are being created; a management committee has been formed; and a community group has been trained to monitor coral condition using the Manta Tow technique. A management group is in the early stages of formulating a management plan for the marine sanctuary.

## **The Blongko Marine Sanctuary as Part of a Broader Picture**

The community-based marine sanctuary in Blongko (6 hectare core reef zone) is small in comparison to large scale marine protected areas such as Bunaken National Park in North Sulawesi (1,300 hectare core reef zone). One small marine sanctuary in Blongko may not add up to much, but if this can be viewed as a model and replicated widely in other coastal villages in North Sulawesi (517 coastal villages) it can be a significant addition to the amount of reef area under protection, and ultimately all will add up to a greater area than the national marine park. Unlike land based parks, the small size of these marine sanctuaries does not create a problem of habitat fragmentation. Habitat fragmentation is not a major concern for marine biodiversity protection primarily due to the fact that approximately 80 percent of marine organisms have planktonic larval stages (Hinga, 1998).

Small scale community-based marine sanctuaries are not meant as an alternative to large scale national parks but are meant to complement and support larger protected areas. The Blongko marine sanctuary is miniscule in a global context, but it is extremely important as a model for replication and adoption in a nation that contains approximately 20 percent of the worlds coral reefs and contains the highest marine biodiversity in the world. Imagine if all of the 6000 coastal villages in Indonesia had a marine sanctuary of approximately 10 hectares in size. The total marine area under protection in Indonesia could increase dramatically, and nearshore reef-related fish production on which close to 2 million small-scale fishers depend, could also be significantly enhanced.

Promoting community-based marine sanctuaries also gives chances for the communities to take a more active role in and responsibility for protecting and sustainably utilizing marine resources. By promoting the community based marine sanctuary, Blongko's residents now have a more active role in and responsibility for protecting and sustaining marine resources which directly affect their day-to-day lives. Resource users in Blongko are being transformed into resource managers. The community-based marine sanctuary as a decentralized program adopted widely throughout the province and nation could also have positive financial implications over time. With national budgets for park management being cut due to the economic crisis, this becomes an attractive and less-costly long-term means of marine ecosystem and biodiversity protection as the majority of costs - like the benefits - can be internalized within the community rather than in the national budget.

## **Adapting the Marine Sanctuary Model from Blongko to Tumbak Village**

In Tumbak, a similar process of establishing a marine sanctuary has been started. This process was initiated about nine months after we started the process in Blongko. We wanted to focus on developing experience in Blongko first, and learn from that experience before starting a similar initiative in other field sites. Tumbak is also one of two villages where an integrated management plan is being prepared. In Tumbak, public education events and several early actions were implemented as part of the initial ICM planning process. The community submitted a proposal and carried out a mangrove

replanting scheme in the mangrove forest immediately behind their village. They also requested assistance with purchasing rocks for a retaining wall on a river bank to protect a drinking water tank under construction. Normally, the community would have mined coral for the wall, but instead, decided to purchase land-based rocks as a reef protection measure. Tumbak also participated in a coastal tourism study tour and is viewing marine sanctuaries as a potential tourism destination. They are also considering the development of mangrove tours and boardwalks. The project also provided partial support to the International Marinelife Alliance, and NGO working with cyanide fishers, for follow-up activities of a training initiative designed to reform cyanide fishers to switch to the use of nets for aquarium fish collection. The Project also initiated several Crown-of Thorns (COTs) clean-ups with the community after environmental surveys discovered unusually high numbers of COTs and rapidly increasing numbers in several reef locations.

The stakeholders groups for the development of the marine sanctuary are primarily community residents and include spear fishers, aquarium fish collectors, bomb fishers, and residents who moor their fishing boats on the shoreline immediately in front of the proposed sanctuary area. The community initially proposed three areas for marine sanctuaries: one in front of the village, one near an uninhabited offshore island, and one on a reef shoal between the island and the mainland. All these sites have similar reef conditions with excellent total live coral cover - greater than 75 percent. Due to the complexity of developing sanctuaries in three areas simultaneously, and potential problems of enforcement of the far the offshore sites, the technical team recommended that the community start with the site in front of the village first, and if successful, then consider expanding to additional locations as well. The community has agreed to this recommendation and the marine sanctuary location was agreed to in a formal village meeting.

The third and final series of courses on coral reef mapping and monitoring is being completed in Tumbak, and villagers from Blongko are being used as assistant trainers. Tumbak representatives have also made cross visits to Blongko to learn about the process of marine sanctuary establishment there. Visitors from Apo Island, Philippines, have also given presentations concerning their marine sanctuary experience in Tumbak. Tumbak is now in the process of drafting an ordinance. Unlike Blongko, they will allow boats to pass over the sanctuary area, but no anchoring and fishing or marine life collecting will be allowed. In addition, the sanctuary will not extend all the way to shore. Acknowledging existing use, a buffer zone along the shoreline where boats can be moored is under consideration.

### **The Long-Term Scaling-up Strategy**

While the short-term goal is to develop a community-based marine sanctuary model and document how they can be implemented effectively, the long-term goal is to promote such models as part of a provincial and/or national coastal management extension program where they can be replicated and adopted throughout the province and nation. Our vision of the future, perhaps 20 years from now, is one where every coastal village has a marine sanctuary, and every coastal village can and is developing ordinances to



deal with other specific coastal management issues such as coastal tourism, erosion control and protection, etc., in addition to establishing marine sanctuaries.

The concept currently being discussed to achieve this vision is some form of a decentralized coastal management extension program. It is being proposed that such a program be voluntary similar to coastal management programs in the United States and similar to how the Philippine Local Government Code also provides for local authority over marine resources management. In such a program, coastal communities can choose to participate or not. While planning and decision making is done at the village level, technical support, training and facilitation of the planning process is provided by a lead government agency. The major responsibility for decision making and determining how the resources are to be managed would be delegated to local communities. However, communities would need to follow a set of broad guidelines and policies established by the program. For instance, in the development of a marine sanctuary, the area selected must be permanently closed to fishing and other extractive uses; the area selected must have a high level of live coral cover; and, a high level of community participation involving all key stakeholders must be ensured for developing the village ordinance to establish the sanctuary. The location of the sanctuary, size, allowable uses (e.g. diving, passage of boats on the surface, etc.), management committee structure, and penalties for violations, are decided by the community. The lead agency is responsible for ensuring plans and ordinances are developed and implemented within these parameters, but allowing a broad level of discretion by the community of how they are actually implemented. As an incentive to establishing marine sanctuaries, villages following these guidelines would then be eligible for implementation block grants.

### **Reflections and Lessons Learned from the Management and Planning Process**

The process of developing one sanctuary at a time in our field sites has worked well. It has allowed resources to be concentrated to ensure the first sanctuary was established properly, with appropriate public process and sufficient technical inputs. The cross visits between communities has seemed to increase the speed at which acceptance of the marine sanctuary concept has occurred. Therefore, disseminating experience after establishment of an initial successful pilot site is recommended. Community members and fishers talking to other community members and fishers is often more persuasive than accepting the views of a community outsider, however well intentioned they might be. In retrospect, it probably would be better to do more public education events early on than we actually implemented, and have a public education strategy in place at an earlier period in the sanctuary planning process. In addition, line government agencies such as fisheries, forestry and the provincial-level Regional Development Planning Board, although informed and supportive of activities, have only occasionally involved their staff in actual field activities. This is a lost opportunity for these agencies to learn the details of the marine sanctuary planning process. Engaging the local line agencies more in the next round of field site marine sanctuary establishment is being attempted, and will help with the second phase of the project strategy which is a scaling-up of the concept as part of a provincial coastal management extension program.